

THE MOTE OF MARK

A Dark Age Hillfort in South-West Scotland

A photograph of a large, forested hill with a small building at its base. The hill is covered in dense green trees and shrubs, with some rocky outcrops visible at the top. A small, dark-colored building with a gabled roof is situated at the base of the hill, partially obscured by the vegetation. The foreground shows a rocky, gravelly area with some sparse grass and a fallen log.

Lloyd Laing
and David Longley

THE MOTE OF MARK

A Dark Age Hillfort in South-West Scotland

Lloyd Laing and David Longley

with contributions from Jennifer Bourdillon, Ewan Campbell, Peter Crew,
Susan la Niece, Ray Page, George Smith and Niamh Whitfield

Oxbow Books

Published by
Oxbow Books, Oxford, UK

© Oxbow Books, Lloyd Laing and David Longley 2006

ISBN 978-1-84217-217-9

Front cover: The Mote of Mark viewed from the south.

*This book is published with the aid of a grant
from Historic Scotland.*

Historic Scotland is now Historic Environment Scotland.

Contents

List of Tables
List of Figures
List of Colour Plates
Acknowledgements

1	Introduction	1
	The site and the background to the excavations	1
	The excavations of Alexander Curle, 1913	3
	The excavations of 1973 and 1979: aims and rationale	3
2	The stratigraphic evidence of the 1973 and 1979 excavations	6
	Context groups and sequential phases	6
	Phase 1: pre-rampart activity	6
	Animal bone	7
	Metalworking evidence	7
	Artefacts in pre-rampart contexts	7
	Phase 2: construction of the ramparts	7
	The north rampart	8
	The south rampart	11
	Phase 3: occupation within the defences	14
	The southern part of the central hollow: the area excavated by Curle in 1913	14
	The principal structures	14
	Phase 4: destruction of the ramparts and possible late occupation post-dating rampart slighting	22
	A reprise of the sequence	22
	Radiocarbon dates	22
	Phase 1: pre-rampart activity	23
	Phase 2: the rampart	23
	Phases 3 and 4: occupation contexts and the abandonment of the site	24
3	Metalworking evidence	25
	Introduction	25
	Metalworking equipment	26
	Crucibles	26
	Crucible stand	32
	Clay bivalve moulds	32
	Stone ingot moulds	35
	Metalworking residues and processes – <i>Peter Crew</i>	36
	Slags and other metalworking residues	36
	Ores	38
	Metallurgical processes indicated by the slags	38
	Tuyère	39
	Gold	39
	Gold wire coil – <i>Niamh Whitfield</i>	40
	The examination and analysis of the gold coil – <i>Susan la Niece</i>	41

Catalogues	41
Catalogue of crucibles	41
Catalogue of clay moulds	50
4 The evidence of the artefacts	75
Introduction: the distribution of artefacts and refuse within the area of the central hollow	75
Distribution through the sequence	75
Distribution across the site	78
Copper-alloy castings	85
Finished artefacts, ingots and waste	85
Iron objects	86
Lead objects	90
Miscellaneous artefacts of bone, stone, jet and glass	90
Worked and utilized bone	90
Bone fragment with runic inscription	92
Stone	93
Quartz objects	96
The worked flint and chert finds – <i>George Smith</i>	97
Discussion and dating	99
Glass and paste objects	101
Jet objects	102
Imported glass and pottery – <i>Ewan Campbell</i>	104
Early medieval glass	104
Early medieval pottery	109
Summary of all Early Medieval imports	113
Catalogues	113
Copper-alloy objects	113
Iron objects	114
Lead objects	116
Bone objects	116
Stone objects	117
Quartz objects	118
Retouched flint artefacts	118
Jet object	119
Glass artefacts other than vessels	120
Early medieval glass	121
Vessels	121
Catalogue of vessel sherds listed individually	122
Pottery	125
Roman Samian sherd	125
B ware amphorae	125
D ware mortarium	125
E ware	125
5 Animal bones – <i>Jennifer Bourdillon</i>	133
Introduction	133
Methods	133
Distribution across the site	133
The condition of the material	133
The recovered assemblage	134
The domestic mammals	134
The wild mammals	138
The bird remains	139
The absence of fish	140
Signs of pathological irregularities	141
Conclusions	141

6	The objects cast in the clay moulds	142
	Introduction	142
	The range of objects	142
	Penannular brooches	142
	Buckle loops, buckle plates, strap fittings and shanked objects	144
	Pins	145
	Studs or rivets	146
	Decorative plates and bosses	146
	Axe-blade shaped plates and roundels – a special category	148
	Decoration: general considerations	151
7	Discussion and synthesis	157
	The background: South-west Scotland in the sixth and seventh centuries	157
	Territorial and administrative divisions	158
	Peopling the landscape	159
	Rheged	160
	Irish and Pictish presence	164
	Secular settlements	165
	The Angles in South-West Scotland	166
	Historical evidence	166
	The Anglian presence at the Mote of Mark	167
	Status and the social context of the Mote of Mark	169
	Location and topography	170
	Locational associations	171
	Defences	171
	Structures	171
	Material culture	172
	Economy and status	173
	The economy of the Mote of Mark	174
	The workshop	174
	The agricultural regime	174
	Trade and exchange: continental imports	177
	Trade and exchange: small items and raw materials	178
	Conclusions	179
	 Bibliography	 180
	 Index	 188
	 Colour Plates	

List of Tables

- | | | | |
|----|---|----|---|
| 1 | Sequential phases at the Mote of Mark | 16 | Summary of representation of vessel glass in context groups |
| 2 | Artefact type, size and density of grits | 17 | Identified bone fragments (number count) |
| 3 | Registration marks | 18 | Identified bone fragments (weight) |
| 4 | Summary of representation of slags and ores in context groups | 19 | Unidentified fragments |
| 5 | Summary of representation of crucibles in context groups | 20 | Relative representation of main domestic mammals |
| 6 | Summary of representation of clay moulds in context groups | 21 | Epiphyseal fusion in cattle |
| 7 | Summary of representation of copper alloy objects in context groups | 22 | Ageing by mandibles for cattle |
| 8 | Summary of representation of iron objects in context groups | 23 | Distribution of bones over the body in cattle |
| 9 | Summary of representation of bone objects in context groups | 24 | Selected measurements of cattle |
| 10 | Summary of representation of stone and quartz in context groups | 25 | Cattle withers heights (in m) by Fock's (1966) factors |
| 11 | Flint assemblage summary | 26 | Epiphyseal fusion in sheep/goat |
| 12 | Retouched pieces | 27 | Ageing by mandibles for sheep/goat |
| 13 | Summary of the representation of flint in context groups | 28 | Distribution of bones over the body in sheep/goat |
| 14 | Summary of representation of glass in context groups | 29 | Selected measurements of sheep (in mm) |
| 15 | Summary of representation of jet in context groups | 30 | Epiphyseal fusion in pig |
| | | 31 | Ageing by mandibles for pig |
| | | 32 | Distribution of bones over the body in pigs |
| | | 33 | Selected measurement for pig |
| | | 34 | Stud dimensions |
| | | 35 | Rheged place-names in the early Taliesin poems |
| | | 36 | Animal bones from early medieval sites |
| | | 37 | Status indicators |

List of Figures

- 1 The location of the Mote of Mark and site plan
- 2 The Mote of Mark, views from the south and the north
- 3 A: The Mote of Mark showing areas excavated and explored by Alexander Curle in 1913. B: The Mote of Mark, showing visible extent of ramparts and main area of excavation in 1973 and 1979
- 4 A: Section through North rampart, W face; B: View of North rampart from the south
- 5 North rampart, 1979 excavation
- 6 Mote of Mark: north and south rampart sections
- 7 North rampart, 1973 and 1979 excavations
- 8 South rampart, longitudinal section and interpretation
- 9 Central hollow, south part, showing principal features
- 10 Simplified cross-section of principal features and horizons in the area of the 1913 excavations
- 11 Section of 'clay floor' and underlying deposits
- 12 Plan of the northern central hollow, showing principal features
- 13 Diagrammatic representation of the chronological evidence (including radiocarbon determination)
- 14 Crucibles 1
- 15 Crucibles 2
- 16 Dog-dish crucibles
- 17 Surface discolouration on crucible sherds (chart). Comparison of the thickness in cross section of primary and secondary moulds.
- 18 Stages in the construction of bivalve moulds.
- 19 Bulk iron and billets
- 20 Moulds: bosses
- 21 Moulds: curvilinear panels
- 22 Moulds: decorated rectilinear panels
- 23 Moulds: Penannular brooches
- 24 Moulds: pins 1: decorated pins
- 25 Moulds: pins 2: nail-headed pins
- 26 Moulds: Buckles
- 27 Moulds: studs
- 28 Moulds: stud caps
- 29 Moulds: plain plates
- 30 Moulds: 'Axe-blade' fragments
- 31 Moulds: fittings
- 32 Moulds: Miscellaneous
- 33 Chart: a) representation of artefact types as percentage of total; b) incidence of artefacts in areas A, C and north and south parts of the central hollow B.
- 34 Chart: Fragmentation of artefacts in contexts representing phases in the site sequence
- 35 Chart: Comparison of the representation of artefacts in the north and south areas of the central hollow
- 36 Chart: Comparison of artefacts recorded in 1913 and those from contexts representing the backfill of the 1913 excavations
- 37 Artefact distributions: moulds and crucibles
- 38 Artefact distributions: glass and pot
- 39 Artefact distributions: ore and slag
- 40 Selected copper alloy artefacts
- 41 Iron tools and socketed items
- 42 Iron tools, bars, rods and attachments
- 43 Lead, bone and antler artefacts; runic inscription on bone
- 44 Inscribed stones
- 45 Stone objects
- 46 Quartz, glass beads and settings
- 47 Worked flint and chert artefacts (including barbed and tanged arrowhead and other retouched pieces)
- 48 Artefact distributions: flint and animal bone
- 49 Jet and shale artefacts
- 50 Early Medieval imported glass vessels.
- 51 Early Medieval imported glass vessels: lid, bowl, beakers, jug
- 52 Reconstructed E Ware jars
- 53 Reconstructed E Ware vessels, lid, bowl, beakers and jug
- 54 Reconstructed objects cast in moulds. A: Buckles; B: Penannular brooches; C: pins
- 55 Reconstructions of decorative plates cast in the moulds on the site
- 56 Decorative metalwork from the Mote of Mark and horse-gear from Sutton Hoo, Lagore and Whithorn compared
- 57 An index of decorative motifs employed in moulds
- 58 Settlement patterns in south-west Scotland in late prehistory and the early historic period
- 59 The Mote of Mark in relation to the historic kingdom of Rheged and its literary evidence

List of Colour Plates

- | | | | |
|---|--|----|-------------------------------------|
| 1 | Mote of Mark, general view from the S | 8 | Axe blade mount mould 1104 |
| 2 | Mote of Mark, general view from the N, showing the tumbled rampart stonework | 9 | Interlace-decorated mould 1094 |
| 3 | North rampart, from the S, showing make up | 10 | Penannular brooch mould 1130 |
| 4 | South rampart, viewed from the S, showing burnt core | 11 | Penannular brooch mould 1128 |
| 5 | The three-sided structure excavated by Curle, from the W (p.18) | 12 | Buckle loop mould 1122 |
| 6 | Roundel mould 1103 | 13 | Buckle loop mould 1212 |
| 7 | Roundel mould 2273 | 14 | Decorative plate mould 1114 |
| | | 15 | Mould with scroll decoration 1117 |
| | | 16 | Crucible showing outer coating 2021 |
| | | 17 | Bone with runic inscription 2252 |

Acknowledgements

We would like to thank all the people who made the excavations at the Mote of Mark possible, and contributed specialist reports. First, we would like to thank the National Trust for Scotland who permitted the excavations to take place on a site in their care. Secondly, we would like to thank those whose grants paid for the excavations and post-excavation work, notably Liverpool University, the Society of Antiquaries of Scotland, the Mouswald Trust, and Sun Group newspapers. The cost of publication of this volume was defrayed by contributions from Historic Scotland, the National Trust for Scotland, The Russell Trust, The Mouswald Trust and The Society of Antiquaries of Scotland. We were given much practical help in 1973 by Dumfries Burgh Museum and its curator, Mr A E Truckell. The National Museum of Scotland provided facilities for the examination of the material from the 1913 excavations and we are

particularly grateful to Trevor Cowie and Alison Sheridan for their considerable assistance on many occasions and to Angela Evans of the British Museum for providing access to material from Sutton Hoo. On site, the co-director in 1973 was Mrs Jennifer Laing. We are greatly indebted to the specialists who contributed to this volume. In addition, we wish to acknowledge the advice of Prof John Hunter, Prof Leslie Alcock, and Dr Geoff Brown of the Dept of Geophysics, Liverpool University. Preliminary analysis of the bones was carried out by Nigel Brown and John Baker. The illustrations were prepared by David Longley and Andrew Smith. Dr Norman Swindells carried out the preliminary examination of the metallurgical material. Lastly, we owe a debt to all those who helped in the excavation on site in 1973 and 1979, without whom the work could not have been done.

1 Introduction

The site and the background to the excavations

The Mote of Mark is a low boss of granite rising 45m above the eastern shore of Rough Firth where the Urr Water enters the Solway, at NGR NX845540. The site now lies between the two villages of Kippford and Rockcliffe, seven kilometres south of Dalbeattie in Dumfries and Galloway Region (Figs. 1–2).

The summit comprises a central hollow between two raised areas of rock and was formerly defended by a stone and timber rampart enclosing one third of an acre. The seaward approach is precipitous where rocky slopes fall virtually to the shoreline. The landward gradient is more gentle and it is conceivable that this approach was provided with stronger defences than have hitherto been recognised. The defences are now reduced to very low spreads of tumbled stone at best and in places cannot be traced at all. The site commands an extensive panorama of the estuary and its coastline with unbroken views across the Solway to the Cumbrian coast. Inland the view is rapidly restricted by the rising ground of Mark Hill and Grennan Hill.

The Mote of Mark appears to have first attracted the attention of antiquaries in the late eighteenth century when Riddell recognised vitrified stone to be rampart material fused by the action of heat (Riddell 1790). By 1893, Coles was able to remark on the previous occurrence of many small excavations at the site (Coles 1893) and, as if in testimony to these early investigations, a single sherd of E ware is catalogued in the National Museum collections as ‘from the Mote of Mark, Colvend, Stewartry of Kbt., Robt. Service, 1890’.

The site first assumed national importance with Alexander Curle’s major work in 1913 (Curle 1914). Curle was then employed as Investigator with the Royal Commission on the Ancient and Historical Monuments of Scotland and interest arose from his survey for the RCHAMS *Inventory of the Stewartry of Kirkcudbright* (1912), which summarized knowledge to date. The reason for Curle’s investigation was his interest in the phenomenon of vitrified forts in the region, and the Mote of Mark was selected as a suitable site to excavate in order to determine whether or not vitrified forts were of the same date in this area as in north-east Scotland. He began his excavation with the belief that the site must be of Early Iron Age date. His son, Col. Curle, informed the

authors in 1973 that he had taken part in the excavations as a boy, and that in keeping with the custom of the time the work was carried out for the most part by labourers, occasionally visited by Curle himself. Curle planned to continue his work in 1914, but was prevented by the outbreak of World War I.

Curle excavated in the southern part of the central hollow, sectioned or exposed the rampart in at least nine locations and carried out restricted examination of localised areas north and west of the western summit area and on rock ledges on the southern face. His rich haul of metalworking and occupation debris, which included clay mould fragments, crucibles, metalwork, wheel-made pottery and imported continental glass, have ensured the place of the Mote of Mark as a key site in studies of the period. Curle concluded that two phases of rampart construction were represented. His suggested first rampart comprised a massive stone wall which he associated with a brief occupation in the early centuries AD. His dating rested on the evidence of two sherds of apparently Roman pottery from within the area of the defences. This wall was thought to have been succeeded by a second, partially vitrified, rampart. Curle associated this second rampart with a main period of occupation which he took to be around the ninth century AD on his stylistic assessment of the decorated clay moulds. Despite the fact that his comparanda for the decorated moulds were Anglo-Saxon and datable to the seventh century, as he himself was aware, he concluded his report with an evocative account of the end of the occupation co-inciding with the arrival of Viking longships in the ninth century.

At the end of the excavation finds were deposited with the then Museum of Antiquities in Edinburgh (now part of the Royal Museum of Scotland), though a few items were deposited with Dumfries Burgh Museum and a considerable number appear to have been given away. The authors were informed of a private collection of mould and other fragments that still exists in the area, but were unable to trace its present whereabouts.

Curle’s interpretation of the site stood until 1956. In that year Dr D B Harden re-examined the glass from the excavations and concluded that it must date ‘from the sixth to the early eighth century’ and to have belonged to the first of two supposed occupational phases on the site (1956, 151). In the same volume Dr Ralegh Radford identified one of the pieces of pottery as being of his newly-defined Class D in his catalogue of imported pottery

The Mote of Mark: A Dark Age Hillfort in South-West Scotland

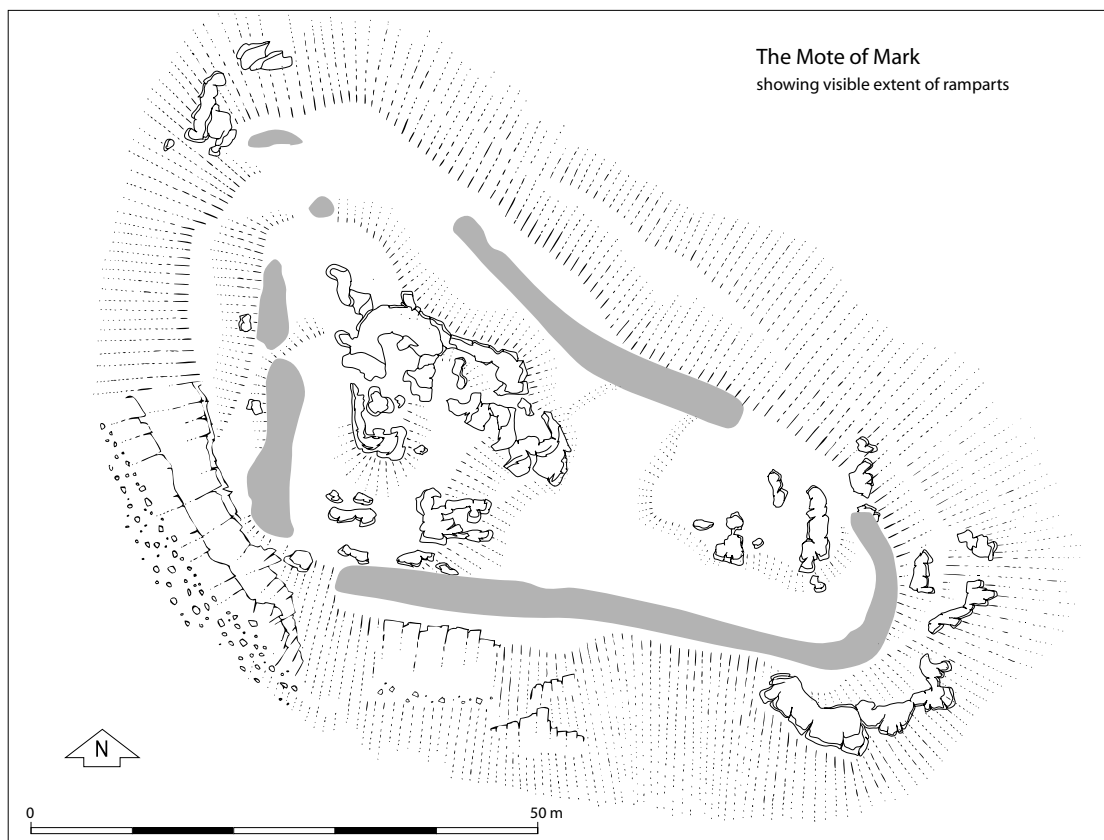
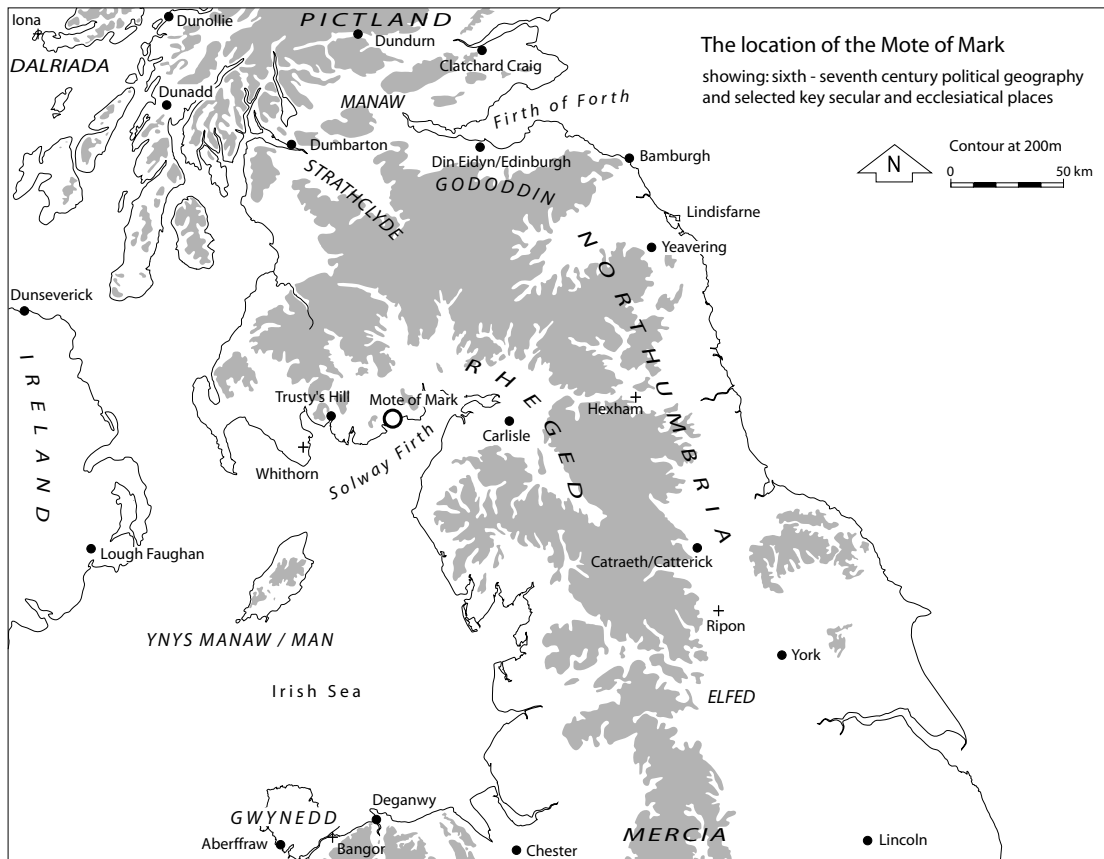


Fig. 1. The location of the Mote of Mark and site plan.

of early medieval date from Western Britain (Radford, 1956, 63–4). Further study of imported pottery by Charles Thomas defined Class E, and included the Mote of Mark in the inventory of sites on which it had been found (Thomas 1959, 109). Nevertheless, the proposition that occupation continued at the Mote of Mark until the ninth century, and that the first phase of occupation belonged to the pre-Roman Iron Age, persisted among some commentators (as argued by Feachem 1963, rev. ed. 1977, 129). Despite the re-attribution of the Class D imported mortarium sherd to the post-Roman period, the single samian sherd from the site continued to be brought in evidence for the continuing use of an Iron Age site into the Roman period.

The evidence for the manufacture of decorated attachments, brooches and pins should have been of primary importance in our understanding of metalworking and stylistic developments in the Celtic west, much of which still depends on the typological assessment of unassociated stray finds. Commentators have been reluctant, however, to accept Curle's stratigraphical observations without reservation in default of convincing support from published site records. The excavations of 1973 and 1979 were designed to resolve three specific problems generated by the earlier investigations. The questions addressed were as follows. Firstly, how many phases of activity are represented in the structural history of the defences? Secondly, how many phases of activity are represented by the evidence for Early Medieval metalworking and occupation? Thirdly, how does the evidence of occupation within the defences relate to the structural history of the defences? In each case evidence was sought for the establishment of a chronology for the site – either objectively by radiocarbon dating or in the stratigraphical association of artefacts.

The excavations of Alexander Curle, 1913

Alexander Curle was attracted to the potential of excavation at the Mote of Mark while examining the site during his compilation of material for the Royal Commission inventory of the ancient monuments of Kirkcudbrightshire (Fig. 3A). His excavation concentrated on the depression between the two raised prominences of the hill. This 'central hollow' describes an area approximately 20m (east-west) by 10m (north-south) between the north and south ramparts and flanked on the west and east by the two knolls of the summit. A low spur outcrops from each of these knolls, constricting the area and creating a demarcation between the north and south of the hollow. The southern half of this depression appears to have been almost completely excavated over an area of 55ft (16m) west to east by 25ft (8m) north to south where a loose, deep, dark, soil, productive of a dense growth of nettles, was found to be particularly rich in animal bone fragments. 'The soil lay to a depth of about 3 feet 6 inches, diminishing in depth as it approached the limits

of the area. The accumulation of soil since the site was occupied was apparently about a foot, as very few relics were found in this top stratum. From this level downwards, but chiefly in the upper portion of the deposit, there was recovered a large and varied collection of relics, consisting of flint flakes, portions of moulds of baked clay, fragments of glass, pieces of crucibles, objects of iron, of bone, and of bronze, and shards of domestic pottery' (Curle 1914, 140).

In addition, a number of localised and exploratory trenches were opened, including: diagonally across the central hollow; both north and west of the western summit; across the projecting plateau at the west end of the hill; on rock ledges on the southern face and amongst the loose rampart tumble on the more gentle northern slopes. The northern rampart was sectioned at six points and the southern rampart was exposed at three points.

Curle did not publish plans of his trenches except in two instances on the north rampart and one on the south rampart. He did plan features where he encountered them, aiding recognition of the same features during re-excavation in 1973 and 1979. The deposits appear to have been completely excavated over most of the area except in the vicinity of structural features. The procedure in such instances seems to have been to dig around features, leaving islands of more-or-less intact stratigraphy. However, as Curle observed: 'though a careful note was made of the important relics as they came to light, and though the soil was removed and handled in layers, no definite stratification was observable, or distinctive character in the objects recovered from the various levels'. Curle intended to excavate again in 1914, but was prevented by the outbreak of World War I.

The excavations of 1973 and 1979: aims and rationale

In 1973, a total of approximately 120 sq m was excavated in a series of relatively discrete areas (1 to 19) (Fig. 3B). The intention was to establish the potential for the identification of a stratigraphic sequence on site and to correlate any such sequence with the observations of Curle. The rampart was sectioned on both the north and south sides. The complexity of the deposits within the rampart on the south side was such that the excavation was halted in this area before completion, under pressure of time.

In 1979 two areas were opened (1 and 2) of approximately 63 sq m and 69 sq m respectively. The former was designed to complete the excavation of the south rampart, unfinished in 1973, and the latter was designed to supplement the north rampart section obtained in 1973 and to correlate the rampart sequence with that of the interior.

Discernible stratigraphy was encountered within the area excavated in 1973 and 1979 with the exception of a large part of the hollow on the south side. Here, inter-

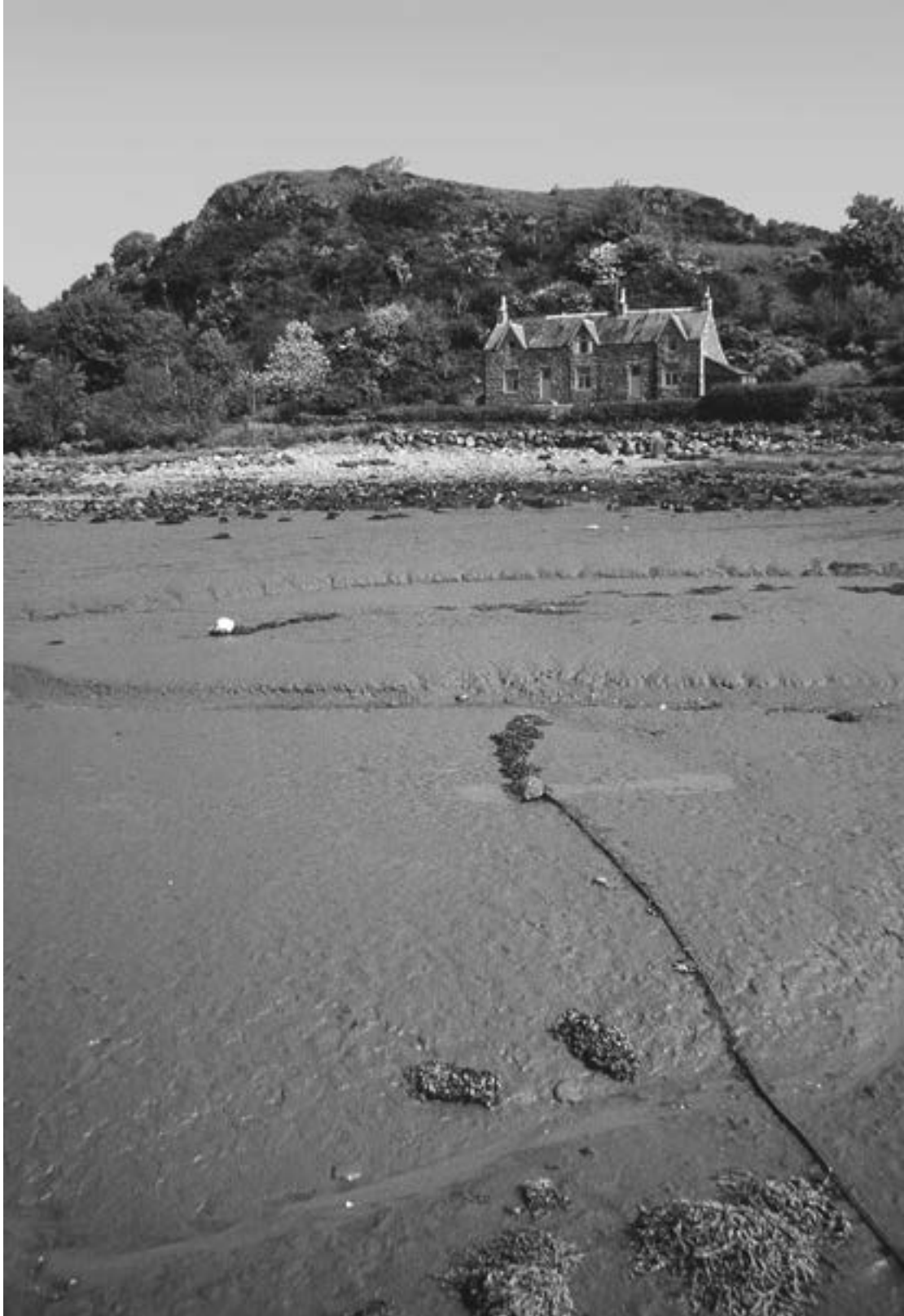


Fig. 2. The Mote of Mark, view from the estuary.

pretation of the sequence was confused by an unsorted jumble of material resulting from the backfilling of the 1913 excavations. Pockets of apparently undisturbed

stratigraphy survived in the immediate vicinity of major structural features and at the base of the trenches opened in 1913.

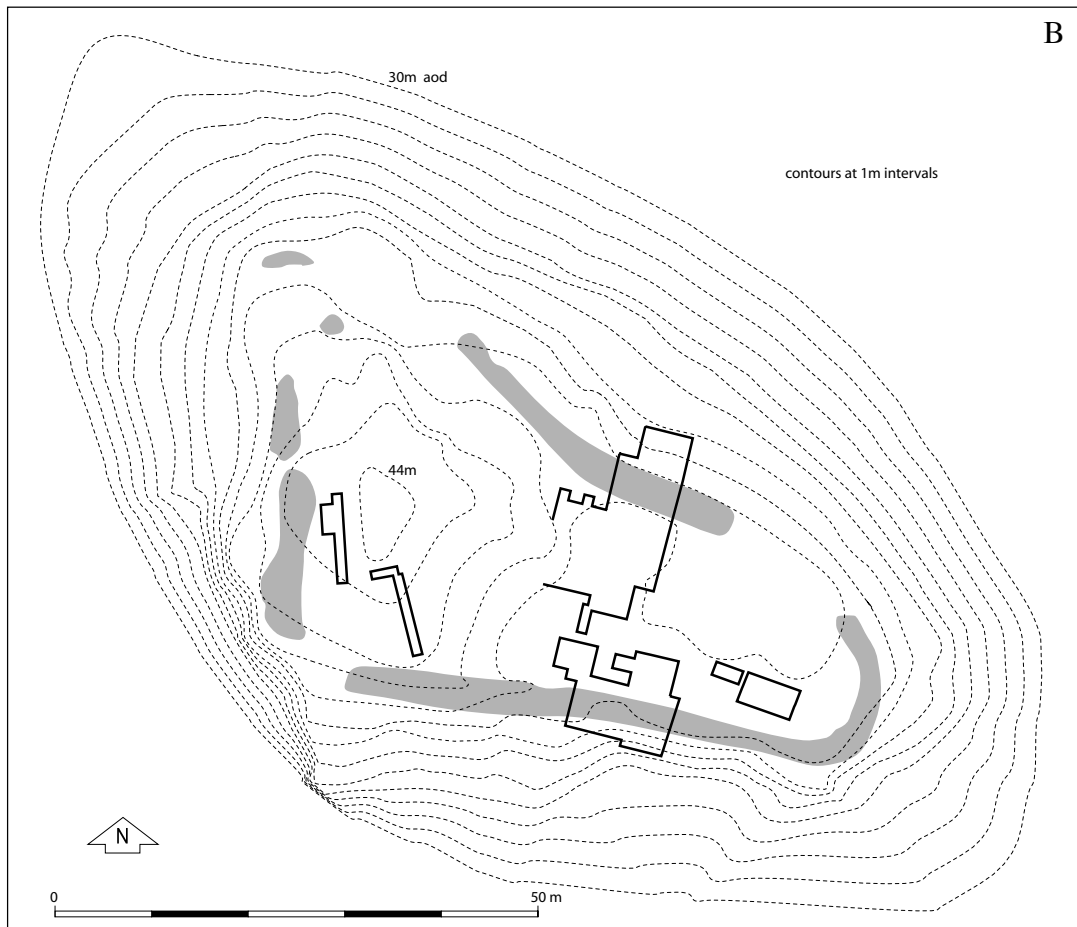
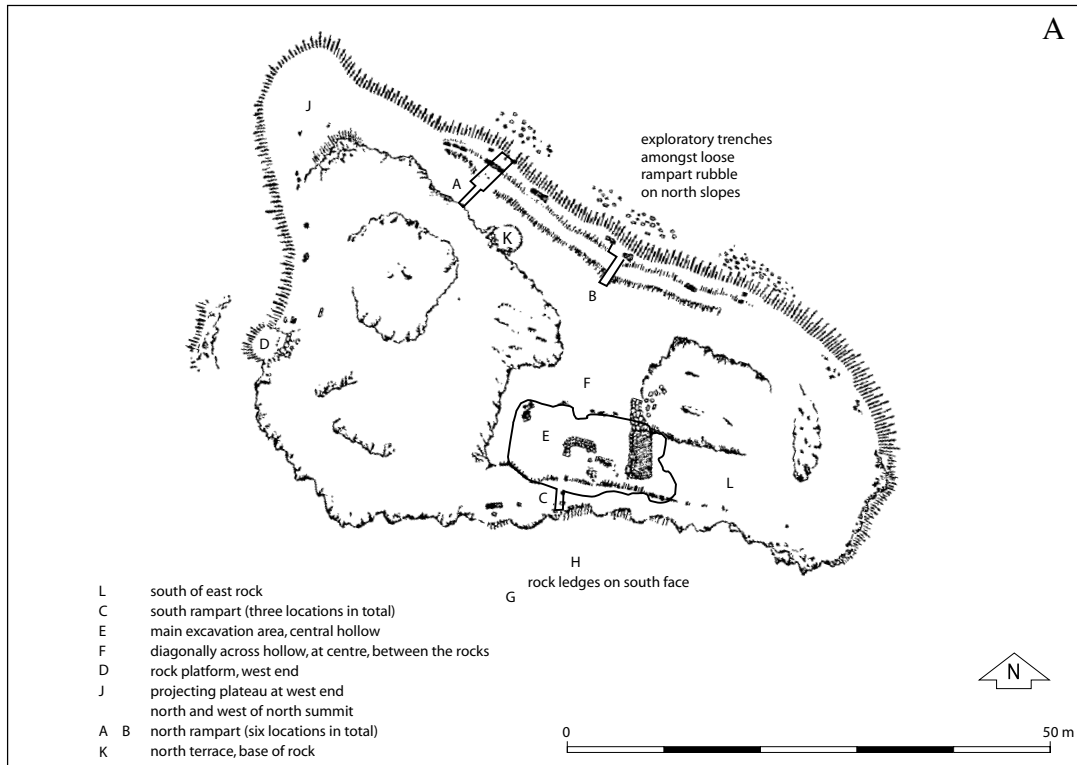


Fig. 3. A: The Mote of Mark showing areas excavated and explored by Alexander Curle in 1913 (plan after Curle 1914). B: The Mote of Mark, showing visible extent of ramparts and main area of excavation in 1973 and 1979.

2 The Stratigraphic Evidence of the 1973 and 1979 Excavations

Context groups and sequential phases

Where deposits had been disturbed, as was the case, for example, with backfilled material from the 1913 excavations, a procedure of excavation by 5cm ‘spits’ was adopted. Where clear stratigraphic distinction was observable in the accumulation of occupation deposits, the contexts were excavated stratigraphically. The context designations reflect this procedure and have been retained in the stratigraphic matrix, on archive. However for the purposes of discussion and interpretation, they have been rationalised into a series of context groups. These context groups in some cases correspond to the main events (broadly equivalent to phases) of the site sequence. In other cases, they necessarily span such phases. For example, it is no longer possible to assign the material from the 1913 excavations to anything other than a general position in the sequence with the exception of a small number of artefacts which were singled out for individual discussion by Curle. Table 1 summarises the relationship between the phasing and context group designations used in the following discussion.

Phase 1: Pre-rampart activity

The irregular surface of the granite bedrock outcrops at the western and eastern limits of the central hollow. It may originally have also done so in a narrow ridge extending east from the western edge of the hollow and immediately beyond the front face of the rampart at the break of slope to the shoreline. A sticky clay, varying in colour from orange-brown to dull grey, occurs in spreads and fills hollows in the granite. The pre-occupation soil profile is represented by a leached, light brown/copper brown soil. This is most clearly recognised beneath the north and south ramparts where it is sealed by rampart material. No recognisable early ground surface survives except, perhaps, in a restricted area under the south rampart and beyond the front face of the north rampart. In deeper depressions in the bedrock, as, for example, under the south rampart, a dark soil has formed over and around detached portions of granite. Occasional mineral pans occur over the bedrock in the interior.

Some activity must have taken place on the hill before the construction of the defences if only to set out the line

Phases		Context groups	
1	Occupation and activity pre-dating the construction of the rampart	1a	Pre-rampart contexts
		1b	Earliest stratified contexts within the interior
2	Construction of the rampart	2	Lowest constructional contexts at base of rampart
		2b	Components of rampart make-up
3	Occupation and metalworking within the ramparts	3a	Contexts stratified beneath clay dump in area 1. Earliest stratified contexts in Area 2
		3b	Latest stratified contexts in interior. It is probable that most of the material from context groups 6 and 8 is also representative of this phase
4	Destruction and slighting of ramparts; disturbance of latest <i>in-situ</i> occupation contexts in interior	4	Contexts representing the spread of rampart material within the interior
4b	Possible late occupation, post dating rampart slighting	4b	Contexts representing the clearance of rampart debris from the interior to the periphery of the central hollow
5	This phase post-dates the abandonment of occupation of the hillfort	5 & 7	Contexts representing the build-up of deposits post-dating the abandonment of the site including recent disturbance and the spread of spoil from the 1913 and other excavations. Group 7 includes material within the topsoil
6	1913 excavations	6	Contexts representing backfill from 1913 excavations
		8	The assemblage recovered by Curle in 1913

Table 1. Sequential phases at the Mote of Mark.

and determine the character of the interior dispositions. The evidence for such activity, pre-dating, or contemporary with, the constructional phase of the rampart is represented by:

- animal bone fragments incorporated in the rampart make-up and in contexts sealed by the rampart
- fragments of slag in a deposit incorporated in the construction of the rampart
- a small number of artefacts in association with the earliest stratified contexts on site and in particular, those sealed by the rampart.

Animal bone

Curle commented on the very large quantities of animal bone occurring within the dark soil of the southern part of the central hollow (1914, 127, 166). Significantly, he also recognised the presence of animal bone 'in the actual rampart at several places and at its base' (1914, 165). This seemed to him to be an indication of the secondary nature of the rampart. The excavations of 1973 and 1979 similarly recorded animal bones within the make up of the rampart and in a significant concentration in one of the earliest stratified contexts sealed by the rampart on the south side (B17 (12)).

Metalworking evidence

Seven fragments of slag were recorded in a light brown soil close to the base of the rampart sequence on the south side of the central hollow. This deposit (B17 (13)) overlay B17 (12), the layer containing bone in some quantity. A mould for casting an interlace decorated roundel (2273) was recorded embedded in a charcoal layer forming part of the constructional sequence of the rampart on the south side.

Artefacts in pre-rampart contexts

A basal sherd of an E ware beaker (2270) was recorded from a brown soil context which formed part of the early soil profile on which the south rampart was founded (B17 (9) = 38). A large fragment of imported glass (3155) occurred in a brown clayey soil overlying orange clay in a pocket in the bedrock beneath the south rampart (area 1(3)). This brown soil was immediately overlain by charcoal and fire-cracked stone. At this point the rampart section shows signs of considerable disturbance where decomposed and fire-cracked stone is overlain by the loose dark soil of the 1913 excavations' backfill. Having regard to the possibility of contamination, the glass fragment was, nevertheless, clearly recorded as stratified beneath this disturbance in a context predating the construction of the rampart.

The brown soil contexts, B17 (9), 38 and B17 (12) are all considered to have formed before the rampart on the south side was built. They correspond to context 15 on the north side of the central hollow which had similarly formed over clay and bedrock in this area and on which

the north rampart was built. The E ware sherd, the glass and the animal bone are, therefore, associated with contexts which predate rampart construction. The status of context B17(13), however, is less certain. Some levelling appears to have been effected at the time when timbers were laid at the base of the south rampart. Context 33 in the drawn section (Fig. 6) represents this stage in the process and B17(13) containing slag, may also represent introduced material at the inception of rampart construction. The charcoal layer, in which the decorated mould fragment was recorded, is a component of the structure of the rampart.

Two further artefacts must be taken into consideration in discussing activity that could pre-date the rampart. These are two joining sherds of a B1 eastern Mediterranean amphora recorded in a context associated with disturbance of the latest occupation and a single sherd from a D ware mortarium recovered during the 1913 excavations. The amphora is of early sixth century date; the mortarium may be of mid-sixth century date. The amphora sherds are earlier than any other dateable artefact on site (excepting the flintwork). Nevertheless, these vessels occur in a context which is contemporary with the destruction rather than the construction of the rampart. Therefore, unless casual later loss is invoked to account for the sherds, they must either derive from the disturbance of an earlier context or, quite possibly in the case of the amphora, represent the extended life-span of a useful container (see below). However this may be, the single instances of B amphora and D mortarium sherds allows the possibility that some activity took place on the rock during the early to mid-sixth century. The presence of glass broadly dateable to the sixth/seventh centuries and an E ware sherd of the later sixth century in stratified contexts earlier than the construction of the rampart takes this phase of activity into the second half of the sixth century.

Phase 2: construction of the ramparts

The rampart that encloses the summit of the hill has long been in a denuded state. It is most clearly visible to the north and south of the central hollow; it is barely traceable at the north-west and south-eastern extremities of the summit. Where the line of the rampart can be established it is recognisable as a low turf-covered bank or break of slope. Tumbled stone on the flanks of the hill, however, both on the north side and at the base of the steep rocks on the south-west, are suggestive of the original scale of the defences. Riddell recorded vitrified stone at the Mote in 1790 (Curle 1914, 127) although Coles, at the end of the nineteenth century, failed to find any evidence (Coles 1893). Curle's initial investigation for the Ancient Monuments Commission and subsequent excavation confirmed the presence of vitrification. Curle considered the vitrified wall to be secondary to an originally massive, but subsequently dilapidated, drystone rampart.

The north rampart (Figs. 4–7)

The rampart to the north of the central depression, although recognisable as a turf-covered bank, survived in the modern period to a height of barely 0.45m above the present ground surface. Considerable quantities of tumbled stone, on the other hand, had accumulated on the slope of the hill below the rampart. This flank is now overgrown, but at the turn of the century, when there was clearly far less vegetation on the north face (Curle 1913, Fig. 2), the approach could be described as ‘an almost uniform slope of stones extending from the summit... unbrokenly for some sixty feet’ (Coles 1893, 95). Curle recognised that these ‘masses of boulders to a depth of many feet...were the ruins of a massive wall’ and it occurred to him (1913, 128) that ‘the ...material was probably sufficient for two walls’. A break of slope some 10 metres below the main rampart enhances this impression of an additional line of defence on this more accessible approach to the site.

The north rampart was ‘cut into’ at six places in 1913 and similar constructional components were found in each case. The following summary is an abridgement of Curle’s observations:

At the outer edge there appeared a kerf of boulders behind which rose a structureless rampart of earth and stone. A ‘roughly built wall’ was recognised, for the most part of grey granite and firmly coagulated with vitrified matter from top to bottom. This vitrification occurred at 3 feet 6 inches or thereby inwards, was about 1 foot 6 inches in thickness, showing at most a height of some 3 feet. No vitrification appeared in any other part of the thickness of the rampart although the incidence of vitrification along the length of the rampart was sufficiently regular as to leave no doubt of its original continuity ‘and of its structural character’. Adhering to some of the stones there appeared to be a quantity of coarse sand, giving the surface a granular texture, and a considerable amount of gritty sand was observed in the composition of the rampart. For about one foot back from the vitrified wall the sub-soil was burned red, as also was sand which lay above it near the base. On neither face of the wall was there any appearance of charcoal, which might have been left from brushwood piled against it to form a fire.

The north rampart was sectioned again in 1973 and 1979, immediately to the east of one of the 1913 trenches. Initially, a 5m band was exposed, allowing the concentration and distribution of vitrified material to be recorded in plan. The differentiation of certain structural components was also identifiable at this stage. Complete excavation of the rampart was restricted to half the total width exposed (Figs. 4–7). The observations of 1913 can be supplemented accordingly.

An extensive spread of burning was recorded immediately in front of the rampart on the slopes of the northern face of the hill. This burning comprised charcoal from twigs and small branches mixed with earth and lay directly on the orange gritty subsoil and brown clay which

covers the bedrock in this part of the site. A localised mixed deposit of brown earth and orange gritty soil overlay the charcoal spread. This deposit had accumulated before the majority of the rampart stones had tumbled on to it. One possible explanation might be to see this burning as representing an initial clearance of vegetation on the slopes of the hill. In this case the orange gritty soil might be seen to be subsoil upcast, created during the setting-in of the rampart revetment and thereby sealing the clearance burning. A possibly comparable deposit of orange brown clay was recorded behind the rear revetment. Against this argument, it was noted that the spread of burning on the north slope was concentrated in front of the front revetment and tailed off within 3 metres, becoming mixed and diffuse. An alternative interpretation might then see the burning as part of the process of firing the rampart which produced the vitrification. In which case the incorporation of reworked subsoil in the soil matrix overlying the burning might equally be the result of disturbance at the front face following the firing. A discontinuity in the charcoal spread immediately in front of the rampart might be a further indication of this disturbance, perhaps an attempt to undermine the front face of the rampart.

The structure of the north rampart comprised the following elements (Figs. 5–6). First, a front revetment of dry-stonework (40) was established, over 1m wide and possibly battered on its outer face. This revetment, which corresponds to a boulder kerf identified by Curle, was partially dug into the original ground surface at the break of slope. A mound of stone was then piled up against, and raking back from, the revetment wall over a spread of 2.4m. This deposit included granite blocks and beach boulders but was chiefly composed of small beach pebbles (average size 200mm diameter). The rear revetment wall (19) was then established to complete a rampart width of 4m. This rear revetment now survives as a single course of quarried granite blocks. The upper courses of the body of the rampart were built up by adding large water-worn boulders brought up from the beach. Curle observed a similar ‘coping, or crown of large round boulders’ in the rampart on the north side near the east end and beach boulders formed a comparable element in the make-up of the rampart on the south side. The maximum surviving height of the rampart at present is 1m, although the quantity of tumble on the northern slopes, exceeding 1 m. in depth at the limit of excavation, suggests that it once stood considerably higher than this.

Wood, apparently carbonised through natural decay rather than combustion, was identified in 1913 on the subsoil at the base of the rampart, on either side of the vitrified core (Curle 1914, 134). In three instances Curle supposed the fragmentary remains to be those of posts, although no coherent structural detail was recognised. Otherwise they were thought to represent planks or beams. No earthfast timbers were recorded in the admittedly limited 1973 and 1979 sections although localised spreads



A



B

Fig. 4. A: Section through North rampart, W face; B: View of North rampart from the south.

of charcoal were recognised at the level of the subsoil. The remains of a lateral beam were recorded beyond the front revetment, partly overlying tumbled rampart material and partly overlain by it. Immediately behind the revetment wall, the stones of the core of the rampart were firecracked and burnt.

A considerable amount of vitrification occurred at the

interface of the front revetment wall and the core of the rampart. This capped and fused fire-cracked blocks of granite and, in places, extended through the surviving height of the rampart to its base. The phenomenon corresponds to the vitrified wall observed by Curle, 3 feet 6 inches in from the outer face (1913, 130). The concentration was most solid and continuous at a height

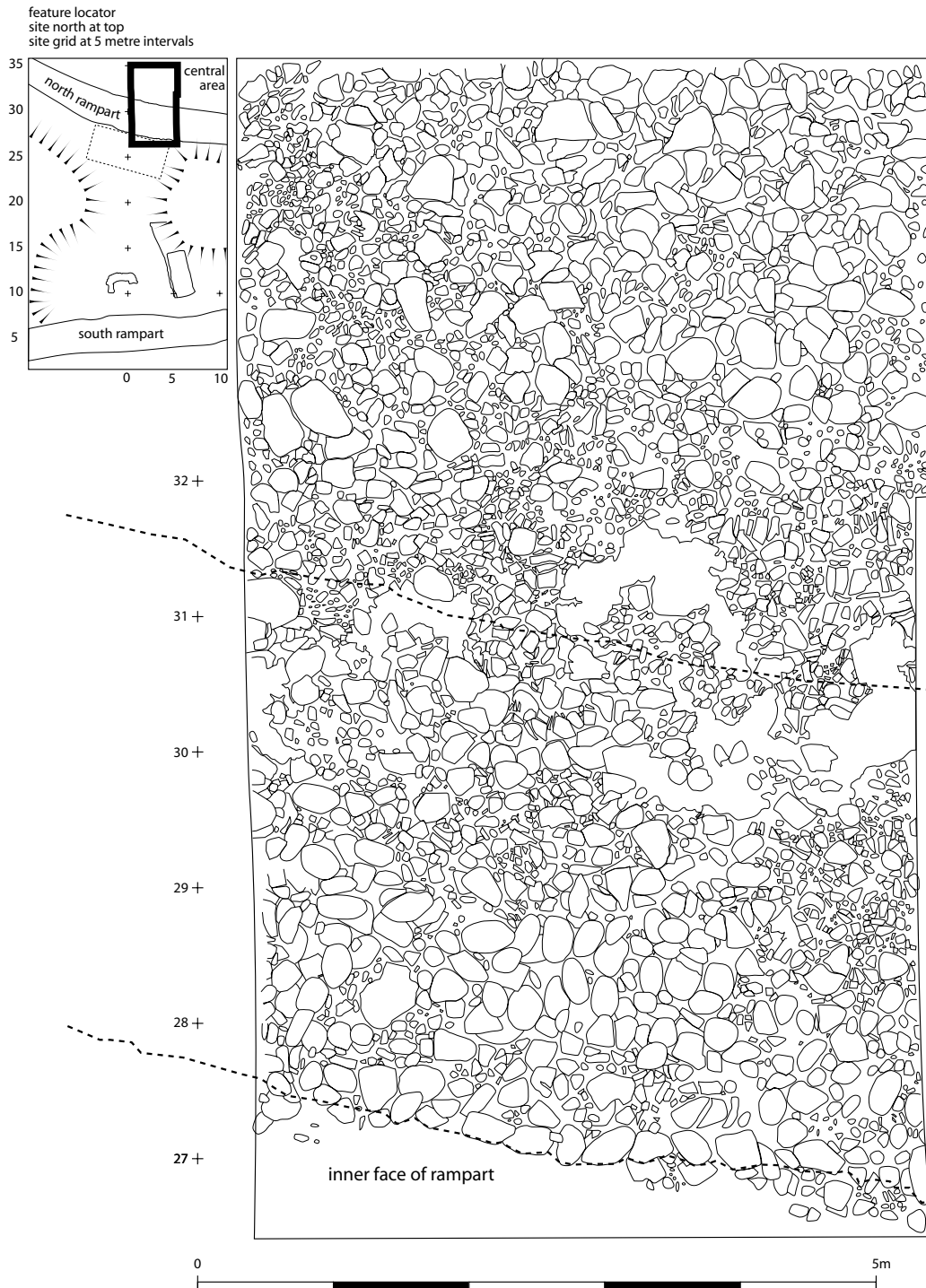


Fig. 5. North rampart, 1979 excavation (alignment of outer and inner faces indicated by broken lines).

of c.500mm above the base of the rampart (above this the rampart had been destroyed in antiquity) and occurred intermittently among the tumbled stones beyond the outer face. The character of the vitrified material, over-riding the front revetment, overlain by tumbled rampart in places and itself having run in a molten state over stones which

appear to have already fallen from the rampart, suggests that the firing and demolition of the rampart proceeded more or less at the same time.

Curle noticed that 'for about 1 foot back from the vitrified wall the sub-soil was burned red, as also was the sand which lay above it near the base'. This phenomenon

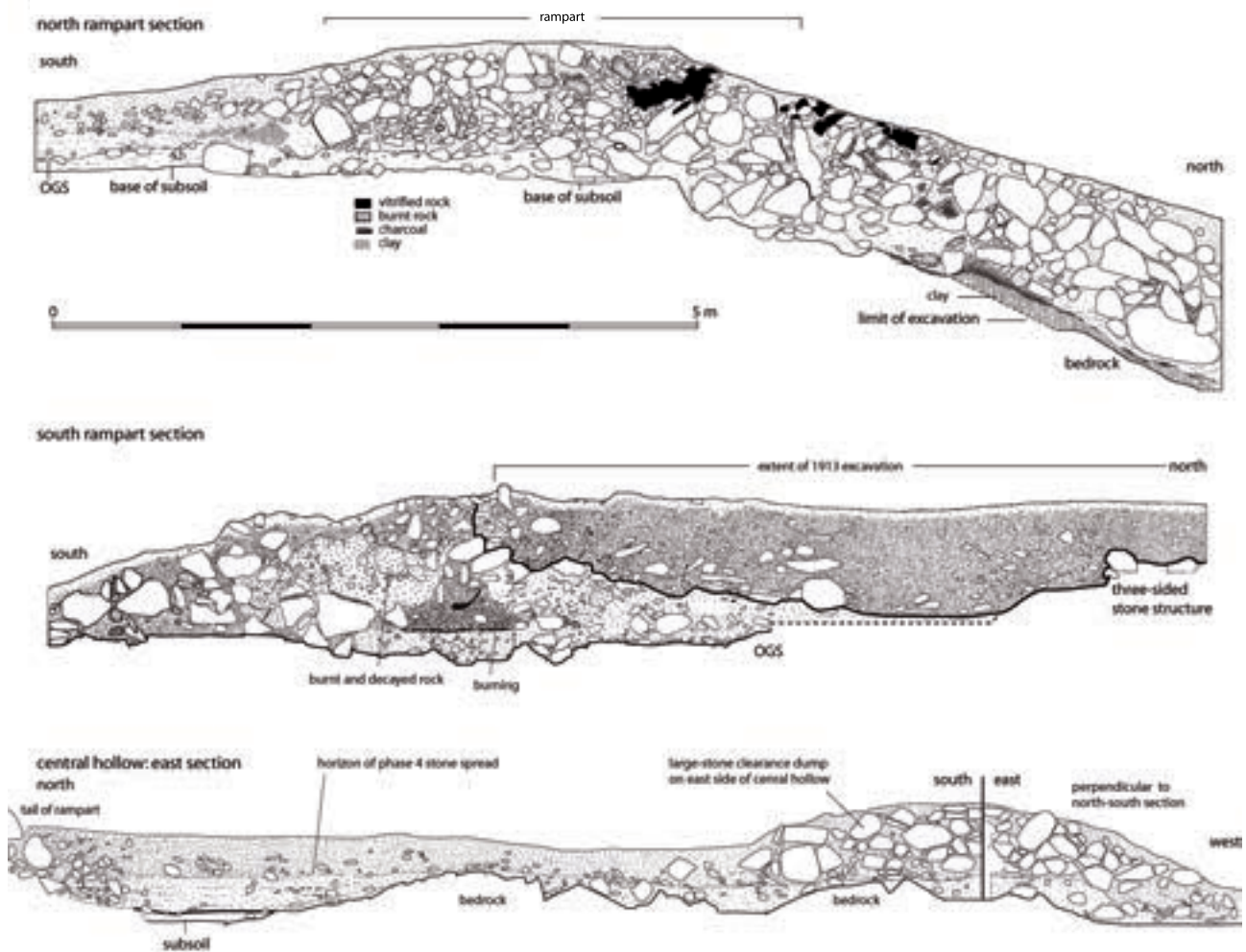


Fig. 6. Mote of Mark: north and south rampart sections.

was more clearly visible in the 1979 section through the rampart on the south side. Curle also noticed, in his sections through the north rampart, a quantity of coarse sand which adhered to some of the stones giving the surface a granular texture. This component, which was observed in both the north and south ramparts in 1973 and 1979, appears to be the result of the decay, exacerbated by the action of heat, of a particular granular rock used in the construction of the rampart.

The south rampart (Figs. 6 and 8)

The rampart on the south side of the central hollow barely survives above the present ground surface. Curle observed that it was 'lost to west and east where the rock comes to the surface'. He 'laid bare' the rampart at three places on this side. In 1973 and again in 1979, the surface of the rampart was exposed over an area of 60 sq m. A depression on the line of the rampart, indicating disturbance to the structure, a back-filled breach or, possibly, an original entrance at this point, was investigated in 1973. The southern limit of Curle's excavation trench in the interior

was identified, demonstrating that encroachment had been made on to the rampart itself. The intact rampart to the west and east of this disturbance was not excavated. A cross-section of the intact rampart was recorded on the western side of this area, however, and a lateral cross-section of the disturbed rampart deposits was also recorded.

In contrast to the north rampart, where the front face was set beyond the break of slope on the northern flank, the defence on the south side was founded on relatively level ground. This would necessarily have been the case as the slope to the shoreline on the south side of the hill is particularly steep. Nevertheless, the pre-rampart ground surface undulated somewhat to reflect variations in the underlying bedrock and some levelling is noticeable in the lowest courses of the rampart make up (for example, context 33). Timbers were laid horizontally both longitudinally and transversely, on the ground surface and on the bedrock. The horizon is characterised by considerable evidence of burning. Introduced material had been laid over this horizon as part of the process of levelling.

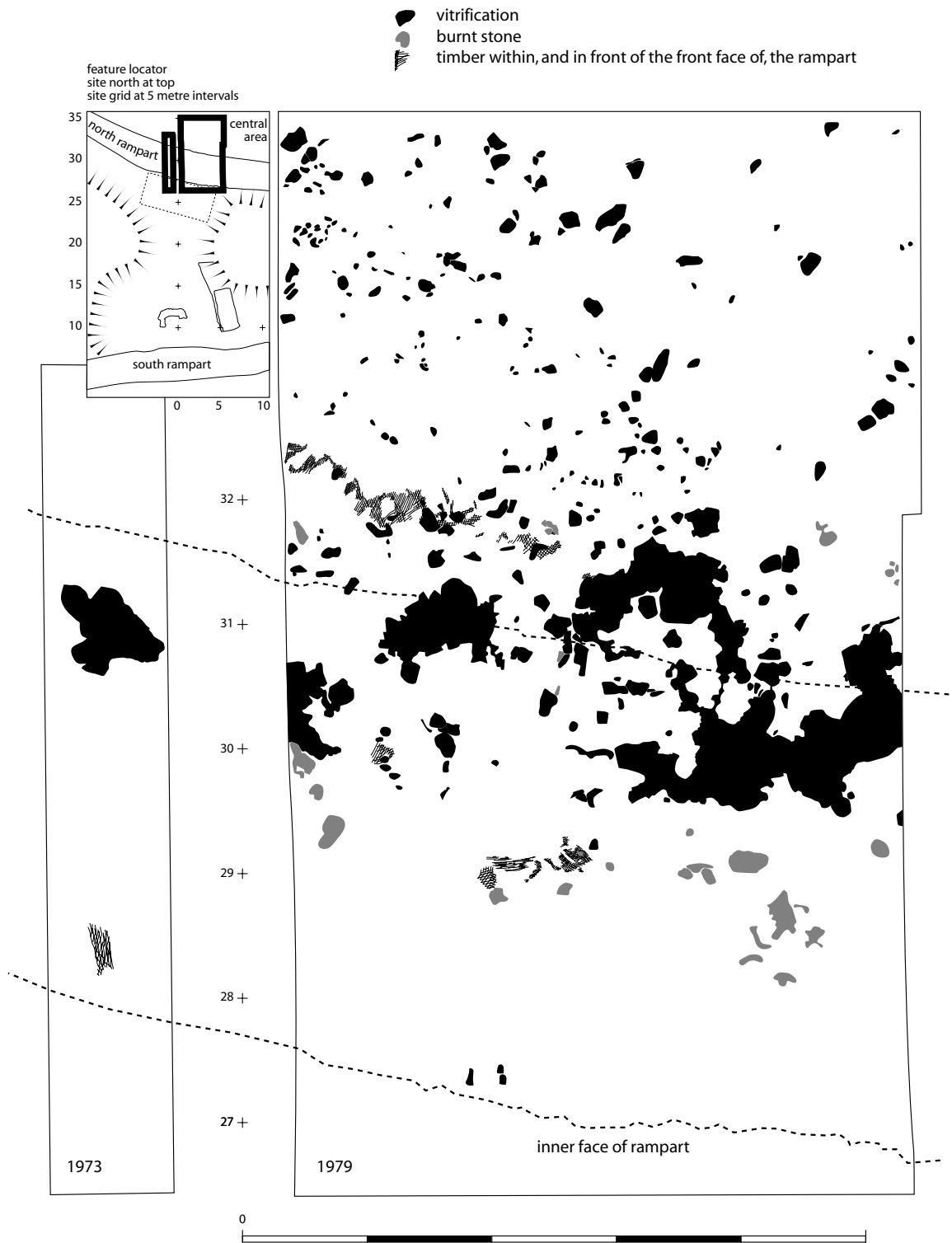


Fig. 7. North rampart, 1973 and 1979 excavations (alignment of outer and inner faces indicated by broken lines).

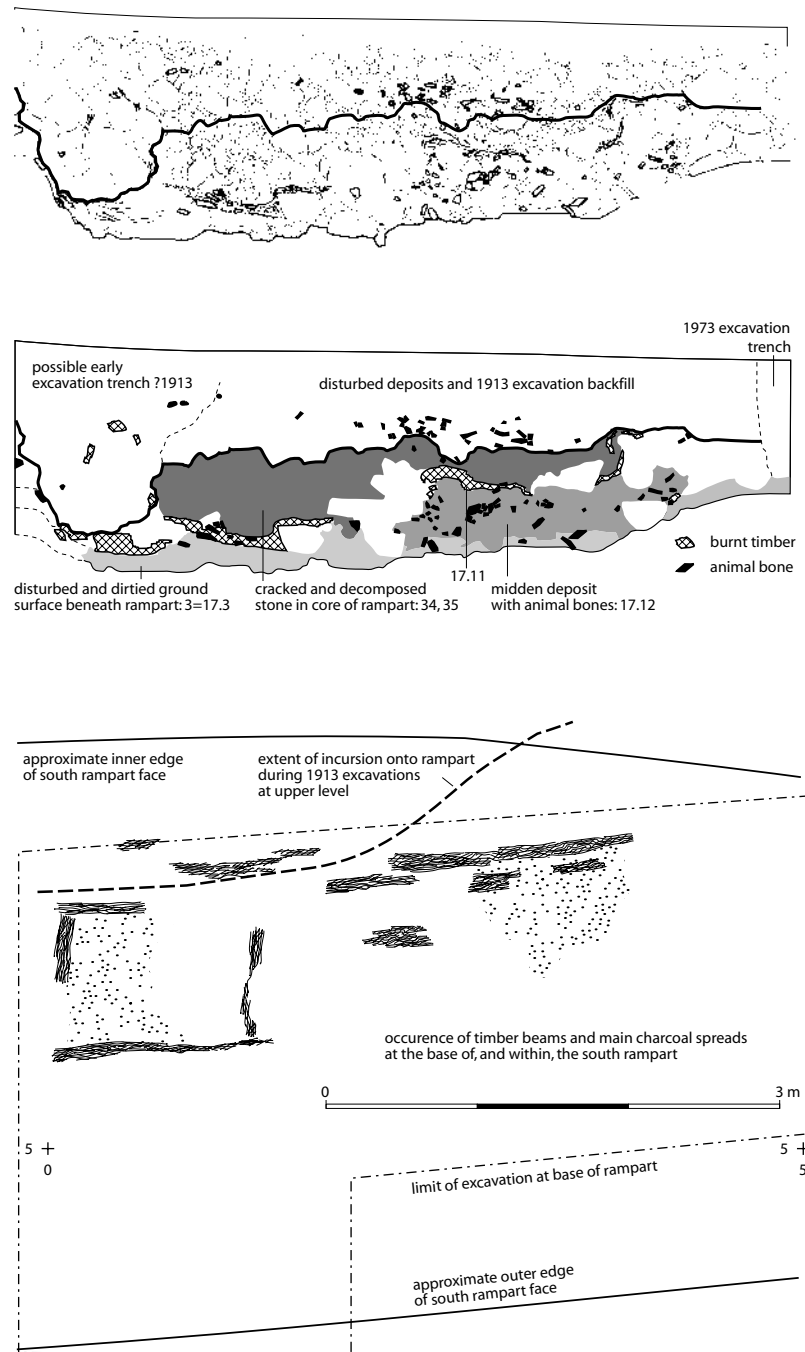


Fig. 8. South rampart, longitudinal section through rampart deposits and interpretation.

The front face of the rampart is less clearly discernible than that of the rampart on the northern side. Nevertheless, it may be represented in the transverse section by a single course's depth of large granite blocks, set on subsoil at a point where the bedrock approaches the surface. The core of the rampart comprised a concentration of large blocks immediately behind the front face and, behind and overlying these, deposits of smaller material, decayed, fire-cracked and burnt red through

the action of heat. Vitrification is barely evident, recognisable in only a few localised instances. Lengths of burnt timber occur in the longitudinal section, cracked and distorted through the weight of collapsed core material. The stratigraphy of the upper courses of the rampart is confused as a result of encroachment at this point during the 1913 excavations. However, the rampart appears to have been capped by large beach boulders in similar fashion to the rampart on the north side.

Phase 3: occupation within the defences

The excavations of 1973 and 1979 investigated an area of 110 sq m inside the north rampart and re-visited an area of 50 sq m, previously explored by Curle, behind the south rampart.

The southern part of the central hollow: the area excavated by Curle in 1913 (Fig. 9)

Alexander Curle's excavations within the defences concentrated on the area in the south part of the central hollow. Here there was 'a very black earth, bones in great quantities and a considerable quantity of stones, indicating', Curle believed, 'that there had been stone buildings on the summit, of which a clay floor and a stone platform to the north of it were the foundations' (Curle 1914, 166). To the west of the 'clay floor', at a distance of 11 feet 6 inches (3.5m) Curle's excavations encountered the stone foundations of a three-sided structure which Curle took to be 'a forge or workshop, as remains of crucibles, larger and thicker than those found elsewhere, were unearthed in its immediate vicinity, also iron objects, pieces of haematite, and slag' (Curle 1914, 138). Other features of significance recorded by Curle within the excavated area included 'two beds of pure sea-sand' and a small circular hearth. The sand beds lay immediately to the south-east of the three-sided stone structure. The hearth, 'some 3 feet 6 inches (1.07m), formed of clay and burned red to a depth of about 4 inches (100mm)' lay 5m to the north-west of the three-sided structure, (Curle 1914, 138–9). All of these features are recorded on the general plan of the site published by Curle in 1914 (Curle 1914, Fig. 4). 'Though a careful note was made of the important relics as they came to light', in 1913, 'and though the soil was removed and handled in layers,' by Curle's admission 'no definite stratification was observable, or distinctive character in the objects recovered from the various levels' (Curle 1914, 166). Nevertheless, Curle makes frequent reference to the association or relationship of artefacts to the structural evidence or to certain observed horizons and an attempt will be made to relate these observations to the record made in 1973 and 1979 in the discussion below.

The principal structures (Figs. 9–11)

The 'clay floor' (Fig. 11)

This feature as recorded by Curle measured 17 ft by 6–7 ft (c.5m by 2m) with an average depth of around 12 inches (305mm). The clay appears to have been faced on its western side (Curle 1914, Fig. 4) with a row of boulders and 'at its north end, where it approached the rock, the floor abutted on a foundation of very large boulders, firmly planted on the original surface, with a little clay showing between them, and having its western face in alignment with the front of the clay floor'.

Remnants of the clay spread, described above, were identified in 1973, in approximately the position described

and planned by Curle. The feature appeared to have been dug into in places but was nevertheless recognisable as a compact deposit of orange clay streaked with grey. Stones, some shattered and with the appearance of having been burnt, were bedded in the clay. In 1914 the clay was described as occurring at a depth of 14 inches (356mm) below the 20th century ground surface. In 1973 the upper surface of the clay was recorded at a depth of between 440mm and 580mm. This discrepancy may easily be explained by differences in ground levels following back-filling in 1913 and by accumulation over an interval of 60 years. The average thickness of the clay deposit, recorded in 1913, at 305mm is within the range of 200mm to 310mm recorded in 1973. The clay sloped from north to south. A concentration of larger stones (up to 150mm diameter) was recorded at the western limit of the clay spread which may correspond to the facing described in 1914. A linear continuation of this alignment in a north-westerly direction was recorded in 1973, having the appearance of a kerb but with no indication of the spread of larger stones retained behind it which was described in 1914. Curle suggested that this 'foundation' of stones extended on to the adjacent outcrop of bedrock to the east (Curle 1914, 137–8). It would seem more likely, however, that this latter feature corresponds to a later clearance episode, when larger material was removed from the spread of debris within the interior of the fort and deposited against outcropping bedrock at the margins of the central hollow (see below, Phase 4).

Curle noted an almost complete absence of animal bone or artefacts in the 350mm or so of dark soil which overlay the clay feature and which he believed to have accumulated following abandonment of the site (Curle 1914, 137, 140). Beneath the clay, however, both artefacts and bone were recorded throughout the 'deposit of 7 or 8 inches (c.190mm) which overlay the natural surface'. Adjacent to the clay, 'especially between the south end of the clay floor and the sand bed [the dark post-occupation soil] overlay a deposit of stones lying unevenly and seemingly not *in situ*. From this level downwards, but chiefly in the upper portion of the deposit, there was recovered a large and varied collection of relics consisting of flint flakes, portions of moulds of baked clay, fragments of glass, pieces of crucibles, objects of iron, or bone, and of bronze and shards of domestic pottery' (Curle 1914, 140).

More specifically Curle observed that the majority of clay mould fragments occurred within the immediate vicinity of the 'clay floor' and at a depth of between 14 inches and 2 feet (356–610mm); that is, at the level of the clay floor (Curle 1914, 140). Mould fragments also occurred at the lowest levels recorded in 1913, but were much more scarce. Although Curle could perceive no distinction in quality or style between the fragments occurring in higher and lower levels, 'all the pieces of moulds for the richest ornaments came from the front or west side of the building represented by the clay floor

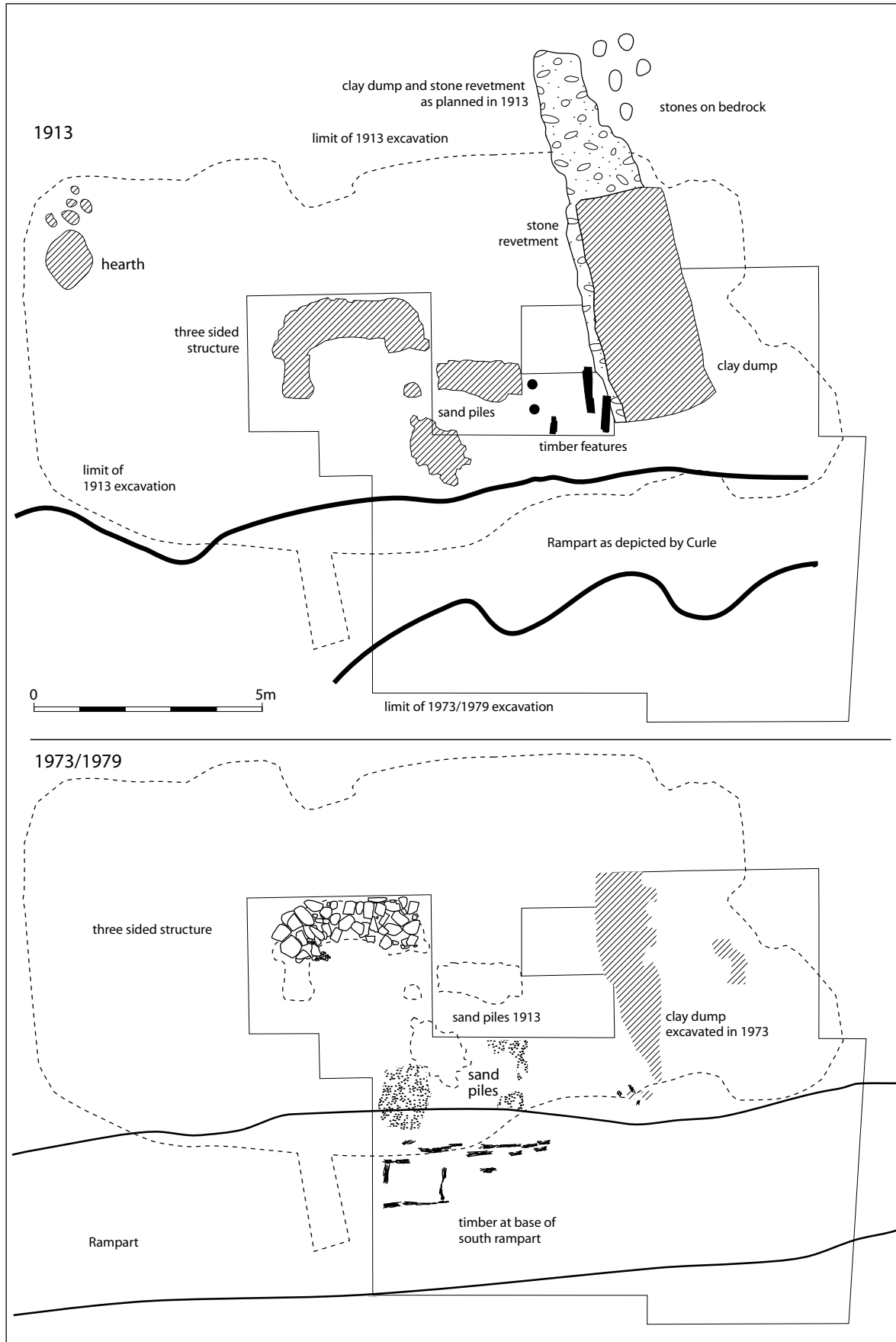
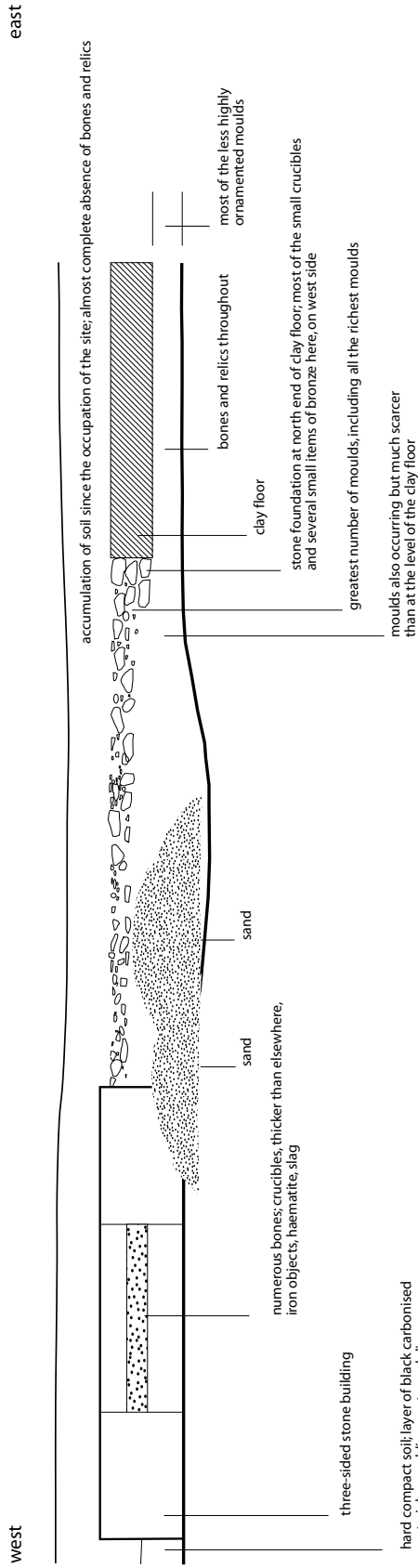


Fig. 9. Central hollow, south part, showing principal features.

a: sketch based on Curle's recorded dimensions



b: 1973 and 1979 excavations



Fig. 10. Simplified cross-section of principal features and horizons in the area of the 1913 excavations.

and the stone foundation, and especially towards its north end, while the less highly ornamented objects came for the most part from the east or opposite side of the same site, chiefly from a depth of about 2 feet, but some from the very bottom level' (Curle 1914, 144). This latter group includes moulds for penannular brooches but not pins, studs and objects of uncertain use which appear to have had a generalised distribution with, nevertheless, a concentration in the vicinity of the clay floor (Curle 1914, 144). The majority of the smaller crucibles recovered in 1913 were also recorded in this area, 'near to the stone foundation at the north end of the clay floor, especially on the west front' (Curle 1914, 157).

An analysis of the distribution of the artefacts recovered from the vicinity of this feature in 1973 and 1979 is necessarily distorted by the impact of previous excavation through the stratigraphic sequence in 1913 and the identification and removal of a large number of artefacts. Pockets of intact stratigraphy survived but the deposits, for the most part, comprised back-filled material from the 1913 excavations. Nevertheless, with these caveats in mind it is of interest to record that all the categories of artefact to which Curle makes reference were represented with the addition of one fragment of quartz, a jet ring and fragments of slag. Clay moulds predominated. Forty-five percent of all clay mould fragments recovered in 1973/1979 were from the immediate vicinity of the clay feature, within an excavated area representing 8% of the total surface area excavated in 1973–1979. Many of the fragments were very small indeed although a number exhibited diagnostic features.

These fragments included moulds for studs or rivets (2263, 2746), strap ends or strengthening plates (2260), the basal moulds for curvilinear edged plates and curvilinear plates with ribbed borders (2776, 2750), pins and pin shafts (2360), a possible interlaced decorated piece (2374) and a mould bearing the design of a pendant 'pear-drop' enclosing a raised triangular motif (2745). All of these categories of artefact were represented in contexts stratified beneath, and therefore earlier than, the 'clay floor'. Fragments of thin-walled triangular crucibles were also recorded from the same contexts. Further crucibles, both small, thin-walled, examples and one rim of a large shallow dish type occurred in disturbed contexts in the same area. A basal mould (2248) for casting a square terminal Class G penannular brooch was recovered from an area of disturbance on the east side of the clay feature. This is precisely the area identified by Curle as the findspot of the penannular brooch moulds recorded in 1913.

Interpretation

Having regard to the inevitable sorting of material resulting from the previous excavations it is, nevertheless, now possible to propose an interpretation of the sequence in the vicinity of the clay feature. Although Curle observed no definite stratification in the deposits on the south side

of the central hollow, he did however record artefacts in the horizon 'beneath' the floor 'throughout the deposit of 7 or 8 inches which overlay the natural surface, thus clearly establishing the secondary nature of the floor, (Curle 1914, 137). In 1973 a copper-brown soil was recorded at the base of the sequence, lying directly on the bedrock where it outcropped to the west and east of the clay feature. A number of small clay mould fragments, including one for casting the shafts of pins, were incorporated in this layer. Above this a black soil, sooty, incorporating charcoal, had accumulated or had been deposited to a maximum recorded thickness of 150mm. A further deposit of the same, or similar, material, distinguishable from the first by a concentrated lens of charcoal, overlay this soil to a total depth of 250mm above the copper-brown horizon. The clay spread, now disturbed and varying in thickness between 200mm and 300mm, overlay these deposits. The dark soil layers and charcoal lens can be reconstructed to show a distinct trend from north to south as a series of tip lines. The slope of the clay deposit follows this trend. The charcoal-rich, dark, sooty soil is more satisfactorily interpreted as the accumulation of detritus rather than a ground surface. Burning was obviously in evidence but given the context of the site, an industrial process is as likely an explanation as conflagration.

It is difficult, now, to agree with Curle that the clay spread represents the floor of a structure. Again, we might look to the nature of the industrial process evidenced at the Mote of Mark and suggest that the clay might in some way have been associated. It might plausibly be suggested that this was the raw material for the manufacture of moulds and crucibles, deposited on top of dumps representing the spoil from an earlier phase of metal-working. If this interpretation is accepted then the abandoned and unused clay dump represents a late, if not the latest, phase in the chronology of bronze casting on the site. The material stratified beneath it is necessarily earlier although the time-span need not be great.

The stratified artefacts incorporated in the black soil and charcoal lenses include thin-walled triangular crucibles (2268, 2267, 2344) a large lump of slag and numerous clay mould fragments including moulds for strap ends, attachments and strengthening plates (2262, 2261, 2260, 2761; curvilinear objects (2776, 2778) pin shafts (2360) studs or rivets (2268, 2748, 2746) and the piece with pear-drop and triangle motif (2745) described above.

The sand piles (Figs. 9–10)

Two beds of 'pure sea-sand ... remarkably free of foreign matter' were recorded in 1913, 3m west of the south end of the clay spread (Curle 1914, 138, 139, Figs. 10, 12). The larger of these two piles measured 7 feet by 2 feet 9 inches by 1 foot 8 inches in depth (2.13m by 0.84m by 0.5m). The second pile, immediately to the south-west of the first and adjacent to the rear of the rampart measured

5 feet by 4 feet by 13 inches (1.5m by 1.2m by 0.33m). A small deposit of shells lying to the west of the second sand-pile was consistent with the sand having been sieved to remove coarse material (Curle 1914, 139). Two spreads of sand and a small number of shells were identified during the 1979 excavations in approximately the location planned by Curle in 1913 (Curle 1914, Fig. 14). Neither deposit attained the depth observed by Curle although the surface dimensions of Curle's second (south-western) pile and the corresponding feature recorded in 1979 were very similar. The north easterly of the two deposits appeared more diffuse in 1979. The surrounding dark earth containing stone, bone and large fragments of burnt timber appeared mixed and very suggestive of reworked or back-filled deposits.

Interpretation

The sand had been introduced to the site for a specific purpose and would appear to have been treated to remove coarse components. Two possible options might be suggested. The sand could have been added to the imported clay, described above, as a filler in the manufacture of crucibles. There is no evidence, however, on microscopic examination, to suggest that sand was deliberately added to the matrix in the preparation of clay moulds. Alternatively, or perhaps additionally, the sand bed might have been used to support moulds during the casting process.

The three-sided structure (Figs. 9–10)

At a distance of 3.5m west of the clay spread, Curle recorded the remains of a dry-stone structure 'three-sided and slightly curved on its longest side... measuring within the walls some 6 feet by 4 feet. The wall at thickest had a breadth of 3 feet: it was laid on the hard subsoil and rose to a height of 2 feet (1.8m by 1.2m by 0.9m; height 0.6m) (Curle 1914, 138). Soil had apparently accumulated to within one course of the top of the structure, as it survived, and within this layer occurred numerous animal bones. 'Crucibles, larger and thicker than those found elsewhere' were recovered from the immediate vicinity, as were iron objects, haematite ore and slag.

This structure was re-excavated in 1973. Its location conformed to the description and plan published in 1914 (138). The structure appeared to have survived largely intact. However, some stonework, indicated on the published excavation plan at the southern end of the west side, was no longer in evidence and the maximum surviving height of the wall now barely attained 350 mm (10 inches). The stones, mostly in the range 300–400mm diameter, were loosely set on a compacted black soil which had been truncated immediately to the south of the stone setting by the 1913 excavation. This compacted soil survived only where it was overlain and protected by the setting of stones. Beneath this, and at the maximum depth of the 1913 excavation, a light brown soil was

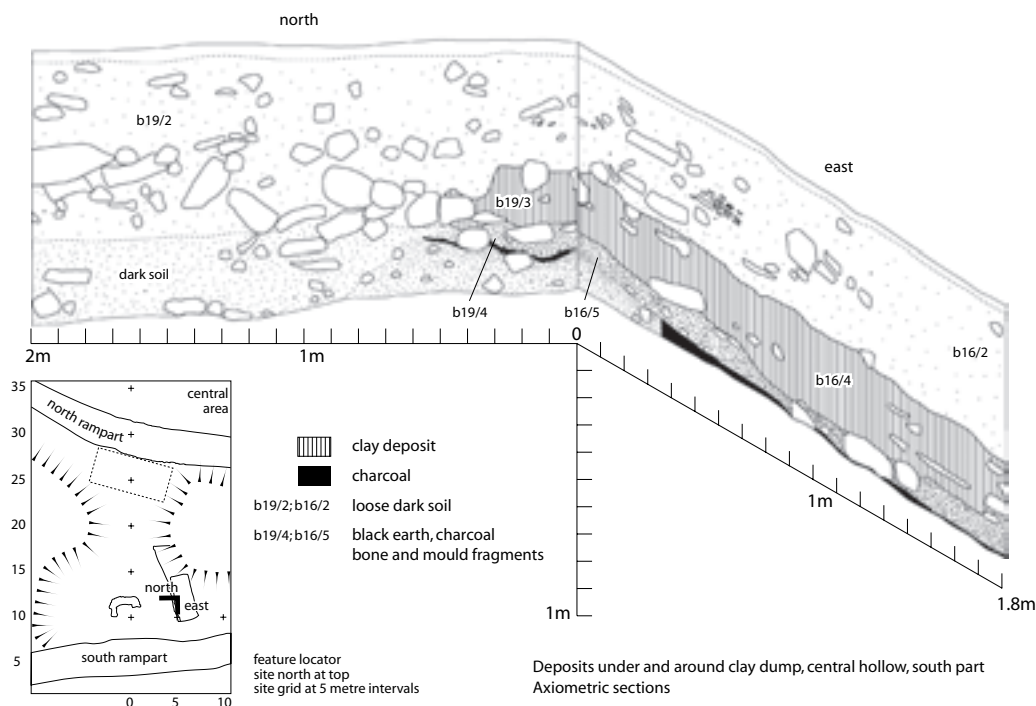


Fig. 11. Section of 'clay floor' and underlying deposits.

recorded. This deposit contained some animal bone but no recorded artefacts. It corresponds to the light brown layer incorporating large and small stone and animal bone identified at the tail of the rampart in 1979.

The 'three-sided stone structure' was immediately overlain and permeated with a loose and dusty, grey black sooty soil. This deposit could be differentiated from the reworked black soil which overlay it and which clearly constituted back-filled material from the 1913 excavation. The sooty black soil, in close association with the stone structure, incorporated flint flakes, both thin-rimmed and thick-walled crucibles, mould fragments (including moulds for casting domed studs (2037) and pin shafts) a fragment of slag, a small, dark blue, glass bead, a body sherd of E ware (2187) and the rim of a glass vessel decorated with an opaque white trail (2045). This last piece is a potentially important chronological indicator, paralleled at Whithorn in the later seventh century.

Interpretation

Curle considered the three-sided structure to be a forge or workshop. Crucibles, 'larger and thicker than those found elsewhere, iron objects, haematite and slag' were all found in its immediate vicinity. A 'layer of black carbonised matter resembling soot, and much lime', which Curle took to be indicative of iron smelting, was recorded on a compacted surface to the west, at the lowest level reached by the excavation (Curle 1914, 138).

Again, any consideration of the distribution of artefacts recorded in 1973 and 1979 must acknowledge the potential for resorting of deposits and the removal of artefacts in 1913. Nevertheless, the residual material in back-fill and the possibly *in situ* material in the black, sooty soil reflects the observation of Curle in that the densest concentration of crucibles recorded in 1973/1979 occurred in the immediate vicinity of the three-sided stone structure (22 fragments). Slag, mould fragments (21 fragments), and haematite ore, are all associated with the process of metalworking and all occur within this material. Of six iron objects, one is a pair of tweezers (2074). The sooty deposits recorded by Curle and again in 1973 further suggest the presence of an industrial process in close proximity. The slags are particularly instructive in this respect. Three fragments are small, dense prills, indicative of slag flows cooling in the charcoal bed of a furnace or hearth (Crew, below). One slag, however, is a complete example of a smithing hearth cake. Tiny quartz fragments were observed in its upper surface (Crew, below) which, if indicative of the use of sand as a flux, might provide one possible explanation for the sand piles recorded immediately adjacent to the three-sided structure.

It might be concluded, therefore, that both non-ferrous metalworking and iron smithing were carried out in the vicinity of the three-sided structure. The precise function of this structure must, nevertheless, remain uncertain. When re-excavated in 1973, the stonework appeared to have been loosely put together. It is unlikely to have

formed part of a building and may never have stood much taller than its condition as recorded in 1913. It is best interpreted as a low bench or perhaps as a revetment or protection for a hearth.

It is clear that this area of the central hollow in the lee of the south rampart, became a focus for the accumulation of both industrial and domestic rubbish. A certain amount of discrimination in the distribution of artefacts and the survival *in-situ* of features such as the clay floor and sand beds suggests that the activities which generated this material lay close. The artefacts, however, are overwhelmed by the quantity of animal bones which were deposited in this area. This is particularly and disproportionately the case in respect of the three-sided structure. Here, Curle commented on the numerous bones which occurred within a 6 inch layer of soil below the top course of stones (Curle 1914, 138). Animal bone occurred consistently through the dark backfill deposits recorded in this area in 1973. It would appear from the record of 1913 that this deposit accumulated or was spread over the three sided structure after it had ceased to function or at the point of demolition or slighting (Curle 1914, 166).

The northern part of the central hollow (Area 2) (Fig. 12)

In 1973 a north-south cross-section was established across the central hollow from the area of the 1913 excavations, described above, to the rampart on the north side. A limited excavation across the rampart was undertaken at this point. Outcropping bedrock, on both east and west sides, constricted the hollow towards the centre. Quantities of stone rubble had clearly been deposited against the bedrock, creating the impression of a structural feature. This, on the west side, and the adjacent interior immediately north of the constriction, were investigated in 1973. In 1979, a more complete cross-section of the northern rampart was undertaken (as described above). This trench was extended into the interior across its full 5 metre width with the intention of establishing the stratigraphical relationship between the rampart sequence and the occupation of the interior.

The principal structural features in the northern half of the central hollow include the stone piles against the bedrock outcrops; settings of flat stones, some with fire-cracked stone and burning associated, and an apparent stone platform and kerb extending from the area of the clay spread. The stone piles will be discussed below in the context of phase 4.

The main features

The settings of flat stones F2, F3, F4, F5: a possible structure

Only one clear occupation horizon was identified (2 (8)) into which, and on which, a number of stone settings were laid. These are planned in Fig. 12. Two substantial

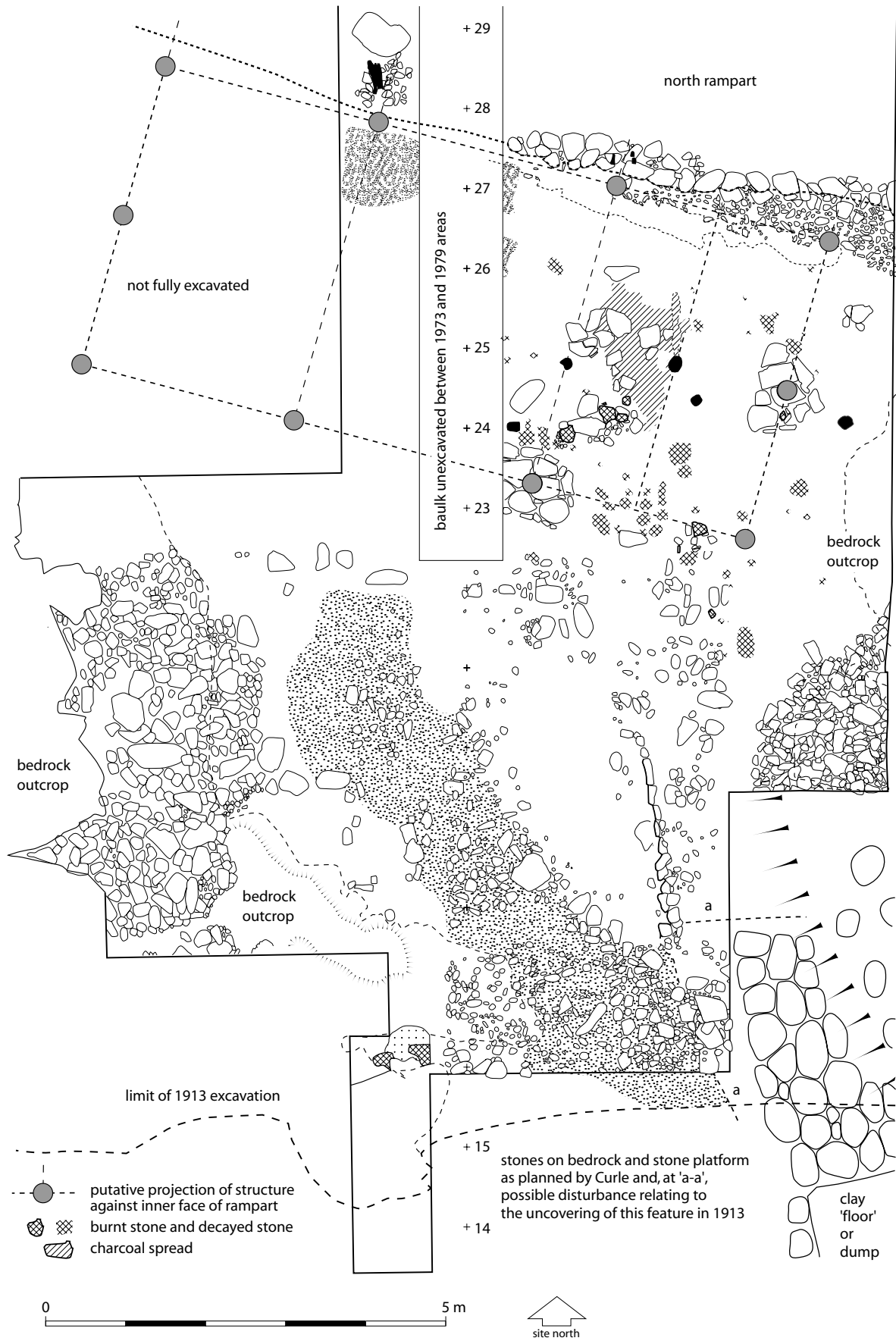


Fig. 12. Plan of the northern central hollow, showing principal features.

features F2 and F5 were set into layer 8. Feature 2 comprises 6 large stones, averaging 350mm across, laid flat and set close in a sub-rectangular arrangement, edged by smaller stones. The western edge is lost at the limit of the excavated area. Nevertheless, the visible extent measures 960mm north-south and 902mm west-east. Feature 5 comprises 5 large stones, average 300mm across and 6 smaller stones lying flat in a sub-rectangular, compact arrangement. The maximum extent of this feature is 1120mm north-south by 960mm west-east. The centres of the two features lie 3.5m apart.

Between 1m and 1.8m north-west of the axial line between F2 and F5 and approximately 1.4m south of the north rampart, the surface into which these stone features are set is stained black by the incorporation of charcoal and cracked and burnt stone. Two large flat stones are set into this surface and two settings of stone, F3 and F4, lie on it 1 metre apart (Fig. 12). Feature 3, the more southerly of the two settings, comprises 4 granite blocks, up to 240mm across, laid flat, and a number of smaller stones. The setting measures 520mm by 520mm overall. The larger stones are all cracked, possibly by the action of heat. Feature 4 is a roughly rectangular arrangement of 4 stones, up to 200mm across with a total extent of 520mm by 560mm. The stones are laid flat except that one appears to have been dislodged from its original setting. One of the stones is cracked but the group is not obviously fire-damaged as Feature 3 seemed to be.

A number of stones have clearly been dislodged or completely removed from the stone settings. Nevertheless, a certain consistent linearity is discernible in their alignment. The northern and southern edge-stones of F2 define a north-west to south-east alignment for the setting. The western edge of F5 defines a north-east to south-west alignment for these stones. The features F3 and F4 were more badly disturbed. Nevertheless, the southern edge of F3, and the dislodged western edge of F4, together with the area of small stones and darkened soil which immediately underlay these stones, similarly defines a north-east to south-west orientation.

Interpretation

The limited extent of the excavation and the incomplete survival of the evidence allows only a tentative interpretation of these features. Structurally, F2 and F5 would be acceptable as small hearths. However, they do not display the degree of heat damage which characterises F3 and F4 and an interpretation of these settings as padstones, the bases of structural timbers for a building in the northern part of the central hollow, is preferred. In consideration of the orientations described above, a structure aligned north-west to south-east is indicated. The spacing of the postulated padstones in such a building would suggest a structure 4m wide and, perhaps, about 8.5m long. The alignment of the building thus derived is exactly that of the rampart at the northern limit of the central hollow and the width of such a building would be

such that the northern wall would be virtually coterminous with the southern face of the rampart, allowing the possibility that the building might have been pegged into the rampart at this point.

Edge-set stones are a feature of the padstones. Such a stone was recorded, in isolation, in exactly the predicted location of the south-eastern corner of the postulated building. Circumstantially, decayed timber, projecting at right angles to the line of the north rampart and, 2.75m to the east, the only instance of vitrification observed on the inner face of the north rampart, correspond to two of the predicted locations of supporting timbers for the north wall of such a building. Fire-cracked and reddened stone, the association of charcoal and the dark discolouration of the soil beneath F3 and F4 suggest the presence of a hearth, edged and perhaps surfaced by the flat stones of F3 and F4 and others, now removed. The suggested extent of such a hearth is indicated on Fig. 12. This feature would have lain at the eastern end of the putative rectangular structure discussed above.

The kerb of stones and the stone platform

A compact concentration of stone was recorded in the southern part of Area 2. The individual stones ranged between 100mm and 250mm across, extending discontinuously over an area 3m by 1.5m, to the depth of a single course and to the limit of the excavation on the south and east sides. An irregular but continuous line of stones of similar dimensions extended in a northerly direction from this feature. The inclusion of elongated stones, set on edge, suggested that this line once constituted a kerb or revetment, perhaps for a continuation of the stone spread previously described. If so, the stones themselves no longer survived. Immediately to the north of the stone spread and west of the 'kerb', there occurred a concentration of very small pebbles lying adjacent to an area of close set flat stones with pebbles lying between.

Interpretation

The compact concentration of stone appears to have constituted a foundation or platform and may, in part, have been revetted by the kerb described above. This feature would seem to represent a continuation of the 'foundation of very large boulders ... having its western face in alignment with the front of the clay floor' described and planned by Curle (Curle 1914, 137). The 'kerb', recorded in 1973, certainly appears to align with a projection of the revetment to the clay spread recorded in 1913. Curle observed that the foundation of stones extended on to the lower parts of the bedrock outcrop although, from the size of stones described, it is possible that the feature, at this point, may have been indistinguishable from the considerably larger clearance recognised in the 1973/1979 excavations. Nevertheless, in 1973, the stone foundation or platform was observed to carry on to areas of low bedrock, filling depressions to

create a level surface at the level of the stone and pebble horizon described above. Immediately to the west, levelled surfaces had been created by in-filling undulations in the ground with stone hard-core, creating a path or yard between the putative building in the north of the area and the industrial zone to the south.

The northern terrace

The 1913 excavations examined a sheltered area on a terrace between the base of the western summit outcrop and the north rampart. The ground surface was ‘much blackened with charcoal’ at this point (Curle 1914, 139). E ware was recorded from this surface and crucible fragments and sherds of glass (Curle 1914, Fig. 17; 12, 13) were ‘found on the site’. Traces of dry-stonework were identified which were interpreted as the remains of a hut circle 10 feet, or so, (3.05m) in diameter (Curle 1914, 139–40). The recorded dimensions appear too small to bear this interpretation. The site was not re-examined in 1973/1979.

Phase 4: destruction of the ramparts and possible late occupation post-dating rampart slighting

The area between the ramparts within the central hollow was covered with a very great quantity of stone rubble. In the northern part, this rubble is clearly derived from the decayed rampart where large and small stones overlie the back face. The quantity and extent of stone within the interior and, for that matter, on the northern slopes of the hill beyond the rampart, would seem to be more suggestive of a deliberate and systematic levelling than the result of natural decay. This is particularly so within the interior where processes other than gravity must be invoked to account for the spread of material. This deposit extends across the entire northern half of the hollow, except that there would appear to have been some clearance of larger material towards the periphery, leaving a uniform spread of small stones of average size 100mm in diameter. Quantities of large stone (up to 300–400mm diameter) were recognised, heaped against the bedrock outcrops on both the west and eastern sides of the hollow. The date of this clearance is not known. In the 1790s an opinion had been expressed that the fort, full of rubbish, ‘would take a man one day at least to clear ... and that it would be worth clearing out’ (*Archaeologia* X 147, quoted by Curle 1914, 127). Green bottle glass was recorded high amongst the stones of one dump. A relatively recent date may, therefore, be possible. On the other hand, attention is drawn (below) to the increased incidence of both imported pottery and glass in contexts associated with the stone spread. This may reflect the disturbance of stratified occupation contexts of group 3b. The possibility remains, however, that occupation continued beyond the destruction of the ramparts.

The stratigraphic sequence is now less clear in the southern part of the central hollow following the excavations of 1913. Nevertheless, Curle makes frequent reference to spreads of stone, some of which, however, he attributes to the decay of stone buildings. In particular, Curle recognised ‘a deposit of stones lying unevenly and seemingly not *in situ* ... at places, and especially between the south end of the clay floor and the sand bed’ at a depth of about 1 foot (c.300mm) below the present surface (Curle 1914, 140, 166). The soil overlying the stones was considered by Curle to have accumulated since the abandonment of the site.

A very large number of artefacts are associated with phase 4 contexts. Unfortunately it is the nature of these contexts that some may represent the systematic disturbance of earlier contexts whether in antiquity or more recently. The chronological value of these associations is, therefore, limited. The two very abraded, joining, sherds of an early sixth century Bi amphora were recorded in a phase 4 context, for example, while three of the nine glass sherds from phase 4 (**2155**, **2408**, **3141**) can be paralleled in a late seventh-century context at Whithorn.

A reprise of the sequence (Fig. 13)

The stratigraphic sequence and the principal phases of development of the Mote of Mark have been discussed above. The presence of diagnostic artefacts, in association with elements of that sequence, and the availability of radiocarbon determinations for structural components of the rampart, permits the insertion of chronological markers.

Radiocarbon dates

One radiocarbon sample from the 1973 excavation was analysed (SRR 321), along with five from the excavations in 1979. The results of this analysis are:

SRR 321	459ad ± 42
GU 1313	380ad ± 60
GU 1314	425ad ± 50
GU 1315	355ad ± 50
GU 1316	425ad ± 50

GU 1315 and GU 1316 were obtained by splitting a single sample of charred timber from the base of the north rampart. GU 1313 is from a charred longitudinal timber beam incorporated in tumble at the face of the north rampart. GU 1314 and SRR 321 are from substantial charred timbers at the base of the southern rampart.

A calibrated date in the early to mid-sixth century is indicated by the three dates from the north rampart. The two dates from the base of the south rampart, centre on the late sixth century. As timbers of relatively large proportions may have been involved, some growth allowance is necessary and the dates represent the earliest possible felling of the trees.

Phase 1: pre-rampart activity

The quantity of material representing activity pre-dating the rampart or contemporary with the phase of construction is small but significant. Of particular importance for dating purposes is a single basal sherd of E ware and a single, large fragment of imported continental glass. The E ware sherd, the base of an E2 beaker, is relatively early in the series and may date to the second half of the sixth century. It was recorded from a context stratigraphically earlier than the rampart on the south side. The glass fragment is from a vessel of a sixth-seventh century type. It was recorded from a context that directly underlay the base of the south rampart.

Three other imported sherds of pottery are of circumstantial interest in raising the possibility of a longer pre-rampart chronology. Two joining, but very abraded sherds from a Bi eastern Mediterranean amphora were recorded in a phase 4 context. The vessel is of early sixth century date and considerably earlier than later seventh century glass that was also current during phases 3 and 4. The amphora, therefore, if not brought to the site as a convenient container, much later than its original use in transporting wine, must represent the long-term survival, on-site, of a storage vessel, or residual survival from an

earlier context. The remaining sherd is a single fragment of a D ware mortarium. This was recorded during the 1913 excavations and described by Curle as ‘from the bottom of the forced earth’; that is, close to the base of the stratigraphic sequence, near the three-sided stone structure (Curle 1914, 161).

There is a possibility, therefore, that the earliest Medieval activity on the hill commenced around the middle of the sixth century.

Phase 2: the rampart

The rampart, itself, having a degree of complexity in its make-up, is, nevertheless of one phase of construction. Radiocarbon determinations were obtained from contexts sealed by the main body of rampart core and from a carbonised beam lying horizontally and longitudinally in tumbled rampart stone outside the front face of the rampart on the north side. Further determinations were obtained from carbonised timber beams lying horizontally, both longitudinally and transversally at the base of the rampart sequence on the south side of the central hollow. It was initially considered a possibility that these timbers, associated with the south rampart, might have been re-deposited with backfilled material in 1913. Although

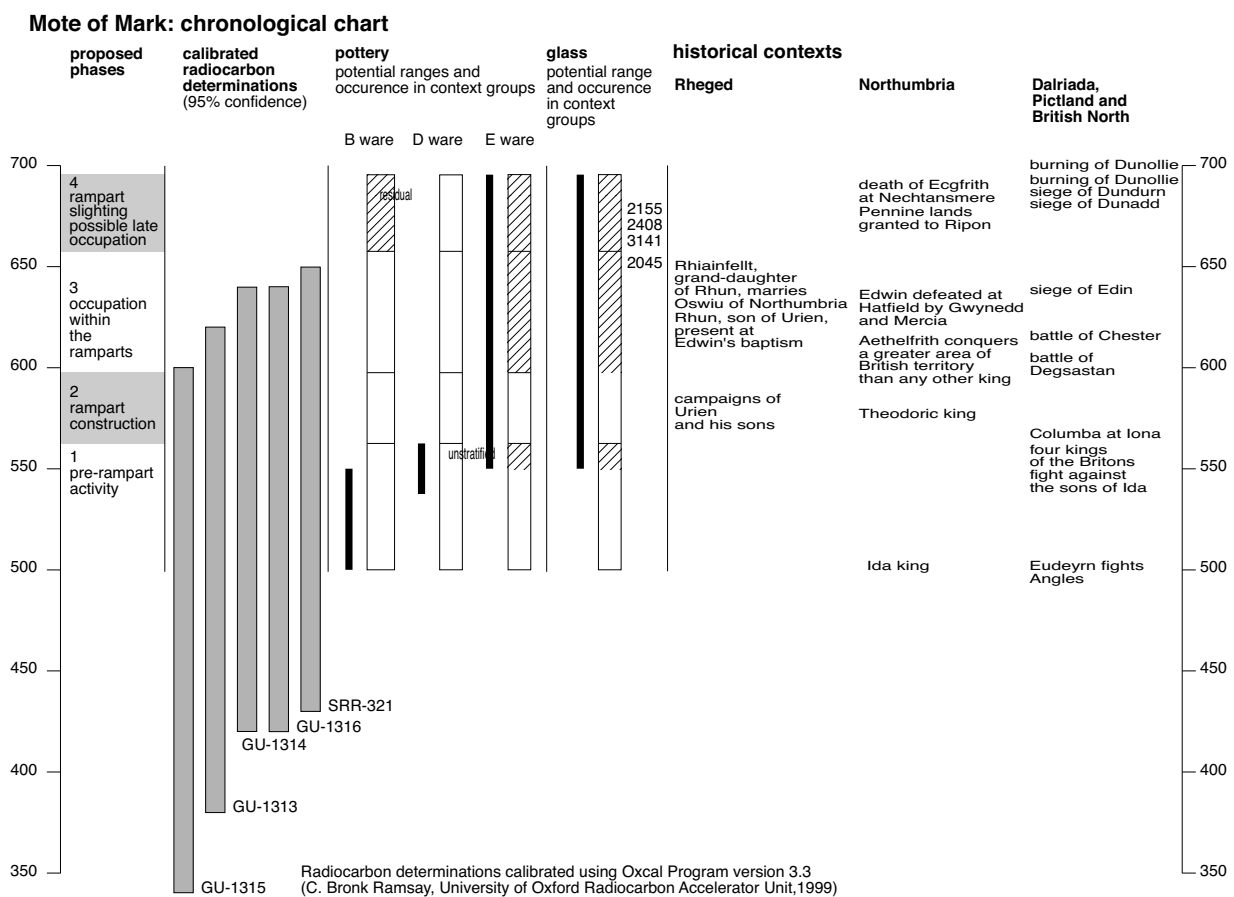


Fig. 13. Diagrammatic representation of the chronological evidence (including radiocarbon determination).

Curle's excavations did encroach on the rampart at this point it is clear from the recorded transverse section that the 1913 excavations did not reach to the base of the rampart. It is probable, therefore that these timbers represent an *in situ* deposit constituting an initial phase of construction. The radiocarbon determinations are presented in Fig. 13 as calibrated dates at 95% confidence.

The evidence of the radiocarbon determinations is compatible with the evidence of the stratified artefacts of phase 1 in suggesting that the rampart may have been built towards the end of the sixth century.

Phases 3 and 4: occupation contexts and the abandonment of the site

Imported continental pottery and glass is well represented in phases 3 and 4 and particularly alongside the evidence of metalworking in context group 6 where Curle made no distinction between the contexts associated with pottery, glass or moulds and crucibles. He describes the pottery as occurring in 'various levels' and the glass is said to have been found 'at similar depths to the pottery moulds and may be assumed to be contemporaneous' (Curle 1914, 154).

The E ware spans the period from the middle of the sixth century to the later seventh. Similarly much of the glass may be dated broadly within the range sixth/seventh century. The latest glass on the site has been compared by Campbell (below, p.109) to material in later seventh century contexts at Whithorn. The similarities are so close, for both pottery and glass, that Campbell has argued that the two sites may have been supplied at the same time by the same merchants (Campbell, below p.107). It is probable, therefore, that occupation continued into the second half of the seventh century at the Mote of Mark. The incidence of both pottery and glass would appear to be at its highest during the latest phase of occupation on the site.

In summary, the chronology of early Medieval activity

at the Mote of Mark may have developed along the following lines.

1. There is a possibility that the hill was occupied during the first half of the sixth century. This possibility is suggested by the very small quantity of early – mid sixth century pottery.
2. There was certainly activity on the hill before the rampart was built or, at least, before the rampart was completed. This activity included metalworking and is indicated by the presence of animal bones and slag, including furnace or hearth lining, in contexts sealed by the bulk of the rampart.
3. The rampart was built after the middle of the sixth century but, probably, before the end of that century. Imports of E ware ceramics and continental glass are present before construction began and continue to be accessories to the activities on the hill through much of the seventh century.
4. High quality non-ferrous metalworking was carried out within the defences of the fort until the middle of the seventh century or, perhaps, into the second half of the seventh century.
5. Destruction of the hillfort defences by fire brought an abrupt end to the occupation of the hill and to metalworking. The ramparts were deliberately demolished or slighted and no further occupation can be certainly demonstrated. This may have been the last significant event on the site, dating to the mid-to-later seventh century. If the relatively high incidence of pottery and glass in group 4 contexts, and the clearance of rampart debris to the periphery of the central hollow, may be interpreted as evidence of continuing occupation, then this was not certainly accompanied by metalworking. The hill would still have been abandoned before the end of the later seventh century but the firing of the rampart and the cessation of metalworking, on this assessment, would have occurred somewhat, but not significantly, earlier.

3 Metalworking Evidence

Introduction

There is evidence for the working of iron, copper-alloy, gold and silver at the Mote of Mark, of which the casting of copper-alloy objects in clay moulds appears to have been the predominant activity. The evidence is represented by structures, raw materials, tools and artefacts used in the manufacturing process, waste products and finished artefacts.

It is clear from the distribution of metalworking debris that Curle's excavations in the southern part of the central hollow uncovered the metalworking focus. A three-sided stone structure was identified here in 1913 and re-excavated in 1973. This structure was permeated with a loose and dusty grey-black sooty soil. It is best interpreted as a low bench or, perhaps, as a revetment or protection for a hearth. It subsequently became the focus of a substantial midden accumulation. A large deposit of clay, 5m by 2m and 305mm thick, lying in the immediate vicinity of the stone structure, was interpreted in 1913 as a floor. It is more likely to represent the raw material used in the manufacture of moulds and crucibles and itself overlies a series of dumps that accumulated during the process of metalworking. Nearby lay two beds 'of pure sea sand... remarkably free of foreign matter' (Curle, 1914, 138–9). These too may have been used in the industrial process, as a filler in the manufacture of crucibles or, alternatively, or perhaps, additionally, as a bed to support moulds during casting. Smelting hearths seem to have been shallow, bowl-shaped hollows. Curle documents one such hearth, 107cm in diameter, formed in clay and burnt red to a depth of 10.5cm, with a piece of pottery (presumably E-ware) lying on top of the clay (1914, 138). An ash-filled hollow excavated in 1973 (feature X) measured 45cm by 30cm and was 10 cm deep. In neither case was slag associated, but the larger hollow may have been a bowl furnace, the smaller used for heating crucibles. These are comparable with the hearths at Dinas Powys (Alcock 1963, 45).

Bayley has conveniently identified the various processes and the stages involved in producing finished artefacts from the relevant ores and has discussed the relationship between these stages (Bayley 1992b, 746–7). Copper ores are known along the Kircudbrightshire coast but not at the Mote of Mark itself. Clearly, therefore, there is no evidence for mining or extraction of ore on site. There is possible evidence, represented by haematite

ore and dense slag, of smelting on site but this evidence is not conclusive and is capable of alternative interpretation. There is clearer evidence for the refining of metal, represented by possible cupels and parting vessels. There is certain evidence of melting and casting represented, principally, by crucibles, bivalve moulds, ingot moulds, casting debris and unfinished cast copper-alloy objects. The possibility that scrap was used may be inferred from Curle's observation of a number of pieces of bronze, chiefly the waste from castings 'in front of the stone foundation'; Curle describes them as 'a small rivet showing a peculiar tongue projecting from one side on the upper surface of the plate to which it was fastened, a small portion of the rim of a vessel, and one or two folded strips of metal' (1914, 162) (Fig. 40). These recall the similar items from Dinas Powys, Glamorgan (Alcock 1963, Fig. 20), some of which, at that site, may have been recycled from Anglo-Saxon sources.

There is possible evidence for finishing and decoration if it is accepted that the haematite could have been ground in the preparation of 'jewellers rouge' for polishing cast copper-alloy artefacts. And finally, there is evidence of iron smithing represented by smithing hearth cakes, a billet and bars.

In addition, certain tools have been identified which may have been ancillary to the processes of working metal. These include water-worn pebbles, found in the 1973–9 excavations, which had clearly been introduced to the site from a neighbouring beach, and were probably used for polishing and perhaps for grinding ore. Curle refers to two stone mullers, one of granite, one of millstone grit, found in 1913, which he surmised were used for grinding copper ores (1914, 160). Curle also describes a bone used for polishing, perhaps for planishing but more probably for finishing off moulds (Curle 1914, 162 and Fig. 15, 10). Among the 1913 finds of ironwork, now in the National Museum of Antiquities, mention may be made of a small block of iron, which might have served either as a planishing stake or possibly been used in wire work, and a small axe-shaped object which might have served as the head of a planishing hammer (Fig. 41, 1305, 1307). A tool of similar dimensions was used on some of the silver from the Pictish hoard at Norrie's Law, Fife (see below).

The flints, many of which show signs of secondary flaking, appear to have been prehistoric implements collected and re-used perhaps as strike-a-lights (as Curle

suggested, 1914, 152), perhaps as tools. Flints are common finds on early Christian period sites, for example at Garryduff (O’Kelly 1962, 92–3), Dinas Powys (Alcock 1963, 168–75), Lagore (Hencken 1950, 178–9) or Dundurn (Alcock, Alcock and Driscoll 1989, 220–21). In Ireland it has been demonstrated that over half the excavated sites of the early Christian period have produced flints (Harper 1974).

Relatively little comparative material is available for assessing the extent to which the techniques for working copper alloy, current at the Mote of Mark, represent a continuity from Iron Age and Romano-British technology. From Iron Age Britain there is the evidence provided by Gussage All Saints, Dorset (Foster 1980) and the material from Weelsby Avenue, Grimbsy, South Humberside (Foster 1996), and for the Romano-British period there is the solitary mould for a figurine from Gestingthorpe, Essex (Frere 1972) and the assemblage of moulds for brooches from Prestatyn (Blockley 1989), as well as the material recovered from early excavations at Wroxeter (Wright 1872, 159; Bushe-Fox 1913, 11; Bushe-Fox 1914, 13; Bushe-Fox 1916, 65), Silchester (Boon 1974, 272–7 summarizes) and Warrington (May 1904, 67–87). In contrast, the evidence for metalworking from the early Medieval period in Western Britain and Ireland is fairly copious, though there remains comparatively little study of the metallurgical evidence as opposed to descriptive accounts of moulds and crucibles. However, if it is accepted that scrap was recycled, it remains possible that analyses of copper alloys from the site or residues in crucibles might reflect the composition of the original objects (possibly in many cases Romano-British) rather than the technology employed at the Mote. There is relatively little comparative material from early Anglo-Saxon England, the most significant moulds being those from Mucking, Essex (Jones 1975) and from Wharram Percy, Yorkshire, which has produced other evidence for ornamental metalworking (Bayley 1992a), though there are reportedly also moulds from West Heslerton, Yorks (quoted in Bayley 1992a, 65) and moulds from a number of later Anglo-Saxon sites, for example, Hamwic, Hants (Bayley 1996, Fig. 32).

Metalworking equipment

Crucibles (Figs 14–16)

The crucibles in use at the Mote of Mark were principally used to retain metal so that it could be melted in appropriate quantities for casting. The larger crucibles (see below) may have been used for melting scrap for casting in a convenient form in ingots in stone moulds. Two ingot moulds were found in 1913 (Curle 1914, 161 and Fig. 45, **1901, 1289**), and another in 1973 (cat. no. **2996**, Fig. 45), as well as an ingot or billet (see below). Ingot moulds are relatively common finds on Irish sites, for example Lagore, Co. Meath (Hencken 1950, 170),

Moylurg crannog, Co. Antrim (Buick 1893, 30, 33, 41), Garranes, Co. Cork (Ó Ríordáin 1942, 108), Birsay, Orkney (Curle 1982, Fig. 28) and Dunadd, Argyll (Craw 1929–30, Fig. 6, nos 8–9; Lane and Campbell 2000, 192). Finger-shaped ingots seem to have been a convenient method of transporting wealth in the Viking Age and later, and occur in Viking silver hoards in Britain, for example Cuerdale, Lancs. (Philpott 1990, 38). It is possible, however, that some of the vessels catalogued as crucibles and, in addition, the group of very large ceramic vessels, of dog-dish shape, were used in the refining process for parting or cupellation.

One hundred and thirty two fragments are recorded from the site including 18 fragments from 14 separate vessels of the larger crucibles and 18 fragments (10 vessels) of ‘dog-dish’ type. In addition, some quartz-rich slags, described below, may derive from crucibles, fluxed by fuel ash at high temperatures.

The great majority of these vessels are small, thin walled, roughly triangular in plan view, with rounded or ovoid bases (Fig. 14). These are of a type widely represented in the early Christian period in Celtic Britain and Ireland. This is the type represented, among others, at Dunadd, Argyll (Craw 1929–30, 23; Lane and Campbell 2000, 134, Type C, though these were lidded, unlike those from the Mote of Mark), at Birsay, Orkney (Curle 1982, no. 393) and Dinas Powys, Glamorgan (Alcock 1963, 142), and similar crucibles are documented from other sites in Britain and Ireland, including Ronaldsway, Isle of Man (Laing & Laing 1988, Fig. 4, 57), Lagore crannog, Co. Meath (Hencken 1950, 235), Garranes, Co. Cork (Ó Ríordáin 1942, 134–9) and Armagh (Gaskell-Brown & Harper 1984, 145–9). There is no evidence for lidded or handled crucibles at the Mote of Mark, though these are attested at Dinas Powys (lidded) (Alcock 1963, 143), Dunadd (lidded and handled) (Lane 1980; Lane and Campbell 2000, 134, 141, Types C and D), Garryduff, Co. Cork (O’Kelly 1962, 95–6) or Moynagh Lough (handled): (Youngs 1989, 159a, b). In general terms the Mote of Mark examples are similar to the crucibles found in Roman Britain, for example at Prestatyn (Blockley 1987) and in the Iron Age, for example at Gussage All Saints (Foster 1980). Microscopic inspection indicates that gold (e.g. on nos. **3078, 3122**), silver (e.g. on no. **2077**) and copper or copper alloys (e.g. nos. **1507, 1509, 2010, 2013, 3064, 2323, 2416, 2419, 2625**), were all melted in them.

The variety of forms and sizes of crucibles on Celtic early Medieval sites points to a diversity of specialized casting techniques. The localised peaks in the distribution of crucibles across the site may also reflect the localisation of different tasks and different uses to which the crucibles were put. Where complete profiles are recoverable, overall dimensions of c.35mm height and between 35mm and 45mm maximum diameters seem to be indicated for the smaller crucibles. The walls of some crucibles are as thin as 1.5mm and there is a distinct peak in the range of wall

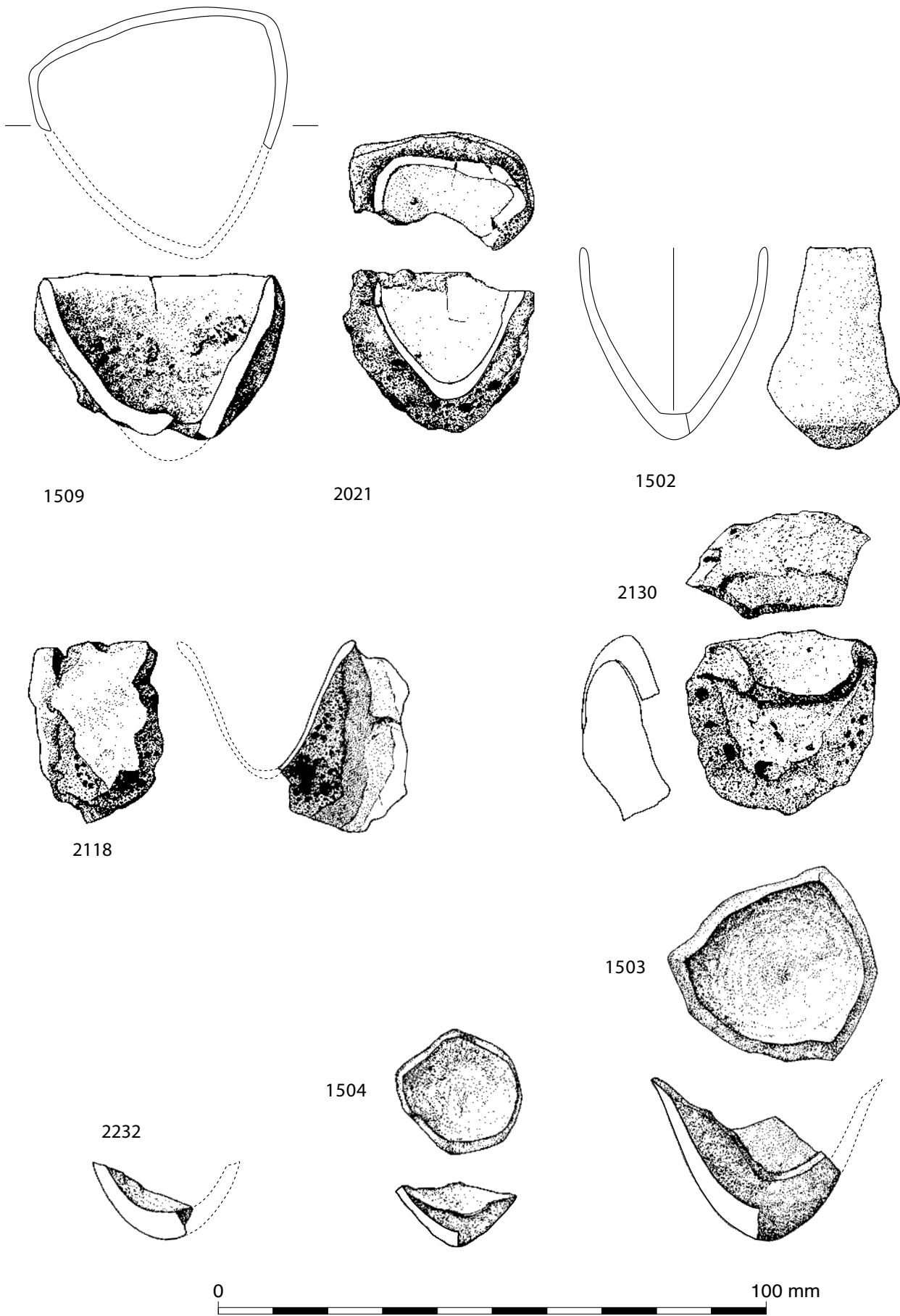


Fig. 14. Crucibles 1.

thickness between 3mm and 4mm (44% of total).

Curle drew attention to a group of recognisably larger crucibles (Fig. 15). These, in his opinion, were characterised by a thicker wall, 1/4in to 3/8in (6mm to 10mm) and larger capacity (Curle 1914, 157). These would seem to be represented, in particular, by catalogue numbers **1283** and **1284** (2 sherds from the same vessel) and **1500**, **1510**, **1511**, **1512** (4 sherds from the same vessel; both this and the previously described vessel are catalogued together in NMS as HH283). These crucibles have wall thicknesses of 5.5mm and 7mm respectively, diameters at the rim in excess of 70mm (19 sherds – 20% of the total).

The third category of clay vessel associated with the processing of metal comprises a small number of very much larger containers (catalogue nos. **1276**, **1277**, **1278**, **1279**, **1280**, **1281**, **1282**, **2236** and **3190**) (Fig. 16). The best preserved examples are **1276** and **1277**. Both have flat bases, in contrast to the smaller crucibles, considerably thicker upright or slightly in-turned walls and a greater capacity. The walls, of variable thickness, are between 10mm and 25mm. These vessels appear comparable in shape and dimensions to containers interpreted as parting vessels at Coppergate (Bayley 1992b, 751–4). This type of crucible has been recognised at Dunadd where it classified as type B. Possibly comparable crucibles are known from Clatchard Craig (Close-Brooks 1986, 165–6, nos. 106–8).

Fabric

The majority of crucibles have been transformed by the action of intense heat. In the case of 26% of sherds, vitrification has so permeated the core of the vessel that any assessment of the original is impossible. In the case of a further 12% it is possible to do no more than identify the presence, absence and density of grits in the fabric. All clay fabrics were examined macroscopically for presence, density and size of inclusions. The results were

compared with the composition of the clay dump described above and with those of each artefact type. The natural clay contained quartz inclusions. However, the crucible sherds contained a consistently higher proportion of quartz, in larger grains than might be expected to have resulted from the use of a clay in its unaltered state. This characteristic is emphasised when comparison is made with other ceramic fabrics on site. The statistics, derived from those sherds capable of assessment, are presented in Table 2. It would seem that a significant proportion of crucibles were formed from a clay to which quartz grits had been deliberately added. In respect of the high temperatures to which the crucibles would be subjected it might be supposed that the addition of quartz enhanced the refractory properties of the fabric.

In consideration of the above statistics it is, therefore, surprising to note that a relatively small proportion of the very large flat bottomed vessel sherds appear to be made from a fabric with deliberately added quartz grits. However, as an interesting point of comparison, the Coppergate parting vessels were all made from a fairly fine sandy clay (Bayley 1992b, 753).

Surface discolouration and accretions

The application of intense heat to the majority of crucibles gave rise, in a number of instances, to the formation of a vitreous gloss or fuel ash slag on either or both the inner and outer surfaces (Fig. 17B). Where such slag formation did not completely obscure the fabric of the crucible, most could be seen to have been fired buff-grey, light grey or cream colours reflecting the reducing conditions under which metals must be melted to prevent oxidation. This effect is more noticeable on inner faces where 69% of the total fall within this colour range in comparison with the occurrence of light colours on 58% of outer faces. Surviving original surfaces are otherwise darker greys and browns. Where slag is present, as is the case with most crucibles, red colours predominate, which may

Artefact type	Heavily gritted %	Large grits (greater than 1 mm) %	Both heavily gritted and large grits %
Small crucibles (walls thinner than 5.5 mm)	32%	37%	22%
Larger crucibles (walls thicker than 5.0 mm 18 sherds, 14 vessels)	59% (46% vessels)	70% (62% vessels)	53% (38% vessels)
Very large flat-bottomed crucibles (18 sherds, 10 vessels)	17% (30% vessels)	17% (30% vessels)	17% (30% vessels)
Clay moulds	8%	3%	Less than 1%
Pot sherds	17%	81%	14%

Table 2. Artefact type, size and density of grits.

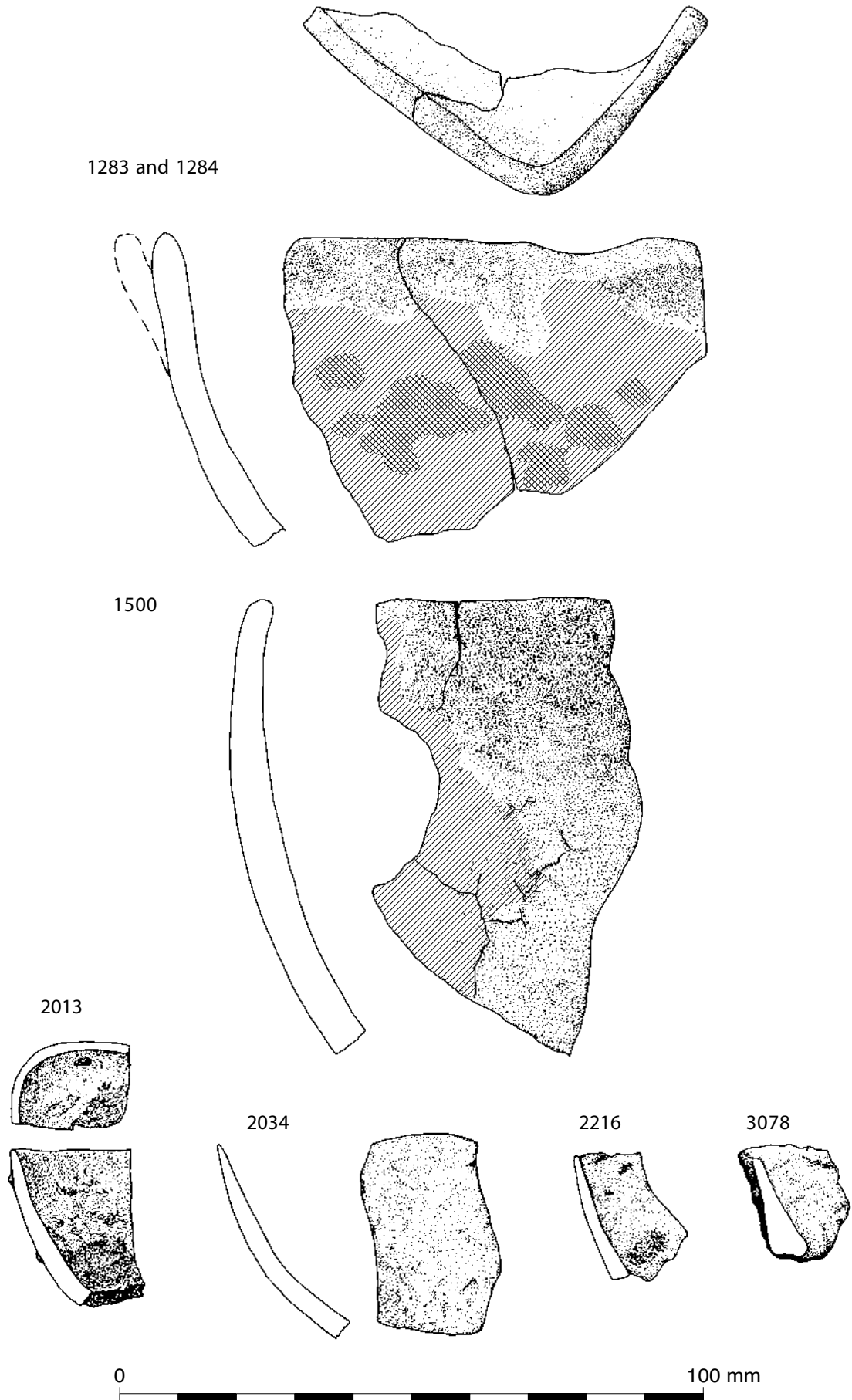


Fig. 15. Crucibles 2.

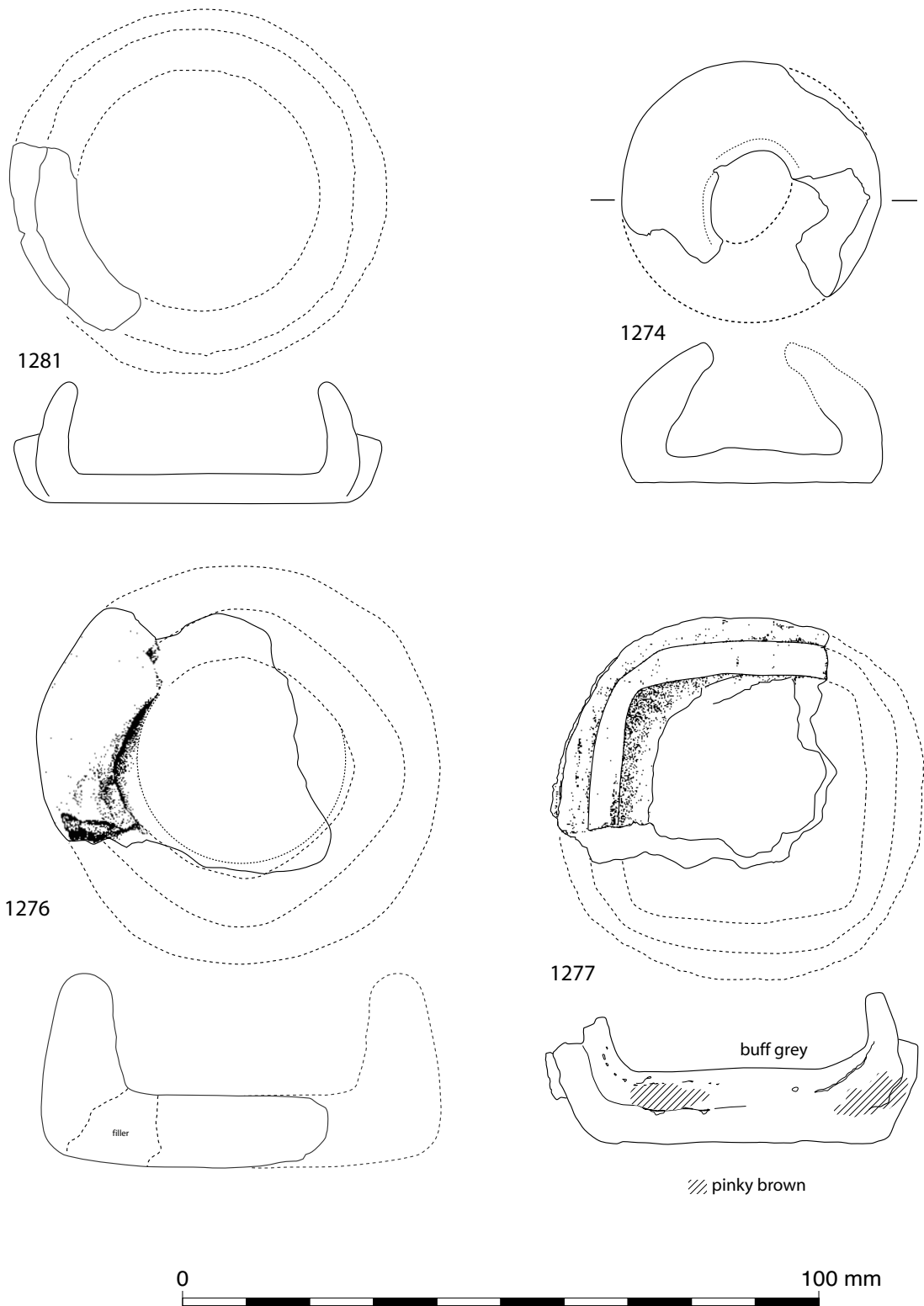
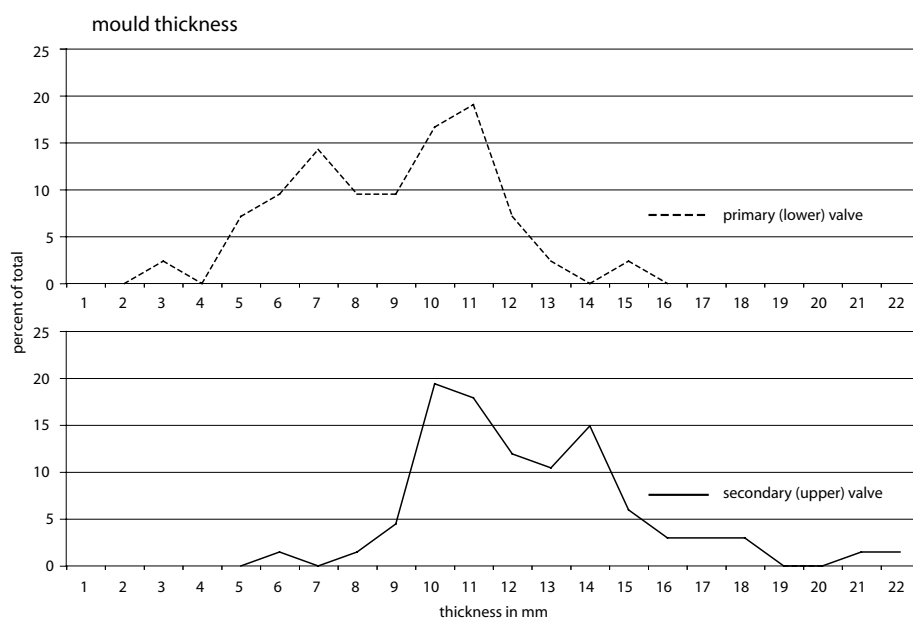
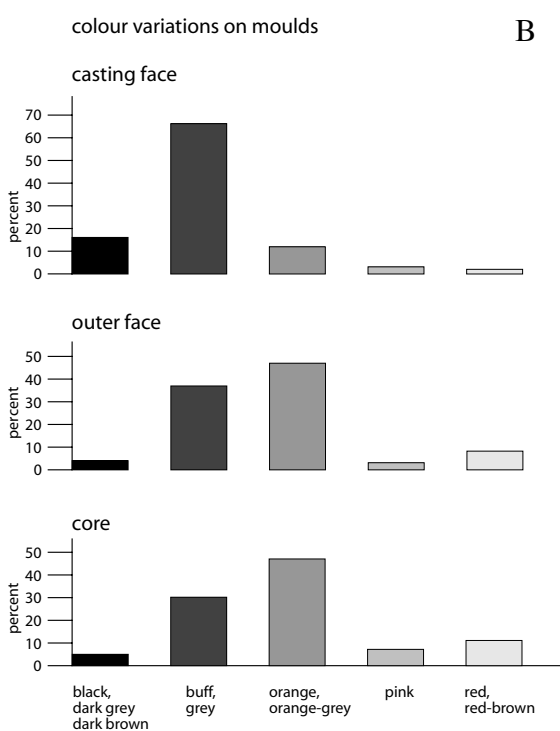


Fig. 16. Dog-dish crucibles.



A



B

Fig. 17. A: Comparison of the thickness in cross section of primary and secondary moulds. B: Surface discolouration on crucible sherds.

indicate the presence of copper in the melt. Forty six percent of inner surfaces display this effect, in comparison with 34% of outer surfaces. Blue greens, glossy blacks and brown crusty formations are also evident on both inner and outer faces. Yellow slag was recorded on the inner faces of four crucibles.

One of the very large, flat-bottomed vessels (Fig. 16, 1227) is of a grey fabric, tinged with red. Pale purplish patches or maroon patches on a pale grey fabric were recognised as a characteristic feature of parting vessels at Coppergate (Bayley 1992b, 753–4).

Metallic residues were observed on the inner surfaces of crucibles in 8 instances and on the outer faces in 4 instances. These were not analysed but appeared on visual examination to be chiefly copper. They also included microscopic and small globules of dark metal. Notably, in a further two instances, microscopic spots of gold were recorded on both outer and inner surfaces and across one rim. Three crucible fragments were examined by X-ray fluorescence spectroscopy in 1973, when it was found that in each case copper was the most concentrated element. Zinc was present on two of the crucible fragments, with tin absent or only present as a trace. On the third, tin was present with zinc in a small concentration. Iron, lead, aluminium and calcium were found in varying but minor amounts (Swindells & Laing 1978, 123). Ores of carbonates and sulphides of copper are found along the coast of Kirkcudbrightshire, notably round Gatehouse of Fleet (Wilson 1921). It is notable that these ores contain iron, zinc and lead, which might explain the iron in the crucible residues.

Added clay layers and re-lining

A number of crucibles show evidence for the addition of a layer of clay to the outside of the vessel. It has been suggested elsewhere, in the Anglo-Scandinavian context of Coppergate, that this device protected the crucible from the fire and from thermal shock on cooling, in addition to insulating the melt, thus fractionally lengthening the time available to complete a casting (Bayley 1992, 755). Some crucibles were relined on the

inside indicating the re-use of damaged crucibles (e.g. **2624**, **2695**, **2739**). Such additional layers can become very soft at high temperature and three fragments from the Mote of Mark bear the impression on the outer layer of residue of the serrated edge of tongs at an angle appropriate to their having been thus lifted out of the fire to pour (nos. **2021**, **3245**, **2039**). The ends of the tongs were not flattened, as is the case with the tongs that appear as Pictish symbols in sculpture (for example those on the Class I stone from Abernethy, Angus), but more like the tongs recovered at Garranes, Co. Cork (Ó Ríordáin 1942, Fig.7, no. 362), Moynagh Lough, Co. Meath (Youngs 1989, no. 225) and Nendrum, Co. Down (Lawlor 1925, 143 & pl. xiii, 65). The Moynagh Lough tongs had similar serrations to those indicated on the Mote of Mark crucible and examples of crucibles from Moynagh Lough also bore tong impressions (Youngs 1989, nos 158a and 158c).

Crucible stand (Fig. 16)

This object from the 1913 excavations survives in several fragments (**1274**, **1520–1526**). It is a flat-based, thick-walled (maximum, 14.5mm), circular ceramic vessel with inturned side walls, converging to form a small oval aperture, 31.0mm by 21.0mm and bevelled at the rim. It was published by Curle as a ‘lamp’ (1914, Fig. 22; HH 274). It may, however, be a stand for setting a crucible in when it is taken from the hearth. Similar objects have been variously seen as crucibles and as heating trays. One from Birsay (Youngs 1989, 176c; Curle 1982, 114) was thought to be a crucible, as were examples from Garryduff (O’Kelly 1962–4, 97) and Dunadd (Lane and Campbell 2000, 134, Type B4). Others have been interpreted as heating trays, for example, at Lagore, Co. Meath (Hencken 1950, 235, 237; Youngs 1989, no. 171). Crucible stands are also known from Clogher, Co. Tyrone (Youngs 1989, no. 174) and Nendrum, Co. Down (Lawlor 1925, 141–2), the former of clay, the latter of stone. The maximum diameter of the Mote of Mark piece is 82mm and the height, 43mm.

Clay bivalve moulds

The 482 fragments of clay moulds represent the single largest category of evidence for non-ferrous metalworking at the Mote of Mark. It is assumed that the majority of objects cast in the moulds were of copper alloy. A small number of copper-alloy artefacts were found on the site which clearly correspond very closely to moulds which might have produced them. Strips of shanked studs or rivets with their casting flashes intact are good examples (Fig. 40, **1293**, **2297**). Other moulds are for artefact types, such as square terminal penannular brooches, which are known in copper alloy from other contexts. Nevertheless, the possibility remains that lead and, or, precious metals were also cast at the Mote of Mark.

Fifty-eight percent of the total number of moulds are very small fragments with no surviving diagnostic

features. Nevertheless, the remaining 42% (204 fragments) are capable of some interpretation, bearing information on the method of construction, the casting process and the objects cast.

Method of construction

All the moulds are piece moulds (bivalve), and in general terms conform to the design of the moulds from other early Medieval sites (Fig. 18). Typically, a model was used to impress the design on the clay, a funnel-shaped ingate was produced using a wooden or bone former, and the two halves of the mould were positioned by keying, by some means particular to the craftsmen of each workshop. Moulds were used once only and then broken off the completed casting which was trimmed.

This process has been also inferred for the production of castings on the Continent in the early Medieval period (Aufleger 1966). An additional stage involving the dusting of the lower half of the mould to make separation easier has also been inferred but shown by experiment to be unnecessary (Curle 1982, 37–9; Brinch Madsen 1984).

Study of the moulds from the Brough of Birsay by Robertson in Curle (1982, 37–9) allowed a detailed description of the technology employed at that site. The Mote of Mark moulds are closely comparable in many respects but differ in certain details. For example, at Birsay, it was observed that a coarser clay, or one to which quartz grits had been added, had been selected for larger and less ornate work, while a fine clay had been reserved for moulds bearing detailed work (Curle 1982, 36–7). No such differentiation was clearly apparent in the Mote of Mark material (see fabric, below). Again, a distinction can be made between the precise method of keying at each site, although, in principle, the procedure is similar. The important point was made in respect of the Birsay material that such differentiation in the application of registration marks might signal the hand of individual craftsmen (Curle 1982, 39).

In constructing the two halves of a bivalve mould, the primary, that is, the lower or back, valves of the Mote of Mark moulds are consistently thicker than the secondary or upper, front, portions (Fig. 17A). The reverse would seem to be the case at Birsay. Furthermore, the clay used to seal the join between the two valves appears to have been restricted to a thin strip at Birsay whereas, at the Mote of Mark, a very much thicker additional envelope of clay was employed. These differences, however, are minor and serve to emphasise rather than detract from the comparable technologies employed.

The following discussion will draw on examples from the Mote of Mark to explain the process, conscious of the recorded observations of Curle and Robertson (Curle 1982, 37–9).

Models

The first stage in producing a cast artefact is the manufacture of a pattern or model. Various items have been

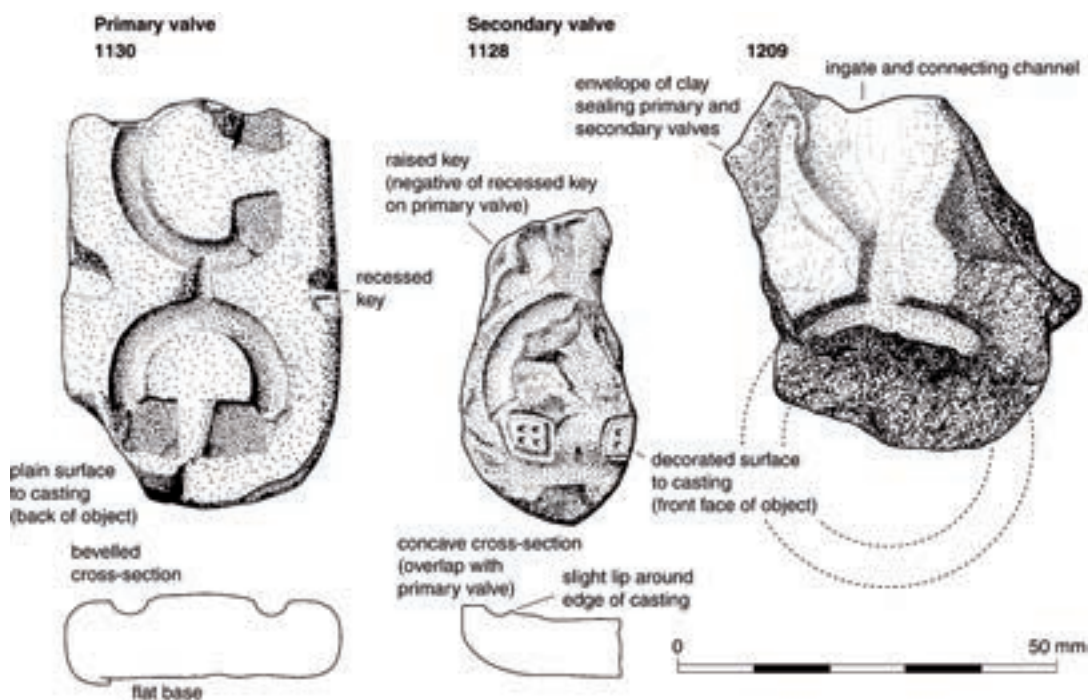


Fig. 18. Stages in the construction of bivalve moulds.

claimed as 'models' used in mould making in Celtic Britain and Ireland, including a lead roundel with triskele pattern from Birsay (Curle 1982, 48–9), and a lead 'model' for a penannular brooch from Dinas Powys, Glamorgan (Alcock 1963, 121 and Fig. 23/2; Graham-Campbell 1991, 224–5), as well as the lead model for the head of a ringed pin from Dooey, Co. Donegal (Youngs 1989, no. 185), a second similar example from Moylarg Crannog, Co. Antrim (Youngs 1989, no. 187), and a roundel from Lough Ravel Crannog, Co. Antrim (Youngs 1989, no. 189). Some doubt attends the interpretation of the Birsay roundel as a die for mould-making, and it might alternatively have been a motif-piece. A series of lead alloy models, however, have been recognised in the production of moulds for early Anglo-Saxon brooches (Mortimer 1994). A complex production method has been postulated involving two casting processes. By this method primary models were made of wax, moulds were formed round the wax models, secondary lead models were cast in these moulds and then used to form the moulds for the bronze castings (Mortimer 1994, 30–31). Mortimer has argued that this secondary casting method explains the lead brooches from Grave 6, Poysdorf, Austria (Capelle & Vierck 1971). This process might be considered a possibility for the Mote of Mark interlaced moulds. The detail of the interlace would be quite difficult to work *ab initio* in lead, but could be achieved more easily on wax. In the case of the Dinas Powys 'model', Graham-Campbell has suggested that it was a failed attempt to produce a die from a wax model (1991, 225). Stevenson (1985) has argued in favour of wax models

being used in Pictish booch manufacture. With the exception of bone pins, one of which, recorded in 1913, was considered to fit a mould (Curle 1914, Fig. 15, 1–2) and another of which was found in 1973 (Fig. 43, 2300), no models were identified in the Mote of Mark assemblage.

Valves

Having determined on the nature of the object to be cast, and selected or manufactured a pattern or model, the second stage in the process of mould-making is the creation of a pad of clay suitable for impressing the pattern. This will form the primary valve in the bi-valve mould and has certain characteristics that identify it. Firstly the base of the clay pad, that is, the opposite face to the one which receives the pattern, will be generally flat as the pad will be placed on a flat surface while the pattern is pushed into the wet clay of the other, upper, face. Secondly, the edge of the face into which the pattern will be pressed will be provided with a rounded bevel. Thirdly, the primary valve, having received the impression of the pattern, will be 'keyed' with a series of registration marks, cut or pressed into the wet clay of the bevelled edge. The bevelled edge and the keys will serve to register or locate the second valve precisely in position on the first. Mould 1130 illustrates a flat-based, bevelled edge valve with indented registration marks (Fig. 18). At this stage a conical or wedge shaped insert is pressed into the clay at the periphery of the mould, which, when removed, will provide a funnel or ingate, into which the molten metal will be poured. Channels between multiple

patterns on the same mould and between the ingate and the pattern are also formed by the use of similar inserts at this stage. Good examples of ingates and channels between castings can be seen on moulds **1209**, **1136**, **1199** and **1114**. An actual copper alloy sprue with two runners, from such an ingate and its channels was found in 1913 (Fig. 40, **1238**). This material would be trimmed, as waste, from the finished object and recycled.

In the case of multiple objects cast simultaneously in the same mould, the shape of the objects will invariably determine their placement for the most efficient channelling of molten metal to achieve the casting. For example, a number of pin moulds were employed to produce more than one pin at each casting. In general, but not invariably, the pin patterns were arranged radially around a focus at the point end with separate channels leading from the ingate to each pin. Moulds **1170**, **1150**, **1161** and **1155** are examples. Birsay provides comparable examples (Curle 1982, *passim*). Mould **1151** (Fig. 25) from the Mote of Mark is an exception to the radial arrangement.

Several stud or rivet-like shanked objects were cast at the Mote of Mark. A particularly efficient method of producing these small items in quantity involved casting a number contiguously in parallel strips so that the head of each stud in a strip touched its neighbour. Copper-alloy castings of such studs were recovered on excavation showing clearly that the items emerged from the moulds as a strip with heads fused, ready to be separated and trimmed for individual use. Figure 27 illustrates a number of these moulds.

Other patterns might be placed side by side in the same mould with a channel leading from one to the other. The penannular brooch mould, **1130**, and the mould for two bosses, **1136**, are examples.

The third stage in the process requires the primary clay valve, now containing the pattern of the object to be cast, to have dried sufficiently for it not to be distorted during the overlay of the second valve. With the pattern in place in the valve, a second pad of clay is pressed over the first to take the impression of the upper, exposed surfaces of the pattern. The wet clay of this second valve also fills the indentations of the registration marks and overlaps the curvilinear bevel on the primary valve. The characteristics of such a secondary valve are, firstly; the lack of any necessity for the back to be flat; secondly, an edge to the casting surface which presents a concave profile, reflecting an overlap with the bevel of the first valve; and, thirdly, raised 'keys' corresponding to the indentation of the registration marks on the primary valve. More subtly, a number of these secondary valves have slight rims around the edge of the impression of the casting itself. This is caused by wet clay from the secondary valve filling the inevitable slight gap that forms between the pattern and the primary valve as the pattern is pushed into the valve. (Moulds **1122**, **1124**, **1151**, **1131** and **1162** illustrate these characteristics which are important indicators of the

distinction between primary and secondary valves.

The fourth stage in the process of mould-making requires the removal of the pattern, the re-assembly of the two valves, precisely located by the registration marks, and the sealing of the join between the two valves with an enveloping skin of clay. Fragments of this envelope can be seen on a number of moulds, for example, **1155**, **1209** and **1210**.

Following kiln drying (Curle 1982, 37–9) the mould is ready for use. Each mould can only be used once as the seal must be broken to extract the cast artefact.

Analysis of the presence of bevelled or overlapping edges on mould fragments and the recognition of cut, impressed or 'raised' keys can provide information on the way in which patterns were inserted into the wet clay in the preparation of a mould. For example: bevelled edges were recorded on 71 mould fragments. Of these 35 carried evidence of registration marks. All these registration marks were recessed into the clay and none were 'raised', confirming that the bevelled edge moulds were primary moulds. Conversely, 45 moulds were recorded with overlapping edges. Of these, 15 carried evidence of registration marks, all of which were 'raised'; a characteristic of secondary moulds. Seventy moulds carry decorative components, 34 of which can also be differentiated as primary or secondary moulds on the basis of the analysis presented above. On 28 of the 34 moulds (82%) the decorative component occurs on a secondary valve, suggesting that a decorated component was, in general, placed face-up in the primary mould. Of the six primary moulds with decoration, two are for disc headed pins, which may have been three dimensional artefacts, that is, with no back. One other is for a pair of bosses (**1136**). Other plain bossed objects were similarly set face down in primary moulds (**1208**, **1216** and **1215**). Similarly, it can be shown, where correlation exists, that all shanked objects, as might be expected, were pressed shank-down into primary moulds.

A plot of the thickness range of primary and secondary moulds suggests that primary moulds were fashioned consistently thicker than secondary moulds (% thicker, Fig. 17A).

Fabric

There is no clear evidence to suggest that the fabric of the clay moulds was modified from a basic natural clay. This is in contrast to the observed record at Birsay where a fine clay appears to have been used for ornate moulds and a coarser fabric, gritted with quartz, for larger and less elaborate pieces. At the Mote of Mark, large grits are present in a slightly higher proportion of undecorated moulds. Nevertheless, both decorated and undecorated moulds appear to have employed very similar clay fabrics, predominantly with medium-sized quartz inclusions in an average density of distribution, comparable to that present in the clay in its unaltered state. This contrasts with the observation that the crucible fabric at the Mote

of Mark was modified with the addition of quartz grits. It must be stated, however, that the underlying assumption behind this observation is that both crucible and clay mould manufacture made use of the same clay source and that this is represented by the large clay 'stock pile' described above (p.14). This seems inherently likely, but has not been demonstrated. Table 2 plots the differential representation of quartz grits, in terms of density and size, in crucible, mould and pottery fabrics.

The outer surfaces of the moulds have, for the most part, been fired red, orange or orange-grey (58% of total) or buff to light grey (37%). A smaller proportion have been fired dark brown, dark grey and black. The inner faces and casting surfaces represent a very different distribution across the spectrum with buff and grey colours predominating (66%), dark grey, dark brown and black (16%) with orange pink and red colours in the minority.

Registration marks and ingates (Table 3)

Although the technology of bi-valve mould construction would seem to be broadly comparable from region to region, during the early Medieval centuries, there are local differences. In particular, while the technique of applying registration marks, as keys in the location of the two valves of a mould, is universal, the precise method of doing so would appear to be unique to each workshop. It is possible that such marks might be particular to an individual craftsman (Curle 1982, 39) and so might have a chronological or stylistic significance within the repertoire of a particular workshop. The range of registration marks at the Mote of Mark was identified

and their occurrence quantified. The results are tabulated below.

The majority of registration marks are V-profile incisions made with a sharp blade inserted at an angle and turned over through 90 degrees. They occur across every category of artefact where marks could be identified. A similar mark, with a rounded U-profile may have been made with a blunt tool rather than a knife. This occurs on 7 moulds; 5 times on pin moulds, once on a stud mould and once on a non-diagnostic fragment. A narrow incision, made with a knife, occurs on 7 moulds; 3 times on pin moulds, twice on moulds for strap fittings, once on a mould for a plain curvilinear panel and once on a non-diagnostic fragment. The other 5 identified keys occur once only although it may be significant that 3 of these instances are on moulds for plain panels. The range of associations is tabulated below. Unfortunately, no significant stratigraphic differentiation was observed in the occurrence of registration marks and therefore no chronological significance could be attributed.

A catalogue of clay moulds is presented in *Part 4*, following a discussion of the artefacts cast in them.

There are three stone ingot moulds from the site.

Stone ingot moulds (Fig. 45)

The stone ingot mould is of a type commonly represented on Celtic metalworking sites, for example at Dunadd (Craw 1929–30, Fig. 6, nos 8–9). Other examples are discussed above.

1289 A rectangular block of fine-grained sandstone. A U-profile rectangular groove, 16mm wide × 10mm deep

Registration Mark	The description applies to the impressed form on lower or primary valves. However, the classification also applies to the equivalent and corresponding raised form on upper or secondary valves	Number of recorded occurrences (individual moulds)
V	V-profile: oblique incision with a knife which is then turned through 90°	41
U	U-profile: impression with a blunt tool	7
I	Narrow slit: Knife cut but clay is not turned over as in V	7
⌊	Flat U-profile: Impression with a flat edged tool	1
○	Ovoid impression	1
⌊	Rectangular impression	1
///	Neat group of short striations, perhaps made with a special tool	1
(Fingernail	1

Table 3. Registration marks.

has been made into the upper surface of the block. The block has been truncated across the axis of the groove and now measures 45.0mm in width and 31.0mm in depth. The actual groove has a surviving length of 24mm. Although the stone is grey in cross-section, much of the upper surface is dark orange in colour. The sides of the ingot groove are buff and the lower surface is grey. (HH289)

- 1901** A coarse grained rectangular sandstone block, 38mm in depth and 50mm in surviving width with a rectangular groove, 9.5mm deep, worked in the upper face. The sandstone block is truncated across both the axis and along the length of the groove. The surviving length of the groove is 47mm; the surviving width is 12.5mm. The core of the stone is discoloured to a dark brown in the area of the groove.
- 2996** A roughly rectangular sandstone block, 93mm × 85mm × 45mm, with an elongated oval depression, 60mm × 20mm, and 7mm deep, in one face. The stone is buff-pink in colour; slightly darker red in the depression.

Metalworking residues and processes by Peter Crew

Slags and other metalworking residues

The evidence for iron working was less copious than that for non-ferrous metallurgy. Smelting may have taken place on site; the evidence for smithing is more certain. Some 158 fragments of iron ore, slags and other metalworking residues, weighing a total of c.5kg, were recovered from the excavations. This does not include several pieces investigated by students from the University of Liverpool in 1975–76 (Swindells and Laing 1978), but notes on some of these slags are incorporated into the following report. The slags have been classified on morphological grounds, as described below. They include small quantities of residues from non-ferrous metalworking, from iron smithing and, possibly, from iron smelting. Three important pieces of iron, including a rare example of a billet and two bars, were also examined in the 1975–76 programme (Swindells and Laing 1978, 124–126). These pieces are re-assessed in the light of current knowledge.

Slags of quartz-rich fabric

There are 26 fragments of heavily vitrified and slagged clay, with a very high proportion of quartz, weighing a total of 192g. Several of these fragments have tiny patches of cupiferous corrosion products or patches of a distinctive reddish glaze, indicating that the material is from non-ferrous metalworking. All these pieces have an irregular shape and probably derive from crucibles which have been fluxed by fuel ash at high temperature and so have lost their original shape. Ten of these fragments have been catalogued as crucibles.

Lining material

There are 12 fragments of clay lining, with a total weight

of 191g. Most of these pieces are of red oxidised clay with one surface heavily vitrified with a clean glassy surface. This is characteristic of clay lining which has been fired for some time at a high temperature, just above the blowing hole. Material of this kind is not diagnostic of any process and can form in a furnace or a hearth. Some fragments are grogged with a high proportion of quartz and are not unlike the crucible material described above. These eight items have been catalogued with the crucibles.

One important piece of lining material was examined in 1975–76. This is approximately one-third of a blowing hole, which would have been 28mm internal diameter. Analysis indicated an elevated copper content, which suggests that this was used in a non-ferrous hearth (Fig. 19).

Fuel ash slag

There are three small pieces of light vesicular fuel ash slag, weighing 6g. Material of this kind can form in a variety of high temperature processes and is not diagnostic.

Slag cakes

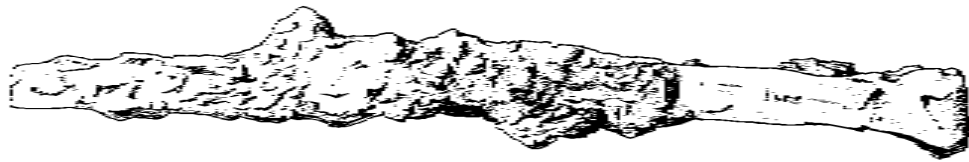
There are nine cakes of slag, mostly fragmentary, which weigh between 42g and 846g. The one complete example is a classic plano-convex smithing hearth slag cake, 65 by 75 by 36mm, weighing 199g. This has tiny quartz fragments in its upper surface, which may indicate the use of sand for fluxing. Another complete slag cake, reported as a furnace bottom but most probably a smithing hearth slag, was stolen from the site during the excavations (Swindells and Laing, 1978, 122). One of the slag cakes examined in 1975–76 contained enhanced levels of Pb and Cu, suggesting that some non-ferrous metalworking had been carried out in the blacksmith's hearth. Three of the fragmentary cakes are significantly denser and heavier than the others. These are rather large for smithing hearth cakes and they may be fragments of furnace bottoms.

Slag flows and prills

There are 15 fragments of dense slag, weighing 348g. Some are small irregular prills of slag, up to 50g in weight, which are typical of slag flows cooling in the charcoal bed of a furnace or a hearth. Two of the larger pieces, weighing 50g and 97g, are dense flows of tap-like slag, which may derive from smelting.

Amorphous slags

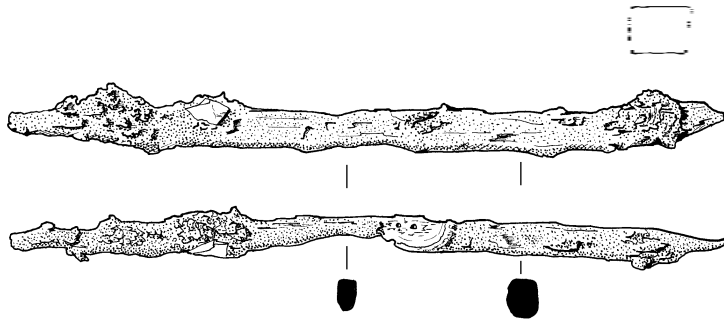
Twenty seven fragments, weighing 500g, of amorphous slags, with irregular shapes or heavy secondary corrosion products, were available for study. In addition the site record includes a further 22 fragments of similarly unclassifiable slag, which are not attributable to a specific process.



2058



2272

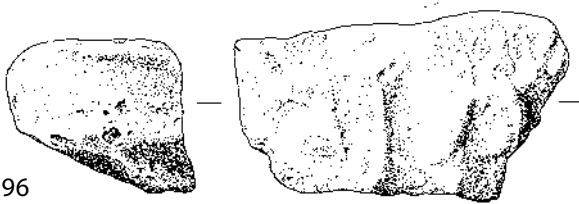


2226 (oblique view, scale approximate, total length 100mm)



tuyere

9996



1295

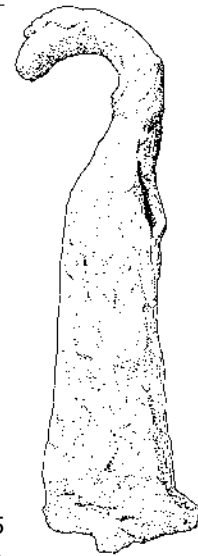


Fig. 19. Bulk iron and billets.

Ores

There are 26 fragments of ore from the 1973 and 1979 excavations, with a total weight of 927g. These are mainly tabular and massive hematite, some of which have a fine botryoidal structure. Some pieces have slightly rounded edges, suggesting that they may have been collected from a stream or a beach. The largest piece weighs 367g. Additionally there are 18 fragments of ore from the 1913 excavations in the National Museum collections.

Metallurgical processes indicated by the slags (Table 4)

This is a small collection of slag, from a variety of processes, which it is not likely to be representative of either the weights or the proportions of slags which would have been produced at the site. These slags, therefore, can only give an indication of the different metallurgical processes which were carried out.

A proportion of the residues, including the quartz rich slags, some of the lining material and the blowing hole, derive from non-ferrous metalworking. In view of the large numbers of crucibles and moulds recovered, this small collection of residues would indicate that a significant proportion of the slags were dumped elsewhere and not recovered. An alternative explanation, that the main focus of metalworking was not found, is considered less likely given the distribution of the moulds and crucibles and, in particular, the constraints of the site topography.

The presence of high quality haematite ore, and of some slags which may derive from smelting, might indicate the primary production of iron. However, the material recovered could only be a small proportion of the residues which would have been produced in even a single smelt. This suggests that if smelting was carried out at the Mote of Mark, then the main focus of activity lies elsewhere than in the areas excavated. It should be stressed, however, that none of the slags are certainly from smelting and that the ores may have been brought to the site for other purposes, perhaps for making pigments or perhaps for finishing and polishing some of the non-ferrous products.

The evidence for smithing is certain, both because of the presence of the smithing hearth cakes and also the billet and bars, which represent intermediate stages in the refining and smithing process (Fig. 19). However, the number of smithing operations attested by the recovered slag is very small. Each smithing hearth cake represents one episode of smithing, either a half-day or a full day's work, so the cakes from Mote of Mark need not indicate more than a few days of non-intensive forging.

The billet is of particular importance as very few examples of bulk iron survive from any period and only a few are known from dated post-Roman contexts. The billet is in at intermediate stage of refining and would have been forged from a raw bloom of perhaps only one kilogram. In view of the tenuous evidence for smelting,

it seems probable that the billet may have been brought to the Mote of Mark from a production site elsewhere. The two bars represent stages of refining, where a billet has been drawn down to a smaller cross section, and the iron more fully consolidated, prior to the manufacture of smaller objects. Neither the billet nor the bars are of particularly good quality metal, being typically heterogeneous products of bloomery smelting, but they would have been adequate for making objects which did not require specific properties.

Bulk iron objects (Fig. 19)

2226, iron billet

This is a small wedge shaped block, 100mm long × 50mm wide. About half of the block is 35mm thick and the other half has been forged to a tapered shape, approximately 15mm thick at the end. The larger end is rather rounded, the narrow end is irregular, but the sides are straight and flat. Assuming a bulk density of about 6g/cc, the block would have weighed 500 to 600g. The piece is assumed to be a billet, although small anvils of similar shape are known from the continent (Schmidt 1983).

The billet was sectioned along its long axis in 1975, and sub-sampled in 1976, for metallographic examination. The photographs of the section show that the thicker end has a large number of irregular inclusions and voids, with fragments of entrapped charcoal, typical of a rather spongy bloom which has been partly consolidated. The thinner end has been forged to a wedge-shape, with fewer inclusions which show some deformation in the direction of forging. The metal is mainly ferrite, with larger grain sizes at the thick end and smaller at the other end. There were some localised areas of pearlite, mainly around the inclusions. Qualitative analysis indicated the presence of phosphorus, which would not be typical of a bloom smelted from a hematite ore. Si was also reported in the iron matrix, but this would only occur under exceptionally reducing conditions, which would also result in an enhanced carbon content. It seems more likely, therefore, that the Si was present in small slag inclusions.

2058, iron bar

This is a slightly curved iron bar, 300mm long, with a rectangular cross section, measuring 15mm × 12mm where it is clear of corrosion products. Its original weight was probably about 350g. One end of the bar is slightly swollen and seems to have been welded back on itself. The other end was sampled for metallographic examination in 1975–76. This showed that the core of the bar was mainly ferrite of a variable grain size, still containing some large two-phase slag inclusions. Some of the bar sections showed that up to one-quarter of the section, on the edges of the bar, was pearlite. This was assumed to be from deliberate carburization of the bar, with quite unrealistic times being suggested (100hrs at 950° C) based on the thickness of the pearlite (Swindells and Laing 1978, 125). It is now known, of course, that iron carburised to sometimes quite high levels could be

a normal product of the bloomery furnace (Salter 1997). The cracking in this bar, argued to be a result of the long period of carburisation, would be a normal characteristic of spongy iron similar to the billet, which had been poorly consolidated. The quality of such metal can be dramatically improved by the kind of forge welding observed in the following bar (Fig. 19).

2272, iron bar

This was originally 200mm long, with an irregular cross section up to a maximum of 10 × 8mm. The thinner parts of the bar are probably due to corrosion losses. One end is triangular and the other end is rather pointed, but again this may be due to corrosion. The original weight of this bar was about 120g. Sections taken in 1975–76 showed that the bar was ferrite with spheroidised cementite, with a carbon content varying from 0.09 to 0.3% C. The bar had a central weld seam, marked by a zone of slag inclusions and a decarburised zone. This was originally interpreted as two fully carburised bars welded together (Swindells and Laing 1978, 126). It is much more likely that this bar was forged from a bloom containing a varying amount of carbon, resulting in some decarburisation of the edges of the bar, which were subsequently trapped in the centre of the bar by forge-welding. The term ‘piling’ used in the 1980 report is now generally taken to mean the forging together of bars of different material, to achieve either a technological advantage (as with the use of steel inserts for cutting edges) or for decoration (as in pattern welding). In this case, the structures have resulted from a working weld, where the bar has simply been folded back on itself, which would have improved the quality of the metal (Fig. 19).

Tuyère

Two fragments of a tuyère were recorded, which though from different locations could be joined together (Fig. 19, 9996). Tuyères were used to protect the nozzle of the bellows or blow pipe from the heat of the hearth. The bellows nozzles may often have been of bone, though there is a fragmentary example in clay from Garryduff, Co. Cork (O’Kelly 1962, 99) and others from Garranes (Ó Ríordáin 1942, 139) Lagore (Hencken 1950, 126 Fig. 60) and Dunadd (Lane and Campbell 2000, 147). The tuyère from the Mote of Mark was covered with a slag residue, which spectroscopy showed to be mainly of iron with some copper. Tuyères were first recognized at Garryduff (O’Kelly 1962, 101–102), where their method of use was discussed, but they have now been identified on a variety of sites in Britain and Ireland (map, Dark, 1994a). They are represented for example at Moynagh Lough, Co. Meath (Youngs 1989, no. 161) and Dunadd.

Gold

The evidence for gold working comprised a small coil of gold wire and traces of gold on two of the crucibles (see above). In addition, recent work has suggested that saucer-shaped ‘heating trays’ (see above) were used in parting gold from silver or to fire-assay gold (Bayley 1991a, 1991b). It is also possible that the piece of jet (Fig 49, 2744) was used as a touchstone. The use of ‘heating trays’ in gold processing has been demonstrated at Dunadd, where crucibles for gold working have been

	Context group	slags							Total	ore
		Slag / crucible	Fuel ash slag	Lining material	Slag cake	Dense flow	Prills	Un-classified		
1a	Pre-rampart contexts			1				6	7	
1b	Earliest stratified contexts within the interior									
2	Rampart contexts									
3a	Earlier occupation contexts				2	1		13	16	2
3b	Later stratified occupation contexts			2				2	4	1
4	Disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting		2		1	1	2	4	10	5
5	Post-occupation accumulation				1				1	
6 & 8	1913 excavation assemblage and backfill	4	1		2		5	5	17	25
7	Topsoil and unstratified	12		1	3	1	5	19	41	11
	Total	16	3	4	9	3	12	49	96	44

Table 4. Summary of representation of slags and ore in context groups.

identified (Bayley 1984). Other sites with evidence for gold working include Buiston, Ayr (Munro 1882, 236; Crone 2000, 144) and Dumbarton Rock, Strathclyde (Alcock and Alcock 1990).

Gold wire coil by Niamh Whitfield

The minute coil of gold wire comes from dark soil in one of the earliest stratified contexts in the interior of the site (context 10/5:7). This was examined in the company of Mrs Susan La Niece of the British Museum Research Laboratory, whose report is given below.

The coil, which measures c.4.5mm in maximum diameter and weighs c.0.04g, was encrusted at some points with a dark substance. The wire, which has cleanly broken ends, is of slightly uneven rectangular section, c.0.25 by 0.6mm. Mrs La Niece was able to manufacture a very similar coil of copper wire by cutting a narrow strip from the edge of a flat sheet with a pair of scissors. The character of the two coils is so alike that it seems likely that the Mote of Mark fragment was cut off a sheet in the same way. It may therefore have been produced accidentally when a larger piece was being trimmed. On the other hand, it was calculated that if annealed it could be uncoiled to measure c.2.5cm long. It may, therefore, represent the first stage in the manufacture of a short decorative wire, perhaps a flat ribbon of gold or a block-twisted round wire (made by twisting a square or rectangular rod which is then rounded and smoothed by rolling between two flat surfaces). On either view the fragment is of considerable interest. It seems unlikely that so insignificant a piece of metal would have been brought to the site by an itinerant goldsmith, for instance, or in the course of trade. It is more likely that it was dropped by accident by a working goldsmith. As such, it provides evidence for the working of gold at the Mote of Mark.

Very few isolated pieces of wire are known in an Insular context, I am aware of only two others, both discovered in recent excavations and made of gold: firstly, a 2-ply rope-twist (composed of two round wires twisted together), about 2cm long came from the occupation area east of round house 1 in the uppermost phase at the crannog at Moynagh Lough (Youngs 1989, cat. no. 219). The second, a beaded wire about 2.5cm long, is from Movilla Abbey, Co. Down. The latter was found not in the rich metal- and glass-working early Medieval layers on the site, but in the floor of an adjacent large 13th-century building. However, it is likely to date to the early Medieval Period, not only because beaded wire of this type was very popular then, but also because the original strand was manufactured by block-twisting (Ivens 1984 74, 95; Whitfield 1987, 78; Whitfield 1990, 14–18). In the case of both the Moynagh Lough and Movilla Abbey fragments it is also theoretically possible that they were brought to the sites from elsewhere, but this seems unlikely as both sites have produced abundant evidence of metalworking.

EDX analysis of the uncleaned surface of the gold (La Niece, below) provided a reading of 85% gold, 12% silver

and 3% copper. The original uncorroded alloy could be expected to be a little baser than this.

While natural gold may contain gold and silver in these proportions, (Tylecote 1986, table 2, 3) its copper content rarely exceed 2% of the total (Ogden 1982, 18). In the British Isles, this may be as low as 0.01% (Taylor 1980, 141), Therefore the relatively high copper content of the Mote of Mark gold is consistent with it being a man-made alloy. On the other hand, recent geological research has demonstrated that the copper content of natural gold can be enhanced when it is intergrown with copper/gold intermetallic compounds (pers. comm. Robert Leake). In many localities, including some recently tested in Scotland, Ireland and Brittany, relatively small amounts of copper are generally present (Leake *et al.* 1993, B67-B 68; Leake *et al.* 1997, B87, table 1; Leake *et al.* 1998, 7, 17, 24, table 1). However, in certain others it may occur in far higher proportions, for instance, south Devon, where two varieties of gold grain were measured with 9wt%, and 21wt % copper respectively (Leake *et al.*, 1991, B 159). Contamination with chalcopyrite (copper ore) may also result in the formation of nuggets with a relatively high copper content (pers. comm. Peadar McArdle; Whitfield 1993, 130). It is to be concluded, then, that while the presence of approximately 3% copper in the gold of the Mote of Mark coil strongly suggests that the metal was deliberately alloyed, it does not prove it.

This composition is not unusual in the context of ancient gold, either prehistoric (Tylecote 1986, table 3, 4) or early Medieval (Hughes *et al.* 1978, 624–5). However, very few analyses of Insular gold have been carried out to date so there is very little comparative data of native origin. Apart from as yet unpublished results from the Derrynaflan hoard, I know only of tests to the following objects:

- the Ardagh chalice, where some gold from an unspecified part of the chalice was assayed, probably with a touchstone, by Edmond Johnson in the nineteenth century (Dunraven 1873, 439; Stokes 1911, 73);
- the brooch from Westness, Orkney, where the backs of two large filigree foils were recently analysed by X-ray fluorescence after they had been removed from their compartments (Stevenson 1989, 265);
- the wire on the filigree panel on the Skjeggenes pin-head from Norway, recently subjected to X-ray fluorescent analysis (Liversage 1983, 147);
- the beaded wire from Movilla Abbey, Co. Down, which likewise was tested by X-ray fluorescence (Ivens 1984, 95).

Johnson reported that the Ardagh chalice gold was between 18 and 19 carats fine. Tylecote, who converted his results from pennyweights and ounces to 73.5% gold, 23.5% silver, and 3.0% copper, has concluded that this gold was deliberately alloyed, but the new geological

research referred to above indicates that this is not certain (Tylecote 1986, table 3, 4).

The Westness brooch results were not dissimilar. On one foil the average of two measurements was 76.2% gold, 19.8% silver and 4.0% copper. On the other it was 79.1% gold, 17.3% silver and 3.6% copper. The values were not taken to be significantly different since the analysed surfaces were not perfectly flat, nor was any abrasion carried out to remove a possibly gold-enriched surface. In this case the slightly higher copper content increases the probability of the gold being alloyed.

The Skjeggenes analysis is not easy to interpret. Liversage noted that the filigree wire on the pin-head contained gold and silver with a small indication of copper, commenting that either or both could have been used to alloy the gold, but that they could equally well reflect contamination from some other part of the object (1983, 147).

The gold on the Movilla wire, however, seems to be of an exceptionally high caratage, since it is reported as being almost pure gold with only a very small percentage of silver and other trace elements (Ivens 1984, 95). This gold could have been imported, as until the seventh century very pure Byzantine gold sometimes reached the West (Oddy and Meyer 1986, 153–4). However, it could also be of native origin. Its purity does not in itself prove refinement, since constituents such as silver and copper may be leached out of very small grains of natural gold (pers. comm. Peadar McArdle).

A range of alloys has thus been identified. Without further analyses it is impossible to know how representative these are of Insular goldwork generally. However, it is interesting to note that similar variations are reported in gold from early Medieval Sweden (Oddy and Meyer 1986, 156) and Anglo-Saxon England (Brown and Schweitzer 1973, 176–80; Hughes *et al.* 1978, 624–5), where more analytical data are available.

The examination and analysis of the gold coil by Susan La Niece

The fragment is a small coil of gold uneven in width, coiled in a spiral fashion.

Width: Uneven, less than 1mm
Extended uncoiled: Approx. 25mm
Length:

EDX analysis of the uncleaned surface in an electron scanning microscope:

Gold: 85%
Silver: 12%
Copper: 3%

The original uncorroded alloy could be expected to be a little baser than this.

Catalogues

Catalogue of crucibles

The representation of crucibles through the sequence and their spatial distribution across the site is considered in Table 5 and more fully in section 4.1.

Small crucibles

- 1501** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 616; *section:* 4.5
Inner face: grey, red
Outer face: green, red
Core: grey
Rim of small crucible; traces of red glaze on inner face, red and green gloss on uneven inner face.
- 1502** *Context group:* 1913 assemblage
Site context: Curle: not known

	Context group	Small crucibles	Large crucibles	Very large crucibles	Total
1a	Pre-rampart contexts				0
1b	Earliest stratified contexts within the interior		1		1
2	Rampart contexts				
3a	Earlier occupation contexts	5			5
3b	Later stratified occupation contexts	3	2		5
4a and 4b	Disturbance of 3b and possible late occupation, post dating rampart slighting	20			20
5	Post-occupation accumulation	2		1	3
6 and 8	1913 excavation assemblage and backfill	35	12	17	64
7	Topsoil and unstratified	31	3		34
	Total	96	18	18	132

Table 5. Summary of representation of crucibles in context groups.

- Dimension rating:* 595; *section:* 2
Inner face: grey, brown
Outer face: grey/brown
Core: grey
 Rim and base of crucible. (Fig. 14)
- 1503** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 1040; *section:* 3
Inner face: grey, brown
Outer face: grey
Core: grey
 Base of crucible; inner face uneven (Fig. 14).
- 1504** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 420; *section:* 1.5
Inner face: buff to grey
Outer face: buff to grey
Core: grey
 Base of small crucible. (Fig. 14)
- 1506** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 375; *section:* 4.5
Inner face: cream, red
Outer face: cream, red
Core: cream
 Crucible rim; red gloss on outer and inner faces.
- 1507** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 180; *section:* 3
Inner face: brown, green
Outer face: brown, buff
Core: brown/orange-brown
 Crucible rim; small fragment of copper metal adhering to uneven inner face.
- 1508** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 345; *section:* 4
Inner face: purple-grey to orange-brown
Outer face: purple-grey to orange-brown
Core: purple-grey
 Crucible rim.
- 1509** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 1700; *section:* 3
Inner face: brown, green, red
Outer face: grey, buff, red
Core: grey
 Crucible rim; traces of copper metal on inner face; red gloss on outer and inner faces. (Fig. 14)
- 2010** *Context group:* backfill of earlier excavations
Site context: b3:2
Dimension rating: 158; *section:* 2.5
Inner face: light grey with trace of bronze?
Outer face: grey with traces of green glassy slag
Core: grey vitrified
 Crucible fragment; hair lines on both surfaces, possible traces of metal on inner surface.
- 2011** *Context group:* backfill of earlier excavations
Site context: b3:2
Dimension rating: 250; *section:* 4.5
- Inner face:* red, yellow-brown
Outer face: red, grey
Core: vitrified
 Round crucible rim; yellow vitrified concretion on inner face, red vitrified gloss on both faces near rim.
- 2013** *Context group:* backfill of earlier excavations
Site context: b1:6
Dimension rating: 800; *section:* 3
Inner face: brown coated with bubbly slag; blue tinged near rim
Outer face: light grey, traces of red glassy slag
Core: medium grey, vitrified
 Fragment of crucible wall from rim to near base. Triangular, thin walled, very hard with simple thinned and rounded rim. Outer face with possible streaks of vegetable inclusion. Three spots of red-tinged glassy slag on outer wall, bluish metallic tinge on inner face. (Fig. 15)
- 2017** *Context group:* backfill of earlier excavations
Site context: b1:6
 Fragment of small crucible.
- 2021** *Context group:* backfill of earlier excavations
Site context: b1:7
Dimension rating: 875; *section:* 1.5
Inner face: buff
Outer face: dark green to red
Core: grey
 Rim and base of triangular crucible; relined; bubbly vitreous concretion on outer face and possible tong marks. (Fig. 14)
- 2028** *Context group:* disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting
Site context: b4:5
Dimension rating: 264; *section:* 4.5
Inner face: dark grey
Outer face: light grey
Core: light grey
 Crucible fragment in very hard fabric. Hair lines on both faces.
- 2034** *Context group:* disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting
Site context: b4:3
Dimension rating: 798; *section:* 3.5
Inner face: darker grey
Outer face: grey
Core: grey
 Rim sherd of crucible.
- 2048** *Context group:* topsoil
Site context: c1:2
Dimension rating: 238; *section:* 4.5
Inner face: brown
Outer face: grey
Core: grey
 Crucible sherd; red spot of vitreous gloss on outer face.
- 2055** *Context group:* occupation, later contexts
Site context: b1:8
Dimension rating: 480
Inner face: grey, orange-buff

- Outer face: red, buff
Core: grey-buff
Possible crucible base with crust of red vitreous material.
- 2077** *Context group:* backfill of earlier excavations
Site context: b8:2
Dimension rating: 168; *section:* 4.5
Inner face: brown/red bubbly
Outer face: buff/brown, slightly glossy occasional red patches
Core: grey, vitrified
Crucible fragment; body sherd with green copper staining in parts of core and small nodules of metal (?silver) on outer surface.
- 2083** *Context group:* backfill of earlier excavations
Site context: b7:2
Dimension rating: 380; *section:* 3
Inner face: dark grey/brown traces of red vitreous material
Outer face: dark grey/brown traces of brown vitreous material
Core: dark grey, vitrified
Thinned crucible rim; spots of red vitreous gloss on inner face.
- 2091** *Context group:* backfill of earlier excavations
Site context: b7:2
Dimension rating: 144; *section:* 3.5
Inner face: brown/buff
Outer face: buff/grey traces of red vitreous material
Core: grey
Thin walled crucible fragment; red vitreous gloss on outer face.
- 2096** *Context group:* backfill of earlier excavations
Site context: b7:2
Fragment of small crucible.
- 2118** *Context group:* occupation, later contexts
Site context: b1:8
Dimension rating: 660
Inner face: smooth vitreous buff/brown
Outer face: softish red clay
Core: very thick, grey-brown vesicular
Possible crucible fragment with clay relining. (Fig. 14)
- 2130** *Context group:* disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting
Site context: b3:3
Dimension rating: 832
Inner face: sandy
Outer face: red and green slaggy vitreous
Core: grey
Crucible rim with thick red and black vitreous encrustation. (Fig. 14)
- 2158** *Context group:* disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting
Site context: b5/10:5
Dimension rating: 414
Fragment of small crucible.
- 2161** *Context group:* post-occupation accumulation
Site context: b12:2
Dimension rating: 216; *section:* 2.5
- Inner face:* green, yellow, orange
Outer face: red, grey, orange
Core: cream, vitrified
Possible crucible rim; green, yellow and orange stain on inside face; red vitreous gloss on outer face; dark gloss inside rim.
- 2167** *Context group:* topsoil
Site context: a2:2
Dimension rating: 288; *section:* 2
Inner face: brown
Outer face: brown
Core: buff
Rounded base of crucible.
- 2179** *Context group:* backfill of earlier excavations
Site context: b1:6
Dimension rating: 260; *section:* 2.5
Inner face: grey with glassy slag
Outer face: grey/brown with traces of glassy slag +?bronze
Core: grey
Thinned crucible rim. Red vitrified gloss on rim and inner face.
- 2189** *Context group:* occupation, later contexts
Site context: b1:8
Dimension rating: 294; *section:* 2
Inner face: buff, red
Outer face: brown, red
Core: grey, vitrified
Thinned rim of crucible. Red tinged vitreous gloss on both surfaces.
- 2192** *Context group:* backfill of earlier excavations
Site context: b6:2
Fragment of small crucible.
- 2201** *Context group:* topsoil
Site context: a1:2
Dimension rating: 273; *section:* 4
Inner face: brown, small dots of metallic residue
Outer face: grey/brown
Core: buff
Thinned crucible rim sherd.
- 2202** *Context group:* backfill of earlier excavations
Site context: b8:2
Dimension rating: 230; *section:* 3
Inner face: brown
Outer face: brown
Core: grey, vitrified
Thinned crucible rim; red vitreous spots on inner and outer faces.
- 2210** *Context group:* disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting
Site context: b3:4
Dimension rating: 336; *section:* 4
Inner face: grey
Outer face: green, black, red
Core: grey
Thin walled crucible rim fragment. green-black and red gloss on outer face.
- 2216** *Context group:* disturbance of latest occupation within the ramparts, possible late occupation post-dating

- rampart slighting
Site context: b5/3b:3
Dimension rating: 280; *section:* 2.5
Inner face: buff with black vitrified coating
Outer face: buff with black vitrified
Core: grey
 Thin walled rim of crucible heavily vitrified.
- 2232** *Context group:* disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting
Site context: b3/5:5
Dimension rating: 180
Inner face: buff
Outer face: buff/grey
Core: grey
 Fragment of crucible base. Hard fabric. (Fig. 14)
- 2267** *Context group:* occupation, earlier contexts
Site context: b16:5
Dimension rating: 255; *section:* 2.5
Inner face: grey/brown
Outer face: buff
Core: grey
 Thin walled rim fragment of triangular crucible.
- 2268** *Context group:* occupation, earlier contexts
Site context: b16:5
Dimension rating: 520; *section:* 3
Inner face: grey/brown
Outer face: buff
Core: grey
 Thin walled rim fragment of triangular crucible.
- 2283** *Context group:* topsoil
Site context: a2:2
Dimension rating: 306; *section:* 3.5
Inner face: dark grey with traces of glassy red slag
Outer face: light grey
Core: grey, vitrified
 Thin walled crucible; orange-red gloss on inner face, hair lines on outer face.
- 2287** *Context group:* disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting
Site context: b9:2
Dimension rating: 270; *section:* 3.5
Inner face: red, yellow, brown
Outer face: red, black
Core: vitrified
 Rounded crucible rim. Heavily vitrified; vesicular with red and black vitrified gloss on both faces.
- 2288** *Context group:* disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting
Site context: b9:2
Dimension rating: 650
Inner face: dark grey
Outer face: grey, red
Core: dark grey
 Crucible sherd with red and orange-yellow vitrified gloss on outer face. Small spots of green vitrified gloss on outer face.
- 2332** *Context group:* unstratified
Dimension rating: 198; *section:* 3
Inner face: brown/buff with red and brown vitreous patches
Outer face: brown/buff, some black patches
Core: grey, vitrified
 Rim of thin walled crucible; red vitreous gloss on inner face.
- 2335** *Context group:* unstratified
Dimension rating: 228; *section:* 3
Inner face: brown/buff with red/brown vitreous patches
Outer face: brown/buff
Core: grey, vitrified
 Thinned crucible rim.
- 2344** *Context group:* occupation; earlier contexts
Site context: b18:5
Dimension rating: 511; *section:* 4.5
Inner face: brown/black in lower part
Outer face: dark brown/grey
Core: grey
 Crucible fragment with thinned rim. Slight gloss of vitrification; hair lines.
- 2346** *Context group:* disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting
Site context: b9:7
Dimension rating: 640
Inner face: grey/buff
Outer face: green, black
Core: grey/buff, vitrified
 Fragment of crucible; heavily vitrified.
- 2413** *Context group:* backfill of earlier excavations
Site context: b1:6
Dimension rating: 312; *section:* 4
Inner face: irregular buff slag concretions tiny bronze patch
Outer face: brown/buff with glassy red slag
Core: grey
 Crucible fragment; red vitreous gloss on outer face.
- 2414** *Context group:* backfill of earlier excavations
Site context: b7:2
Dimension rating: 390; *section:* 4
Inner face: buff, traces of dark grey coating
Outer face: buff/brown some spots of brown glaze
Core: grey
 Crucible fragment; near base; not as heavily vitrified as most.
- 2415** *Context group:* backfill of earlier excavations
Site context: b7:2
Dimension rating: 182; *section:* 3
Inner face: buff/grey with bubbly concretions
Outer face: buff/brown, traces of brown vitreous material
Core: grey
 Crucible fragment. Thin walled.
- 2416** *Context group:* backfill of earlier excavations
Site context: b1:7
Dimension rating: 191; *section:* 2
Inner face: grey with brown and red slag concretions
Outer face: grey
Core: grey

- Thinned rim of crucible. Orange-red vitreous concretion and spot of green ?copper on inner face.
- 2417** *Context group:* backfill of earlier excavations
Site context: b1:7
Dimension rating: 150; *section:* 4
Inner face: grey with traces of red
Outer face: grey with red vitreous coat
Core: grey
Crucible fragment; red vitreous gloss on outer face.
- 2419** *Context group:* backfill of earlier excavations
Site context: b1:7
Dimension rating: 77; *section:* 2
Inner face: grey with bubbly vitreous material
Outer face: grey/brown
Core: buff, vitrified
Small crucible fragment; spot of bright green copper on inner face.
- 2433** *Context group:* disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting
Site context: b9:7
Dimension rating: 480
Inner face: coated with red/brown and green vitreous material
Outer face: black vitreous coating with lump of bubbly ?slag
Core: grey/brown many vesicles
Possible fragment of crucible.
- 2434** *Context group:* disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting
Site context: b9:7
Dimension rating: 408
Inner face: buff/green, copper traces adhering
Outer face: coated with globules of black vitreous material
Core: buff, vitrified
Possible crucible rim fragment; heavily vitrified.
- 2556** *Context group:* unstratified
Dimension rating: 109; *section:* 3
Inner face: red, yellow
Outer face: red
Core: grey
Thinned crucible rim; red and yellow vitreous gloss on inner face; red gloss on outer face.
- 2586** *Context group:* backfill of earlier excavations
Site context: b15:2
Dimension rating: 120; *section:* 3
Inner face: red
Outer face: red
Core: grey
Rim fragment of small crucible.
- 2589** *Context group:* topsoil
Site context: c2:2
Dimension rating: 380; *section:* 4
Inner face: buff
Outer face: grey-buff
Core: grey-buff
- Crucible sherd; laminated fabric; orange vitreous gloss on outer face, hair lines on inner and outer faces.
- 2615** *Context group:* occupation; earlier contexts
Site context: b5/10/3:7
Dimension rating: 135; *section:* 4.5
Inner face: buff
Outer face: grey-buff
Crucible sherd.
- 2624** *Context group:* backfill of earlier excavations
Site context: b15:2
Dimension rating: 720
Inner face: grey, red
Outer face: buff-grey
Core: grey, red, vitrified
Crucible sherd with heavy concretion of deep red glassy material on inner surface; possible trace of re-lining.
- 2625** *Context group:* backfill of earlier excavations
Site context: b15:2
Dimension rating: 256; *section:* 3
Inner face: red, black
Outer face: black
Core: grey, vitrified
Small crucible sherd with heavy vitreous concretion. Small patch of green ?copper on outer face.
- 2626** *Context group:* backfill of earlier excavations
Site context: b15:2
Dimension rating: 252; *section:* 3.5
Inner face: grey-buff
Outer face: grey
Core: grey, vitrified
Crucible fragment, close to rounded base.
- 2627** *Context group:* post-occupation accumulation
Site context: b12:2
Dimension rating: 153; *section:* 2
Inner face: grey
Outer face: grey
Core: grey, vitrified
Thinned crucible rim.
- 2637** *Context group:* topsoil
Site context: b17:2
Dimension rating: 256; *section:* 2.5
Inner face: grey-brown
Outer face: grey-brown
Core: grey-brown
Thin walled rim of crucible.
- 2654** *Context group:* topsoil
Site context: b17:2
Dimension rating: 263; *section:* 4
Inner face: buff
Outer face: grey/buff/red vitreous slag
Core: grey
Crucible sherd; red vitreous gloss on outer face.
- 2738** *Context group:* backfill of earlier excavations
Dimension rating: 70; *section:* 3
Inner face: grey
Outer face: buff
Core: grey
Crucible sherd.
- 3045** *Context group:* topsoil

- Site context:* 1:1
Dimension rating: 156
Inner face: grey/buff with red glaze
Outer face: grey/buff
Core: grey/buff
Small crucible sherd with red bubbly vitreous glaze on inner face.
- 3062** *Context group:* topsoil
Site context: 1:1
Dimension rating: 425; *section:* 3
Inner face: slag like, bubbly
Outer face: brown crust
Core: grey becoming vitreous towards outer and inner faces
Small fragment of crucible.
- 3064** *Context group:* topsoil
Site context: 2:1
Dimension rating: 247; *section:* 3.5
Inner face: slightly slaggy
Outer face: brown crust
Core: vitreous throughout
Crucible fragment; microscopic (less than 0.3mm) globules of dark metal on inner face.
- 3065** *Context group:* topsoil
Site context: 1:1
Dimension rating: 100; *section:* 2.5
Inner face: brown crust
Outer face: brown crust
Core: vitreous
Thinned crucible rim.
- 3067** *Context group:* topsoil
Site context: 2:1
Dimension rating: 675; *section:* 5
Inner face: grey, brown, heavily gritted
Outer face: brown, green/brown glaze on lower part
Core: vitreous
Crucible rim and wall; red vitreous tinge on inner rim.
- 3069** *Context group:* topsoil
Site context: 1:1
Dimension rating: 156; *section:* 3
Inner face: brown crust
Outer face: red vitreous slag
Core: grey, fire altered, lighter towards outer face
Crucible base; red vitreous gloss on outer face.
- 3076** *Context group:* topsoil
Site context: 1:1
Dimension rating: 105; *section:* 3
Inner face: grey-brown
Outer face: brown vitreous crust
Rim fragment of small crucible.
- 3078** *Context group:* topsoil
Site context: 1:1
Dimension rating: 618; *section:* 3.5
Inner face: black vitreous slag
Outer face: brown
Core: grey, vitrified
Crucible rim; heavily vitrified; possibly broken in antiquity as slag seals breaks. Numerous microscopic spots of gold over rim and on both faces.
- 3079** *Context group:* topsoil
- Site context:* 1:1
Dimension rating: 105; *section:* 2
Inner face: brown/bronze residual
Outer face: brown/vitreous
Core: grey vitreous black mineral inclusions
Tiny fragment of crucible rim with bright green vitreous stain on inner face.
- 3080** *Context group:* topsoil
Site context: 1:1
Dimension rating: 150; *section:* 3.5
Inner face: dark grey
Outer face: dark grey vitreous
Core: grey vitreous
Rim fragment of small crucible.
- 3089** *Context group:* topsoil
Site context: 1:1
Dimension rating: 336; *section:* 3.5
Inner face: buff, bubbly
Outer face: red vitreous
Core: grey vitreous
Crucible rim with bubbly concretion on inner and outer faces and over rim. Red vitreous gloss on outer face.
- 3094** *Context group:* topsoil
Site context: 1:1
Dimension rating: 244; *section:* 4.5
Inner face: buff
Outer face: brown crust
Core: buff to grey near outer face
Crucible fragment.
- 3100** *Context group:* topsoil
Site context: 1:1
Dimension rating: 328; *section:* 3.5
Inner face: buff
Outer face: buff
Core: cream
Crucible rim, hair lines on outer face.
- 3106** *Context group:* topsoil
Site context: 1:1
Dimension rating: 244; *section:* 5
Inner face: grey/brown
Outer face: grey/buff
Core: grey/brown-grey buff
Crucible fragment; hair lines on outer face.
- 3122** *Context group:* topsoil
Site context: 1:1
Dimension rating: 217; *section:* 3.5
Inner face: green and red vitreous glaze over rim
Outer face: grey/brown
Core: vitreous and bubbly
Crucible rim with green and red vitreous gloss on both faces. Microscopic spots (less than 0.2mm) of gold metal on outer and inner faces.
- 3123** *Context group:* topsoil
Site context: 1:1
Dimension rating: 76; *section:* 2
Inner face: grey
Outer face: red
Core: grey, vitreous
Crucible sherd; red vitreous gloss on outer face.
- 3125** *Context group:* topsoil

- Site context:* 1:1
Dimension rating: 306; *section:* 2.5
Inner face: dark grey bubbly
Outer face: brown crust
Core: grey vitreous
Thinned crucible rim.
- 3126** *Context group:* topsoil
Site context: 1:1
Dimension rating: 100
Inner face: grey
Outer face: red vitreous slag
Core: grey vitreous
Crucible fragment.
- 3130** *Context group:* topsoil
Site context: 1:1
Dimension rating: 262; *section:* 4
Inner face: brown crust, vitreous
Outer face: brown crust
Core: grey vitreous
Crucible fragment.
- 3148** *Context group:* disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting
Site context: 2:3
Dimension rating: 248; *section:* 2.5
Inner face: grey
Outer face: grey
Core: grey vitreous with black inclusions
Thin wall of crucible; hair lines on outer face.
- 3149** *Context group:* disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting
Site context: 2:3
Dimension rating: 1000; *section:* 4
Inner face: dark brown slag crust
Outer face: brown crust/slag
Core: buff vitreous/crumby, black inclusions
Complete profile of small crucible; occasional spots of red vitreous gloss on inner and outer faces.
- 3165** *Context group:* backfill of earlier excavations
Site context: 1:4
Dimension rating: 359; *section:* 5
Inner face: grey
Outer face: red vitreous glaze
Core: grey vitreous (more so towards outer face). Black inclusions
Crucible sherd including part of base. Bright orange concretion and red vitreous gloss on outer face.
- 3199** *Context group:* disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting
Site context: 2:f2
Dimension rating: 725; *section:* 5
Inner face: red, buff
Outer face: dark
Core: grey-buff
Rounded base of crucible; red vitreous gloss on outer face.
- 3245** *Context group:* disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting
Site context: 2:2
Dimension rating: 468; *section:* 4
Inner face: grey-buff
Outer face: dark green
Core: grey buff
Rounded rim of crucible; dark green vitreous gloss and red orange spots on outer face; red vitreous gloss inside rim; possible tong marks on outer face.
- 3246** *Context group:* topsoil
Site context: 1:1
Dimension rating: 323
Inner face: grey
Outer face: grey
Core: vitrified
Heavily vitrified and vesicular fragment of possible crucible; red vitreous gloss on one face.
- 3247** *Context group:* backfill of earlier excavations
Site context: 1:1
Dimension rating: 275; *section:* 4
Inner face: dark grey
Outer face: brown
Core: grey, vitrified
Rounded rim of crucible.
- In addition there are eight fragments of vitrified quartz fabric which probably represent crucibles. One fragment was recorded an early occupation context; four were recorded in phase 4 contexts, relating to the disturbance of the latest occupation within the ramparts or, possibly but less likely, activity immediately post-dating the slighting of the ramparts; two are from the backfill of the 1913 excavations and one fragment was not securely stratified. The average dimension rating of these pieces is 380.

Large crucibles

- 1283** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 1825; *section:* 5.5
Inner face: buff, grey
Outer face: buff-green, red
Core: buff/grey
Rim of triangular crucible; two fragments (**1283**, **1284**); buff-green and red gloss over most of external surface; out-turned lip at angle. (Fig. 15)
- 1284** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 1375; *section:* 5.5
Inner face: buff, grey
Outer face: buff-green, red
Core: buff/grey
Rim of triangular crucible (joins 1283).
- 1500** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 2470; *section:* 7
Inner face: grey to buff
Outer face: grey, buff, green
Core: grey to buff
Crucible, four fragments; green/buff gloss on outer face.
- 1505** *Context group:* 1913 assemblage
Site context: Curle: not known

- Dimension rating:* 1890; *section:* 6.5
Inner face: grey, buff
Outer face: grey, brown
Core: grey/grey-buff
 Crucible; mottled grey/brown gloss on outer face.
- 1510** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 230; *section:* 7
Inner face: grey to buff
Outer face: grey, buff, green
Core: grey to buff
 Crucible (joins 1500).
- 1511** *Context group:* 1913 assemblage
Site context: Curle: not known
Section: 7
Inner face: grey to buff
Outer face: grey, buff, green
Core: grey to buff
 Crucible (joins 1500).
- 1512** *Context group:* 1913 assemblage
Site context: Curle: not known
Section: 7
Inner face: grey to buff
Outer face: grey, buff, green
Core: grey to buff
 Crucible (joins 1500).
- 1528** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 1075; *section:* 6.5
Inner face: buff-brown
Outer face: buff-brown, glassy vitrification
Core: brown
 Sherd of probable crucible. Hair marks on inner face. Slight glassy vitrification of outer face.
- 2039** *Context group:* topsoil
Site context: c1:2
Dimension rating: 360; *section:* 7
Inner face: grey brown
Outer face: dark green
Core: dark grey, vitrified
 Vesicular and vitrified crucible sherd. Possible tongs impression in dark green vitreous gloss on outer face.
- 2182** *Context group:* backfill of earlier excavations
Site context: b1:6
Dimension rating: 320; *section:* 7
Inner face: buff
Outer face: buff-brown
Core: buff, vitrified
 Crucible sherd with hair lines on both faces; brown vitreous gloss on outer face.
- 2323** *Context group:* backfill of earlier excavations
Site context: b18:4
Dimension rating: 950; *section:* 7
Inner face: grey/brown
Outer face: olive brown glazed/vitrified surface-bronze traces
Core: grey/buff, vitrified
 Rim of large shallow dish; hand-made but well formed. Green vitreous gloss on outer face; bright green ?copper spot.
- 2404** *Context group:* topsoil
Site context: b17:2
Dimension rating: 250; *section:* 8
Inner face: buff
Outer face: buff
Core: buff
 Crucible sherd; hair lines on both faces.
- 2412** *Context group:* occupation, later contexts
Site context: b1:8
Dimension rating: 400; *section:* 7
Inner face: grey/buff
Outer face: brown/buff
Core: buff
 Rounded rim of thick-walled crucible. Fabric similar to E ware; traces of red glassy slag on both faces; hair lines on outer and inner faces.
- 2404** *Context group:* topsoil
Site context: b17:2
Dimension rating: 250; *section:* 8
Inner face: buff
Outer face: buff
Core: buff
 Crucible sherd; hair lines on both faces.
- 2412** *Context group:* occupation, later contexts
Site context: b1:8
Dimension rating: 400; *section:* 7
Inner face: grey/buff
Outer face: brown/buff
Core: buff
 Rounded rim of thick-walled crucible. Fabric similar to E ware; traces of red glassy slag on both faces; hair lines on outer and inner faces.
- 2551** *Context group:* occupation, later contexts
Site context: b3:5
Dimension rating: 825; *section:* 6.5
Inner face: brown
Outer face: dark green, blue-green
Core: vitrified
 Rounded crucible rim with burnt clay attached to inside face. Dark vitreous gloss on rim and blue-green sheen on outer face.
- 2695** *Context group:* disturbed subsoil
Site context: b16:6
Dimension rating: 360; *section:* 5.5
Inner face: brown
Outer face: dark green, vitreous
Core: vitrified
 Crucible rim; highly vitrified. Clay re-lining on inner face.
- 2739** *Context group:* unstratified
Dimension rating: 896; *section:* 10
Inner face: dark green, red
Outer face: black
Core: grey
 Heavily vitrified, vesicular, rim of thick-walled crucible. Abraded re-lining of inner face.
- 3160** *Context group:* backfill of earlier excavations
Site context: 1:5
Dimension rating: 850; *section:* 8
Inner face: grey/buff

Outer face: red/purple vitreous glaze
Core: grey, more vitreous towards outer edge. Black mineral inclusions. Sherd of large crucible; red vitreous gloss on inner and outer faces.

- 3179** *Context group:* backfill of earlier excavations
Site context: 1:5
Dimension rating: 1175; *section:* 8
Inner face: buff
Outer face: buff, red vitreous glaze
Core: cream/buff
 Rounded rim and body of large crucible; patch of vitreous glaze on outer face; hair lines on inner and outer faces.

Large 'dog-dish' crucibles and possible crucible stand

1274 (and 1520–1526)

Context group: 1913 assemblage
Site context: Curle: not known
Dimension rating: largest 1260, smallest 100, mean 703; *section:* 14.5 tapering to 8, 10.5 at base
Diameter at base: 75.0
Maximum diameter: 82.0
Height of vessel: 43.0
Diameter of aperture: 31.0 × 21.0
Inner face: buff pink
Outer face: buff, slightly darker on base
Core: red brown towards inner face
 Flat based, thick-walled circular ceramic vessel with inturned side walls, bevelled at the rim, converging to form a small oval aperture. The fabric contains no deliberately added grits. The thickness of the vessel appears, in section to have been achieved through folding the clay. Large crucible or crucible stand, in several fragments. (Fig. 16)

- 1276** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 3000; *section:* base 22; wall 19
Height of vessel: 64
Inner face: pink-red
Outer face: pink-red
Core: pink-red
 Large 'dog dish' crucible; one of two fragments (joins 1527). Flat-based, thick-walled crucible with generally upright side walls and rounded rim. The crucible was sub-circular or sub-rectangular in plan view. The fabric contains no deliberately added grits (Curle 1914, fig. 19). (Fig. 16)
- 1277** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 4225; *Section:* 16
Inner face: grey, red tinged
Outer face: grey, red tinged
Core: grey, red tinged
 Large 'dog dish' crucible. Upright wall thinning towards bevelled rim, flat base. (Fig. 16)
- 1278** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 2400; *Section:* 12.5
Inner face: pink-red

Outer face: pink-red
Core: pink-red
 Fragment of large, thick walled crucible of 'dog dish' type.

- 1279** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 1200; *Section:* 19.5
Inner face: pink-red
Outer face: pink-red
Core: pink-red
 Fragment of large, thick walled crucible of 'dog dish' type.
- 1280** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 1750; *Section:* 14.5
Inner face: pink-red
Outer face: pink-red
Core: pink-red
 Fragment of large, thick walled crucible of 'dog dish' type.
- 1281** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 2175; *Section:* 9
Height: 37.5
Approximate diameter of crucible: 100.0
Outer face: grey
Inner face: grey buff
Core: grey buff
 Fragment of large, thick walled crucible of 'dog dish' type. Flat based circular crucible with upright, slightly inturned wall; rounded rim; additional outer envelope of clay around lower part of circumference doubles the thickness of the wall.
- 1282** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 800; *Section:* 15.5
Inner face: pink-red
Outer face: pink-red
Core: pink-red
 Fragment of large, thick walled crucible of 'dog dish' type; rounded rim.
- 2236** *Context group:* post-occupation accumulation
Site context: b5/3b:2
Dimension rating: 1000; *Section:* 11
Inner face: pink
Outer face: pink
Core: pink
 Fragment of large crucible or heating tray. Thick walled pink fabric; hair lines on both faces; fabric similar to raw clay deposit.
- 3190** *Context group:* backfill of earlier excavations
Site context: 1:6
Dimension rating: 781; *section:* 11
Inner face: buff-pink
Outer face: buff
Core: dark pink
 Possible sherd from large crucible; inner surface uneven. Very similar fabric to raw clay sample; no deliberate addition of quartz inclusions.

	Context group	boss	interlace decorated curvilinear panel	other decorated curvilinear panel	other curved panel	other decorated panel	interlace decorated rectilinear panel	other decorated rectilinear panel	other rectilinear panel	plain panel	penannular brooch	pins	strap fittings	studs	miscellaneous items	non-diagnostic	Total
1a	Pre-rampart contexts																
1b	Earliest stratified contexts within the interior															1	1
2	Rampart contexts		1			1										7	9
3a	Earlier occupation contexts			3	6		1	1	5			3	3	3	2	81	108
3b	Latest stratified occupation contexts			1					1	1		1		1		9	14
4	Disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting			1	1							1		2		37	42
5	Post-occupation accumulation											1				2	3
6 and 8	1913 excavation assemblage and backfill	8	21	8	9	2	7	3	5		6	26	21	20	8	104	248
7	Topsoil and unstratified			2								3	1	1		50	57
	Total	8	22	15	16	3	8	4	11	1	6	35	25	27	10	291	482

Table 6. Summary of representation of clay moulds in context groups.

Catalogue of clay moulds (Figs. 19–31)

For a discussion of the intended artefact types to be cast in the moulds, see section 6.

Circular bosses (Figs. 20–21, 30)

1116 Context group: 1913 assemblage

Site context: Curle: not known

Dimension rating: 200; section: 5

Inner face /casting face: dark brown

Outer face: brown

Core: brown/orange

Circular boss, defined by concentric ribbing and a ring of pellets or beading around a centrally raised setting –

for a precious stone? There are traces of a possible second element at the fractured edge of the mould. This mould may be for a larger, more complex, decorative casting or may possibly represent the terminal(s) of a penannular brooch.

1136 Context group: 1913 assemblage

Site context: Curle: not known

Dimension rating: 2000; section: 17

Inner face /casting face: grey

Outer face: buff brown

Core: grey

Pair of circular domed bosses. One has a well-defined flange, the second has a less well-defined flange with scroll work in relief on the boss above. V profile key on

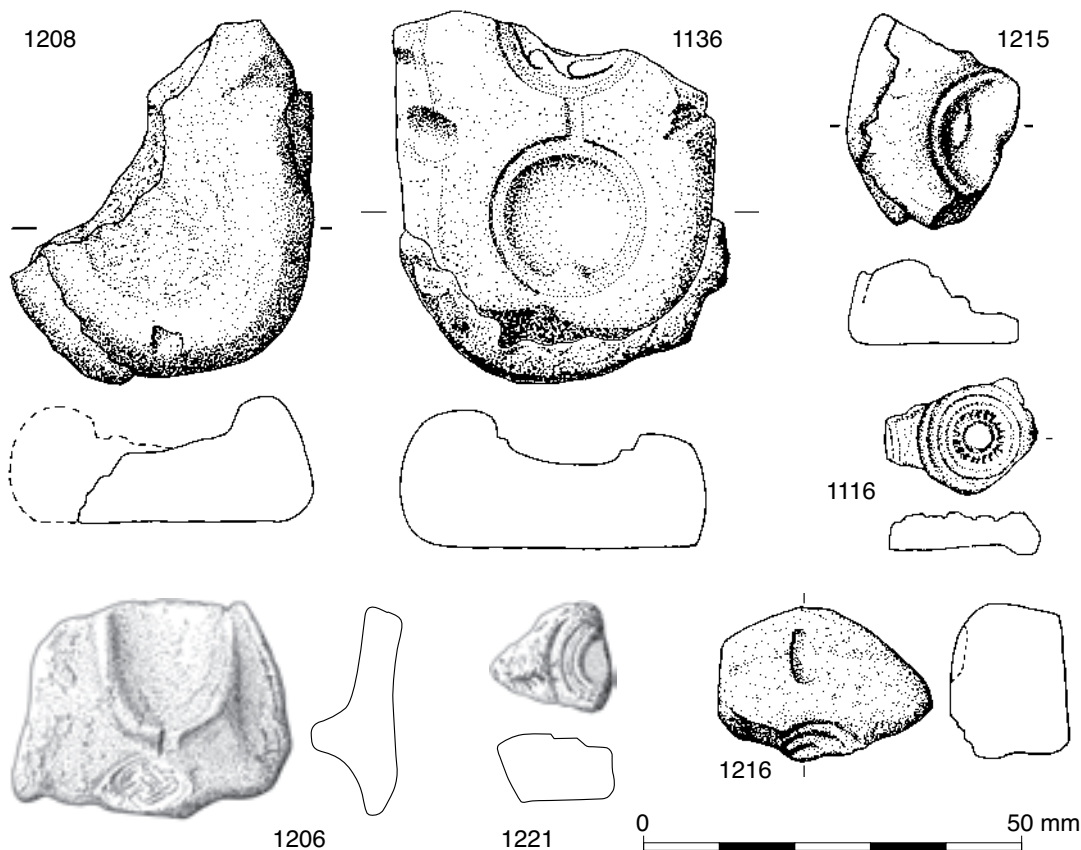


Fig. 20. Moulds: bosses.

primary mould. Diameter of complete boss 20mm. (Fig. 20)

1206 *Context group:* 1913 assemblage

Site context: Curle: not known

Dimension rating: 896; *section:* 10

Circular domed boss and ingate. The boss is 10mm diam. and carries tight, three strand, interlace decoration.

1208 *Context group:* 1913 assemblage

Site context: Curle: not known

Dimension rating: 1260; *section:* 16

Inner face /casting face: orange, buff

Outer face: brown, buff

Core: orange/buff

Pair of circular, slightly domed, discs or bosses. V profile key on edge of mould. Diameter of disc 20mm. (Fig. 20)

1215 *Context group:* 1913 assemblage

Site context: Curle: not known

Dimension rating: 475; *section:* 10

Inner face /casting face: orange, grey

Outer face: orange

Core: orange

Stud or boss with oval depression or recess, offset in one curved face. Primary mould. (Fig. 20)

1216 *Context group:* 1913 assemblage

Site context: Curle: not known

Dimension rating: 392; *section:* 15

Inner face /casting face: orange-buff

Outer face: orange-buff

Core: orange/buff

Step-sectioned circular boss. Rectangular depressed key on edge of primary mould.

1221 *Context group:* 1913 assemblage

Site context: Curle: not known

Dimension rating: 168; *section:* 9

Stepped circular boss with herringbone rib protruding from one side. Possible angle boss and herringbone border to decorative curvilinear plate. (Fig. 20)

1226 *Context group:* 1913 assemblage

Site context: Curle: not known

Dimension rating: 144; *section:* 6

Flanged, circular boss. Total diam. 35mm.

Decorated, curvilinear panels with interlace (Fig. 21)

1093 *Context group:* 1913 assemblage

Site context: Curle: not known

Dimension rating: 532; *section:* 4

Inner face /casting face: orange/red

Outer face: orange/red

Core: orange/red

Triangular panel defined by two concave sides and one convex side. The panel is filled with tight, three-strand interlace. One of the convex sides is decorated with a

- border of raised pellets with sunken centres. (Fig. 30)
- 1094** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 1085; *section:* 10
Inner face /casting face: grey
Outer face: grey/brown
Core: grey/brown
Panel filled with tight, three-strand interlace, defined on one side by a curvilinear border of plaitwork and an outer border of ropework and on another side by a straight-edged border of the same decoration. The completed design may have represented a roundel divided into four segments (projected diameter of roundel: 72mm). (Fig. 21)
- 1096** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 350; *section:* 8
Triangular panel defined by one concave and one convex side. The panel is filled with three-strand interlace; the borders are raised ribs. Possible axe-shaped plate. (Fig. 30)
- 1098** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 360; *section:* 4
Mould fragment for interlaced plate with curved raised edge and small boss towards centre of surviving fragment. (Fig. 30)
- 1099** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 460; *section:* 14
Inner face /casting face: dark brown
Outer face: grey/orange/buff
Core: grey/orange/buff
Possible roundel. Interlaced decoration, not 3-strand but similar to inner circuit on 2273, within curvilinear, raised border. Some of the facets are quite sharply defined. (Fig. 21)
- 1100** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 621; *section:* 12
Inner face /casting face: buff/orange
Outer face: buff/orange
Core: dark brown/black
Possible roundel. Tight, single strand. Interlaced decoration, within curvilinear raised border. (Fig. 21)
- 1101** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 400; *section:* 10
Inner face /casting face: grey/brown
Outer face: orange brown-buff
Core: orange brown-buff
Narrow triangular panel defined by two concave raised borders. The panel is filled with tight, three-strand interlace. Secondary valve with raised key. (Fig. 30)
- 1103** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 1443; *section:* 11
Roundel comprising, originally, four panels of tight, single strand, interlaced decoration disposed around a central boss. The panels are T, or axe-blade, shaped;
- the interstices are marked by concentric circles. The border of the roundel is defined by pellet and tramline decoration. (Fig. 21)
- 1104** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 1922
Axe-shaped plate defined by one long convex side, two equilateral concave sides and, in place of an apex, a short blunted straight side. The panel is filled with tight, three-strand interlace and the sides of the panel are bordered by raised dots within parallel raised bands and, on the outer edge, a cable design. One corner of the panel is missing, the remaining sharp angle is now damaged but may have held a boss. (Fig. 30)
- 1105** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 375; *section:* 10
Inner face /casting face: brown
Outer face: buff
Core: dark pink
Curvilinear panel of tight, three-strand interlace; edged on one side by raised pellets within a frame of parallel raised bands. The pellets have sunken centres. (Fig. 30)
- 1106** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 168; *section:* 7
Inner face /casting face: dark orange red
Outer face: orange red
Core: orange red
Triangular panel filled with tight, three-strand interlace, bordered by a thin raised rib. (Fig. 30)
- 1107** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 225; *section:* 7
Curvilinear panel of tight, three-strand interlace, bordered by raised ribs. (Fig. 21)
- 1109** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 195; *section:* 9
Inner face /casting face: light grey
Outer face: buff
Core: orange
Curvilinear panel of tight, single strand interlace, bordered by raised ribs.
- 1110** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 240; *section:* 5
Inner face /casting face: grey buff
Outer face: grey buff
Core: grey buff
Round-ended panel with tight, three strand interlace defined by raised border. Secondary valve. (Fig. 21)
- 1118** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 650; *section:* 11
Inner face /casting face: orange red
Outer face: orange red
Core: orange red
Circular roundel with three strand interlace, bordered

by raised rib. Surface of mould abraded and design indistinct.

- 1133** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 868; *section:* 11
Inner face /casting face: dark brown
Outer face: orange-buff
Core: orange-buff/dark brown
 Single strand interlaced panel with curving edge defined by raised border. Prominent raised triangular key on secondary mould.
- 1134** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 440; *Section:* 6
Inner face /casting face: dark grey
Outer face: brown
Core: orange buff
 Fragment of a mould for a roundel decorated with unusual, tight, three-strand interlace pattern, bordered by raised band (projected diameter of roundel c.41mm). (Fig. 21)
- 1135** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 180; *Section:* 5
Inner face /casting face: as 1134
Outer face: as 1134
Core: as 1134
 As 1134. (Fig. 21)
- 1139** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 66; *section:* 8
Inner face /casting face: grey
Outer face: buff
 Small, circular, slightly dished object (diameter 1cm) with remnants of interlace decoration on surface. The object was bordered by a raised rim.
- 1190** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 560; *section:* 23
Inner face /casting face: grey
Outer face: pink
Core: grey
 Roundel with slight trace of tight, single strand, interlace decoration.
- 1211** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 342; *section:* 8
Inner face /casting face: dark brown
Outer face: orange buff
Core: dark brown/orange buff
 Raised rib defining curved border to panel of tight, single strand, interlace decoration. This mould appears to have been built up from two layers of clay, or possibly strengthened or enclosed within thick envelope.
- 2273** *Context group:* burnt timber at base of south rampart
Site context: b17: 11
Dimension rating: 1722; *section:* 16
Inner face /casting face: grey
Outer face: orange buff
Core: grey/buff

Roundel comprising two concentric panels of decoration around a central circular boss. The inner panel, 9mm wide, is a complex interlace design; the outer panel, also 9mm wide, has the appearance of interlace but is, in fact, composed of numerous interlinked circles. The roundel is bordered by a raised rim. Fine hair lines on outer face. Diameter of roundel: 67mm. (Fig. 21)

Other decorated curvilinear panels

- 1119** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 198; *section:* 7
Inner face /casting face: light grey
Outer face: orange buff
Core: orange buff
 Lozenge shaped panel defined by raised ribs enclosing a circular depression with raised centre. ?Possible terminal of penannular brooch. (Fig. 23)
- 1120** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 182; *section:* 8
 Cusped panel defined by raised ribs enclosing a circular motif.
- 1188** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 1035; *section:* 11
Inner face /casting face: grey
Outer face: orange, buff
Core: grey
 Curvilinear plate bordered by raised rib. The fragmentary mould appears to be for a roundel, perhaps compartmentalised into segments in a similar way to item 1094. The only visible decoration is the curvilinear and straight line ribbing which appears to define the segments. Secondary valve. (Fig. 21)
- 1212** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 460; *section:* 6
Inner face /casting face: dark grey
Outer face: buff
Core: dark grey
 Bird or animal head with beak or gaping jaw and large eye and body defined by ribbed outline in a manner reminiscent of the serpentines on Durrow fol.192v. Secondary valve. (Fig. 32)
- 1217** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 378; *section:* 10
Inner face /casting face: dark brown
Outer face: dark brown
Core: pink/red
 Complex design, object uncertain. Raised key on secondary mould.
- 1218** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 270; *section:* 12
Inner face /casting face: buff/pink
Outer face: buff/pink
Core: grey
 Abraded decoration bordered by a raised rib comprising

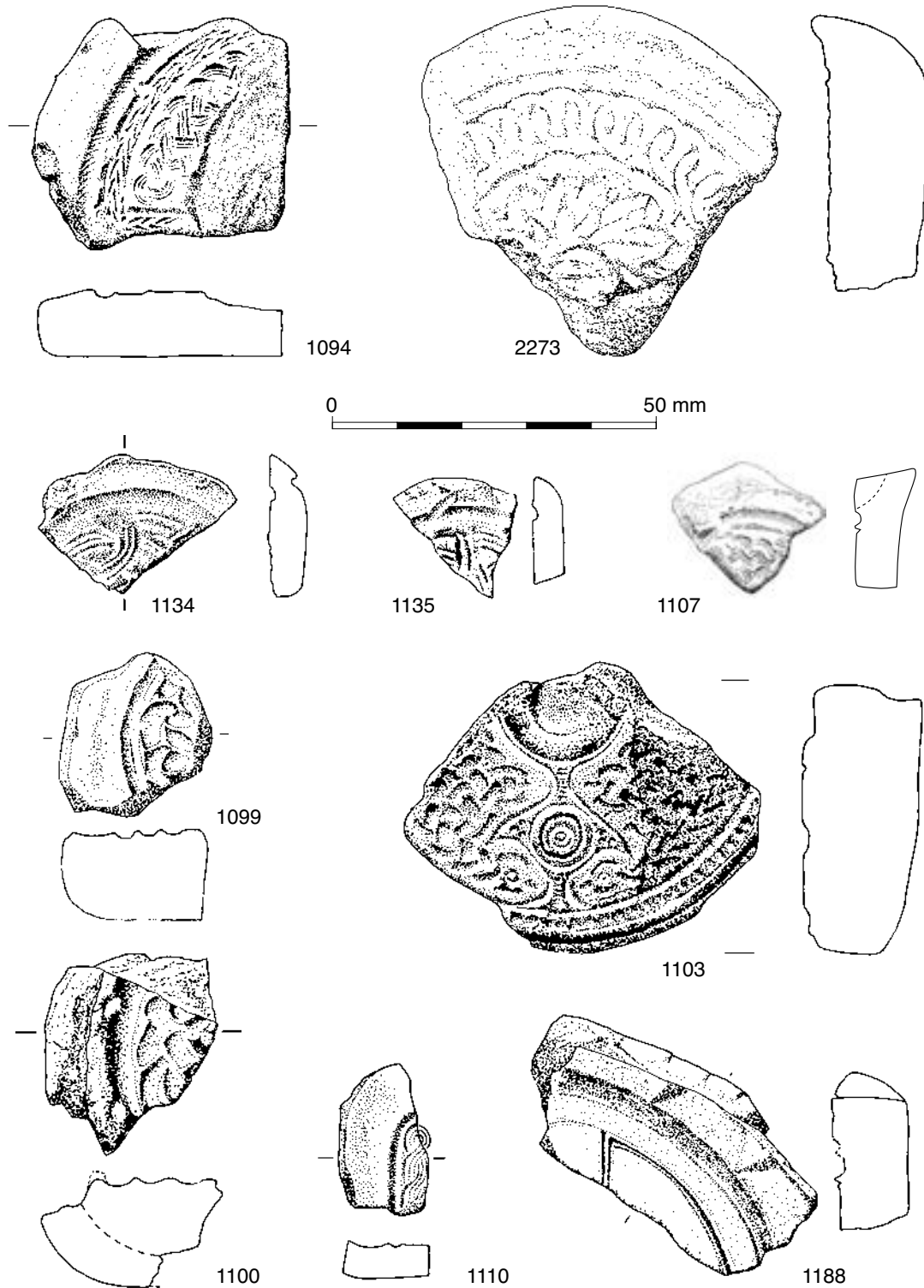


Fig. 21. Moulds: curvilinear panels.

two bands of cabling arranged in herringbone pattern either side of a central rib.

- 1222** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 96; *section:* 7

Curvilinear ribbed decoration, possibly related to 1117.

- 1225** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 169; *section:* 7
Inner face /casting face: grey
Outer face: buff
Core: orange

Circular disc defined by two concentric ribbed circles enclosing a flat central boss. The beginning of a raised lunate expansion appears on the circumference of the disc; a bowed (looped?) bar protrudes diametrically opposite. Possible loop and attachment for belt or strap? Diameter of disc 8.25mm.

- 2060** *Context group:* occupation, later contexts
Site context: b3: 5
Dimension rating: 1085; *section:* 10
Inner face /casting face: red, grey
Outer face: orange, grey
Core: orange/red
Rectangular plate, bordered by raised rim enclosing recessed or openwork design comprising two confronted D-shaped panels. Possible strap fitting?
- 2378** *Context group:* disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting
Site context: b9: 7
Dimension rating: 290
Inner face /casting face: grey buff
Outer face: orange grey
Core: grey buff
Diagonally hatched area of decoration bordered by raised rib. Mould is damaged.
- 2750** *Context group:* occupation, earlier contexts
Site context: b18: 5
Dimension rating: 275; *section:* 8
Inner face /casting face: grey
Outer face: buff
Core: orange
Complex design comprising curvilinear plate with raised edge and adjacent curvilinear ribbing.
- 2776** *Context group:* occupation, earlier contexts
Site context: b18: 5
Dimension rating: 275
Inner face /casting face: grey
Outer face: orange red
Core:
Curvilinear plate defined by grooved parallel lines.
- 2778** *Context group:* occupation, earlier contexts
Site context: b18: 5
Dimension rating: 125; *section:* 7
Inner face /casting face: orange grey
Outer face: orange grey
Core: orange grey
Curvilinear ribbed decoration.
- 3043** *Context group:* topsoil
Site context: 1: 1
Dimension rating: 540
Inner face /casting face: grey-pink/buff
Outer face: orange buff
Core: orange buff
Mould fragment with two thin concentric recessed lines but no other detail visible. Soapy feel.
- 3124** *Context group:* topsoil
Site context: 1: 1
Dimension rating: 360; *section:* 10
Inner face /casting face: grey
Outer face: orange buff

Core: grey-orange buff

Abraded design within circular setting – part of outer envelope of mould survives. Primary mould.

Other curvilinear panels

- 1176** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 640; *section:* 14
Inner face /casting face: grey
Outer face: orange, brown
Core: grey
Fragmentary mould for flat base of plate with rounded acute angle. Unusual keying comprising a shallow depression bearing parallel longitudinal striations on the angle of a primary valve.
- 1186** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 1400; *section:* 13
Inner face /casting face: grey
Outer face: orange, red
Core: orange/grey
Base of plate with curvilinear edge; oval indented key on edge of primary valve. The mould fabric is laminated and appears to have been built up in layers.
- 1189** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 765; *section:* 9
Inner face /casting face: grey
Outer face: orange, brown
Core: grey/brown
Plain circular plate; funnel shaped ingate visible. Diameter of plate: c.30mm.
- 1191** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 736; *section:* 17
Inner face /casting face: grey
Outer face: orange, pink
Core: orange/pink
Plain base of axe-blade shaped plate with one concave and one convex side. Projected maximum width across blade: 72mm. Primary mould.
- 1195** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 812; *section:* 8
Inner face /casting face: grey, brown
Outer face: grey brown
Core: orange
Flat surfaced plate with slightly curved edge.
- 1205** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 560; *section:* 10
Inner face /casting face: grey
Outer face: buff
Core: grey
Curvilinear panel. Raised key on secondary valve.
- 1207** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 558; *section:* 9
Inner face /casting face: orange
Outer face: orange

- Core: orange
Curvilinear object (concave side). Positive triangular key on secondary valve.
- 2101** *Context group:* backfill of earlier excavations
Site context: b6: 2
Dimension rating: 750; *section:* 15
Inner face /casting face: grey
Outer face: orange buff
Core: grey
Curvilinear plate defined by raised rim. Shallow dished profile with slight step 6mm from rim. Diameter of plate: 84mm. Secondary valve.
- 2194** *Context group:* backfill of earlier excavations
Site context: b7: 7
Dimension rating: 200; *section:* 12
Inner face /casting face: buff
Outer face: orange
Core: orange buff
Curved-edged, flat surfaced object. Primary valve.
- 2265** *Context group:* occupation, earlier contexts
Site context: b16: 5
Dimension rating: 595; *section:* 11
Inner face /casting face: grey
Outer face: orange
Core: grey
Edge of curvilinear object. Secondary valve.
- 2266** *Context group:* occupation, earlier contexts
Site context: b16: 5
Dimension rating: 500; *section:* 13
Inner face /casting face: grey
Outer face: buff
Core: grey
Curve-sided, possibly convex object. Indication of hair lines on casting face. Secondary valve.
- 2314** *Context group:* disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting
Site context: b9: 2
Dimension rating: 272
Inner face /casting face: dark brown
Outer face: orange
Core: orange
Curved-sided plate. Primary valve.
- 2747** *Context group:* occupation, earlier contexts
Site context: b18: 5
Dimension rating: 250; *section:* 9
Inner face /casting face: grey buff
Outer face: grey buff
Core: grey buff
Slightly convex or dome-headed curve-sided object. Secondary valve.
- 2751** *Context group:* occupation, earlier contexts
Site context: b18: 5
Dimension rating: 293; *section:* 11
Inner face /casting face: grey
Outer face: buff
Core: grey buff
Flat base of object with both straight and convex sides. Primary valve.
- 2754** *Context group:* occupation, earlier contexts
Site context: b16: 5
Dimension rating: 265; *section:* 11
Flat base of curvilinear object. Primary valve.
- 2763** *Context group:* occupation, earlier contexts
Site context: b18: 5
Dimension rating: 460; *section:* 13
Inner face /casting face: grey
Outer face: buff
Core: grey
Curvilinear object; V-profile key appears to be cut with knife. Primary valve.

Decorated rectilinear panels (Fig. 22)

- 1095** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 875; *section:* 12
Inner face /casting face: grey
Outer face: orange/buff
Core: orange/buff
Tight, single strand interlace decoration bordered by straight edged running scroll within two raised bands. Secondary mould. (Fig. 22)
- 1097** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 600; *section:* 10
Inner face /casting face: grey
Outer face: orange/grey
Core: orange/grey
Tight, single strand interlace decoration bordered by straight edged running scroll within two raised bands. Secondary mould. (Fig. 22)
- 1102** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 380; *section:* 6
Panel defined by a rectilinear and curvilinear raised border. The panel is filled with tight, single strand interlace decoration. Possible cross arm. Secondary mould. Width of cross arm 27mm, length 42mm.
- 1108** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 204; *section:* 8
Inner face /casting face: dark brown
Outer face: brown
Core: orange red
Tight, three-strand interlace design with straight-edged border defined by two parallel raised bands confining a running scroll effect of two ribbons interlacing around a series of raised pellets. (Fig. 22)
- 1111** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 240; *section:* 10
Inner face /casting face: grey
Outer face: buff
Core: orange red
Round ended, straight-edged, panel with tight, three strand interlace defined by raised border with cable design.
- 1114** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 1470; *section:* 6

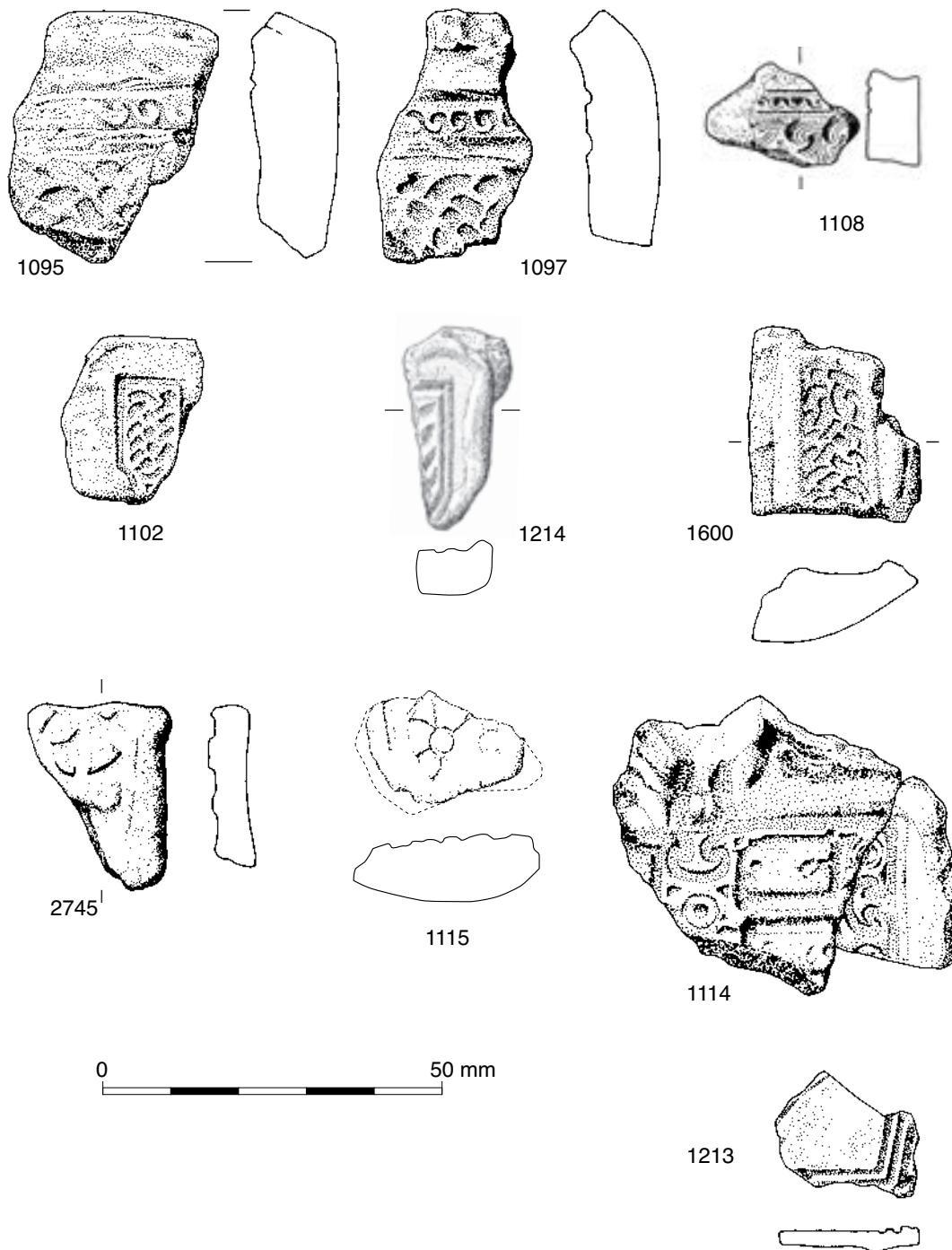


Fig. 22. Moulds: decorated rectilinear panels.

Rectangular plate with, originally, four rectangular panels arranged around a central circular element. The edges of the plate are defined by a raised rim indented by peltas. The ingate is visible on the mould. Projected dimensions: 60mm x 28mm. (Fig. 22)

- 1115** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 351; *section:* 10
Small rectilinear panel, bordered by raised ribs, containing sunburst design of six spokes radiating from

- a central circle. (Fig. 22)
- 1117** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 408; *section:* 5
Inner face /casting face: dark grey
Outer face: buff grey
Core:
Design of spirals and trumpet scrolls. Secondary valve.
- 1149** *Context group:* 1913 assemblage
Site context: Curle: not known

Dimension rating: 1505; *section:* 13
Inner face /casting face: black
Outer face: orange-buff
Core: grey/orange buff
 Unusual design for plate perforated or recessed with circular and triangular holes or depressions.

- 1213** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 285; *section:* 3
Inner face /casting face: light grey
Outer face: light light grey
Core: light grey
 Trapezoidal plate bordered by parallel raised ribs. (Fig. 22)
- 1214** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 300; *section:* 7
Inner face /casting face: grey
Outer face: buff
Core: orange-red
 Panel defined by a rectilinear and curvilinear raised border. The panel appears to be filled with interlace decoration but less distinct than the similar mould, 1102. Possible cross arm. Secondary mould. (Fig. 22)
- 1600** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 560; *section:* 8
 This mould is now broken but may represent one side of a ribbed object with slightly convex panels flanking the rib. The panels were decorated with tight single strand interlace.
- 2135** *Context group:* occupation, later contexts
Site context: b3: 5
Dimension rating: 325; *section:* 11
Inner face /casting face: grey
Outer face: orange
Core: grey
 Fragment of mould, possibly for base of plate with shaped rim; narrow slit key or fingernail impression on side of primary valve.
- 2374** *Context group:* occupation; earlier contexts
Site context: b19: 4
Dimension rating: 150; *section:* 9
Inner face /casting face: orange buff
Outer face: grey buff
Core: orange
 T-shaped panel; indistinct interlace. ?Possible cross-arm.
- 2509** *Context group:* burnt timber at base of south rampart
Site context: b17: 11
Dimension rating: 130; *section:* 8
Inner face /casting face: grey
Outer face: buff
Core: buff
 Decorated mould. Three possible grooves on one face; ribbing on edge of design.
- 2745** *Context group:* occupation, earlier contexts
Site context: b18: 5
Dimension rating: 345; *section:* 6.5
Inner face /casting face: grey buff

Outer face: orange
Core: orange grey
 Straight-sided plate with raised pendant 'pear drop' design enclosing triangular motif with concave sides. Secondary mould. (Fig. 22)

Other rectilinear panels

- 1144** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 169; *section:* 10
Inner face /casting face: orange
Outer face: orange
Core: orange
 Abraded mould for rectangular plate or setting. Width of cast object 13mm.
- 1198** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 1500; *section:* 13
Inner face /casting face: grey
Outer face: light brown
Core: brown
 Trough-shaped ingate and run-in to rectangular plate. Primary valve.
- 1202** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 1080; *section:* 9
Inner face /casting face: red-brown
Outer face: red-brown
Core: red-brown
 Plain flat metal strips. Widths: 8.5mm; 7.25mm. Secondary valve.
- 1220** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 200; *section:* 5
 Rectilinear panel.
- 2117** *Context group:* occupation, later contexts
Site context: b1: 8
Dimension rating: 380; *section:* 11
Inner face /casting face: grey
Outer face: orange brown
Core: orange grey
 Straight edged, flat surfaced object. Primary valve.
- 2264** *Context group:* occupation, earlier contexts
Site context: b16: 5
Dimension rating: 513; *section:* 14
Inner face /casting face: grey
Outer face: buff
Core: grey
 Straight-edged, flat-surfaced object. Primary valve.
- 2342** *Context group:* backfill of earlier excavations
Site context: b8: 2
Dimension rating: 221; *section:* 10
Inner face /casting face: grey
Outer face: orange
Core: orange
 Narrow flat-faced strip. Width: 1.5mm.
- 2764** *Context group:* occupation, earlier contexts
Site context: b18: 5
Dimension rating: 240; *section:* 7
Inner face /casting face: grey buff

Outer face: grey orange
Core: grey orange
Straight-edged object.

2765 Context group: occupation, earlier contexts
Site context: b18: 5
Dimension rating: 200; section: 7
Straight-edged object.

2775 Context group: occupation, earlier contexts
Site context: b18: 5
Dimension rating: 388; section: 12
Inner face/casting face: grey
Outer face: buff
Core:
Straight-edged, flat-surfaced object.

2777 Context group: occupation, earlier contexts
Site context: b18: 5
Dimension rating: 160; section: 10
Inner face/casting face: orange grey
Outer face: orange grey
Core: orange grey
Straight-edged object.

Penannular brooches (Fig. 23)

1121 Context group: 1913 assemblage
Site context: Curle: not known
Dimension rating: 180; section: 6
Inner face /casting face: orange
Outer face: orange/buff
Core: orange
Circular terminal of penannular brooch with lunate

expansion between terminal and hoop. The central portion of the terminal is raised within a sunken field, for enamel? (Fig. 23)

1128 Context group: 1913 assemblage
Site context: Curle: not known
Dimension rating: 760; section: 8
Inner face /casting face: orange pink
Outer face: orange pink
Core: orange pink

Penannular brooch with lozenge terminals. Diameter of hoop c.26mm. The terminals are decorated with four raised dots in a sunken field delineated by a raised border. A raised band separates the hoop of the brooch from the terminals. Secondary valve. (Fig. 23)

1129 Context group: 1913 assemblage
Site context: Curle: not known
Dimension rating: 391; section: 11
Inner face /casting face: grey
Outer face: orange buff
Core: orange buff

Plain underside of lozenge-shaped terminal for penannular brooch. The terminal has well defined facets running parallel with the straight edges. Primary valve. (Fig. 23)

1130 Context group: 1913 assemblage
Site context: Curle: not known
Dimension rating: 1944; section: 10
Plain undersides of two penannular brooches cast in the same mould. Diameters of hoops: 23mm, 24mm. The brooches have lozenge-shaped faceted terminals.

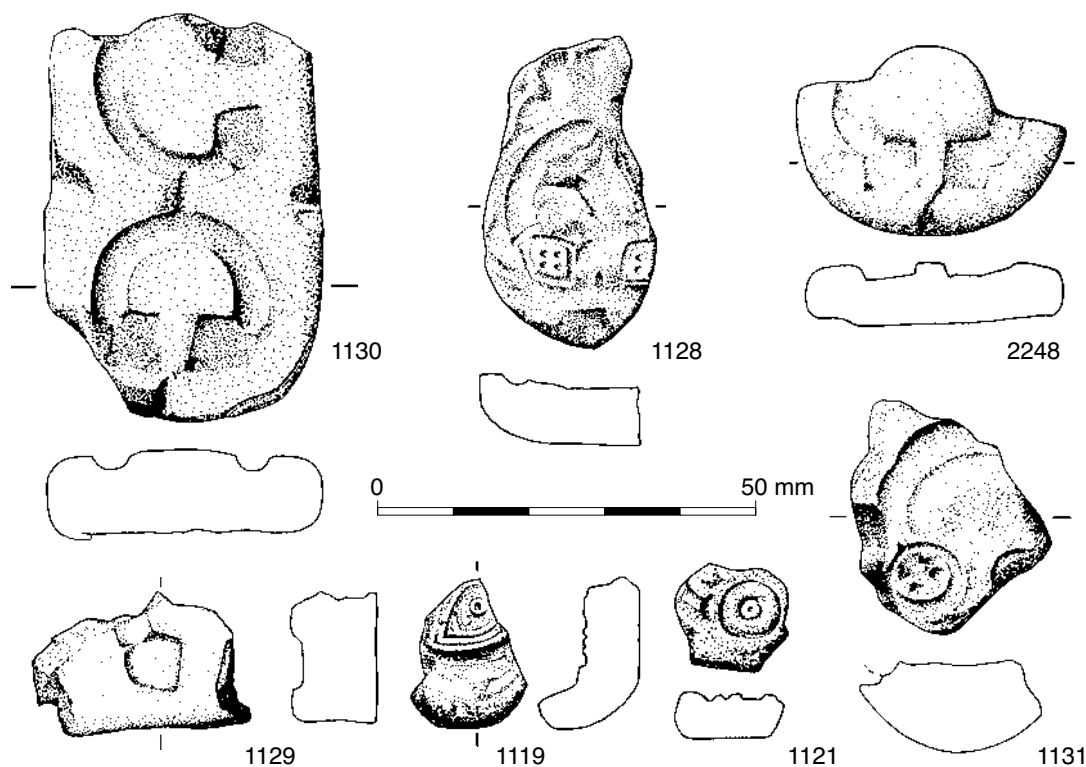


Fig. 23. Moulds: pennanular brooches.

Irregular depressions at the corners of both terminals of one brooch may be too consistent to be entirely the result of damage. Primary valve. (Fig. 23)

- 1131** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 667; *section:* 11
Inner face /casting face: dark grey
Outer face: orange
Core: grey-orange
Penannular brooch with circular terminals defined by raised border enclosing sunken panel containing arrangement of four raised dots. Secondary valve. (Fig. 23)
- 2248** *Context group:* backfill of earlier excavations
Site context: b15: 2
Dimension rating: 625; *section:* 9
Inner face /casting face: grey buff
Outer face: orange
Core: grey orange
Plain base of penannular brooch with square or lozenge terminal terminals. Hoop cross-section: 4.75mm; external diameter of hoop: 24.5mm. Primary valve. (Fig. 23)

Pin heads (Figs. 24–5)

- 1150** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 1470; *section:* 12
Inner face /casting face: buff
Outer face: buff-pink
Core: buff
Three nail-headed pins. Diameter of shafts 3mm. (Fig. 25)
- 1151** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 952; *section:* 8
Inner face /casting face: brown
Outer face: orange-brown
Core: buff
Two nail headed pins. Diameter of shafts 3mm. Secondary valve. (Fig. 25)
- 1152** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 616; *section:* 10
Inner face /casting face: grey-buff
Outer face: grey, orange
Core: grey
Two pins, one of which has knobbed head with collar between head and shaft. Diameter of shaft 2.5mm. Primary valve. (Fig. 24)
- 1153** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 546; *section:* 12
Inner face /casting face: orange
Outer face: orange, grey buff
Core: orange
At least two pins, both with cylindrical knobbed-heads. Diameter of shaft 3mm. Primary valve. (Fig. 24)
- 1154** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 805; *section:* 12
Inner face /casting face: dark grey
Outer face: brown
Core: dark grey
Disc-headed pin with two opposed 'sea-horses' flanking the raised decorated disc. Both 'sea-horses' have curling tails and gaping jaws. Diameter of shaft 3.5mm. Sharp V-notched keys on primary valve. (Fig. 24)
- 1155** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 990; *section:* 21
Inner face /casting face: dark brown
Outer face: light brown, orange
Core: light brown/orange
Pin with disc head and collar. The shaft of the pin has flattened sections. Diameter of shaft 3mm. Primary valve. (Fig. 24)
- 1159** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 425; *section:* 11
Inner face /casting face: dark buff
Outer face: buff
Core: buff
Nail-headed pin with slightly skewed head. Shaft (2.5mm diameter) has faceted cross-section as if the model was carved from bone or wood. Primary valve. (Fig. 25)
- 1160** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 396; *section:* 10
Inner face /casting face: buff
Outer face: orange
Core: orange
Nail-headed pin. Diameter of shaft 2.5m. (Fig. 25)
- 1161** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 1120; *section:* 14
Inner face /casting face: buff
Outer face: buff
Core: buff
Three nail-headed pins. Diameter of shafts 3mm. Primary valve. (Fig. 25)
- 1168** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 220; *section:* 13
Inner face /casting face: buff
Outer face: buff
Core: buff
Two pins of different character. One has a conventional flat nail head; the other has a slightly domed head. Shaft diameter not measurable.
- 1169** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 725; *section:* 18
Inner face /casting face: black
Outer face: dark red
Core: black/dark red
Disc-headed pin with pelta collar below disc head. Shaft diameter 2mm, disc diameter 8.5mm. Primary valve. (Fig. 24)

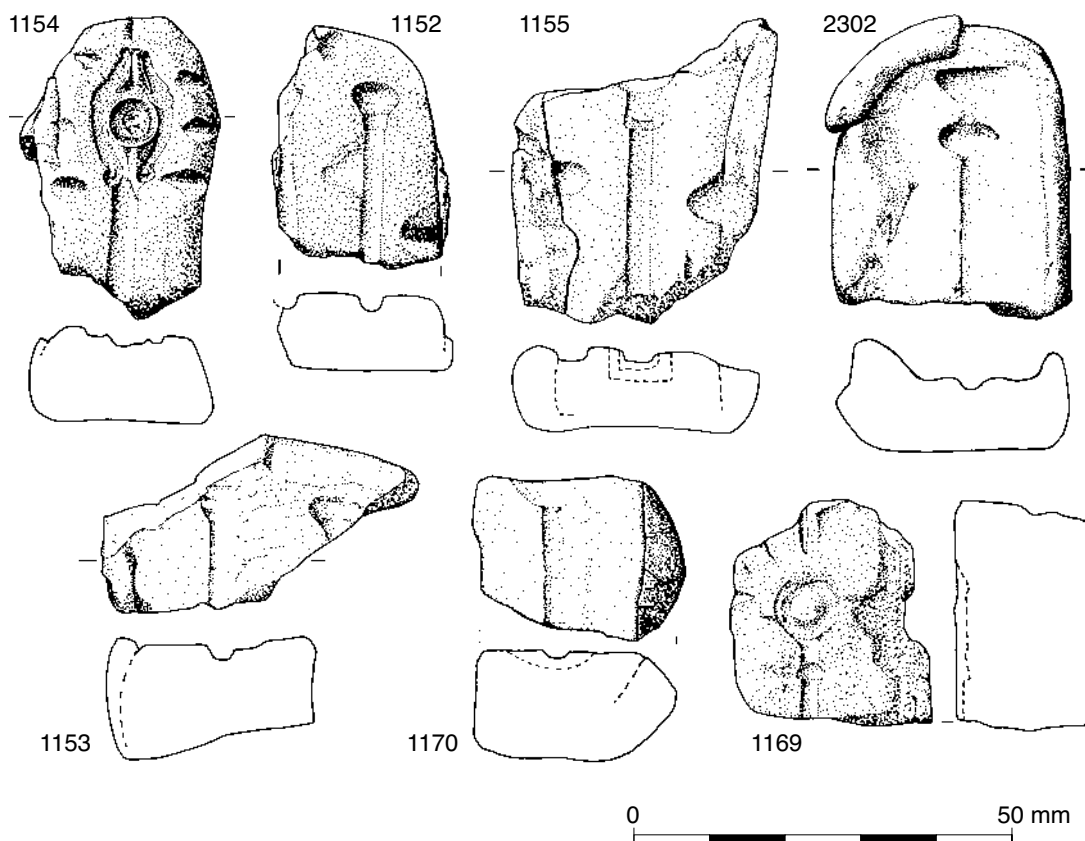


Fig. 24. Moulds: pins 1 – decorated pins.

- 1170** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 500; *section:* 14
Inner face /casting face: grey
Outer face: orange
Core: orange
 Pin shaft with convex-faced disc head. Diameter of shaft 3mm.
- 2302** *Context group:* unstratified
Dimension rating: 1080; *section:* 11
Inner face /casting face: grey
Outer face: orange
Core: orange/buff
 Thistle headed pin. Diameter of pin shaft: 2.75mm. Secondary valve. (Fig. 24)
- 2603** *Context group:* backfill of earlier excavations
Site context: b18: 4
Dimension rating: 634; *section:* 11
Inner face /casting face: grey
Outer face: red
Core: grey
 Three nail-headed pins. Diameter of shafts: 2.5mm. Primary valve.
- 3200** *Context group:* unstratified
Dimension rating: 750; *section:* 11
Inner face /casting face: buff
Outer face: buff
Core: pink

Two, possibly three, nail-headed pins. Diameter of pin shafts: 3.25mm. Secondary valve. (Fig. 25)

Pin shafts (Fig. 25)

- 1156** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 1500; *section:* 14
Inner face /casting face: red
Outer face: orange-buff
Core: orange-red
 Three pin shafts towards their bases. The mould displays diagonally impressed narrow keying and the ingate is present at the pin ends. Diameter of shafts 3mm. Primary valve. (Fig. 25)
- 1157** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 1290; *section:* 10
Inner face /casting face: buff
 Two pin shafts towards their bases. Diameter of shafts 3mm. Ingate present on mould at pin ends. Primary valve.
- 1158** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 1100; *section:* 10
Inner face /casting face: pink-buff
Outer face: pink-buff
Core: pink-buff
 Pin shaft near base. Ingate present on mould at pin end.

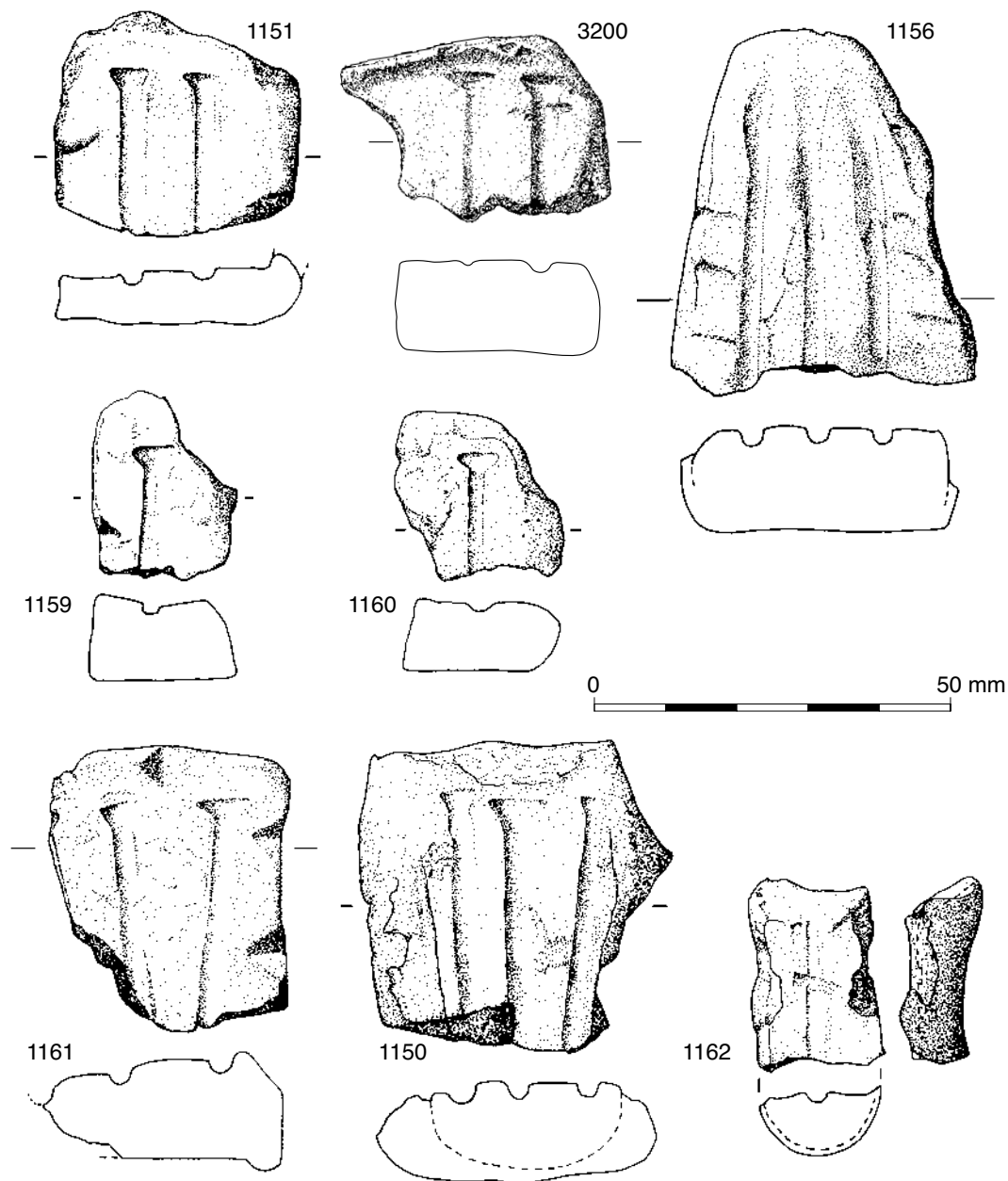


Fig. 25. Moulds: pins 2 – nail-headed pins.

Diameter of pin shaft 3.5mm. Primary valve.

- 1162** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 408; *section:* 7
Inner face /casting face: grey/brown
Outer face: buff
Core: dark grey

Pin shaft with angular cross-section. Diameter of shaft 2.5mm. The impression of a lightly grained piece of organic material rests transversally across the line of the pin on the mould, as though a fragment of straw or grass had been accidentally pressed into the clay beneath the model for the pin. Ingate present. Secondary valve.

- 1163** *Context group:* 1913 assemblage

Site context: Curle: not known

Dimension rating: 391; *section:* 7
Inner face /casting face: grey, buff
Outer face: buff
Core: orange/grey

Three pin shafts; 2mm diameter. Secondary valve.

- 1164** *Context group:* 1913 assemblage

Site context: Curle: not known
Dimension rating: 500
Inner face /casting face: buff
Outer face: orange-buff
Core: orange

Two pin shafts; 3.5mm diameter.

- 1165** *Context group:* 1913 assemblage

- Site context:* Curle: not known
Dimension rating: 336; *section:* 14
Inner face /casting face: pink-buff
Outer face: pink-buff, grey
Core: pink/grey
 Two pin shafts; diameter 3mm. Primary valve.
- 1166** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 575; *section:* 12
Inner face /casting face: dark grey
Outer face: buff
Core: grey
 Two pin shafts; diameter 3.5mm. Primary valve.
- 1167** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 425
Inner face /casting face: grey
Outer face: orange buff
Core: dark grey
 Three pin shafts at pin ends and run-in from ingate.
 Diameter of shafts 2.5mm.
- 1201** *Context group:* 1913 assemblage
Site context: Curle: not known
 Pin shaft(s).
- 2072** *Context group:* post-occupation accumulation
Site context: b5: 2
Dimension rating: 378; *section:* 16
Inner face/casting face: grey
Outer face: orange
Core: orange grey
 Pin shaft.
- 2084** *Context group:* backfill of earlier excavations
Site context: b7: 2
Dimension rating: 500; *section:* 9
Inner face /casting face: grey
Outer face: orange red grey
Core: orange red
 Shallow funnel ingate, run-in and mould for pin shaft.
- 2119** *Context group:* backfill of earlier excavations
Site context: b7: 2
Dimension rating: 260; *section:* 8
Inner face /casting face: grey
Outer face: buff
Core: orange
 Pin shaft.
- 2257** *Context group:* occupation, earlier contexts
Site context: b5/10/3: 7
Dimension rating: 825; *section:* 11
Inner face /casting face: grey, buff
Outer face: buff
Core: orange buff
 Four pin shafts, faceted, sharply tapering points. One run-in channel intercepts a pin-point at an oblique angle. Shaft diameters: between 2.5mm and 3mm. Primary valve.
- 2316** *Context group:* disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting
Site context: b9: 2
Dimension rating: 288; *section:* 10
Inner face /casting face: brown
Outer face: buff
Core: buff
 Two pin shafts with faceted cross-section. Diameter of shafts: 2.25mm.
- 2360** *Context group:* occupation; earlier contexts
Site context: b18: 5
Dimension rating: 535; *section:* 11
Inner face /casting face: grey
Outer face: orange
Core: orange
 Pin shafts; faceted cross-section. Shaft diameter 2.25mm.
- 2439** *Context group:* unstratified
Dimension rating: 150; *section:* 10
Inner face /casting face: buff
Outer face: buff
Core: buff
 Pin shaft.
- 2461** *Context group:* backfill of earlier excavations
Site context: b7: 2
Dimension rating: 110; *section:* 6
Inner face /casting face: buff
Outer face: buff
Core: orange
 Pin shaft?
- 2480** *Context group:* occupation, earlier contexts
Site context: b7: 9
Dimension rating: 260; *section:* 15
Inner face/casting face: grey buff
Outer face: grey buff
Core: orange
 Pin shafts.
- 2677** *Context group:* occupation, later contexts
Site context: b1: 8
Dimension rating: 407; *section:* 10
Inner face/casting face: grey
Outer face: orange
Core: buff
 Pin shafts. Diameter of shafts: 1.5 to 2mm; key formed by pressing round sectioned tool. Primary valve.

Buckles and strap fittings (Fig. 26)

- 1112** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 272; *section:* 8
Inner face/casting face: grey brown/grey
Outer face: orange
Core: grey brown/grey
 Rectangular panel with serpentine motif on plate. Probable buckle. Width of plate: 11mm. (Fig. 26)
- 1113** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 240; *section:* 3
Inner face/casting face: dark grey
Outer face: orange brown
Core: orange brown
 Buckle loop with circular hole below loop for pin-swivel. Rectangular panel with serpentine motif on plate. Width of plate: 8.5mm. (Fig. 26)

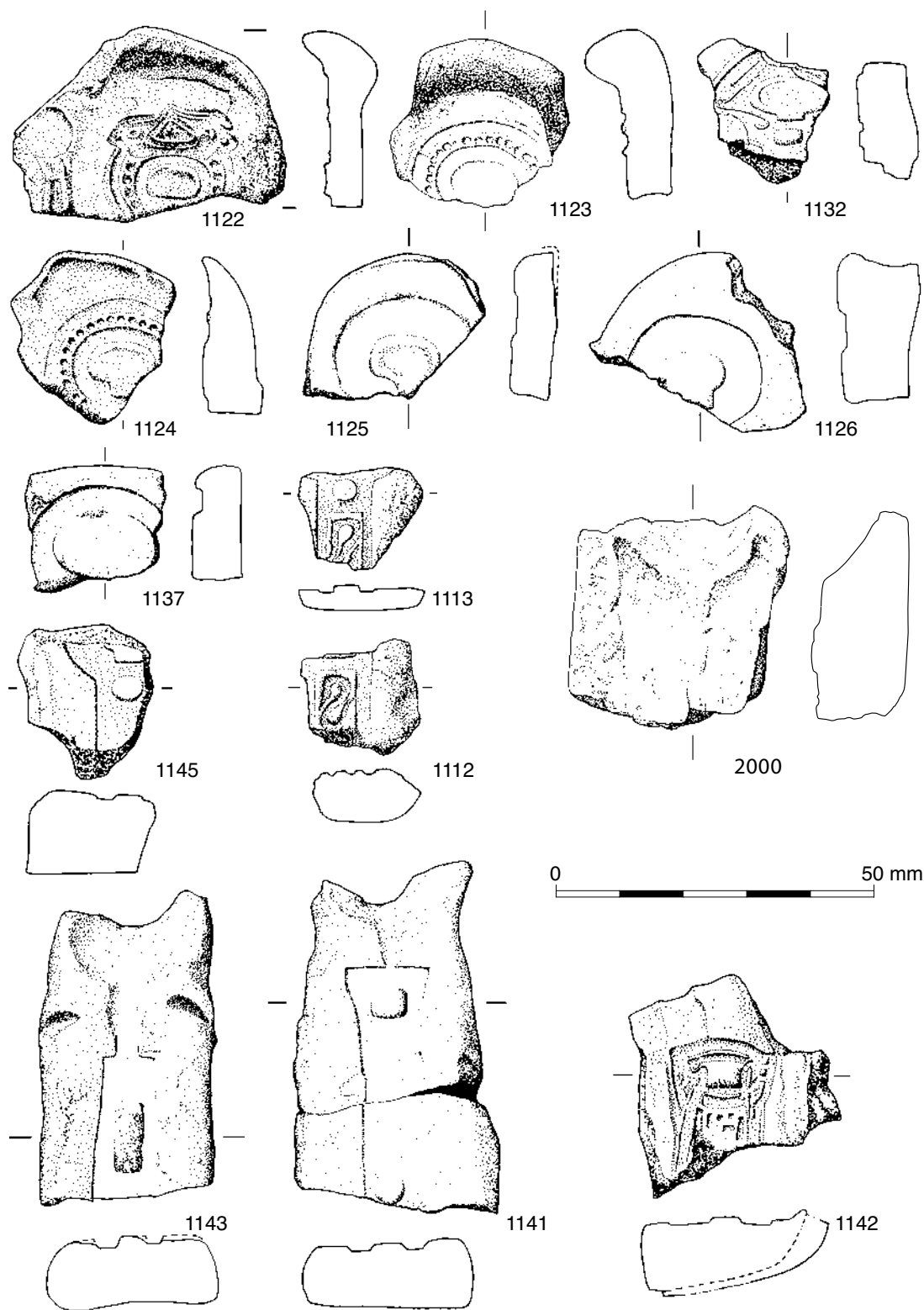


Fig. 26. Moulds: buckles.

1122 Context group: 1913 assemblage
 Site context: Curle: not known
 Dimension rating: 1092; section: 6
 Inner face/casting face: grey/brown
 Outer face: buff

Core:
 Buckle loop. The loop is defined by raised dot decoration between two bands and, at the apogee, by the heads of two opposed gaping jawed beasts. Diameter of loop: 20mm; strap opening: 8.5mm. Secondary valve. (Fig. 26)

- 1123** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 598; *section:* 8
Inner face/casting face: dark grey
Outer face: buff-grey
Core: orange buff
Buckle loop defined by raised dot decoration in sunken panel between border of raised bands. Secondary valve. Diameter of loop: 21mm; strap opening: 11mm. Secondary valve.
- 1124** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 504; *section:* 8
Inner face/casting face: grey
Outer face: buff grey
Core: buff-grey
Buckle loop defined by raised dot decoration in sunken panel between border of wide raised bands. Diameter of loop: 23mm; strap opening: 11mm. Secondary valve. (Fig. 26)
- 1125** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 550; *section:* 6
Inner face/casting face: buff
Outer face: buff
Core: buff
Mould for plain underside of buckle loop. Projected Diameter of loop: 22mm; strap opening: 11mm. Primary valve. (Fig. 26)
- 1126** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 594; *section:* 10
Inner face/casting face: orange grey
Outer face: orange grey
Core: orange grey
Mould for plain lower surface of buckle loop. Projected Diameter of loop: 21mm; strap opening: 10.5mm. Primary valve. (Fig. 26)
- 1127** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 140; *section:* 3
Inner face/casting face: grey
Outer face: orange brown
Buckle loop with raised dot decoration in sunken panel bordered by raised bands. Abraded secondary valve.
- 1132** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 360; *section:* 9
Inner face/casting face: dark grey
Outer face: orange brown
Core: grey orange-brown
Delta shaped buckle loop with slightly curved sides. Mushroom and rectangular shaped notches define the swivel bar for a pin. Projected diameter of loop: 25mm; strap opening: 12.5mm. (Fig. 26)
- 1137** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 360; *section:* 8
Inner face/casting face: buff-cream
Outer face: orange-buff
Core: orange-pink
Flat-sectioned oval loop. Probable buckle. Projected diameter of loop: 24mm; strap opening: 16.5mm. Primary valve. (Fig. 26)
- 1138** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 90
Inner face/casting face: grey
Outer face: orange
Core: orange
Damaged and abraded mould for flat sectioned hoop. Projected strap opening: 16.5mm.
- 1141** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 1508; *section:* 10
Two fragments of same original mould for rectangular strip or plate with expanded end. Rectangular hole at one end, circular hole at the other identifies the item as a probable buckle plate or strap fitting. Width of object at waist: 8.5mm; maximum width: 13mm. Ingate present on primary valve. (Fig. 26)
- 1142** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 702; *section:* 11
Inner face/casting face: brown
Outer face: orange, buff
Core: brown/orange
Rectangular plate with slightly expanded terminal and square hole. The hole is bordered by interlace decoration which extends down the length of the plate. Probable distal end of buckle plate. Maximum width of plate at expansion: 16mm. Secondary valve. (Fig. 26)
- 1143** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 1188; *section:* 10
Inner face/casting face: dark
Core: dark grey
Rectangular strip or plate (width 9mm) with rectangular slot in the centre. Deep funnel ingate present on primary valve. (Fig. 26)
- 1145** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 361; *section:* 13
Inner face/casting face: orange buff
Outer face: orange red
Core: orange buff/orange-red
Plain lower surface of buckle loop with mushroom and circular shaped openings defining the loop and swivel-bar for a pin. Projected diameter of loop: 22mm; strap opening: 12.5mm. Primary valve. (Fig. 26)
- 1146** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 624; *section:* 10
Inner face/casting face: red-brown
Outer face: red-brown
Core: grey/red and brown
Blade shaped object or plate with central raised rib. The faces of the blade would have been slightly dished near the rib. The mould is in a distinctive hard sandy fabric. Secondary valve.
- 1147** *Context group:* 1913 assemblage

- Site context:* Curle: not known
Dimension rating: 253; *section:* 5
 Blade shaped object or plate with central raised rib. More blunt and smaller than 1146 but similar in that the faces of the blade would have been slightly dished near the rib. Width of cast object: 11mm.
- 1148** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 1400; *section:* 11
Inner face/casting face: pink-red/orange-buff
Outer face: pink red/orange-buff
Core: pink red/orange buff.
 Underside of blunt ended, parallel sided dished object. Width of cast object: 19mm. Primary valve.
- 1210** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 2400; *section:* 11
Inner face/casting face: buff
Outer face: buff
Core: buff
 Base of elongated object (c.21mm wide) tapering to blunt point; slightly concave on underside. Keys visible on mould as oval depression. Primary valve.
- 1219** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 204
Inner face/casting face: grey
Outer face: orange
Core: orange
 Flat base of rectangular plate with rectangular slot; possible strap fitment. Projected width of plate: 13mm. Primary valve.
- 1224** *Context group:* 1913 assemblage
Site context: Curle: not known
Inner face/casting face: orange/buff
Outer face: orange/buff
Core: orange/buff
 Possible strap end.
- 2000** *Context group:* unstratified
Dimension rating: 900; *section:* 12
Inner face/casting face: grey
Outer face: buff
Core: buff
 Buckle plate with square hole or recess at one end above rectangular panel with serpentine motif. Width of plate: 110mm. Deep funnel ingate. Secondary valve. (Fig. 26)
- 2260** *Context group:* occupation, earlier contexts
Site context: b16: 5
Dimension rating: 560; *section:* 9
Inner face/casting face: grey
Outer face: buff
Core: grey
 Plain base of rectilinear plate with expanded end and rectangular slot. Faint indication of hair lines. Buckle plate or strap fitment. Maximum width of plate at expansion: 13mm. Sharply defined narrow, V-profile key on primary valve.
- 2261** *Context group:* occupation, earlier contexts
Site context: b16: 5
Dimension rating: 728
Inner face/casting face: buff
Outer face: buff
Core: buff
 Base of rectangular plate with square hole. Neat, narrow, V-profile keys on primary valve. Possible strap fitment. Projected width of plate: 21mm.
- 2262** *Context group:* occupation, earlier contexts
Site context: b16: 5
Dimension rating: 490; *section:* 10
Inner face/casting face: buff
Outer face: grey buff
Core: grey buff
 Possible funnel-shaped ingate and primary valve for small strap end or strengthening strip. Width of plate: 10mm.
- Studs (Figs. 27–8)*
- 1172** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 600; *section:* 14
Inner face/casting face: grey
Outer face: orange
Core: orange
 This primary valve fragment joins 1175. Three strips of circular-headed studs or rivets; six studs in total visible on mould. Diameter of heads c.10mm; length of shafts 9.5 to 10mm; diameter of shafts, tapering, mean 2mm. (Fig. 27)
- 1173** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 500; *section:* 11
Inner face/casting face: grey
Outer face: buff
Core: orange
 Circular headed studs or rivets; two studs visible. Diameter of heads 9mm; length of shanks 9mm; diameter of shanks 2mm. The base of this primary valve has dense, fine, quartz grits. (Fig. 27)
- 1174** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 651; *section:* 10
Inner face/casting face: grey
Outer face: orange
Core: grey
 Primary valve for two strips of studs or rivets; four studs in total visible. Diameter of heads 8mm to 9mm; length of shafts 7–7.5mm; diameter of shafts, tapering, mean 2–2.5mm. (Fig. 27)
- 1175** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 450; *section:* 14
Inner face/casting face: grey
Outer face: orange
Core: orange
 This fragment of a primary valve for studs joins 1172.
- 1177** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 200; *section:* 9
Inner face/casting face: orange
Outer face: orange

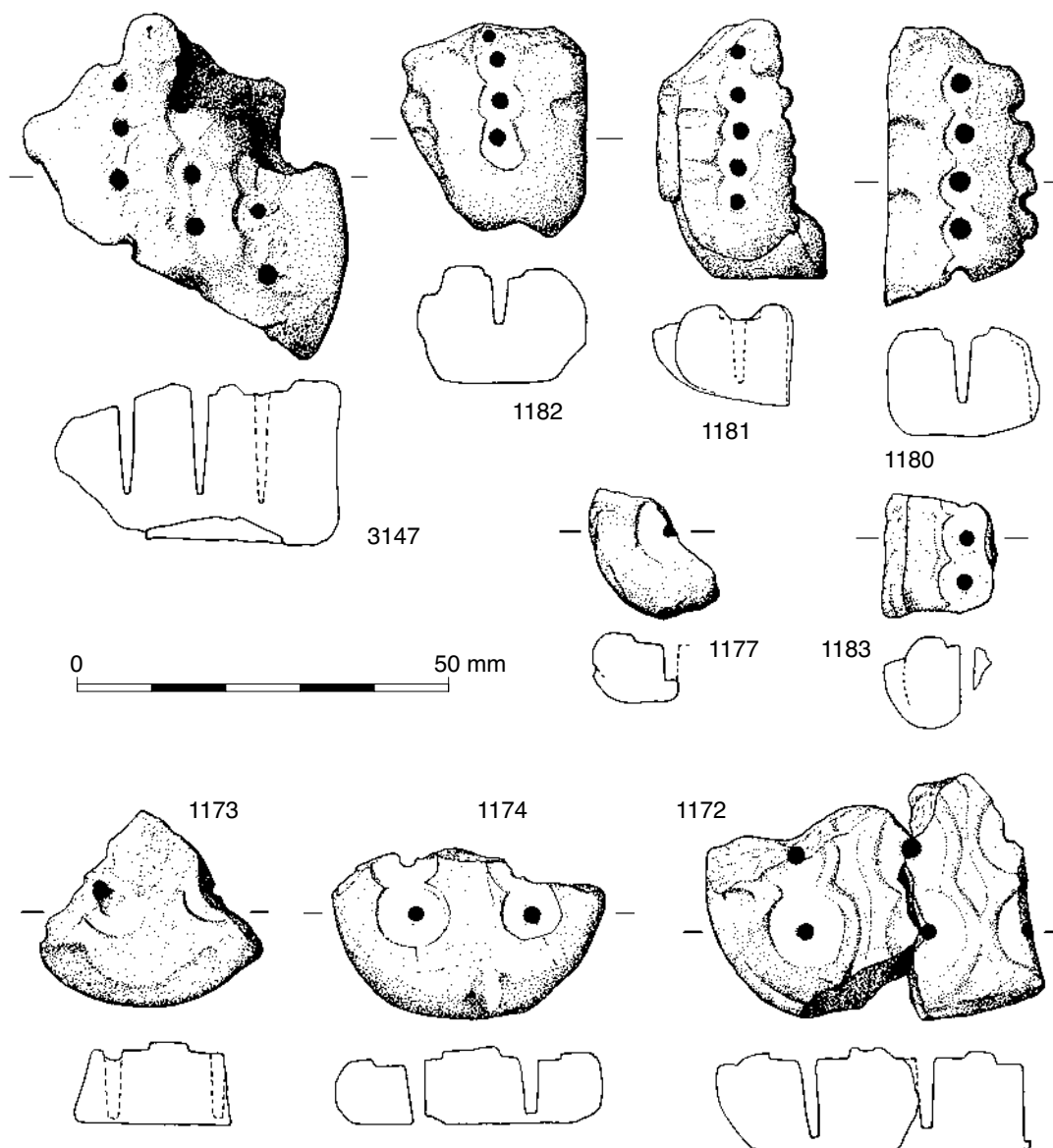


Fig. 27. Moulds: studs.

Core: orange

Primary valve for circular headed stud or rivet. Diameter of head 10mm; length of shaft 5mm; diameter of shaft 1.75mm. (Fig. 27)

- 1179** Context group: 1913 assemblage
 Site context: Curle: not known
 Dimension rating: 312; section: 12
 Inner face/casting face: buff, orange
 Outer face: buff, orange
 Core: buff/orange

Damaged primary valve for stud or rivet; details uncertain.

- 1180** Context group: 1913 assemblage
 Site context: Curle: not known
 Dimension rating: 640; section: 14
 Inner face/casting face: orange, buff
 Outer face: buff

Core: orange/buff

Primary valve for at least two strips of circular headed studs or rivets; five studs per strip visible. Diameter of heads c.5mm; length of shafts c.8mm; diameter of shafts, tapering mean 2.25mm. (Fig. 27)

- 1181** Context group: 1913 assemblage
 Site context: Curle: not known
 Dimension rating: 578; section: 13
 Inner face/casting face: pink
 Outer face: orange, buff
 Core: pink

Primary valve for two strips of circular headed studs or rivets; five studs per strip visible. Diameter of heads 5.5mm; length of shafts 6mm; diameter of shafts, tapering mean 1.5mm. (Fig. 27)

- 1182** Context group: 1913 assemblage
 Site context: Curle: not known

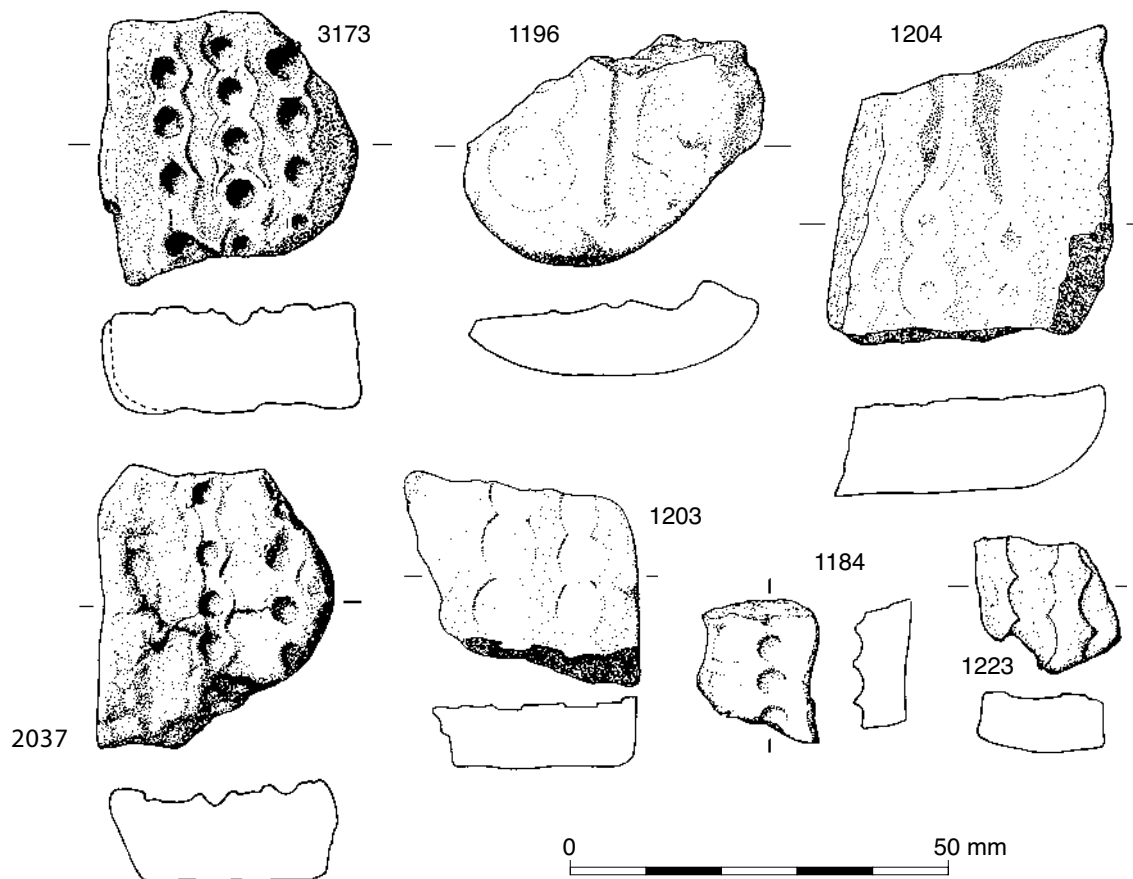


Fig. 28. Moulds: stud caps.

Dimension rating: 616; *section:* 15

Inner face/casting face: grey, pink

Outer face: buff

Core: buff/pink

Primary valve for strip of circular headed studs or rivets; four studs visible. Diameter of heads c.6mm; length of shanks 6.25mm; diameter of shanks, tapering, mean 1.75mm.

1183 *Context group:* 1913 assemblage

Site context: Curle: not known

Dimension rating: 195; *section:* 12

Inner face/casting face: grey, brown

Outer face: buff

Core: grey

Primary valve for strip of circular headed studs or rivets; part of four studs visible. The underside of the stud heads would be dished. Diameter of heads 7mm; length of shanks uncertain, greater than 8.5mm; diameter of shanks, tapering, mean 1.75mm. (Fig. 27)

1184 *Context group:* 1913 assemblage

Site context: Curle: not known

Dimension rating: 255; *section:* 7

Inner face/casting face: grey

Outer face: buff

Core: buff/orange/pink

Secondary valve for strip of domed heads for studs or

rivets; four heads visible on strip. Diameter of heads c.7.5mm; height of dome 1.25mm. (Fig. 28)

1196 *Context group:* 1913 assemblage

Site context: Curle: not known

Dimension rating: 840; *section:* 10

Inner face/casting face: grey

Outer face: orange, buff

Core: dark grey

Strip of flat heads for studs or rivets. The centre of the stud head protrudes above the circular head of the rivet. Diameter of circular heads: 8.5mm. Secondary valve. (Fig. 28)

1203 *Context group:* 1913 assemblage

Site context: Curle: not known

Dimension rating: 621; *section:* 8

Inner face/casting face: grey

Outer face: orange-pink

Core: grey/orange-pink

Secondary valve for three strips of circular flat-topped rivet or stud heads; up to four heads visible per strip. Diameter of heads 6.5mm to 7.5mm.

1204 *Context group:* 1913 assemblage

Site context: Curle: not known

Dimension rating: 1225; *section:* 12

Inner face/casting face: grey

Outer face: orange

- Core:* grey/orange
Secondary valve for three channel run-in and three strips of circular flat topped rivet or stud heads. Up to three heads visible per stud. The central portion of each head would be raised slightly in the cast, above the shank. This possibly indicates that the original model was forged or brazed. Diameter of heads 7mm to 8mm. (Fig. 28)
- 1223** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 240; *section:* 7
Inner face/casting face: buff
Outer face: dark orange
Core: buff to pink
Secondary valve for at least two strips of circular, flat-topped heads for studs or rivets; three heads visible per strip. Diameter of heads 6mm to 7mm. (Fig. 28)
- 2037** *Context group:* occupation, later contexts
Site context: b1: 8
Dimension rating: 805; *section:* 10
Inner face/casting face: grey
Outer face: orange buff
Core: grey-orange
Secondary valve for at least two strips of domed heads for studs or rivets; up to five studs visible per strip. Domes do not extend to full circumference of stud heads. Diameter of stud heads: 6mm; diameter of domes: 4.5mm; height of domes: 1.5mm.
- 2159** *Context group:* disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting
Site context: b5/10: 5
Dimension rating: 270
Inner face/casting face:
Outer face: buff grey
Core: orange red grey
Primary valve for shanked object (extant length of shank 12mm; diameter of shank 2.75mm).
- 2247** *Context group:* backfill of earlier excavations
Site context: b16: 3
Dimension rating: 775; *section:* 10
Inner face/casting face: grey
Outer face: buff
Core: grey buff
Trough-shaped ingate and run-in channels for two strips of studs, rivets or similar attachment incorporating stud-like shanks. Only one stud-shank survives at each channel. The head of the best preserved appears to be rectilinear in plan with a shank length of 5.5mm and a shank diameter of 2.5mm. The other shank is 7.5mm long and 1.75mm in diameter. Primary valve.
- 2263** *Context group:* occupation, earlier contexts
Site context: b16: 5
Dimension rating: 870; *section:* 13
Inner face/casting face: grey
Outer face: grey orange
Core: grey orange
Pin shaft (diameter: 3mm) and strip of circular headed studs or rivets; three studs visible. Diameter of heads: 10mm; length of shanks 8.5mm; diameter of shanks: tapering, mean 2.75mm. Shallow V-profile key on primary valve.
- 2451** *Context group:* backfill of earlier excavations
Site context: b7: 2
Dimension rating: 350; *section:* 14
Inner face/casting face: orange red
Outer face: orange red
Core: orange red
Primary valve for round-headed stud. Diameter of head: 7mm; shank length: 3mm; diameter of shank: 2.5mm.
- 2472** *Context group:* backfill of earlier excavations
Site context: b1: 6
Dimension rating: 180; *section:* 10
Inner face/casting face:
Outer face: grey buff
Core: orange
Abraded fragment of mould, possibly for stud.
- 2710** *Context group:* backfill of earlier excavations
Site context: 1: backfill
Dimension rating: 342; *section:* 12
Inner face/casting face: buff
Outer face: buff
Core: buff
Primary valve for strip of circular-headed studs or rivets. Diameter of of shanks 2mm; shank lengths 8.5mm.
- 2746** *Context group:* occupation, earlier contexts
Site context: b18: 5
Dimension rating: 542; *section:* 14
Inner face/casting face: buff
Outer face: buff
Core: buff
Primary valve for circular-headed studs; V-profile key cut or pressed with knife or flat tool. Diameter of head: 17mm.
- 2748** *Context group:* occupation, earlier contexts
Site context: b18: 5
Dimension rating: 345; *section:* 9
Inner face/casting face: grey
Outer face: orange buff
Core: orange grey
Probably for strip of circular-headed studs; three stud heads visible. Abraded. Secondary valve.
- 3127** *Context group:* topsoil
Site context: 1: 1
Dimension rating: 315; *section:* 6
Inner face/casting face: grey
Outer face: grey orange
Core: grey
Secondary valve for two strips of domed heads for studs or rivets. Three heads visible on one strip; two heads on the other strip. Diameter of domes: 4mm; height of domes: 1mm.
- 3147** *Context group:* backfill of earlier excavations
Site context: 1: 1973 backfill
Dimension rating: 975; *section:* 22
Inner face/casting face: grey orange
Outer face: grey buff
Core: grey
Primary valve for at least three strips of circular headed studs or rivets; up to five studs visible per strip. Diameter of heads: 6.5mm; length of shanks: maximum 14mm;

diameter of shanks: tapering, mean 2.25mm.

- 3173** *Context group:* post-occupation accumulation
Site context: 2: f1.2
Dimension rating: 930; *section:* 11
Inner face/casting face: buff grey
Outer face: orange
Core: orange red

Secondary valve for three strips of domed heads for studs or rivets; up to five heads visible on each strip. The domed head does not extend to the circumference of the circular stud heads. Diameter of circular stud heads: 6mm; diameter of domed heads: 3.5–4mm; height of domes: 1.25mm. (Fig. 28)

Uncertain studded fittings

- 1171** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 864; *section:* 18
Inner face/casting face: pink-buff
Outer face: orange, grey
Core:

Flat tapering strip, constricted towards one end where the strip terminates as a circular stud or rivet head. The shaft of the stud is off centre at the point of constriction. Possible triangular buckle plate or strap fitting. Length of shaft 9.5mm; diameter of shaft, tapering, mean 2mm. Primary valve.

- 1178** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 210; *section:* 9
Inner face/casting face: dark grey

Outer face: orange

Core: dark grey

Two circular conjoined plates or rings. Mould too fragmentary for secure identification.

Miscellaneous moulds (Figs. 29–32)

- 1187** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 1050; *section:* 12
Inner face/casting face: grey
Outer face: buff
Core: orange/red

Plain base of circular plate with rectangular loop attachments and shank projecting from the centre. Diameter of plate: c.38mm; diameter of shank c.6mm. Primary valve. (Fig. 31)

- 1192** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 544; *section:* 16
Inner face/casting face: grey
Outer face: orange
Core: orange

Plain base of shanked object with curving sides. Diameter of shank c.2.75mm; depressed key visible on primary valve. (Fig. 31)

- 1193** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 1173; *section:* 17
Inner face/casting face: grey, buff
Outer face: orange
Core: orange/buff
 Cylindrical shaft (mean diameter: c.14mm) tapering

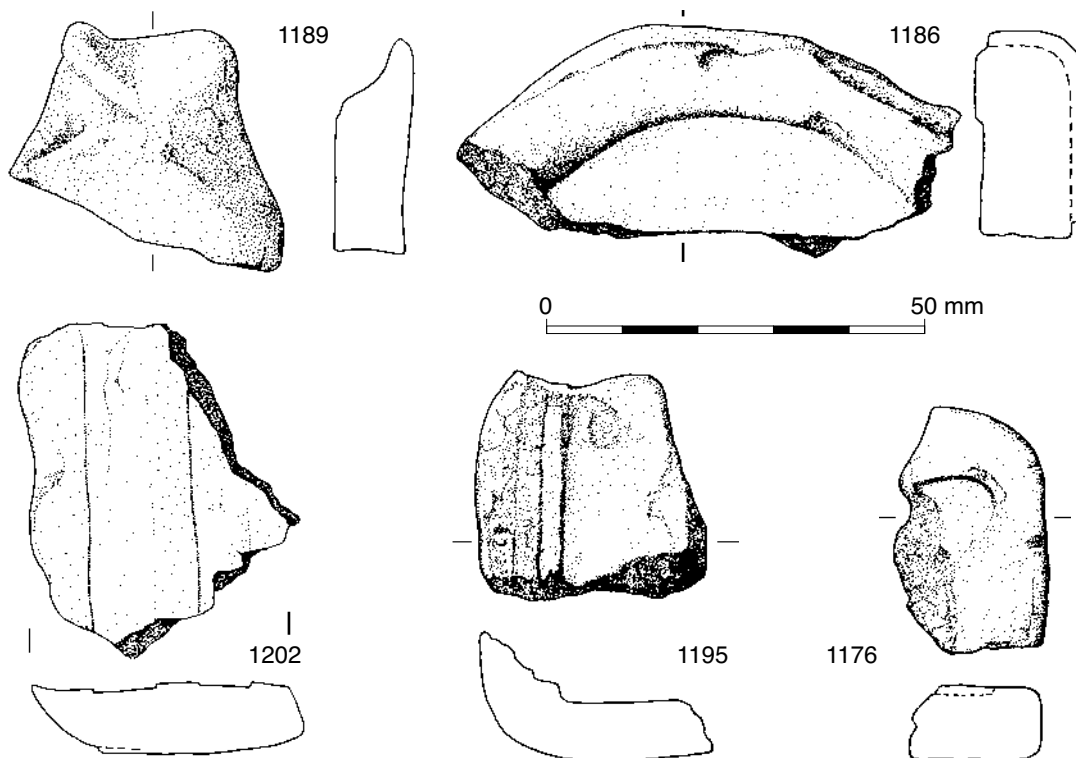


Fig. 29. Moulds: plain plates.

towards bulbous terminal. Small ferrule or possible drinking horn terminal. (Fig. 32)

1197 *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 675; *section:* 16
Inner face/casting face: buff
Outer face: buff
Core: buff/pink
 Flat base of small horseshoe shaped object. Primary mould. Diameter of loop: 23mm.

1199 *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 1080; *section:* 11
Inner face/casting face: buff
Outer face: buff
Core: buff
 Trough/funnel ingate leading immediately to elongated attachment with raised stud central to a circular expansion of the attachment and blunt shank at point of constriction. Diameter of stud: 4.5mm; diameter of shank

2.75mm; length of shank 6.25mm. Primary valve.

1209 *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 1575; *section:* 13
Inner face/casting face:
Outer face: grey/dark brown
 Deep funnel ingate and mould for hoop (of pennanular brooch?) Thick envelope of coarser clay around probable primary mould. External diameter of hoop; c.45mm. (Fig. 32)

2761 *Context group:* occupation, earlier contexts
Site context: b18: 5
Dimension rating: 1300; *section:* 15
Inner face/casting face: grey
Outer face: buff
Core: buff
 Flat base of large circular plate (diameter: c.34mm) with central pin (diameter: 2mm); shank length 14mm. Primary valve.

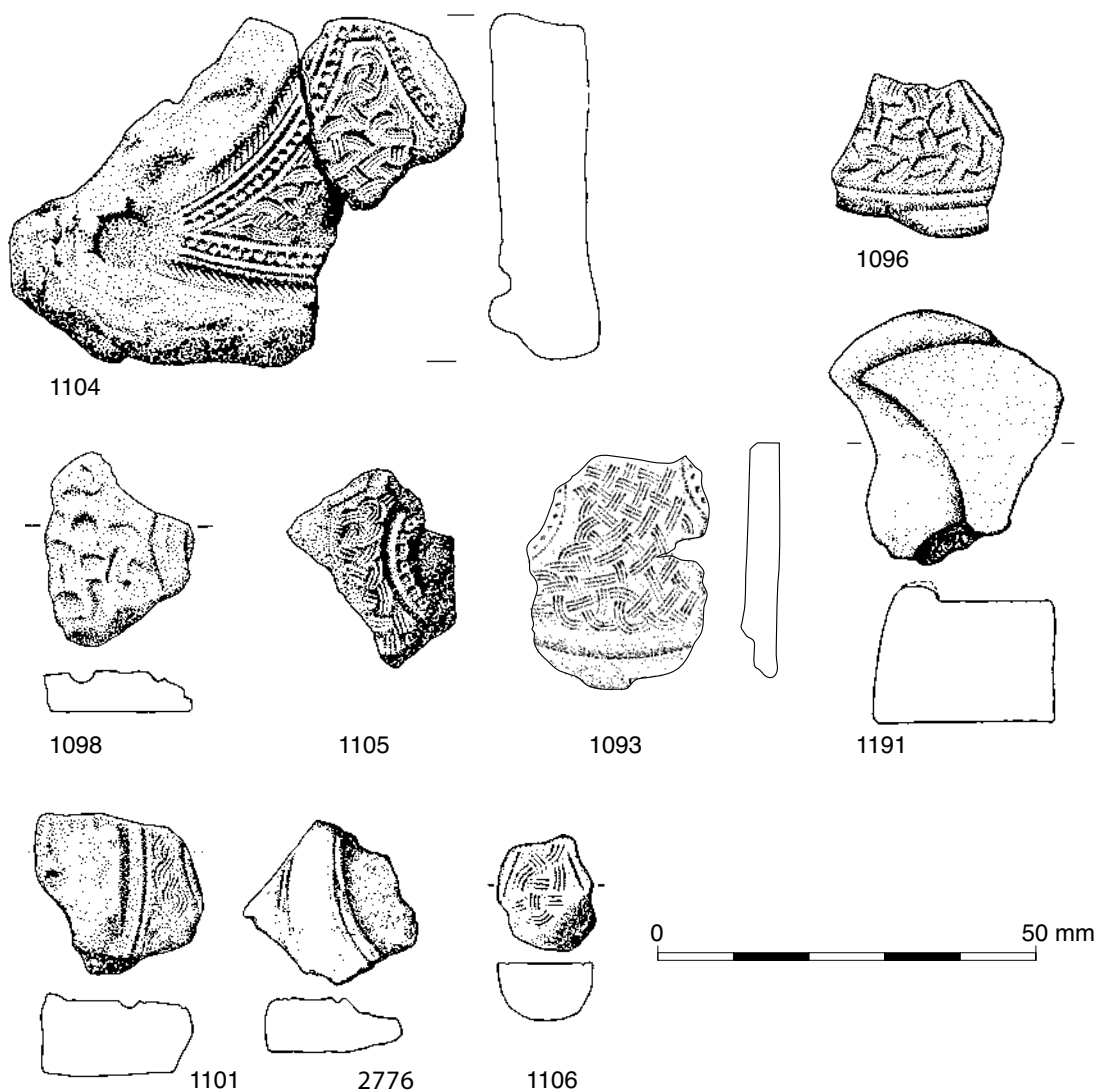


Fig. 30. Moulds: 'Axe-blade' fragments.

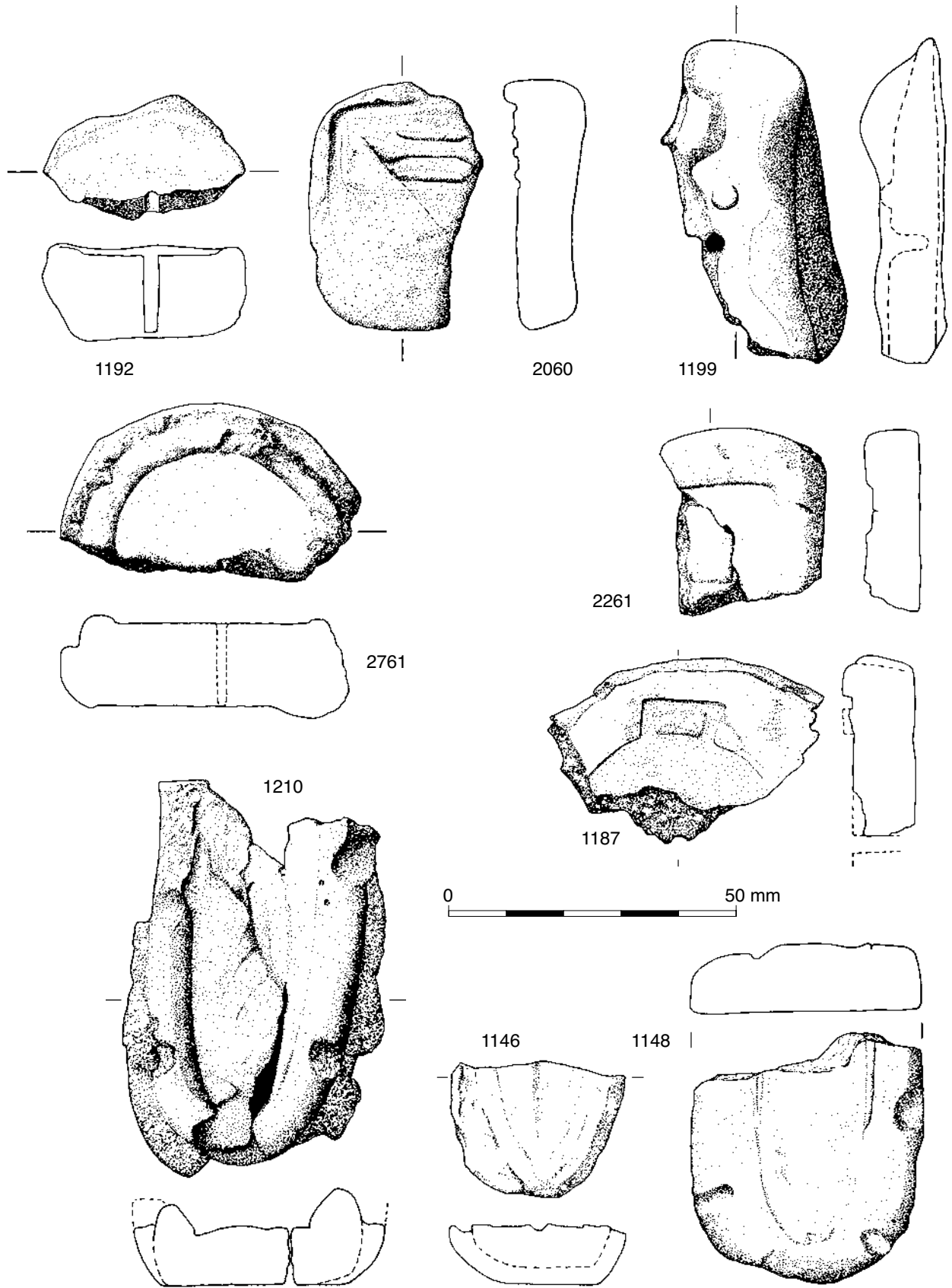


Fig. 31. Moulds: fittings.

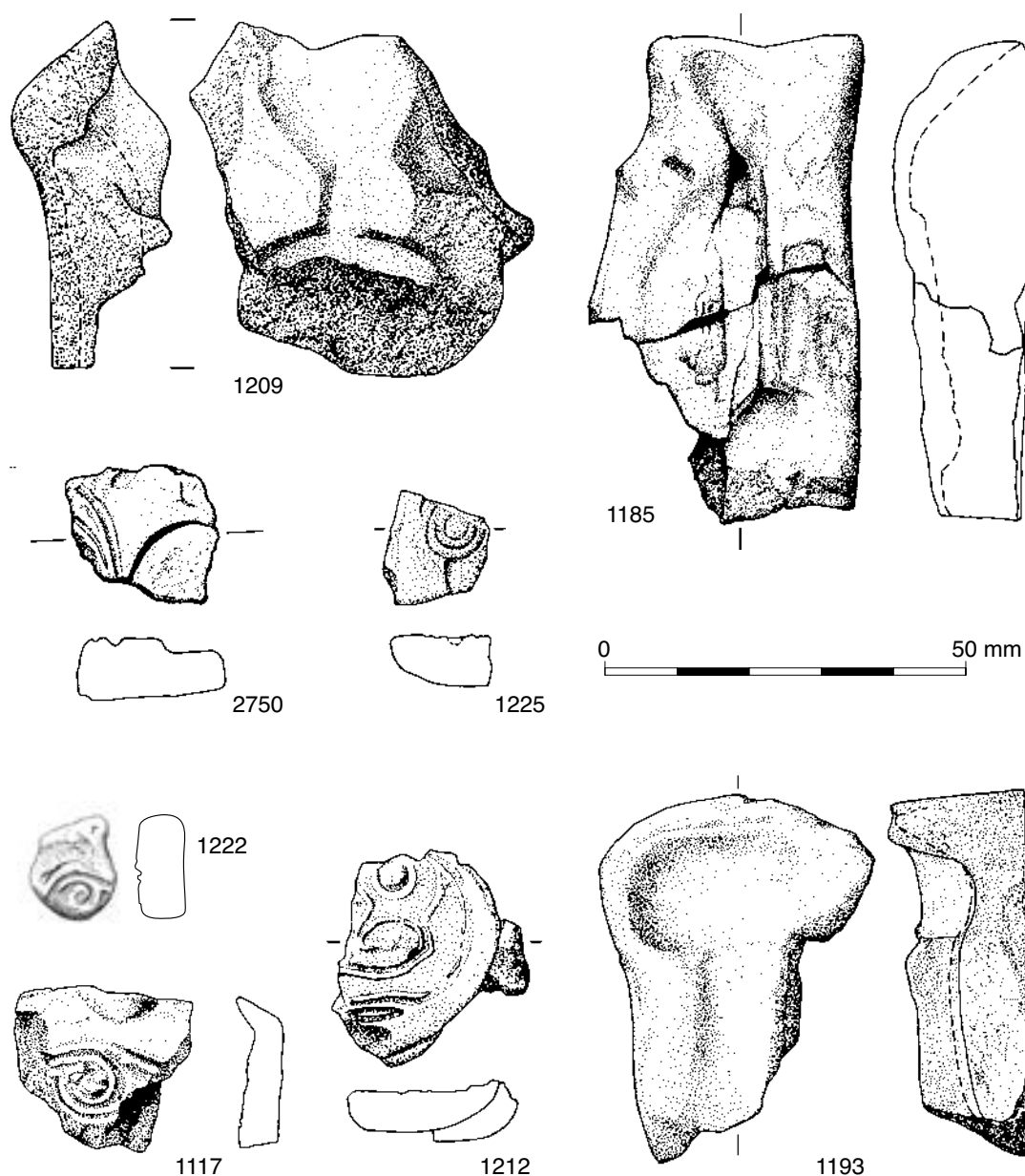


Fig. 32. Moulds: miscellaneous.

- 2767** *Context group:* occupation, earlier contexts
Site context: b18: 5
Dimension rating: 688; *section:* 11
Inner face/casting face: grey buff
Outer face: grey buff
Core: grey orange
 Curvilinear round-sectioned object.
- 1185** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 1950; *section:* 15
Inner face/casting face: dark grey
Outer face: orange, grey
Core: orange/grey
 Mould incorporating ingate and run-in for unusual round-sectioned curvilinear or D shaped object. V-profile key on primary mould. (Fig. 32)

Ingates

- 1194** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 1900; *section:* 20
Inner face/casting face:
Outer face: sandy buff
 Trough shaped ingate and run-ins for indeterminate object.
- 1200** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 1140; *section:* 13
Inner face/casting face: grey
Outer face: pink
Core: pink
 Fragmentary ingate and three-channel run-in.

- 2181** *Context group:* backfill of earlier excavations
Site context: b1: 6
Dimension rating: 544; *section:* 16
Inner face/casting face: grey
Outer face: buff
Core: grey/buff
 Fragmentary ingate.
- 2282** *Context group:* occupation, earlier contexts
Site context: b9: 10
Dimension rating: 565; *section:* 16
Inner face/casting face: orange buff
Outer face: orange buff
Core: orange
 Ingate.
- 2284** *Context group:* disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting
Site context: b9: 2
Dimension rating: 340; *section:* 9
Inner face/casting face: orange
Outer face: orange red
Core: orange red
 Shallow-funnel shaped ingate and run-in.
- 2382** *Context group:* occupation, earlier contexts
Site context: b18: 5
Dimension rating: 270; *section:* 6
Inner face/casting face: buff
Outer face: buff
Core: buff
 Ingate.
- 2612** *Context group:* occupation, earlier contexts
Site context: b5/10/3: 7
Dimension rating: 315
Inner face/casting face: dark grey
Outer face: grey
Core: grey
 Trough-shaped ingate.
- 2755** *Context group:* occupation, earlier contexts
Site context: b18: 5
Dimension rating: 720; *section:* 10
Inner face/casting face: orange
Outer face: orange
Core: orange
 Ingate.
- 2757** *Context group:* occupation, earlier contexts
Site context: b18: 5
Dimension rating: 650; *section:* 15
Inner face/casting face: grey
Outer face: grey buff
Core: grey buff
 Ingate.
- 2759** *Context group:* occupation, earlier contexts
Site context: b18: 5
Dimension rating: 510; *section:* 11
Inner face/casting face: grey orange
Outer face: grey orange
Core: orange
 Deep-funnel ingate with clay envelope.
- 3055** *Context group:* topsoil
Site context: 2: 1

Dimension rating: 646
Inner face/casting face: grey/buff
Outer face: grey/buff
Core: grey
 Ingate.

- 3171** *Context group:* backfill of earlier excavations
Site context: 1: 4
Dimension rating: 575; *section:* 14
Inner face/casting face: grey
Outer face: grey, buff
Core: orange

In addition, a total of 291 mould fragments have been recorded which bear no diagnostic features indicative of the objects cast. A small number provide an indication of whether they might be from a primary or secondary valve or have formed part of an ingate. These moulds include four fragments from the 1913 excavations. The mean dimension rating of the total of undiagnostic fragments is 214; the median is 160. These undiagnostic moulds may be summarised as follows.

Burnt timber at base of south rampart

2 fragments: Mean dimension rating: 135.

Rampart

5 fragments. Mean dimension rating for the context group: 162.

Disturbed subsoil

1 fragment: dim. 228.

Occupation, earlier contexts

81 fragments including 6 ingates: (2382, 2755, 2757, 2759, 2612, 2282), 1 primary and 1 secondary valve. Mean dimension rating for the context group: 285.

Occupation, later contexts

9 fragments. Mean dimension rating for the context group: 234.

1913 assemblage

4 fragments including 3 ingates (1200, 1194, 1185 primary valve) and one indeterminate fragment. Mean dimension rating for the context group: 1663.

Backfill of earlier excavations

100 fragments including 2 indeterminate ingates (2181, 3171), 6 primary valves and 3 secondary valves. Mean dimension rating for the context group: 164.

Disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting

37 fragments, including 1 ingate and 1 primary valve. Mean dimension rating for the context group: 218.

Post-occupation accumulation

2 fragments. Mean dimension rating for the context group: 104.

Topsoil

39 fragments including 1 ingate (3055) and 2 primary valves. Mean dimension rating for the context group: 167.

Unstratified

11 fragments including 1 primary valve. Mean dimension rating for the context group: 193.

4 The Evidence of the Artefacts

Introduction: The distribution of artefacts and refuse within the area of the central hollow

Curle does not discuss or plot the distribution of the artefacts in detail but does make reference to individual instances of occurrence or association and comments on the generalised distribution of certain classes of material. These observations contribute to our understanding of the processes at work on the site when considered alongside the evidence of the more recent excavations. It should be borne in mind, in the following discussion, that while the distribution of artefacts in the northern part of the central hollow and, to a considerably lesser extent, in the southern part, includes those from *in situ* contexts, the majority are associated with contexts disturbed during the destruction of the site or at the time of the 1913 excavations. For this reason the horizontal distributions are presented as trend surfaces. Nevertheless, the results correspond sufficiently well with Curle's recorded observations in certain important instances as to inspire confidence in that they represent a meaningful pattern of distribution across the site.

Distribution through the sequence

Fig. 33A charts the proportionate incidence of the major classes of artefact represented on site. Mould fragments are most numerous with 482 items accounting for 34% of the total. There are 299 flint artefacts and fragments, 132 crucible fragments, 109 potsherds, 96 pieces of slag, including some which may derive from ceramic crucible material, and 83 fragments of glass. Of the latter, 69 are from vessels, 7 are beads, there is one fragment of possible Roman window glass, one decorative insert, a possible mosaic cube, a glass paste boss or pin-head and three fragments of waste. Together these six groups account for 85% of the material recovered. In order that the representation of artefacts might be compared within context groups and across context groups, two considerations were addressed.

The first concerns fragmentation and the potential for identifying residuality and for differentiating between protected contexts and occupation surfaces. Fragmentation, for each artefact type within each context group, is expressed by the formula: mean size context group/ mean size entire assemblage. The surface area of each artefact in plan view was taken as an index of size (Fig. 34).

The second consideration concerns comparison of the proportionate representation of artefacts across context groups. This is addressed in this discussion by presenting the representation of fragile artefacts in terms of the number of 'average-sized fragments'. This calculation was derived from the formula: sum of sizes for each artefact-type per context/mean size for each artefact-type for entire assemblage. The results are then expressed as density per sq m.

Integrity of the deposits

A significant proportion (27%) of the total assemblage was recovered during the excavations of 1913. To this total may be added the material recorded in deposits representing backfill from the 1913 excavations (23% of total). A breakdown of the incidence of artefact types occurring within context groups 6 (1913 backfill) and 8 (1913 excavated material), corrected for fragmentation, is presented in Fig. 36. The representation of material recorded in 1913 is broadly matched by the material in the backfill, with certain anomalies such as the enhanced recovery of flints in 1913 and an emphasis on the recovery of large crucibles. Nevertheless, the fragment size of artefacts recorded in 1913 is, not unexpectedly, consistently larger than that of artefacts overlooked in the backfill.

Within this material, Curle alludes to possible stratigraphic differentiation. For example, while he records no technological distinction between moulds occurring in 'higher and lower levels', he, nevertheless, distinguishes between the incidence of less highly ornamented moulds and those with the richest decoration. 'The fragments of [moulds] were very numerous, and were recovered to some extent over the whole area, and at varying depths; but the greater number came from the immediate vicinity of the clay floor, and at a depth of from 14 inches to 2 feet, and although also occurring in the lower soil to a depth of 33 inches, they were there much scarcer. Careful observation of the specimens recovered from higher and lower levels revealed no distinction. It is noteworthy that all the pieces of moulds for the richest ornaments ... came from the front or west side of the building represented by the clay floor and the stone foundation, and especially towards its north end, ... the less highly ornamented objects, came for the most part from the east or opposite side of the same site, chiefly from a depth of about 2 feet, but some from the very

bottom level. The mould most nearly complete (Curle 1914, fig. 14, no. 8) belongs to the latter class, and has been for the manufacture of a pair of small penannular brooches with lozenge-shaped terminals. [The remaining moulds] were not actually confined to any particular part of the main excavated area, but were found generally all over it, though with a preponderance, however, to the neighbourhood of the clay floor (Curle 1914, 140–144).

However, it would seem that a midden, comprising numerous animal bones, accumulated amongst the debris of metalworking. Alternatively or perhaps additionally, a midden was spread over the metalworking area and, in particular, over the three-sided stone structure. It is now unclear whether the domestic debris, pottery and glass, recorded in 1913 accumulated in sequence with the process of metalworking or whether these artefacts were introduced subsequently as a component of the putatively later spread midden. On balance, Curle's observation that glass fragments were found at similar depths to the moulds and that pottery occurred in various levels, suggests that these objects may be taken to be contemporary with the metalworking. Nevertheless, it is, in general, no longer possible to relate artefacts from the 1913 excavations to stratigraphy with complete confidence. In other words, while the majority of the artefacts, particularly those associated with the metalworking processes, are likely to be contemporary with context group 3 in 1973/9, some may predate the construction of the ramparts while others may be associated with contexts indicative of disturbance to the latest occupation horizons (equivalent to context group 4).

Curle comments on the 'almost complete absence of bones and relics' in the soil which accumulated since the abandonment of the site (Curle 1914, 137). During excavation in 1973 and 1979, this context (group 5: Fig. 33) was seen to incorporate some, but relatively few, artefacts, corroborating Curle's assertion. The topsoil, on the other hand included numerous artefacts, suggesting that spoil from the 1913 excavation may have become incorporated. Furthermore, the incidence of artefacts in the topsoil can be seen to be broadly in proportion to the totals from context groups 6 and 8.

Stratified contexts

The proportionate incidence of all artefact types within context groups is presented in Figure 33. It is clear that those artefacts representing the process of metalworking are dominant; that flint is also well represented and that glass and pottery are the most numerous domestic items. It might be anticipated that those contexts identified as representing the phase of occupation within the ramparts would be most productive of artefacts. In respect of metalworking debris and, in particular, mould fragments, crucibles and slag, this is the case (Fig. 34). However, there are certain aspects concerning the incidence of artefacts through the sequence which require more detailed consideration.

Phase 1. Pre-rampart contexts

Very few artefacts were recorded in pre-rampart contexts. However, it is significant that pottery, glass, mould fragments and slag were all present. Glass is represented by one fragment only. Nevertheless, this single piece is comparatively large and represents, in volume, more glass that occurs in the stratified occupation contexts in the interior or in the phase of rampart destruction and clearance (Fig. 34).

Phase 2. Rampart construction

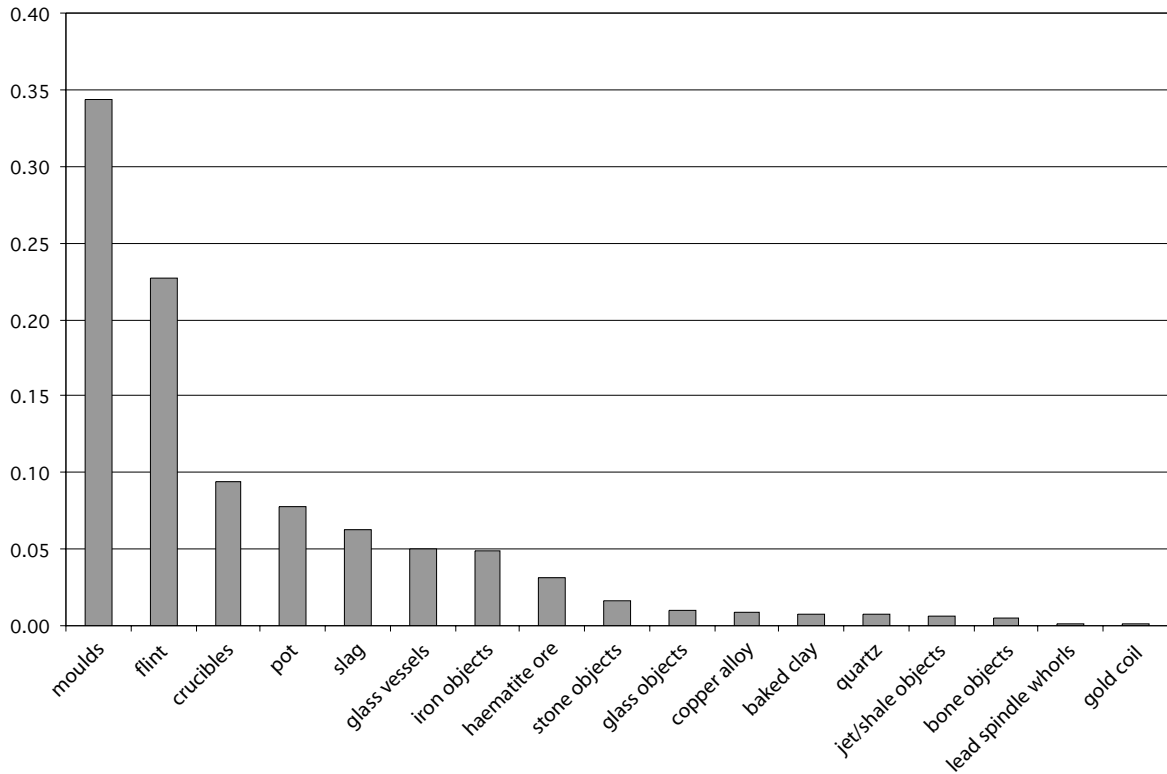
Even fewer artefacts were recorded in direct association with the phase of rampart building. Mould fragments, however, are again in evidence, attesting the presence of non-ferrous metalworking either before or during the construction of the defences. The comparatively large fragment size is a probable reflection of the protective environment provided by the rampart (Fig. 34)

Phase 3. Occupation within the defences

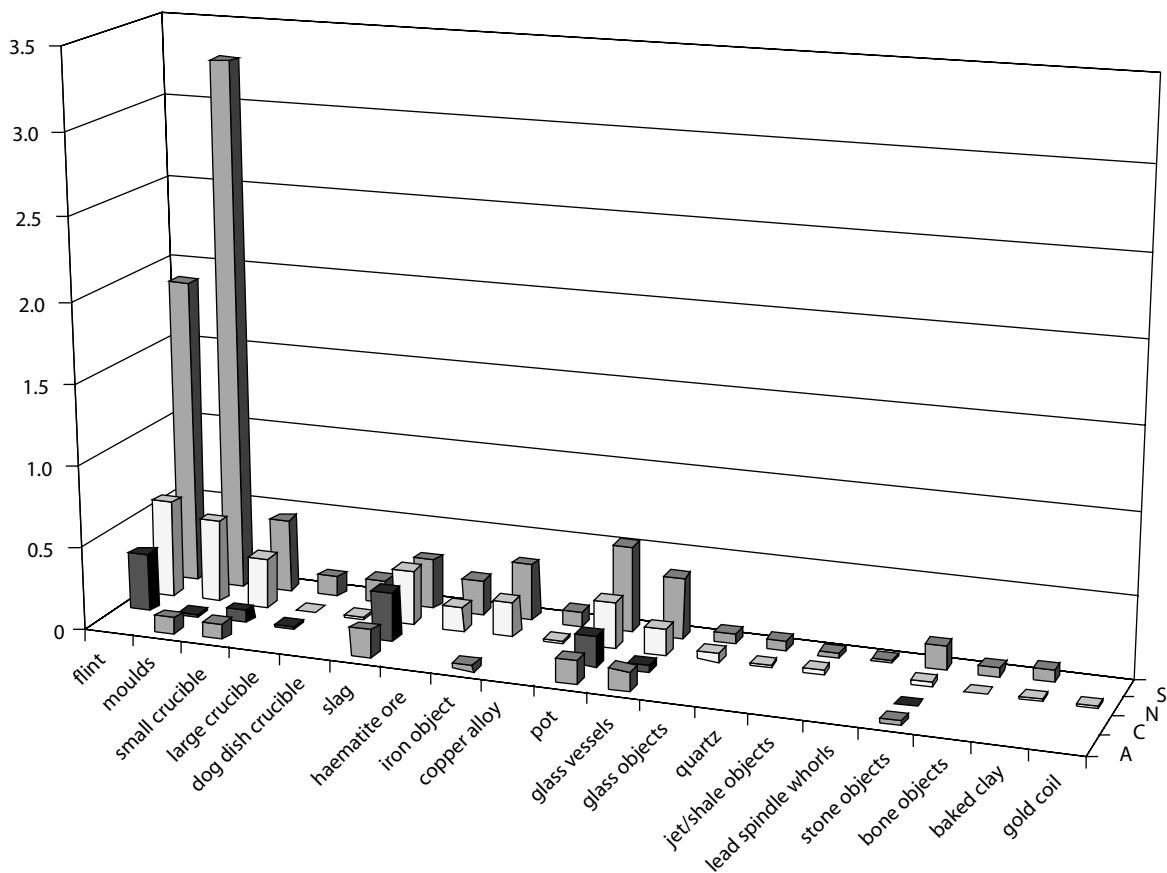
Most categories of artefact are represented in context groups associated with Phase 3 (Fig. 34). Only jet or shale, lead and bone tools are not. This deficiency may be more apparent than real as many if not most of the artefacts recorded in 1913 and in the backfill of those excavations (context groups 6 and 8) are likely to derive from this phase. Mould fragments dominate the assemblage. Slag, crucibles and ore are well represented, as are flints, pottery and glass. Ore fragments (measured as density of occurrence) are better represented in group 3 contexts than in any other context group with the exception of groups 6 and 8. The fragments are generally large.

Phase 4. Destruction of ramparts, levelling and clearance

The context group representing this phase incorporates most of the main classes of artefact including flint, iron, jet or shale, iron ore, slag, moulds, crucibles, stone objects, pottery and glass. It might be expected that the material in this phase should be residual from phase 3. Mould fragments, slag and iron ore fragments are all considerably less numerous and, generally, smaller. Crucibles, on the other hand, are both more numerous and less fragmented than those in phase 3 groups. Similarly, domestic material represented by pottery sherds and glass vessel fragments shows an increase in the density of occurrence in phase 4 contexts, compared to phase 3. Pottery sherds are less fragmented than in phase 3 contexts although glass vessel fragments are considerably smaller than in phase 3. Unfortunately, any analysis of the significance of these observations is restricted by uncertainty surrounding the contextual association of the large body of material excavated in 1913. However, it would seem that context group 4 incorporates material from the phase of occupation disturbed at the point of



A



B

Fig. 33. A: representation of artefact types as percentage of total; B: incidence of artefacts in areas A, C and north and south parts of the central hollow B.

destruction of the ramparts and, on the evidence of the pottery sherds, if not the glass, may indicate some activity on the hill immediately post-dating the slighting of the ramparts. The continued relatively high incidence of pottery sherds in the build-up of soil, post-dating occupation of the site, does not contradict this possibility. The evidence of crucible density in the phase 4 context group is unlikely, in itself, to be sufficient to argue for continued metalworking into phase 4, particularly as there is a sharp fall off in density and fragment size in the transition from phase 4 contexts to phase 5 and in view of the lack of comparable evidence for continuity in respect of mould fragments and slag.

Phase 5. Post-occupation accumulation

A range of the main artefact types are again represented in group 5 contexts. Density of occurrence is low. Fragments are generally small conforming to the proposed interpretation that these contexts represent the incorporation of residual material within the post-occupation accumulation of soil over the abandoned site. The exception to this fragmentation pattern is the single occurrence of a large portion of slag cake.

Phase 7. Topsoil contexts

All the principal classes of artefacts are represented in group 7 contexts with the exception of gold and lead objects which, in any case, are exceptionally rare on the site. The wide range of types (more so than in group 5 post-occupation contexts) and the greater density of occurrence compared with group 5 contexts strongly suggests that this horizon does not represent an extension of group 5 but that it has been contaminated. The most likely source is residual material from spoil generated by the 1913 excavations and spread across the most recent ground surface beyond the limits of the excavation trenches. The density of occurrence across the range of artefacts is broadly proportionate to the occurrence of those artefact types recorded in 1913 and in the 1913 backfill.

In summary, it may be observed that metalworking was underway before the rampart had been completed and that both E ware pottery vessels and continental glass was reaching the site during this phase. Metalworking, represented by slag, crucibles, moulds and, perhaps haematite ore, appears to have been the dominant activity during the period when the ramparts were in commission. E ware and continental glass continued to be represented. The slighting of the ramparts was accompanied by considerable disturbance to the latest occupation contexts within the interior of the site. This disturbed horizon, however, incorporates a significant representation of both pottery and glass including pottery sherds both larger and more numerous than those of the stratified occupation contexts of group 3. The material in group 4 may simply represent disturbance of the latest occupation contexts at the time of the destruction of the ramparts. The fragmentation of glass vessels would

support this interpretation (Fig. 36). The increase in quantity and size of pottery sherds, however, cannot so easily be explained. If some of the group 4 material represents a continuation of occupation beyond the destruction of the ramparts, then this phase may coincide with the clearance of debris to the periphery of the central hollow. On the other hand, it cannot be demonstrated that metalworking continued after the slighting of the ramparts. The apparent spread of debris, including stone from the ramparts and midden material over much of the metalworking focus, might suggest that it did not.

Distribution across the site

The distribution of refuse/discarded material

It is clear that Curle encountered large quantities of animal bone during his excavation of the southern part of the central hollow. He seems to suggest, on one occasion, that the bone was uniformly distributed across the 'greater part of this area' where 'there was a depth of nearly 3'6" of soil containing very large quantities of the bones of domestic animals, sheep, oxen and pigs' (Curle 1914, 137). However, he becomes more specific as his argument focuses on the detail of the site. In discussing the three-sided stone structure he identifies a concentration of 'numerous bones' within a six-inch layer below the top course of stones. Immediately adjacent, and at a lower level, animal bone occurred infrequently (Curle 1914, 138).

Similarly, there was 'an almost complete absence of bones and relics' overlying the clay spread, east of the three-sided stone structure, whereas, beneath the clay, and on to the subsoil, both bones and artefacts were recorded. Thus, it would seem, localised deposits of rubbish, both industrial waste (see above) and kitchen debris were allowed to accumulate in the area where metalworking continued to be practised. The volume of the material, ('bones in great quantities', Curle 1914, 166), was such, however, that Curle was persuaded that such a 'great heap of debris, a kitchen midden', had not only accumulated in the immediate vicinity but had been deliberately spread over structures after their abandonment (although not, apparently, over the clay dump). 'It seems probable that a great heap of debris, a kitchen-midden, had accumulated, during the occupation, to one side of the inhabited area, and that after the occupation ceased, and the buildings, etc., were demolished, that got thrown down into the hollow and spread over the surface (Curle 1914, 166). Curle also remarked on the presence of bone both within the rampart make-up and at its base. The excavations of 1973 and 1979 were able to confirm the presence of significant quantities of animal bone in stratified contexts at the base of the rampart sequence (see above 7).

The extension of excavation in the 1970's in the northern part of the central hollow into areas which had not been disturbed since the abandonment of the site, provides a control against which the apparently

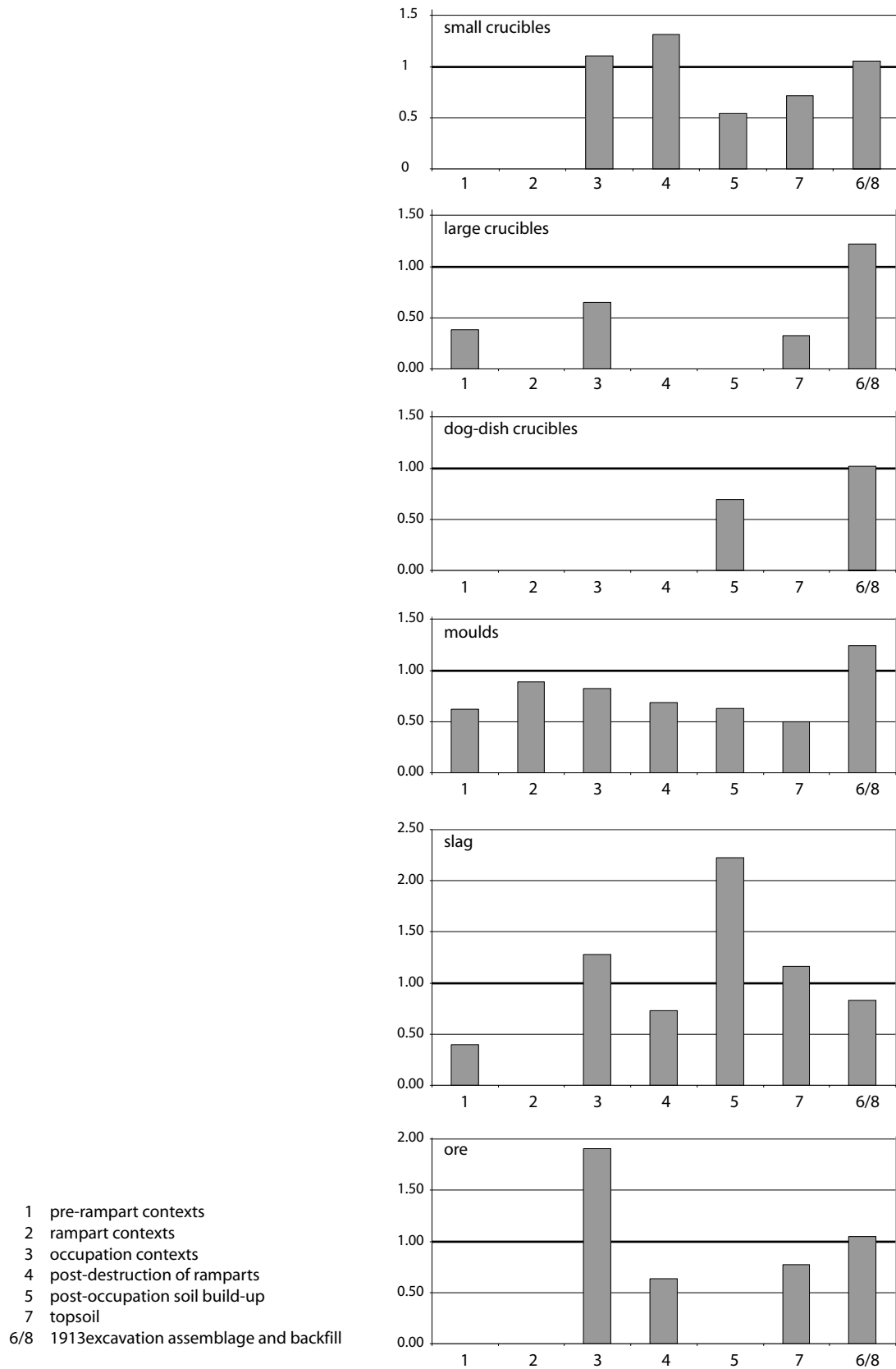


Fig. 34. Fragmentation of artefacts in contexts representing phases in the site sequence. The scale provides an index of fragmentation: 1.00 represents the mean size for the artefact type through all contexts.

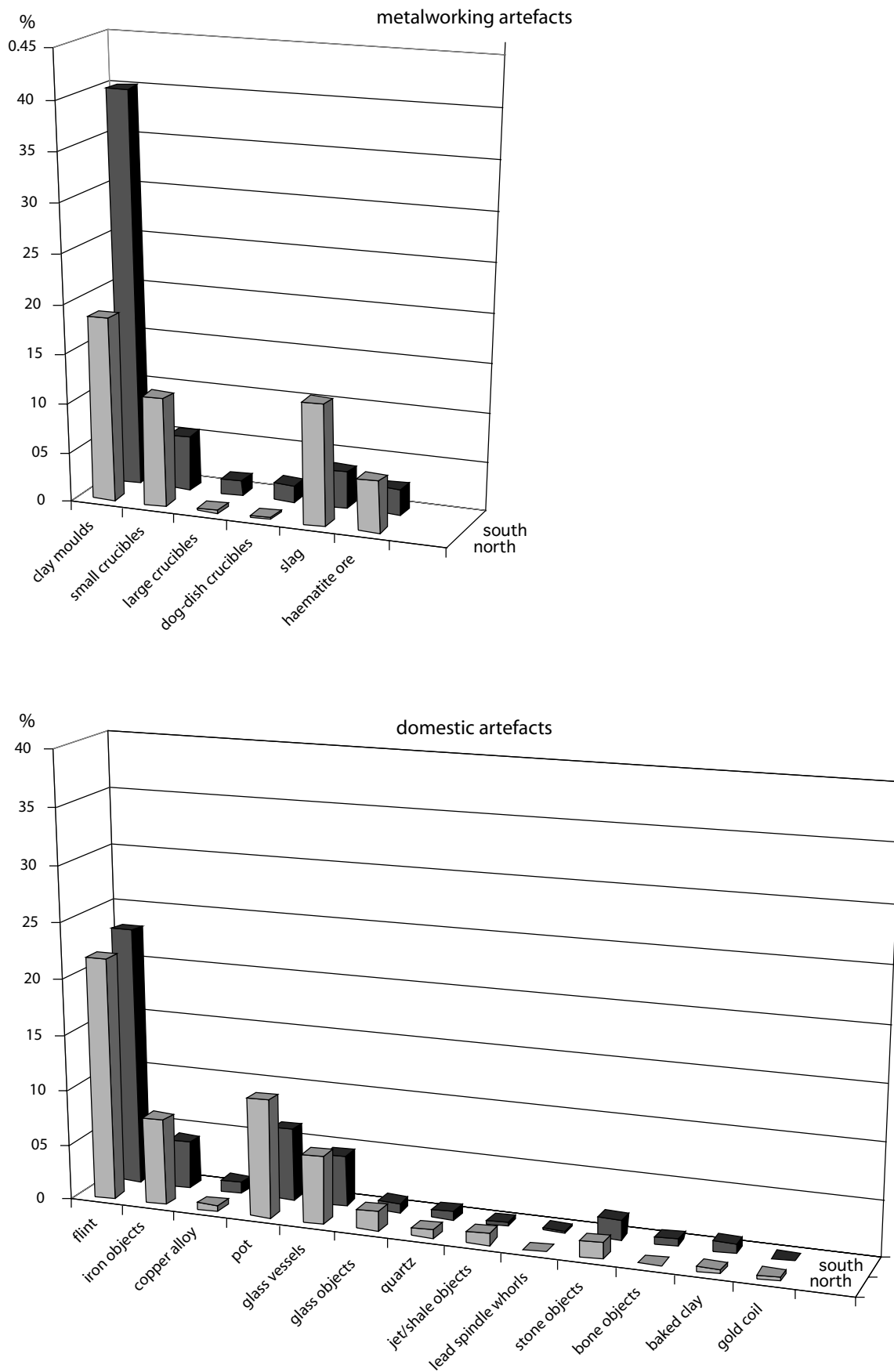


Fig. 35. Comparison of the representation of artefacts in the north and south areas of the central hollow, expressed as a percentage of the total in each area.

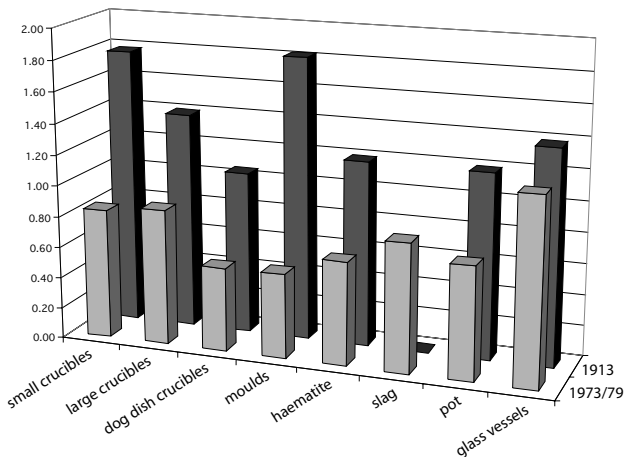


Fig. 36. Comparison of artefacts recorded in 1913 and those from contexts representing the backfill of the 1913 excavations. The scale provides an index of fragmentation: 1.00 represents the mean size for the artefact types through all contexts.

abnormally high concentrations of animal bone in the southern area might be assessed. It is clear from the plot of the distribution of bone, and other artefacts, that domestic and industrial refuse had been allowed to accumulate in the southern area in quantities which were not tolerated over the rest of the site. It is probable, however, that these deposits were cleared away on a regular basis. Curle investigated two areas on the slope of the hill, outside and below the south rampart. 'On the south face, opposite the west end of the hollow, and at an elevation 14 feet below that of the crest of the rampart, a shelf of rock was apparent, and... a talus was discovered. The deposit, which was particularly black, seemed to be almost pure carbon, but had none of the crystalline appearance of charcoal. The amount of bone it contained was almost negligible, but, except bronze, almost every class of relic was represented – pottery moulds, crucibles of all three sorts, wheel-made domestic pots, flints, glass, and iron. At a slightly higher level along the slope, some 20 feet to the eastward, opposite the south end of the west front of the clay floor,... lay a deposit of huge stones, intermingled with numerous bones... beneath which lay

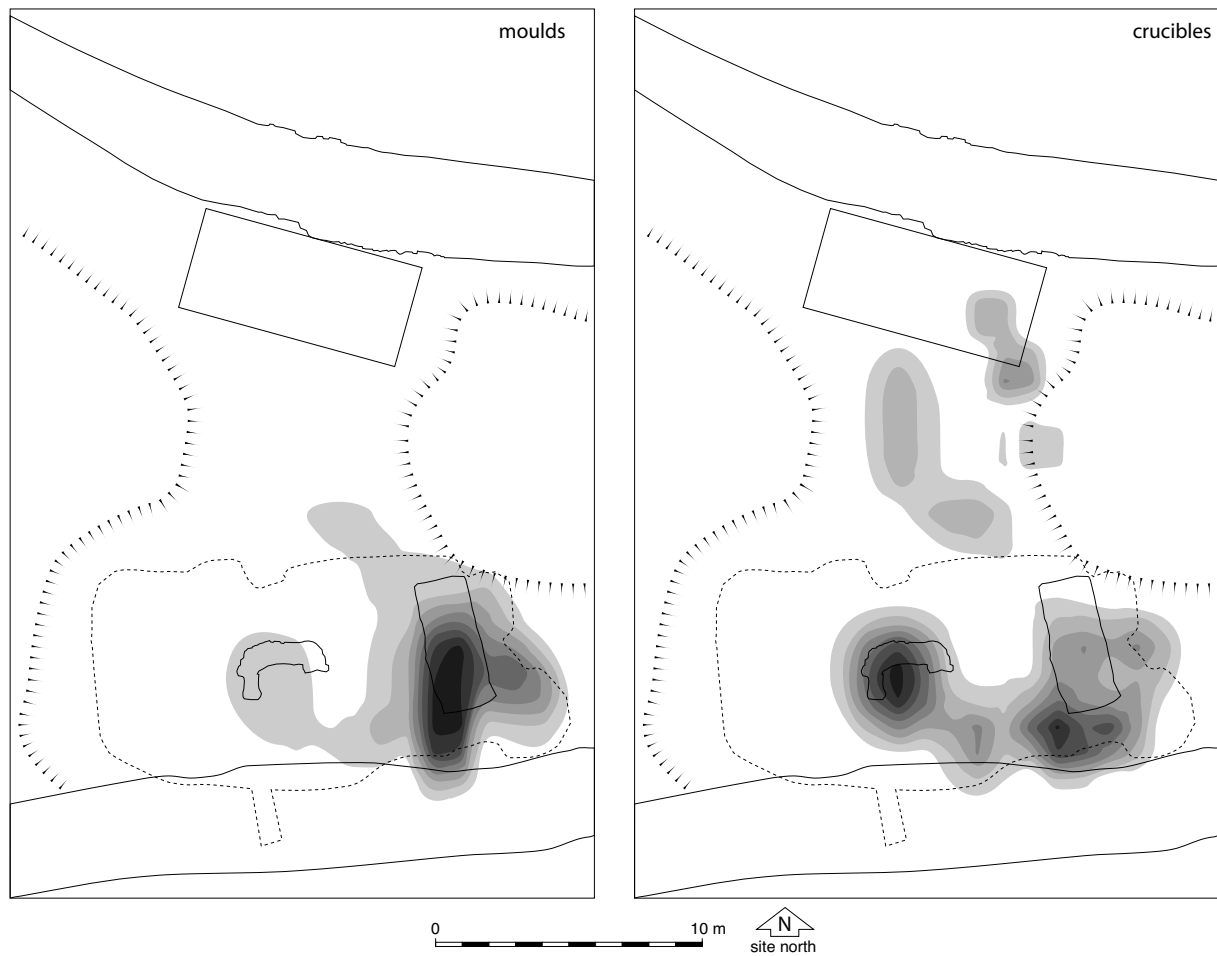


Fig. 37. Artefact distributions: moulds and crucibles.

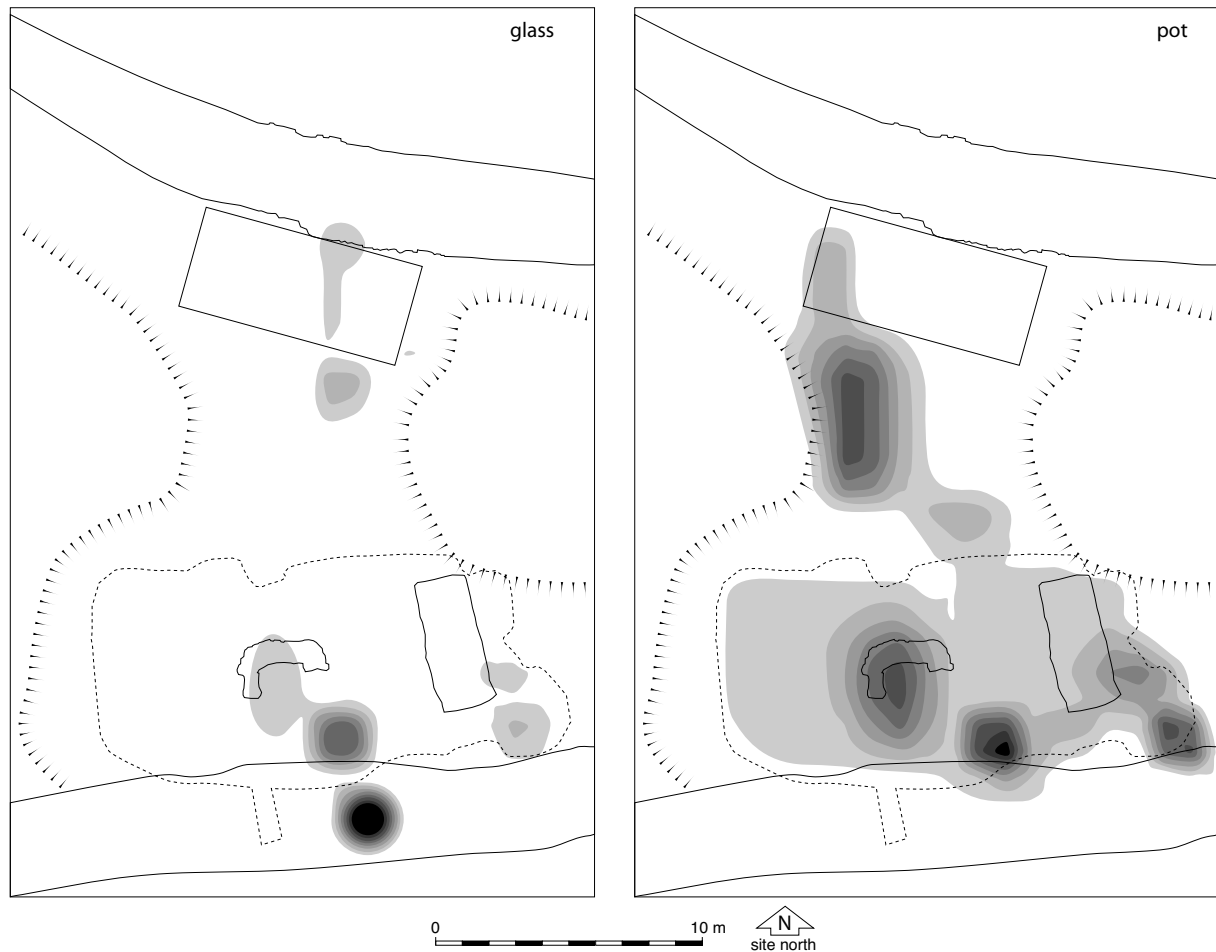


Fig. 38. Artefact distributions: glass and pot.

a thin dark-coloured, stratum, from which a few fragments of pottery moulds and of crucibles were recovered' (Curle 1914, 166–167). Nevertheless, residual midden material remained, on site, sealed under features such as the rampart and the clay spread.

The distribution of metalworking evidence: crucibles and moulds (Fig. 37)

Curle identified a differentiation in the distribution of crucible fragments. The smaller crucibles appeared to be concentrated near the stone foundation at the north end of the clay dump, particularly on its western edge (Curle 1914, 157). The larger crucibles, of c.7–8mm wall thickness, were found in the immediate vicinity of the three-sided stone structure 'thus indicating that different processes were in use at the two spots' (Curle 1914, 157). 'It is possible that [the three-sided stone] building was a forge or workshop, as remains of crucibles, larger and thicker than those found elsewhere, were unearthed in its immediate vicinity, also iron objects, pieces of hematite, and slag' (Curle 1914, 138).

Three peaks are identifiable in the trend surface of crucible fragment distribution. The densest concentration

of material is clearly in the area immediately adjacent to the stone structure, between this feature and the rampart. Two lesser concentrations can be recognised, below and immediately to the east of the clay spread and between the clay spread and the rampart. However, crucible fragments are also distributed across the metallised surface in the northern part of the site. Although a weighting has been applied to the data in constructing the trend surface to allow for Curle's observations, it may be that the absence of data from the un-excavated zone between the north and south areas excavated in 1973 and 1979 has created an artificial dislocation in the perceived distribution. A more realistic perspective on the distribution of crucibles might allow a continuous band of distribution along the western edge of the stone platform from the northern limit of the metallised surface to the clay spread.

Curle recorded that while mould fragments were, to some extent, distributed over the whole area, the greater number came from the vicinity of the clay floor (Curle 1914, 140–144). He further observed that most moulds for the more elaborately decorated objects were to be found on the west side of the clay floor towards its north end. The trend surface supports these observations.

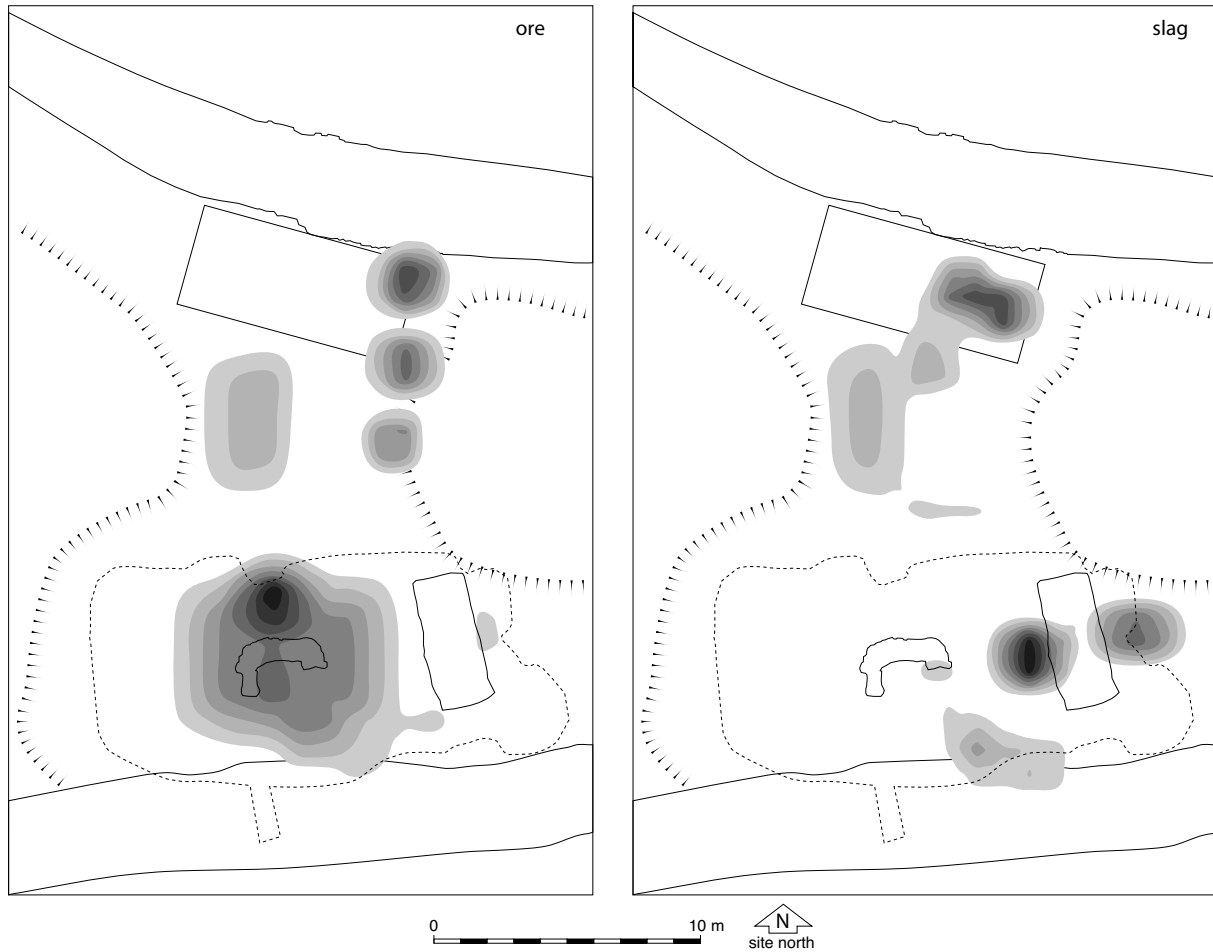


Fig. 39. Artefact distributions: ore and slag.

In comparing the distribution of crucibles and moulds across the central depression, three points may be made. Firstly, both crucibles and moulds are concentrated in the immediate vicinity of those features thought to be associated with the metalworking process. Secondly, the distributions of the two classes of artefact are not coterminous. Crucible fragments are more extensively spread than moulds, with concentrations in the area of the three-sided stone structure, the clay spread and, to a lesser extent, the metallated surface in the northern part of the site. Thirdly, while there is a significant representation of crucible fragments in the area of the clay spread, corresponding to the distribution of clay moulds in that area, the greatest density of crucibles occurs adjacent to the three-sided stone structure. The greatest density of clay mould fragments, on the other hand, is in close proximity to the clay floor.

The distribution of domestic artefacts: imported pottery and glass (Fig. 38)

Curle provides some detailed information on the distribution of pottery and glass but for the most part generalizes. So: 'here and there, from various levels,

pieces of domestic pottery were obtained, all of the same class, buff-coloured ware, unglazed, and much resembling the cooking pots of later medieval times' (Curle 1914, 144). On the floor of a presumed circular drystone structure, between the western rock outcrop and the northern rampart, were found 'one or two small pieces of wheel-made pottery' (Curle 1914, 139). Again, 'wheel-made domestic pots' were recorded with much else, 'pottery moulds, crucibles of all three sorts, flints, glass, and iron', on the shelf of rock in front of the rampart on the south side (Curle 1914, 166). 'A single fragment of buff-coloured domestic pottery was found upon the clay adjacent to a hearth to the west of the three-sided structure' (Curle 1914, 138). The pottery referred to is, in each instance, E ware. In addition one small 'chip of Samian ware, too small to afford any indication of the kind of bowl to which it had belonged, came from near the surface'; and piece of D ware mortarium was recorded at the base of the sequence near the three-sided structure (Curle 1914, 161). Similarly, the glass vessels are described as occurring 'chiefly in the upper portion of the [occupation] deposit', together with 'a large and varied collection of relics, consisting of flint flakes, portions of

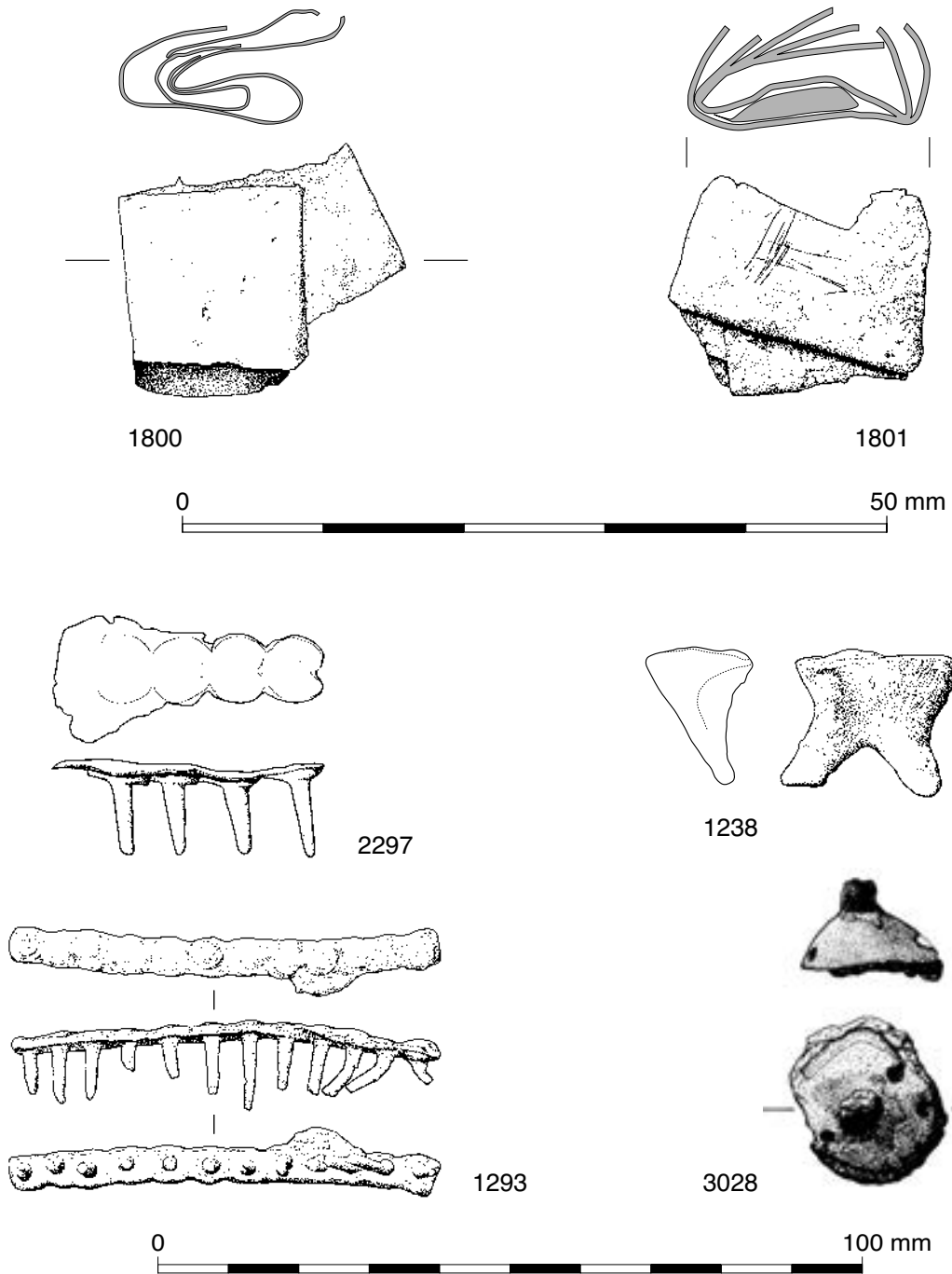


Fig. 40. Selected copper alloy artefacts.

moulds of baked clay, pieces of crucibles, objects of iron, of bone, and of bronze, and shards of domestic pottery (Curle 1914, 140). These glass fragments were found at similar depths to the pottery moulds and were assumed by Curle to be contemporaneous (Curle 1914, 154). More specifically, a fragment of amber-tinted vessel glass, with two parallel opaque white lines on it was recorded in the area of the circular structure referred to above, where

pottery had also been found (Curle 1914, 140; Fig. 17, No. 12; HH247). As referred to above, glass occurred with pottery and other artefacts on the shelf of rock in front of the south rampart (Curle 1914, 139).

The trend surfaces, incorporating data from the more recent excavations, are, however, more instructive. Both classes of artefact show concentrations adjacent to the rear of the rampart in the south part of the central

depression. (One large sherd of glass was stratified below the rampart sequence). In both instances the distributions presumably reflect the build up of domestic and industrial rubbish in this part of the site. In the northern part of the site, however, there is a clear differentiation between peaks in the distribution of pottery on the one hand (on the metallated surface, outside the putative structure ranged against the north rampart), and glass (within the putative structure, around the hearth) on the other hand. It is tempting to speculate that this differential distribution might be a reflection of the contexts within which these artefacts were used; fine quality glass within the hall, domestic pottery as cookware outside. Alternatively, broken potsherds, in larger fragments than thin fragile glass might more easily be swept outside.

Copper-alloy castings (Fig. 40)

Finished artefacts, ingots and waste

The results of analyses made of the copper-alloy castings from the Mote of Mark have been published (Swindells and Laing 1978). The strip of 'rivets' or studs joined together with flash (**2297**), is a type of object known to have been manufactured on the site. The strip was examined with electron probe and energy dispersive x-ray spectroscopy, which showed it to have been of low tin bronze with inclusions of lead, calcium-rich slag, and small amounts of aluminium, silicon and phosphorus. It suggests that local carbonate ores had been the source of the copper. A second object examined metallurgically was one of two pieces of an ingot or billet (**2786**). This again proved to be tin bronze, but wrought, not cast, and lacked the lead.

Finished artefacts and waste fragments of copper alloy were extremely few and almost all are the product of the 1913 excavation and its backfill. Curle provides the observation that 'a number of pieces of bronze were found chiefly in front of the stone foundation, but these appear to be chiefly the waste from castings. [These include] a

small rivet showing a peculiar tongue projecting from one side on the upper surface of the plate to which it is fastened; a small portion of the rim of a vessel, and one or two folded strips of metal. In what appeared to be a well-trodden floor, to the west of the rude three-sided building, [a strip of rivets] was found (Fig. 15, no. 4)' (Curle 1914, 162, 147). These, and the items from the more recent excavations, are described below.

Waste and scrap

1238 Copper alloy waste from the ingate of a mould. This comprises a complete sprue from a funnel-shaped ingate, 23mm × 14mm, at the point where the molten metal would be poured into the mould, and two runners from the channels which would carry the metal to the matrices. The presence of two runners suggests that more than one artefact was cast in the mould which produced this waste piece. The angle of the runners to the alignment of the sprue indicates that the mould was positioned at an inclined angle during the casting process.

1800, 1801 Two fragments of sheet metal were recovered during the 1913 excavations which appear to have been scrapped, with the intention that they should be returned to the melting crucible. **1800** is a fragment of a long strip of thin, ribbon-like, copper alloy. The width of the ribbon is 13mm and the thickness of the sheet is 0.35mm. The extant length of the piece 92mm but this has been folded and refolded to a more compact 20mm × 16mm. There is a small puncture hole, 0.85mm × 0.4mm in the face of the strip. The second piece (**1801**) is from a copper alloy sheet. This has been folded into a very tightly compact parcel of overall dimensions 18.5mm × 14.5mm × 9mm and there can be little doubt that this was intended for recycling. Slight criss-cross scratchmarks are visible on the surface.

Billet

2786 A billet of copper alloy in two pieces, 71 mm by 9mm in total, from the 1973 excavations. This object is probably an ingot of the type found on a number of sites (e.g. Garranes, Co. Cork, Ó Ríordáin 1942, Fig. 6 no 204).

	Context group	Artefact / scrap	Ingot	Casting waste	Total
1a	Pre-rampart contexts				
1b	Earliest stratified contexts within the interior				
2	Rampart contexts				
3a	Earlier occupation contexts			1	1
3b	Latest stratified occupation contexts				
4	Disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting				
5	Post-occupation accumulation				
6 and 8	1913 excavation assemblage and backfill	6		1	7
7	Topsoil and unstratified	2	1	4	7
Total		8	1	6	15

Table 7. Summary of representation of copper alloy objects in context groups.

Finished artefacts

- 3028** A conical cap-shaped object of bronze on an iron core with an organic backing and with attachment holes, 19 mm in diameter and 8 mm high. This is without ready parallel, though might have been intended for the suspension of a pendant, perhaps something of the nature of a rock crystal ball of the type found in Kentish and Frankish cemeteries. Their occurrence in England has been discussed by Huggett (1988, 70–72), who suggests that the crystal may have come from Scotland.
- 1293, 2297** Copper alloy rivets or studs. These studs were presumably used as ornamental attachments and fasteners for organic materials or for fastening metal strap components to their straps. The range and use is further discussed in the context of the moulds from which they were cast, examples of which are also known from the site (see below). It is clear that smaller studs were regularly cast together as multiples in the same mould. Two groups of cast studs were recorded, one during the 1913 excavations and a second excavated in 1973. The first (**1293**) comprises 12 conjoined studs, cast together in a linear strip with casting flashes adhering. The studs have low domed heads of 4.5mm diameter which sit centrally on slightly larger circular or oval plates of 5.5mm diameter attached to the shank. The domed heads have a slight step at the rim. The shanks of circular cross section, taper from 2mm at the neck to 1mm at the point. The shanks of some studs are damaged; however, one, virtually complete, stud has a total length of 13 mm and a shank length of 11mm. The second strip (**2297**) comprises four conjoined studs with a large portion of casting flash adhering at an intact end. The studs have flat butterfly or figure-of-eight heads, 9.5mm in diameter. Similar, although not directly comparable, ‘double-disc head’ pins were recorded at Birsay (Curle 1982, ill. 22). The shanks taper from 3mm at the head to 1.5mm at the point and are 10mm long. Similar stud moulds in strips are known from both the Celtic West and, from mould evidence, from Anglo-Saxon England (Bayley 1992a, Fig.33, no 19, from Wharram Percy, Yorks).

Iron objects (Figs. 41 and 42)

Sixty-seven iron objects were recovered. Most were very corroded, fragmentary with few diagnostic features. Of particular interest are the wedge-shaped billet (**2226**) and the two iron bars (**2058, 2272**) indicative of the ironworking process described in more detail above. The bar with a hooked end (**1295**) may have been a billet of trade iron. The finished products are predominantly tools, used both in the metalworking process and more generally.

A small rectangular, flattened fragment of iron (**2742**) was recorded in one of the earliest occupation contexts as was a broken ring, or loop (**2220**). The iron bar (**2058**) was recorded in the later occupation contexts; the billet was in the horizon representing the disturbance of those occupation deposits. A small iron rod (**2319**), twisted

and bent, linking with a second fragment of rod was also recorded from the disturbance horizon. Only two items, a possible nail or stud head (**2234**) and a damaged ferrule or socketed tool (**2235**) were recorded in the spread of material representing ‘post-occupation accumulation’ deposits. The hooked billet (**1295**) was recorded during the 1913 excavations and the second bar (**2272**) came from the backfill of those excavations. Other than small non-diagnostic fragments, the remainder of the ironwork is also known from the excavations of 1913 and from the backfill of those excavations. Curle observed that iron objects, pieces of haematite and slag occurred in the vicinity of the three-sided structure and that iron and other artefacts were also represented in a ‘particularly black deposit which seemed to be almost pure carbon’ on the slope, outside the rampart on the south side, opposite the west end of the central hollow (Curle 1914, 138, 157, 166).

Metalworking tools

Certain of the iron tools may be associated with the process of copper alloy metalworking.

- 1305** This item is a bar of circular section with a splayed top flattened, apparently, by hammering (HH305). The extant length of the bar is 28.5mm and the mean diameter is 12mm. The diameter at the expanded end is 16mm. It is possible that this could be a miniature anvil or a planishing rod (cf. Moynagh Lough, Co. Meath; Youngs, 1989, no. 231), or possibly the upper portion of a punch as, for example, at South Cadbury where a more complete example of comparable dimensions is recorded. (Alcock 1995, 81, illus. 5.6).
- 1307** A rectangular sectioned, slightly waisted bar, flattened by hammering at one end into a curvilinear axe-shaped item in the form of a miniature bearded axe. The total length is 60.5mm with a blade 22.5mm wide and a median width at the bar end of 13.5mm (HH 307). The back of the axe may have been used as a planishing hammer. Impressions from what may have been a similar tool are apparent in the Pictish silverwork from Norrie’s Law, notably on the back of the plaques (Royal Museum of Scotland reg. FC 33 and FC 34) and torcs (RMS, reg. FC 36 and FC 37). A miniature hammer was among the finds from the Viking cemetery at Islandbridge, Dublin (Coffey and Armstrong, 1910, 118), and miniature hammers of different type are represented at Garryduff, (O’Kelly 1962, 64 and Fig. 11, no. 523a), and Garranes (Ó Ríordáin 1942, Fig. 9 no 239), both Co. Cork.

Socketed tools

It is not now possible to be certain of the use to which the socketed tools were put. All are fragmentary. From the flattened expansion above the socket on some examples, such as 1300, it is possible that chisels are represented. Others may be ferrules. It is also possible that some may be cross-bow bolts.

Cross-bow bolts are known from a number of contexts of this period, for example, at Cadbury Castle, Somerset

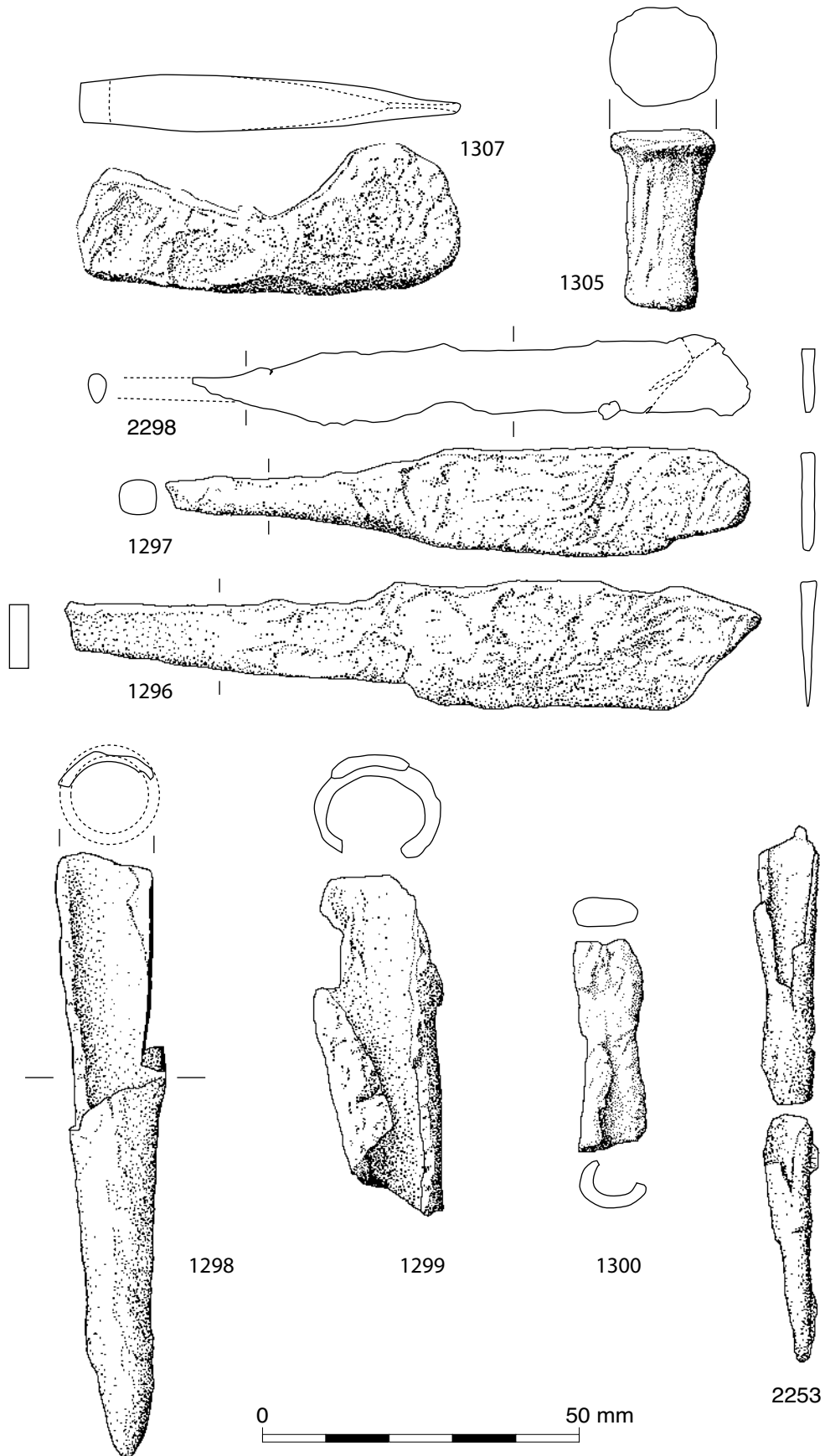


Fig. 41. Iron tools and socketed items.

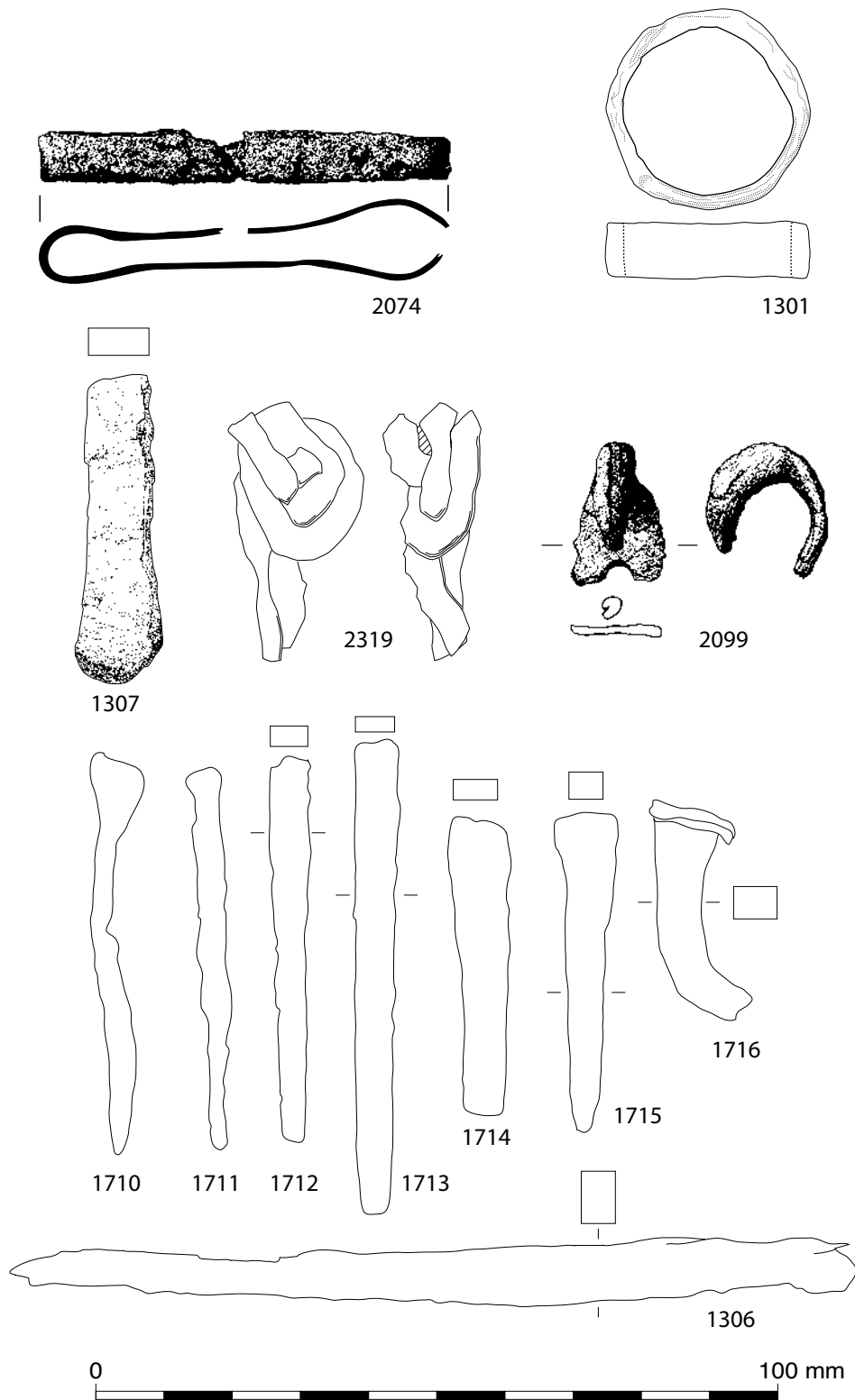


Fig. 42. Iron tools, bars, rods and attachments.

(Alcock 1995, 77 and illus 5.4, Ir 2), and Buiston crannog, Ayr, where both bolts and a trigger nut from a crossbow were found (Macgregor 1975; 1985, 158–61; Alcock 1987, 246–7 and Fig. 16.5). There are also possible cross-

bow bolts from Dunadd (Lane and Campbell 2000, 161), Carraig Aille, Co. Limerick (Ó Ríordáin 1949, Fig. 10, nos. 505 and 524), and from Dinas Powys (Alcock 1963, Fig. 22, 47). However, the most complete example from

the Mote of Mark (**1298**, Fig. 4), although of comparable size to contemporary cross-bow bolts, tapers to a well-defined solid blunt point, as does the Dinas Powys piece, and maintains the circularity of cross section along its entire length, unlike, for example, the square sectioned point of the Cadbury bolt. Although hollow conical arrowheads have now been recorded at Whithorn, these are from thirteenth century and later contexts (Nicholson 1997, Fig. 10.106, 75.6–8).

It is likely that the Mote of Mark example is a pointed ferrule or spike as **2235** seems also to have been and this, perhaps, is the best interpretation of the conical piece from Dinas Powys, referred to above (see also examples from Dunadd, Craw 1929–30, Fig. 5, 32–35; Lane and Campbell 2000, 161–2). A possible further example, from the Mote of Mark, of a ferrule with a split socket, and tapering but less obviously pointed end, is represented by **2253**. The extant length of item 1298 is 95.5mm; the median diameter of the socket is 10.5mm with a maximum diameter of 14mm. The total extant length of item **2235**, heavily corroded and broken, is 72mm. The hollow circular cross-section tapers from 11.5mm to a damaged and flattened blunt point. The maximum diameter of the extant socket of item **2253** is 8mm.

Knives

Three possible tanged knives were recorded from the excavations. All seem to be of a generic type found on early Medieval sites throughout Britain – there is a series from Dinas Powys (Alcock 1963, 113); Dunadd (Craw 1929–30, Fig. 5, 1–60; Lane and Campbell 2000, 162–3) and over 70 from Whithorn (Nicholson 1997, Fig. 10.104). There are subtle differences in the design however, which may have functional and chronological significance (Nicholson 1997, 426–9). Only seven knives were recorded in period 1 contexts at Whithorn. This is the period broadly contemporary with the Mote of Mark. Of these, Nicholson's analysis identifies six as Ottaway's class C and 1 as Ottaway's class A (Ottaway 1992, 559). The Mote of Mark knives, would all seem to belong to class A, characterised by a blade with a distinctly angled profile achieved by the line of the straight-edged back dropping sharply to the point. Class C knives, not obviously represented at the Mote of Mark, would have a convex curvature to the forward part of this line.

1296 A tanged knife, 110mm long, with a broad trapezoidal blade 56mm long and 19.5mm deep. The back of the blade is steeply angled at a point 75% along the length of the blade with the blade length measured from the point where the tang meets the blade to the tip. The tang has a broad rectangular cross-section and the tang and blade meet at an angular junction.

1297 A second knife or, possibly, a spatulate tool. The artefact is corroded and damaged and the presumed pointed end is now lost. The tang is slightly rounded, unlike item **1296**, and the shoulder between tang and blade is a smooth curve rather than angular. The back of the blade

is angled at a point 80% along the length of the blade. The total length of the artefact is 89.0mm; the blade depth is 16mm (for a more complete spatulate tool of comparable dimensions, see Dunadd, Craw, 1929–30, Fig. 5, 10).

2298 A heavily corroded rectangular iron bar. This may be a third knife, shallower in the blade than the previous two examples described, with an extant length of 86mm tapering towards the tang, and a blade depth of 9.5mm. The back edge of the blade is steeply angled at a point 90% along its length.

Tweezers

2074 A pair of iron tweezers, made from a single strip of iron with pincer ends. Their length is 60 mm; the rectangular cross-section of the bar is 6.25 × 1mm. This is a type which is not readily paralleled in the West, but which are common finds (more usually of bronze, with expanding grips) in Anglo-Saxon cemeteries (e.g. in grave 29, Morning Thorpe, Norfolk – Green *et al*, 1987, 302, where of iron). The ancestry can be found in the Roman world. (Fig. 42)

Bars, rods spikes and nails

There is very little that can be conclusively derived from this group of material. Hammered nails are clearly in evidence and some of the shorter spikes and bars might have served a similar purpose. On other broadly contemporary sites, similar bars have been identified as chisels awls and punches (Craw 1929–30, Fig. 5; Alcock 1963, Fig. 22; Hill 1997, Fig. 10.102). So might they have been used at the Mote of Mark but there is no conclusive evidence that they were. Only a small selection of these items require further comment.

1367 May be a much corroded tanged stud, 26 mm diameter with a projecting tang corroded to 9 mm, or a head from a discoidal projecting headed pin. Tanged studs (usually of bronze) are fairly common on early Medieval sites in the Celtic world, for example at Cahercommaun, Co. Clare (Hencken 1939, Fig. 18, 65 and 42). A large iron example is known from Dunadd (Lane and Campbell 2000, illus. 4.77, no.727/1). Alternatively, if it is from a discoidal projecting ring-headed pin, an iron example is represented at Garryduff (O'Kelly 1962, Fig. 8, 299). Although the iron pins at Garryduff (for example, O'Kelly 1962, Fig 8, 61), were mostly seen as the pins of ringed pins that had very corroded heads, two items (1710; 1711; HH307) from the Mote of Mark with circular sections and corroded ball heads may be pins.

Two bars of bulk iron (**2058**; **2072**) are described in detail, together with a wedge shaped ingot (**2226**) in section 3.3 in the context of the evidence for metalworking processes. A third bar, **1295**, may represent a further stage in these processes. This item is a trapezoidal bar of rectangular cross section, of maximum width 20mm, 8mm thick. The bar is 73mm long, truncated obliquely at one end, narrowing towards a forged hook-like fold-over at the other end. The object displays a superficial similarity to one of the sections of a simple double-link snaffle bit,

examples of which are attested at Lagore, Co. Meath (Hencken 1950, Figs. 36–7), most notably by one represented in Period Ia (Fig. 36, 354) (which is fairly close in date to the Mote of Mark). The size of the Mote of Mark piece is very comparable with both Iron Age examples and those from Lagore, except that rather than the flattened splay that one would expect in a link from a bit, the Mote of Mark piece is, at this point, at its broadest in cross-section. The oblique truncation at this point has a residual tang which could indicate an original loop at this end. On the other hand this feature would seem more likely to be the result of cold-chiselling of the bar. The loop at the narrow end is reminiscent of a particular class of Iron Age ingots, although on a smaller scale. It may be that this piece is best seen as another piece of bulk iron, prepared for smithing but not yet an artefact. The loop and, perhaps the chiselling, would be a demonstrable indications of the workability of a billet offered for trade

Fittings, attachments and bindings

Fragments of rings, of circular cross section, small hoops, of rectangular cross section, possible attachment loops for small vessels, thin sheet metal, and a small ring-and-shank may all be classified loosely under the above heading.

- 1301** An iron ring or hoop, may possibly have been a binding for a wooden handle to a metal tool. The piece has a rectangular cross-section 8mm × 2.5mm and an internal diameter of 23.5mm.
- 2099** An iron rod, bent, with flat, notched expansion has been catalogued as a notched tool, with a head similar to the distal end of a stylus. Alternatively, this may have been a fixing plate for small hook or handle loop, broken at the rivet hole, of the type found on small buckets (see, for example Dinas Powys, Alcock 1963, Fig. 22, 33). The width of the expansion is 13mm; the diameter of notch is 2.5mm.

- 3111** A loop and angular, shield-shaped, flattened plate, is another possible attachment for a small bucket or similar vessel. The plate and the loop are both broken. The extant width of the plate is c.18mm. There is a possible rivet hole at the damaged lower edge of the plate. The plate is 2.5mm thick; the cross-section of the loop is 2.5 × 5.5mm.

Lead objects (Fig. 43)

Lead was not well-represented in the assemblage. The only objects were two whorls from the 1913 excavations.

- 1228** A flat, lead perforated disc, possibly a spindle whorl, decorated with four incised concentric lines in two groups, closely spaced (Curle 1914, Fig. 15/7; HH228). Two lines border the circumference of the piece; the other two border the very slightly raised lip of the central hole. The same pattern occurs on both faces. This type is also represented at Cahercommaun (Hencken 1939, Fig. 27, 234). Diam: 25mm; diameter of hole: 6mm; thickness: 3.5mm.
- 1229** A flat lead perforated disc with scalloped edge. The central hole is wide and the disk is thin and light. Diam: 23–75mm; diameter of hole 9.2mm; thickness: 2mm. (Curle 1914, Fig.15/9).

Miscellaneous artefacts of bone, stone jet and glass

Worked and utilized bone (Fig. 43)

Few objects of skeletal materials were found in the excavations. There are two pins, two handles or fittings, a comb and a pointed tool. There are also two incised fragments. The most notable bears a runic inscription. This piece is treated more fully by Professor R I Page, below. The majority (six items) were recorded during the

	Context group	Billets and bulk iron	Tools and socketed items	Bars and rods	Nails and studs	Bindings and fittings	Non-diagnostic items	Total
1a	Pre-rampart contexts							
1b	Earliest stratified contexts within the interior						2	2
2	Rampart contexts							
3a	Earlier occupation contexts					1	1	2
3b	Latest stratified occupation contexts	1						1
4	Disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting	1				1	2	4
5	Post-occupation accumulation		1		1			2
6 & 8	1913 excavation assemblage and backfill	2	12	10	6	3	17	50
7	Topsoil and unstratified					2	4	6
	Total	4	13	10	7	7	26	67

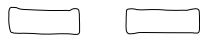
Table 8. Summary of representation of iron objects in context groups.

1913 excavations or recovered from the backfill. The comb fragment was incorporated in the post-occupation accumulation of soil and the point was in the topsoil. A further item, described by Curle as a bone pin-head (Curle 1914, 162; Fig. 23; HH232) is, on re-examination, thought to be a fractured apple-green glassy paste pin-head or boss. It is described as such, together with other items of glass, on p.101.

Pins

The two complete bone pins may have been intended for mould-making rather than as fasteners. Curle illustrates item 1292 (HH292) alongside clay mould 1161 (HH161), stating his belief that the pin had been used to form one of the matrices of the mould (Curle 1914, 147; Fig. 15, 2). Nevertheless, similar pins are common on Roman and Medieval sites.

Lead and bone artefacts



1228

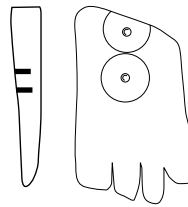


1229

Bone and antler



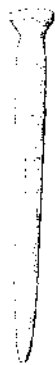
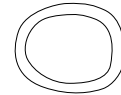
2252



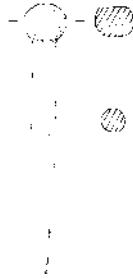
2214 (scale x2)



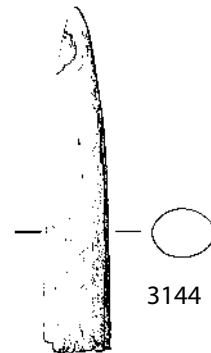
2062



1292



2300



3144



Fig. 43. Lead, bone and antler artefacts; runic inscription on bone.

- 1292** A nail-headed pin, 47mm long with a maximum shaft diameter of 4mm. The neck is constricted immediately below the head, then swells slightly before tapering to a blunt point. There is some very slight damage visible on the point.
- 2300** A knob-headed bone pin. The knob is spherical, but faceted rather than smoothly rounded, showing the use of a knife or similar tool to form the head. The shaft is slightly swollen towards the mid-point; the point is sharp. The total length of the pin is 35mm; the head is 0.5mm in diameter and the shaft has a maximum diameter of 3.2mm.

Handles and fittings

- 2190** An antler tine, 75 mm long, hollowed at base, probably for use as a knife handle or other tool. This is of a type commonly found in the period, for example at Lagore (Hencken 1950, 196 discusses their use).
- 2062** A bone toggle or fitting rather than bead. One edge is bevelled, the other cut straight, although both are intact and the piece is complete at 20 mm long. The slightly oval cross-section gives a diameter of 9–11 mm. Similar objects are known from Lagore (Hencken 1950, Fig. 107, no. 910).

Comb

- 2214** Two adjoining fragments of a bone comb, decorated with ring-and-dot ornament, of which the largest is 13 mm by 7mm × 2 mm, are too small to enable the type of comb to be identified. The ring-and-dot motif is fairly common on bonework of the period.

Bone Fragment with Runic Inscription: 2252 (Fig. 43) by R I Page

A group of five runes has been cut on a bone fragment, perhaps part of a rib, 38mm by 30 mm. This is broken away at both the ends and the top, and was found in 1973 not in a stratified context but from outside the line of the defences on the southern, seaward, slope of the hill. There is no sign of any other working or shaping of the bone

though it has been described as ‘polished’ (Laing 1973). Five runes remain, sloping gently across the face. It looks as though they were first marked out with a blunt tool, and then most of the incisions were opened out and darkened to make them more prominent. At any rate some are shallower and less blackened than others, while there seems to be a preliminary trial for the stem of letter 4, ‘1’, a little too far to the left to be acceptable. Rune height varies from 0.7 (5) to 1.1 (2) cm. The text now reads:

‘] a þ i l i [‘
1 2 3 4 5

The first surviving rune is close to the left edge so there is no means of telling whether it was the beginning of the inscription or not. The last surviving rune is some little distance from the right edge, and the disposition of the characters suggests but does not prove that it was the last of its text. The letters are not very neatly formed though the general effect is tidy enough. The stems of 1 and 4, for instance, are made up of two cuts each and consequently curve, while the join of arm and stem of 4 is incomplete. The lower line of the bow of 2 overcuts its stem, and this overcut was not opened out nor was the stem line below the bow. At first glance therefore this letter resembles inverted ‘w’, but side-lighting shows it to be ‘þ’. There is no ambiguity about the other letters, though ‘a’ has a slightly unusual form with the upper arm much prolonged.

There is one diagnostic rune, ‘a’, which is an ‘Anglo-Frisian’ graph, and reveals this as an Anglo-Saxon, not a Norse, inscription. It is tempting to take it as a personal name, with the recorded Old English diminutive ending *-ili /-ele*. The shift of *i* to *e* in unstressed syllables has not yet taken place; though it is unwise to rely on a single piece of evidence in so uncertain a context this suggests a date no later than the early eighth century, which fits with the archaeological dating. Noteworthy is the back vowel, given as ‘a’, of the first syllable, for this

	Context group	Comb	Knife handle	Incised / inscribed	Toggle	Point	Pins	Total
1a	Pre-rampart contexts							
1b	Earliest stratified contexts within the interior							
2	Rampart contexts							
3a	Earlier occupation contexts							
3b	Latest stratified occupation contexts							
4	Disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting							
5	Post-occupation accumulation	1						1
6 & 8	1913 excavation assemblage and backfill		1	1	1		2	5
7	Topsoil and unstratified			1		1		2
	Total	1	1	2	1	1	2	8

Table 9. Summary of representation of bone objects in context groups.

shows neither fronting nor *i*-mutation. Since the inscription can hardly antedate fronting, it is reasonable to assume that the diminutive is a comparatively late formation in Old English, and in this it parallels ‘æ g i l i’ on the Franks (Auzon) casket. It could then derive from a monothematic name in *Aþa* or [.]*aþa*. Appropriate Old English examples are hard, perhaps impossible, to find, but other Germanic sources suggest numerous possibilities, giving either a long or a short stem vowel in Old English: so, to take a few examples, *Aitha*, *Atha*-/*Attho*, *Laiitha*/*Laitu*, *Matha*-/*Matto*, *Ratha*.

The Mote of Mark text preserves no distinctive rune form that enables us to date or place it more closely within the runic context. There are few runic inscriptions from this corner of Anglo-Saxon England, the nearest being Whithorn and Ruthwell which are set in a clearly Christian context. The Ruthwell runes seem to me to be mid-eighth century, while those of Whithorn may, on art historical grounds, be set later. From what survives there is no reason to think that runes penetrated anywhere near this northern area before 650, and this would put the Mote of Mark specimen at the end of the period of occupation of the site.

Stone (Figs. 44–5)

Twenty-six stone artefacts were recorded. These include items associated with the process of metalworking. The three stone ingot moulds unquestionably fall into this category; grinders, pounders and whetstones may be associated with the industrial process, in preparing raw materials or in finishing artefacts, but this must remain uncertain in individual cases. Other grinding stones may have been used for grain or food processing. Curle noticed ‘the only portion of a quern found, part of the upper stone of a rotary one, ...recovered among the stones at the edge of the rock [immediately to the north of the clay dump] (Curle 1914, 138). This item was not entered on the catalogue of the National Museum and cannot now be traced. Certain selected smooth pebbles are probably playing pieces, used in chequerboard games. Gaming boards of the period are known from Garryduff, Co. Cork (O’Kelly 1962, 88 and Fig.19) and from Buckquoy, Orkney (Ritchie 1987, 60–63 and Fig. 1). Two stones carry what appear to be deliberate markings. One is a cross-marked stone, the other may be a runic inscription.

The stone ingot moulds (**1289**, **1901**, **2996**) are described and catalogued in the context of the metalworking evidence in Section 3 (above). Other stone artefacts in use on site include:

Sharpening and polishing stones

There are four fragmentary whetstones or possible sharpening stones from the Mote of Mark of which items **2229** and **2321**, although damaged, are the best preserved.

2229 This polished fine-grained dark sandstone is cylindrical, with a rounded, tapering end intact. The opposite end is

truncated at 58mm along its length. In cross-section, the stone is slightly oval. The maximum diameter is 22mm. The object is a whetstone, or possibly a burnisher. There is a comparable series from Whithorn, (Hill, 1997, Fig.10.117, no. 38, 18, or 10.119 (burnishers). The Whithorn burnishers were seen as possibly used for the polishing of gems, enamel or metal. Whetstones also occur at Kiondroghad, Isle of Man (Gelling 1969, Fig. 33).

2321 From the small surviving fragment, **2321** is of comparable shape and proportions to item **2229**, with a rounded, though badly damaged, proximal end. The piece is oval in cross section, slightly more so than **2229**, with a maximum diameter of 25mm. The extant length is a maximum of 44mm.

Rubbers and grinders

Curle recorded two stone artefacts (HH286, HH287) which he considered to be ‘probably connected directly with the metallurgical operations – two stone rubbers or mullers, one a pebble of coarse granite, the other a fractured piece of millstone grit, both showing a surface flattened by attrition’. He further hypothesised that ‘such stones would be used for reducing copper or tin ore to a coarse powder preparatory to smelting it’. Similar stones at Dunadd have been identified as having been used in leather-working (Lane and Campbell 2000, 178–9) and such conveniently sized and shaped stones could be employed in a variety of processes.

1286 (HH286) A smallish fractured slab of granular quartz rich stone, 103mm × 77mm, 60mm thick. Both upper and lower surfaces are flat. This is a fragment of a quernstone or grindstone but it is uncertain to what purpose it was applied.

1287 (HH287) A plano-convex granite block (95mm × 77mm, 58 mm thick), worn smooth on one surface. This again is a rubber or grindstone of uncertain function.

2580 A sandstone fragment with one concave face and possibly used as a small grindstone or mortar. This artefact was recorded within the earlier occupation contexts. The object is burnt red.

3240 A small fragment of granite, worn smooth on one surface. It may be part of quern or other grindstone.

2218, **2565–9**, **2629** Seven small ovoid granite pebbles which may have been used as rubbers or grinding stones. They may have been employed in the industrial processes on site or in grain or food processing, although their small size precludes particularly heavy use. There is a comparable series from Whithorn, where they predominantly occur in early contexts in circumstantial association with metalworking (Nicholson 1997, 459, SE42).

Playing pieces

There are five smooth, flat, rounded, pebbles which may have been used as playing pieces. An example occurs at Buckquoy, Orkney (Ritchie 1976–7, 199, no. 89). The diameters range from 20mm to 32mm and the average

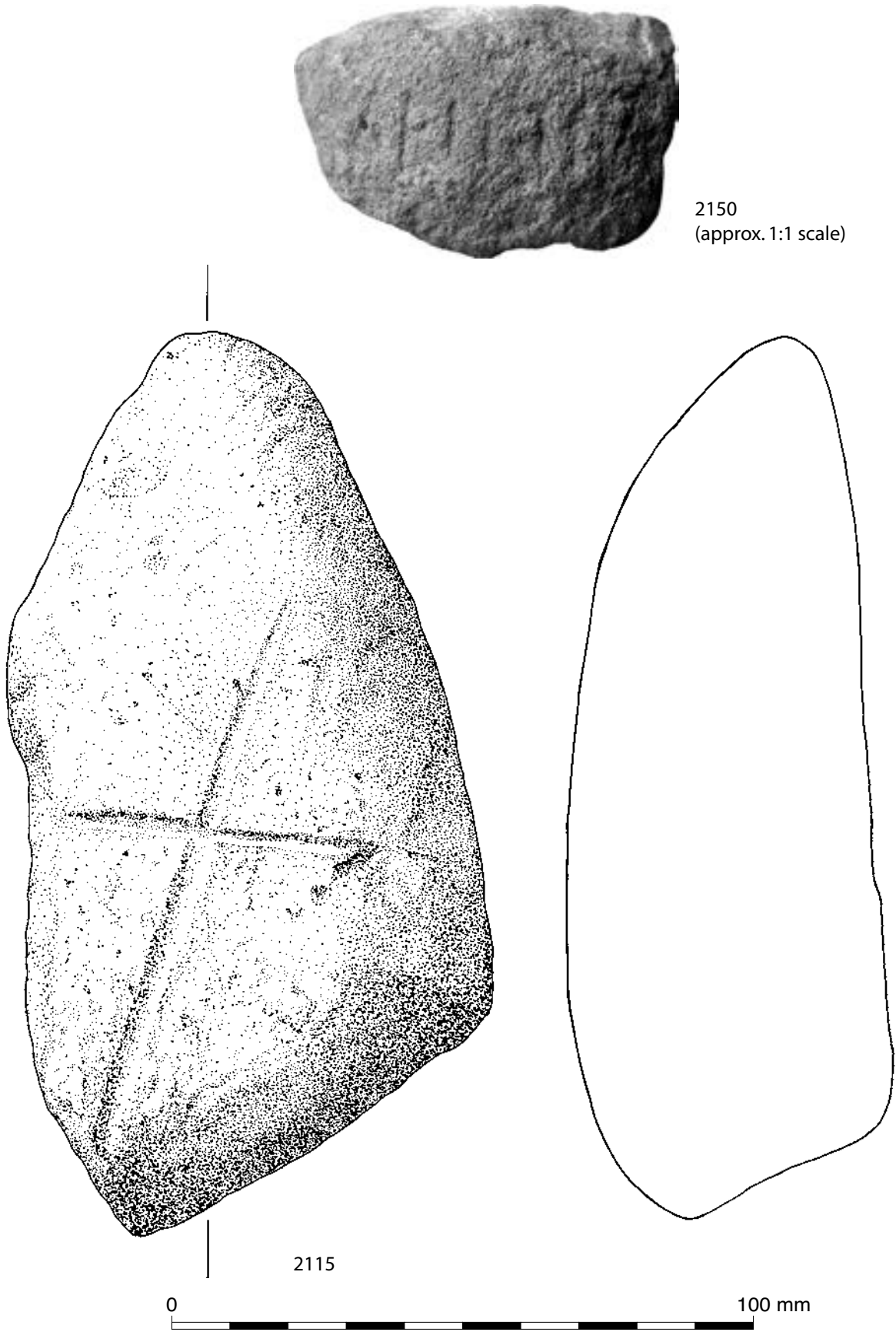


Fig. 44. Inscribed stones.

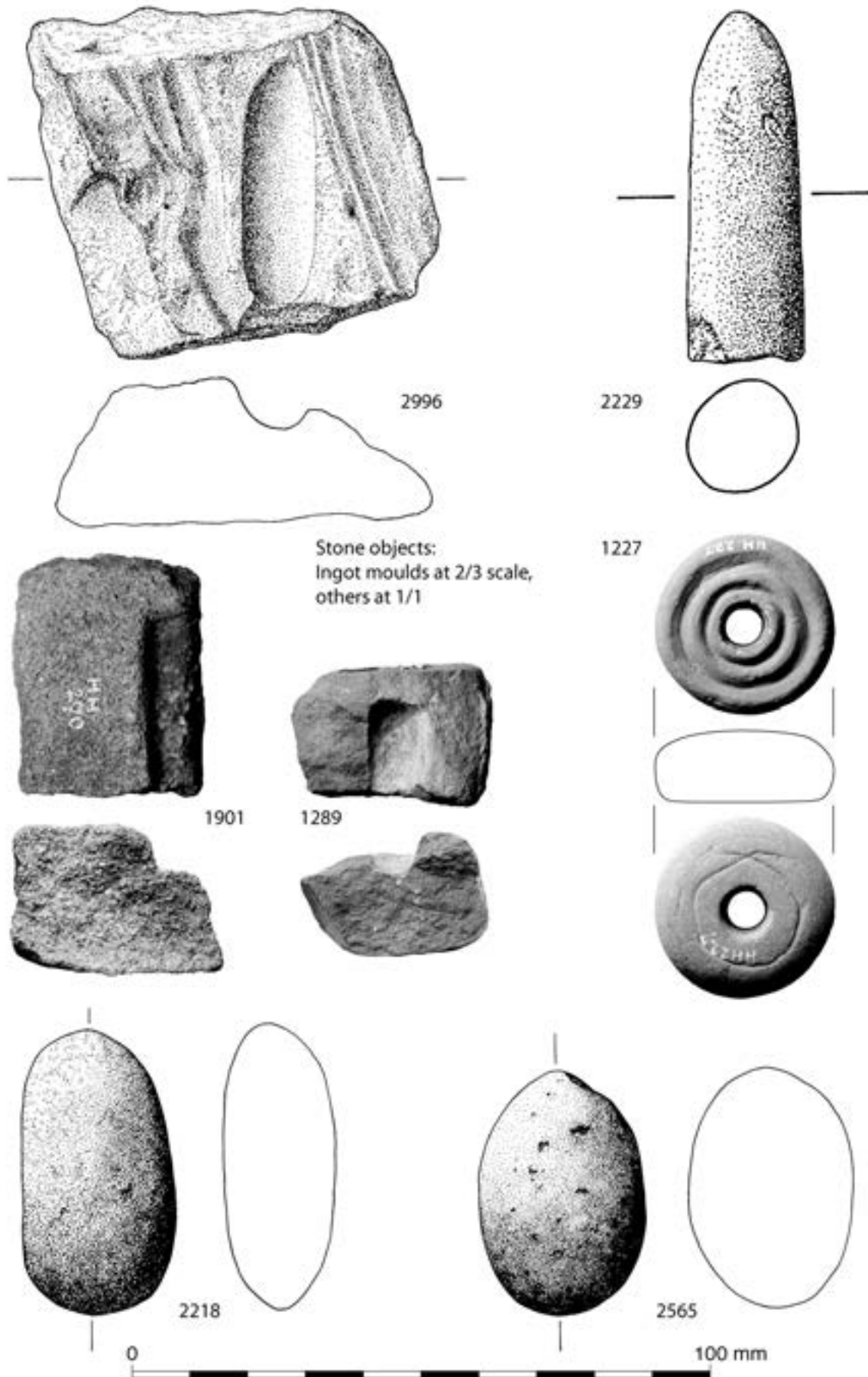


Fig. 45. Stone objects.

thickness is 7mm. **2003, 2052, 2095**, are polished. **2001** and **2648**, are similar but not clearly polished pebbles.

Inscribed and incised stones (Fig. 45)

- 2150** A fragment of red-brown sandstone, 75mm × 38mm, with one smooth and one curved surface. Narrow, predominantly vertical incised strokes, about 15 mm high, resembling an inscription, run in a regular spacing along the arc of the curved surface. The possible inscription is thought to be runic. In the opinion of Professor Page, the letter ‘thorn’ looks clear enough, but there is no identifiable sequence and runically this object serves only to add another plot on a distribution map’
- 2115** A piece of red-brown sandstone, 155mm × 85mm, bearing an incised cross. The two strokes which form the cross are 85mm and 54mm respectively, crossing at 100/80 degrees. The shorter stroke is sharper and more pronounced than the other. This piece was found, unstratified, away from the main area of excavation, near the eastern summit of the hill. Cross-incised stones were used as grave-markers, and occur for example at Ardwall, Kirkcudbright, and at Physgyll Cave (St Ninian’s Cave), Wigtowns (Thomas 1967, Pls XIXB and XXIA). Thomas has discussed the use of cross-incised stones as grave-markers (1967, 149–50 and 158–9, drawing attention to their wide distribution in the Irish Sea area and their particular occurrence on the Isle of Man. (See also Thomas 1971, chapter 4, esp. 116–18). In the absence of any human remains at the Mote of Mark, a funereal explanation seems improbable, but it may be possible that the stone is connected with Christian worship.

Whorl

- 1227** (HH 227) A bun-shaped spindle whorl decorated with three concentric ribs defined by two well defined, evenly spaced concentric grooves on one face, giving the appearance of corrugation. The reverse face has one shallow, irregular curvilinear incision with ends which cross and remain open rather than completing the circle. The whorl is 31mm in diameter and 12.5mm thick. The diameter of the hole is 8mm. This type of whorl is represented at Cahercommaun, Co. Clare, (Hencken 1939, Fig. 27, 814), where they were of bone. An example of this decoration on a stone whorl, though the whorl itself is slightly larger and flatter, was found at Whithorn (Nicholson 1997, Fig. 10.113, no. 28.5).

Quartz objects (Fig. 46)

Six pieces of quartz were recorded during the excavations of the 1970s. Four of these are very small undiagnostic fragments, no larger than around 15mm in diameter. One is a distinctive pale-pink translucent quartz (**2681**). The two other pieces are more clearly from artefacts. One is a quartz bead **2009**, of which about a third survives but from which a maximum diameter of 24mm can be extrapolated. The projected diameter of the hole is 7mm. The depth of the bead is 13mm. Both upper and lower faces have bevelled edges. This item may be Anglo-Saxon. The type has been discussed by Huggett (1988, 70). The other (**3239**) is a fragment of a globular object, worn smooth on at least two points on the surface. The extrapolated diameter is 32mm and the height of the complete object was c. 22mm. In addition, there are four

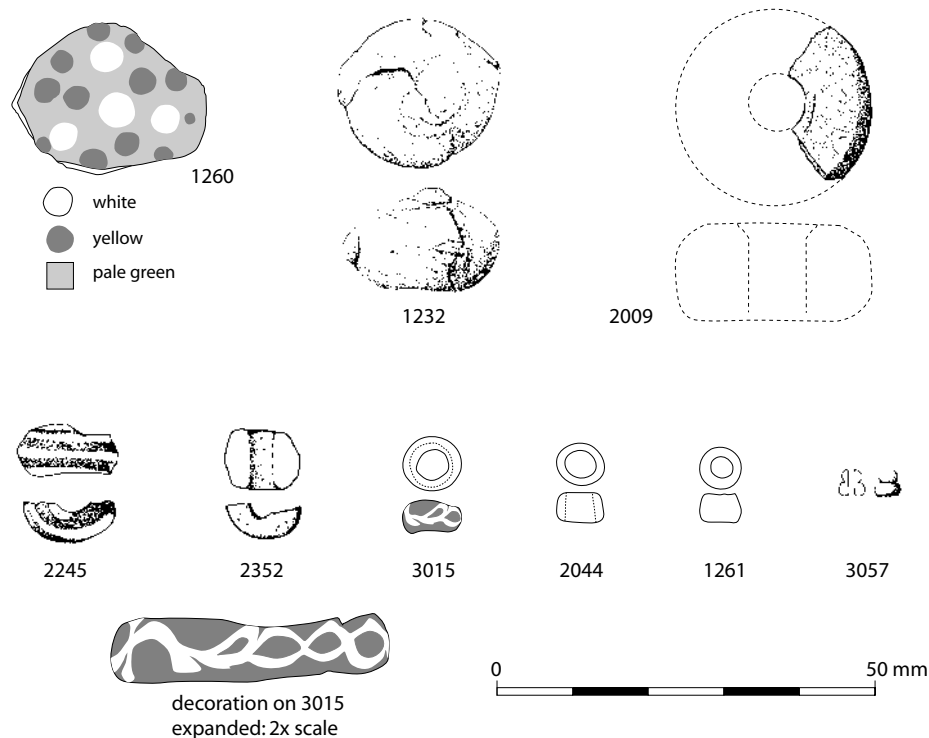


Fig. 46. Quartz, glass beads and settings.

lumps of quartz, on average 20mm across, included within a box containing 140 flints in the National Museum (HH285).

The worked flint and chert finds (Fig. 47) by George Smith

The lithic material from the Mote of Mark which forms the basis of this report comprises 299 pieces. There are 162 pieces from the excavations in 1913 (Curle 1914) and 137 from the excavations in 1973 and 1979. The material from 1913 is in the National Museum of Scotland and a summary is provided by here, with thanks to Dr A. Saville of the Artefact Research Unit. Some of the latter material has also been described by Dr J. Coles (1964). The more recently excavated material, with better provenanced stratification, is described in more detail.

The raw material

The raw material is chiefly flint, which varies in colour from light grey to very dark grey and shades of buff-brown. It derives from small fluvio-glacial pebbles which must originate from a variety of sources although much of the difference in colour may be attributed to variable staining and cortication. Many of the pieces have well developed post-manufacture cortication and show evidence of subsequent edge damage or burning, indicating their residual nature within the deposits. A small proportion (6%) are of dark grey chert with a poor, angular fracture and there is one piece of black chert.

Description

The size and quality of the products was limited by the available material. They are often irregular fragments with pebble cortex, scalar chipping or battered edges. There are relatively few pieces that can be identified as typical lithic by-products or secondarily worked forms. The pieces were recorded according to accepted typological classes but included categories of irregular waste and battered pieces.

The assemblage from the 1913 excavation

These 162 pieces comprise 89% flint, 11% chert. The retouched pieces comprise two chert convex end scrapers, one fragment of bifacial arrowhead, probably barbed and tanged, one fragment of a probable transverse arrowhead and one probable gunflint. There are four core fragments, one of which is small and unidirectional, probably for Mesolithic microblade manufacture and one is bipolar and scalar, worked over an earlier normal platform core.

The assemblage from the 1973 and 1979 excavations – the waste by-products

These are all quite small pieces, mainly in the range of 20–30mm long, the largest complete flake only 32mm long. The size of the nine complete, measurable flakes (10% of the total) reflects the restricted size of the raw material, rather than showing the results of Mesolithic microblade manufacture and there are no pieces of microlithic debitage, such as microburins or notched pieces. The battered edge pieces are difficult to explain

	Context group	Inscribed and incised stone	Ingot moulds	Sharpening stones, whetstones	Whorls	Mortars, grinders, rubbers	Playing pieces	Quartz	Total
1a	Pre-rampart contexts								
1b	Earliest stratified contexts within the interior								
2	Rampart contexts								
3a	Earlier occupation contexts					1			1
3b	Latest stratified occupation contexts						1		1
4	Disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting			2			1		3
5	Post-occupation accumulation								
6 and 8	1913 excavation assemblage and backfill	1	2	1	1	9	2	8	24
7	Topsoil and unstratified	1	1	1		1	1	2	7
	Total	2	3	4	1	11	5	10	36

Table 10. Summary of representation of stone and quartz in context groups.

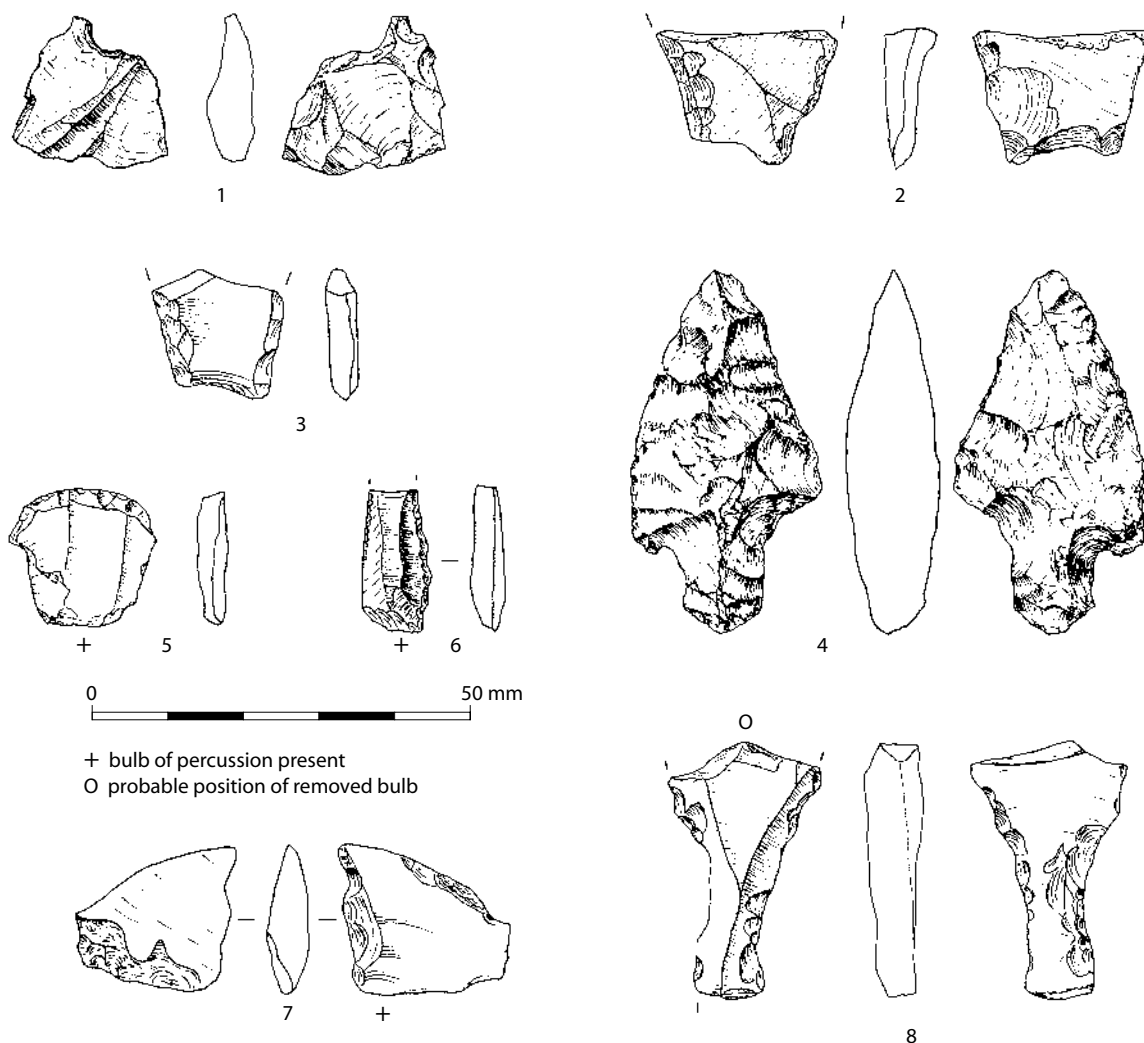


Fig. 47. Worked flint and chert artefacts (including barbed and tanged arrowhead and other retouched pieces).

since they are very small pieces and the battering of the edges seems unlikely to result from attempts at secondary working. Some may result just from damage during the Dark Age occupation or even from re-use during this period. The battering is not scalar and there are no bipolar pieces although one was found in the 1913 material (above).

Retouched pieces	24
Casually retouched pieces	9
Utilised pieces	4
Flakes and flake fragments	46
Unclassifiable fragments	28
Battered edge pieces	12
Split pebble	1
Cores and core fragments	9
Burnt fragments, unclassifiable	4
Total	137

Table 11. Flint assemblage summary.

The cores

Of the nine cores, six are just small fragments. Of the three complete examples, one is a small conical, bi-directional core (22mm long) suggesting Mesolithic microblade manufacture. The other two cores are simply partly worked pebbles, retaining some cortex.

The retouched and utilised pieces

Barbed and tanged arrowhead	1
Oblique arrowhead? Fragment	2
Scraper, convex	1
Spurred piece	8
Serrated piece, fragment	1
Point/awl? Fragment	1
Backed blade/microlith fragment	1
Unclassifiable	24
Total	24

Table 12. Retouched pieces.

The utilised and casually retouched pieces result mainly from *ad hoc* use without any uniformity of style. All are small and most are secondary flakes retaining some pebble cortex. The retouched pieces include ten that are complete while the other 14 are fragments of which the original shape or function is uncertain. The most frequent type that of spurred piece (e.g. Fig. 47, no. 1). These types are generally considered as piercing tools and are regarded as typical of Late Neolithic and Bronze Age industries in England (Smith 1965; Saville 1981) although the examples here are small, simple and not stylistically uniform. One is made on an ancient frost-shattered fragment whilst the others are made on small flakes. The two possible oblique arrowhead fragments (Fig. 47, nos. 2 and 3) are similar, both probably the butts of points with the tips snapped off. Both are made on flakes with partly bifacial retouch that is steep and 'battered'. It is impossible to be sure of the original shape of either point but both exhibit a similar, slightly asymmetric concave butt, suggesting that they were oblique points although a chisel shaped edge is also possible. Such pieces have been identified as typically of Late Neolithic to early Bronze Age date (Green 1980). The most distinctive artefact is the barbed and tanged arrowhead (Fig. 47, no. 4), the only example of such sophisticated bifacial technology here. The 'thumbnail' convex scraper (Fig. 47, no. 5) is too ubiquitous a type to be dated on its own although such pieces are more frequent in the Beaker period (Healey 1980). The backed blade (Fig. 47, no. 6), besides the backing retouch, also has fine abrupt converging retouch towards the (broken off) tip and so may be a true microlithic point although, on its own, it can only be said that it is of microlithic style. The unclassified pieces are mainly small fragments representing a variety of probable objects. These comprise:

- a fragment of a probable snapped scraper edge
- a triangular point, a flake with inverse trimming (Fig. 47, no. 7)
- a thick, tang-like piece with invasive trimming on both faces (Fig. 47, no. 8), possibly a double concave scraper
- a small bifacial fragment, possibly a snapped-off awl/point tip
- a small flake battered all round its edges
- two small retouched edge fragments from larger tools.

The context and distribution of the lithic finds (Fig. 48)

In terms of the horizontal distribution of the objects, there were none from trench A and only 8 from trench C. The great majority then, came from the central area of the hill, trench B. The distribution does not point to there being any specific focus of prehistoric activity, with pieces spread right across this central area. The largest number came from the area of metalworking and midden in the southern part of the central hollow. There were no

lithic finds in certain, *in situ*, prehistoric contexts although two were recorded at the base of the stratigraphic sequence in disturbed subsoil. One flake came from a context within the north rampart. Most of the finds were made in the topsoil or 1913 backfill. It is significant that, apart from those finds made in 1913, the majority occur in later contexts in the early Medieval sequence rather than contexts which might be interpreted as disturbance of earlier in-situ deposits. The most distinctive piece, the barbed and tanged arrowhead, came from area b4 but from post-occupation accumulation and disturbance. The thumbnail scraper and microlithic blade came from 1913 backfill. The possible oblique arrowheads and the microlithic core came from the turf and topsoil.

Discussion and dating

There is a Mesolithic element denoted by the small pyramidal core and the backed blade/microlith together with another small core from the 1913 excavation. The situation of the Mote of Mark, a low hill overlooking the coast, would be ideal for such settlement, and would fit in with the increasing evidence of Mesolithic coastal activity in South West Scotland, around Luce Bay, Wigtown Bay and the eastern Solway Firth (Edwards, *et al* 1983). Coles (1964), in a general survey of lithic finds in South-West Scotland, listed 40 pieces from the Mote of Mark, from the 1913 excavation material kept in the National Museum of Scotland. These were all of a small size, with an average complete flake size of 22mm (*ibid*, table 12), closely comparable to the size of those from the 1973 and 1979 excavations and included only one recognisable tool, a convex scraper. Coles included the assemblage with other coastal flint collections of largely undiagnostic type, which he proposed should be called the South-West Scottish coastal Mesolithic.

The barbed and tanged arrowhead is unusual as the only bifacially worked object and for its size, which, at 48mm long, is the largest object in the whole assemblage. This suggests that it may not belong with the rest although its material, a pale grey translucent flint is similar to that of some of the other objects. Its shape puts it within Green's (1980) category of 'non-fancy' barbed and tanged arrowheads. These comprise two types, the larger, called the Ballyclare type and the smaller, the Sutton type. The Sutton type is the commonest and most widespread barbed and tanged arrowhead type, found throughout Britain from the Beaker period through to the Middle Bronze Age (*ibid*, 138). The two types have similar forms but the dividing line between them is that the larger barbed and tanged arrowheads have a weight over 8gm and generally have a length/ breadth index of 1400 or over. The Mote of Mark arrowhead is heavy because it is unusually thick, weighing 10gm. It is also unusually large amongst the rest of the assemblage, being 48mm long by 27mm wide, giving an index of 1296. When compared to the small size of the rest of the material and taking account

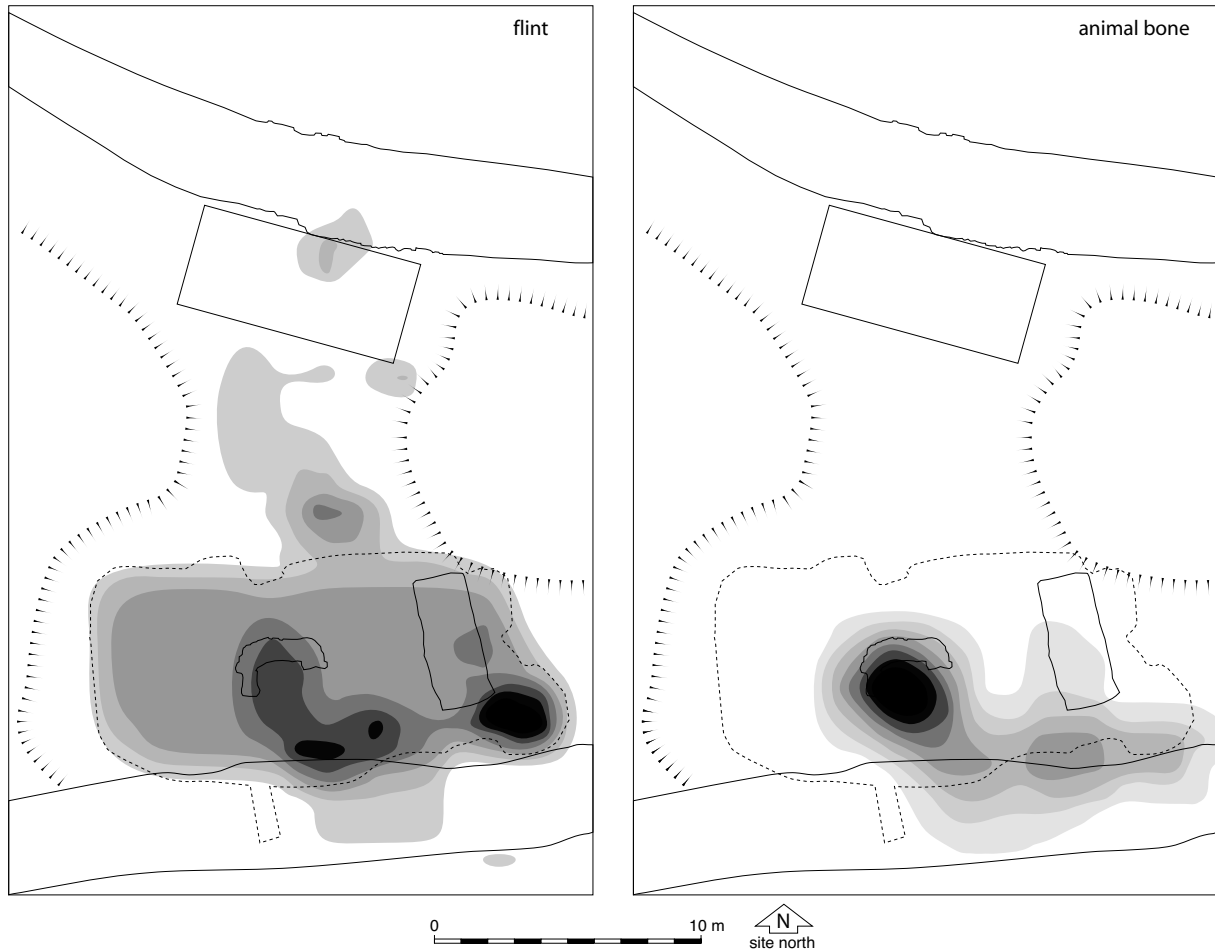


Fig. 48. Artefact distributions: flint and animal bone.

of its weight, it seems most appropriate that it should be placed within the class of large arrowheads, the Ballyclare type (*ibid*, 118). Within this type it is of the sub-type *a*, with vestigial barbs (Green 1980, 117 and Fig. 45). The associations of the Ballyclare type are all in the early Bronze Age (*ibid*, 138) and the distribution is concentrated in Ireland, while of those found within mainland Britain, there is a concentration in the highland zone, i.e. Wales and North Britain. It is suggested that these may be imports to mainland Britain and possibly connected with specialised hunting (*ibid*, 118). This said, it should be noted, as Alcock has pointed out, that barbed and tanged arrowheads are not unknown in Early Medieval contexts (Alcock 1963, 171) citing examples from Dinas Powys, Lagore and, in cemetery contexts, from Merovingian Gaul. Alcock proposed that consideration should be given to the possibility that they might have a contemporary utilitarian function as part of the equipment of an Early Medieval huntsman. The conventional explanation, however, would be to regard these items as 'charms'.

Of the rest of the assemblage, it can only be said that the bulk of the material fits into a similar technology,

typified by small, rather *ad hoc* pieces with scalar edge chipping and these cannot be reliably assigned to a period because of their undiagnostic nature. Two of the pieces may be fragments of oblique arrowheads that, if so, suggest a Late Neolithic to early Bronze Age date. The barbed and tanged arrowhead and the rest of the pieces would also fit into this timespan. However, arrowheads are often found as isolated finds, as a result of losses during hunting, so the occurrence here could be intrusive and it is possible that the rest may represent a much earlier facies deriving from the local later Mesolithic industry.

With regard to the contextual representation on-site, the predominant association of the material with the early Medieval occupation sequence and the disturbance of such contexts, rather than there being any clear indication of residuality from earlier prehistoric activity, suggests that the majority of the assemblage may have been re-used during the occupation of the hillfort. There is now a body of evidence for flint artefacts in Early Medieval settlement contexts (Healy, in Lane and Campbell 2000, 197–200; Crone 2000, 148). Harper has shown that over 50% of Irish ringforts had small flint assemblages. The

	Context group	By-products	Cores/ core frags	Retouched utilised	Burnt piece	1913 assemblage unclassified	Total
1a	Pre-rampart contexts						
1b	Earliest stratified contexts within the interior	2					2
2	Rampart contexts	1					1
3a	Earlier occupation contexts	7	1	1			9
3b	Latest stratified occupation contexts	5		2			7
4	Disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting	23	2	5			30
5	Post occupation accumulation	5		1	1		7
6 & 8	1913 excavation assemblage and backfill: Total includes 162 from 1913 material	8	1	9	1	162	181
7	Topsoil and unstratified	36	5	19	2		62
	Total (includes 162 from 1913 assemblage)	87	9	37	4	162	299

Table 13. Summary of representation of flint in context groups.

hypothesis has been proposed that rather than, or in addition to, re-use, flint-working should be seen as a component of the Early Medieval tool-making repertoire (Alcock, Alcock and Driscoll 1989, 220–21; Edwards 1990, 96). Nevertheless, the diagnostic character of such an industry has yet to be conclusively demonstrated. At the Mote of Mark the circumstantial association of most of the artefacts with the metalworking focus may suggest a use as strike-a-lights.

Glass and paste objects (Fig. 46)

Seven glass beads are known from the site and there is one pinhead or boss which appears to be of glass paste. In addition there are two possible decorative inserts or settings which are considered separately by Ewan Campbell. The first is a very unusual plaque decorated with coloured inserts; the second is a possible small mosaic fragment, almost certainly destined for re-use.

Beads

Two of the beads, both blue, (**1261**, **2352**) were recorded during the 1913 excavation or in backfill contexts associated with that excavation. Three beads (**3015**, **3026**, **3057**) were recovered from topsoil contexts and it is probable that these derive from the spread of spoil following the 1913 excavations. The second of the small blue beads (**2044**) is securely associated with the later phase of occupation within the defences; the green bead with marvered white trails is associated with the disturbance of those contexts or, possibly, a phase of activity immediately post-dating the slighting of the ramparts (phase 4).

1261, **2044** Two very small beads of the plain dark blue translucent variety found on many Western sites and are not chronologically sensitive. **1261** shows evidence of having been wound; it is slightly globular at one end and is sharp-edged at the cut, narrower, end. The diameter of this bead is 5.5mm; it is 3.5mm in depth and the hole is 3mm wide. **2044** is 6mm in diameter,

4mm deep with a hole 4mm wide. This bead is securely associated with the later occupation contexts (phase 3b) on the site.

2352 A semi-opaque blue, barrel shaped bead, of which only half survives. The metal is opacified with bubbles. The diameter of the bead is 10mm; the depth is 8mm and the hole is 4mm wide.

2245 An apple-green bead with four broad opaque marvered white trails, parallel with each other and with the circumference of the bead. There is a core of dark glass, deep red in places. The bead is fragmentary: the reconstructed diameter of the bead is 16.5mm; the depth is 5.5mm and the hole is 6.3mm wide. This item belongs to the family of pre-Roman Iron Age beads classed by Guido (1978, 81) as 'Meare Derivative' type, though in the Iron Age examples the cables are yellow. This is not a common type of bead, but neither is it chronologically restricted, being also found in ninth/tenth century Scandinavian contexts. This bead is associated with phase 4 on the site.

3015 An annular, red-brown, glass bead with intersecting wavy lines of white trails. The diameter is 7.5mm; the height is 4mm and the hole is 3.75mm wide.

3026 Tiny fragment of opaque turquoise blue glass, rounded on one side. Probably from a bead.

3057 An incomplete white paste segmented bead comprising two surviving segments. The maximum diameter is 6.5mm; the surviving length is 7mm and the hole is 1.5mm wide. This belongs to a series of 'dumbbell' beads commonly found in the period, both on Celtic sites and in Anglo-Saxon England and the Frankish world. Dunadd in Dalriadic Scotland (Lane and Campbell 2000) and Dundurn in Pictland (Alcock, Alcock and Driscoll 1989, 216) both provide examples.

Pinhead or boss

1232 A globular object with small projecting bosses. This piece, considered by Curle to be of bone, was described in 1914 as 'a spherical pin-head, rather flattened on the side into which the pin had been inserted, ornamented with three small bosses of bronze on the sides, and with

a small triangular plate of the same metal on the top' (Curle 1914, 162; Fig. 23; HH232). Curle likened the object to 'glass beads ornamented with small protuberances and belonging to late Celtic times'. The artefact would seem, in fact, to be a globular swirl of glassy paste, rather than bone. It is pale apple-green in colour, cracked and fragmented. At least two small applied bosses are visible, almost diametrically opposed on circumference of the object. Damage to the object leaves open the possibility that there may have been up to two additional bosses present. A third boss is visible, centrally placed on the upper surface. The base is slightly flattened. The diameter of the piece is 18mm; its height is 14mm. The bosses project 1.5mm from the surface of the object.

A series of iron-shanked glass pins was found in a votive context at the Neolithic passage grave at Newgrange, Co. Meath. The thin shanks suggested that they might have been the drops on ear-rings (Carson and O'Kelly 1977, 46–7). The Mote of Mark piece may also be compared with the boss from Dundurn, Perth, which the excavators interpreted as a fixture of a larger metalwork item such as, for example, a cross or reliquary (Alcock, Alcock and Driscoll 1989, 216)

Tessera, window glass and plaque
by Ewan Campbell

3102 This item is a possible glass tessera. As such it would be a very unusual find, but one matched at other Scottish sites such as Dunadd (in a seventh-century context) and the Brough of Birsay. These tesserae were produced in the Mediterranean area for use in floor and wall mosaics. They could have been imported along with the Mediterranean or Continental pottery, possibly for use as cullet in glass melting, as happened at Scandinavian sites such as Ribe, Denmark. However it is also possible that **3102** may be a fragment of Roman window or bottle glass. There is one other thick sherd (**1262**), pale green and frosted on one side which may be a fragment of

Roman window glass or from the base of bowl. It measures 16mm by 14mm and is 2mm thick and was found in the vicinity of the clay dump, to the east of it (Curle 1914, 156 (HH262).

1260 This piece is another unusual find from the site and is unique. This thick flat oval plaque (originally circular) of green glass has inverted conical spots of white and yellow inserted in the upper surface. There are traces of an iron band round part of one edge and the glass is layered, suggesting that it was made by pouring glass onto a flat surface bounded by the iron band. It seems to have functioned as a plaque to be inset in some piece of decorative metalwork, or possibly to be suspended from a chain. Harden recognised its uniqueness and described it as part of an inlay, but was wrong in saying no original edge survived. The pale green body colour is similar to Roman glass, but the use of opaque white and particularly opaque yellow might point to a mid-Saxon date, when these colours were used to decorate glass vessels with trails and spots (Evison 1982, 13–14). However, both colours were also used in bead making in the early Saxon period, though the source of these beads is at present unknown. The plaque was recovered away from the main area of excavation, on the north terrace at the base of the rock within a small circular structure just inside the rampart (Curle, 1914, 140, 156; HH260). Fragments of crucible and a glass vessel sherd (**1247**) were recorded from the same general context. (Fig. 46)

Jet objects (Fig. 49)

Jet is used here as a generic term as the material was not analysed geologically. Some of the artefacts may be shale or cannel coal although the use of true jet, of the type found at Whitby, may be represented by the pin head from the 1913 excavation (**1230**), by the large bead (**3075**) and by the waste fragment re-used as a rubber (**2744**) and might point to connections with Northumbria. It may be significant that the earliest appearance of 'jet' or 'shale' ornaments at Whithorn coincides with the end of

	Context group	Beads	Plaque	Tessera and window glass	Pinhead or boss	Scrap or waste	Total
1a	Pre-rampart contexts						
1b	Earliest stratified contexts within the interior						
2	Rampart contexts						
3a	Earlier occupation contexts						
3b	Latest stratified occupation contexts	1					1
4	Disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting	1				1	2
5	Post-occupation accumulation						
6 & 8	1913 excavation assemblage and backfill	2	1	1	1		5
7	Topsoil and unstratified	3		1		2	6
	Total	7	1	2	1	3	14

Table 14. Summary of representation of glass artefacts other than vessels in context groups.

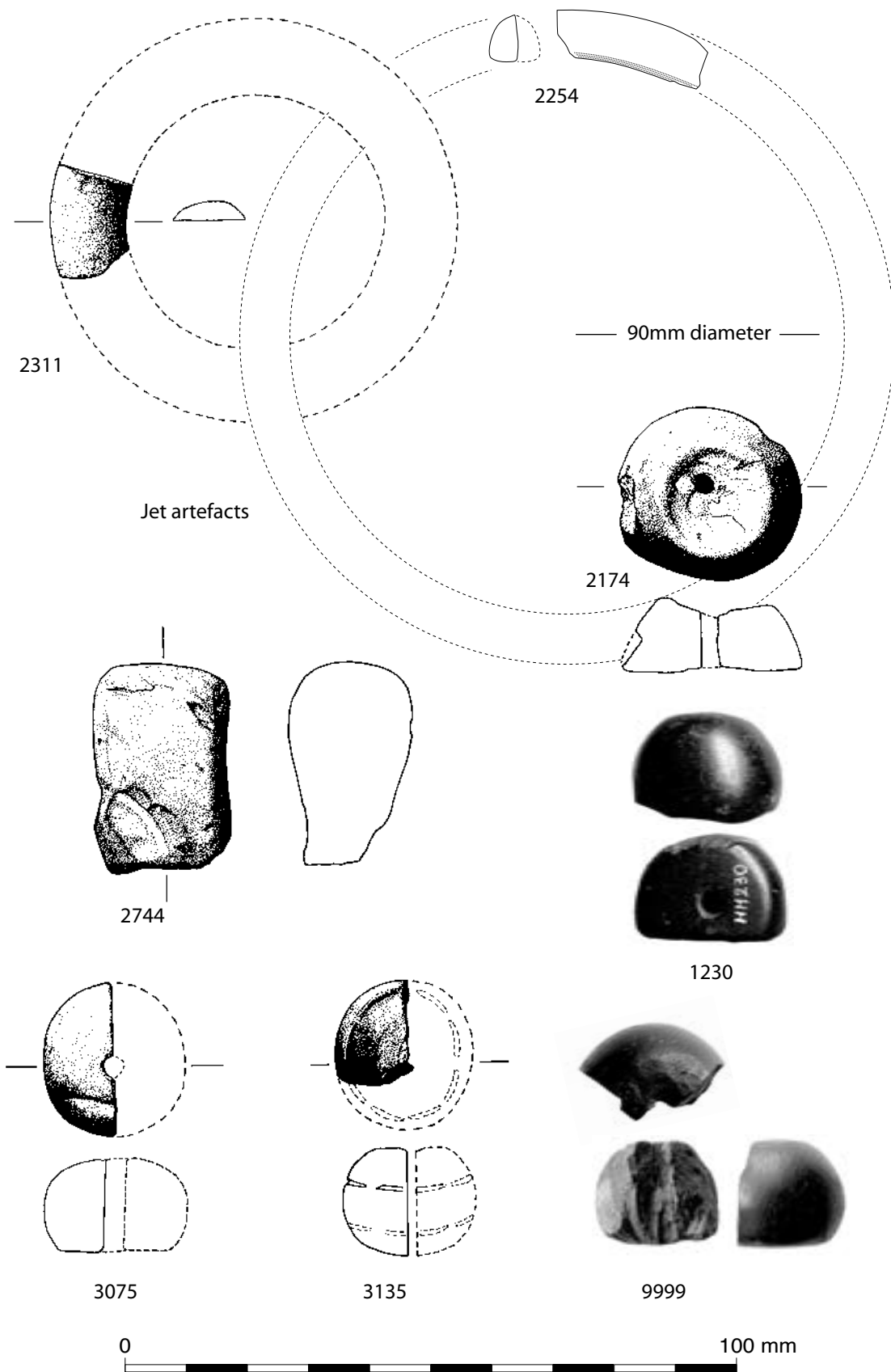


Fig. 49. Jet and shale artefacts.

period 1 there and, perhaps, the first Northumbrian settlement. No jet is demonstrably associated with the stratified occupation contexts within the ramparts. The pin-head is the only jet artefact recovered during the 1913 excavations (Curle 1914, 161). The armlet fragment is from the 1913 excavation backfill. Three items, a faceted fragment, a ring and a decorated bead are from late contexts, indicative of the disturbance of the latest occupation within the ramparts or, just possibly, associated with activity immediately post-dating the slighting of the ramparts. The remaining items were recovered from the topsoil. The occurrence of a re-used waste piece suggests that jet and comparable materials were being worked at the Mote of Mark. This may have been in the production, not only of beads, but of 'bangles' of the type represented by **2254** and **2311**. The unstratified bead, **9999**, may have broken in the process of manufacture.

Pin-heads

1230 A large domed jet pin head with circular partial perforation, 22.5mm in diameter. The height of the dome is 16.5mm and the depth of the pin hole is 11.5mm. The pin-head is damaged; about one-third of the total is lost on one side and there is surface damage to the opposite side. This pin-head is without obvious parallel, although pins with heads of a different material from the shank are known, notably a group of three bone pins with globular heads and iron shanks from Birsay, Orkney (Curle, 1982, Fig. 38, nos. 259–262), and the type was discussed by Stevenson (1955, 292–3) who saw them as native. Comparable are the series of 26 glass 'pin-heads' with iron shanks from Newgrange, Co. Meath, which Carson & O'Kelly have suggested may have been ear-ring drops (1977, 46–7). In this context, the glass paste pin-head with copper-alloy inlaid studs from the Mote of Mark is relevant (**1232**; Curle 1914, Fig. 23).

Bangles

Two different types of bangle or ring are represented. The first has the, more-or-less, straight bar of the D aligned perpendicular to the plane of the ring. This design creates a broad flat edge around the inner circumference of the ring, allowing the item to be worn as an armlet. The second has the straight bar of the D in the same plane as the ring. This would give a sharp edge along the internal circumference and is not suitable for use as an armlet.

2254 A fragment of a slim shale bangle, D-sectioned, broken along length and split laterally. The 'straight' bar of the D is perpendicular to the plane of circumference, making this piece suitable for wearing on a wrist or arm. The surviving length is 28mm, the width from inner to outer circumference is 8mm.

2311 A broad shale ring, of D section with the 'straight' bar of the D in the same plane as the circumference. The width from inner to outer circumference is 13mm. The projected internal diameter of the bangle is 44mm. This

diameter is rather small to have been worn on a wrist, neither would the orientation of the plano-convex profile be suitable for wearing on the wrist, suggesting that the object may have been worn as a pendant or possibly in the hair. In this respect it is similar in form to the plano-convex cannal coal bracelets that were being produced on Bute at Little Dunagoil and Kingarth somewhat later in the period (see below, p.179).

Beads and whorl

Three certain, and one possible, beads are represented. One may have broken during manufacture.

2174 Either a whorl or an unusual bead. The piece has the form of a low, obliquely truncated, cone with a dished upper surface and slightly damaged, but otherwise flat, lower surface. The overall appearance, in profile, is of a wedge-shape. The object is light, with an off-centre perforation 2.5mm in diameter. The maximum diameter of the object is 30mm and the maximum depth is 24mm.

3075 One half of a globular jet bead, 25mm across and 15mm deep. The bead is D-shaped in cross-section, broader in profile at one end, as is item **9999**. The perforation, 3.5mm in diameter, is marked by striations along its length.

3135 A quadrant of a globular jet bead with two parallel lines of 'slash' decoration running around the circumference perpendicular to the perforation. The reconstructed diameter of the bead is 21.7mm and the diameter of the perforation is about 2.8mm.

9999 This globular bead may be unfinished. The bead has fractured along the axis of the perforation, perhaps during the making of the hole itself, as the perforation appears to be irregular and unfinished. Similarly, while the top and bottom are flattened, the top of the bead has only been roughly prepared and has not been smoothed as the bottom has. The reconstructed diameter is 28mm; the diameter of perforation is 2.8mm and the height is 17mm.

Rubber

2744 May be a rubber or smoothing tool. It may also be a touchstone (see p.39) It is a, more-or-less, rectangular block of jet with subangular facets and smooth surfaces but which has been damaged by chipping. The maximum length of the piece is 42mm; the maximum width and thickness in cross-section is 23mm × 20mm.

Imported Glass and Pottery by Ewan Campbell

Early Medieval glass (Figs. 50–51)

The assemblage from the 1970s excavations comprises 48 vessel sherds, 6 beads and 4 miscellaneous pieces, in addition to the 21 vessel sherds, 1 bead, 1 plaque, 1 possible Roman window glass fragment and 1 pinhead or boss from Curle's 1913 excavations. Certain of the glass fragments recorded in the 1970s were sent for

	Context group	Bangle or ring	Bead or whorl	Pin-head	Rubber	Fragment	Total
1a	Pre-rampart contexts						
1b	Earliest stratified contexts within the interior						
2	Rampart contexts						
3a	Earlier occupation contexts						
3b	Latest stratified occupation contexts						
4	Disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting	1	1			1	3
5	Post-occupation accumulation						
6 & 8	1913 excavation assemblage and backfill	1		1			2
7	Topsoil and unstratified		3		1		4
	Total	2	4	1	1	1	9

Table 15. Summary of representation of jet in context groups.

analysis immediately after the excavations. Of these, 7 vessel sherds and 2 glass droplets cannot now be located and were, therefore, not available for re-assessment although they have been listed in the catalogue. The probable total of 69 vessel sherds is large by western British standards. The assemblages from the old and new excavations will be discussed together.

It is difficult with glass assemblages to establish the minimum number of vessels represented, but there would appear to be around eighteen. This is the fourth largest assemblage in the western Britain and Ireland, with only Whithorn, Dinas Powys and Cadbury Congresbury having more. Most of the vessels are conical beakers, but there are also two bowls and two palm cups. All of these are drinking vessels, almost the only form of glass vessel found in Atlantic areas. The types of vessel can also be summarised in terms of their decorative schemes: five have vertical chevron decoration; two have white rims; there are five plain vessels; two with mould blown ribs; two with pulled festoons, and two others with horizontal trails.

The imported glass in western Britain and Ireland has been divided into four groups (Campbell 1997), of which Groups C and D are by far the commonest, belonging to the 'Atlantic' tradition (Campbell 2000). The following discussion is based on that synthesis. Vessels of Group C, decorated with white trails, and Group D which are plain, have recently been recognised as having been produced in western France, probably around Bordeaux. They derive from a Late Roman tradition of glass making in this area, but with a new and restricted range of forms consisting mainly of drinking vessels such as conical beakers, cups and bowls. Production was continuous in this area from the fourth to ninth centuries, but the vessels imported to western Britain seem to belong only to the sixth and seventh centuries. The vessels are usually

accompanied by pottery of Class E and, more especially, Class D ware from the same region, and belong to the same trading system. The glass has been found on over 50 sites in Britain and Ireland, and the number of sites is expanding rapidly as the types become more widely recognised.

Group B

Examples of this 'Germanic' tradition, which is composed of the types of vessel found in Anglo-Saxon England and the neighbouring areas of the Continent, are rare in western contexts. Two vessels from the old excavations, *Vessels 17 and 18*, do not fit into the normal Group C/D types as they appear to be mould blown, and probably belong to Group B. *Vessel 17* is a thick vessel with irregular ribbing, while *Vessel 18* has mould-blown bosses at the end of ribs. Both of these are similar to some palm cups with ribbed decoration classified by Harden as Type Xai, and Evison (2000) as Group 54. A palm cup from Whithorn, possibly in an early sixth century context (Campbell 1997, 301, vessel 9), is the only other certain example from western sites. It is not known if these western palm cups are of Anglo-Saxon or Continental origin, but as the form is not recorded from the Bordeaux excavations they seem unlikely to have the same origins as the Group C/D vessels. 3151 may also belong to one of these vessels, though the sherd is too small to be sure of this.

Group C

The two vessels with white rims (*Vessels 7 & 8*) are almost unique, the only other example in Britain being from Whithorn, a vessel which is discussed in detail in that report (Campbell 1997, 306, vessel 34). There is also an example from Dooney, Donegal (Bourke 1994, 201–2, Fig. 23/39). The two vessels from the Mote of Mark are so close in form to the Whithorn example that

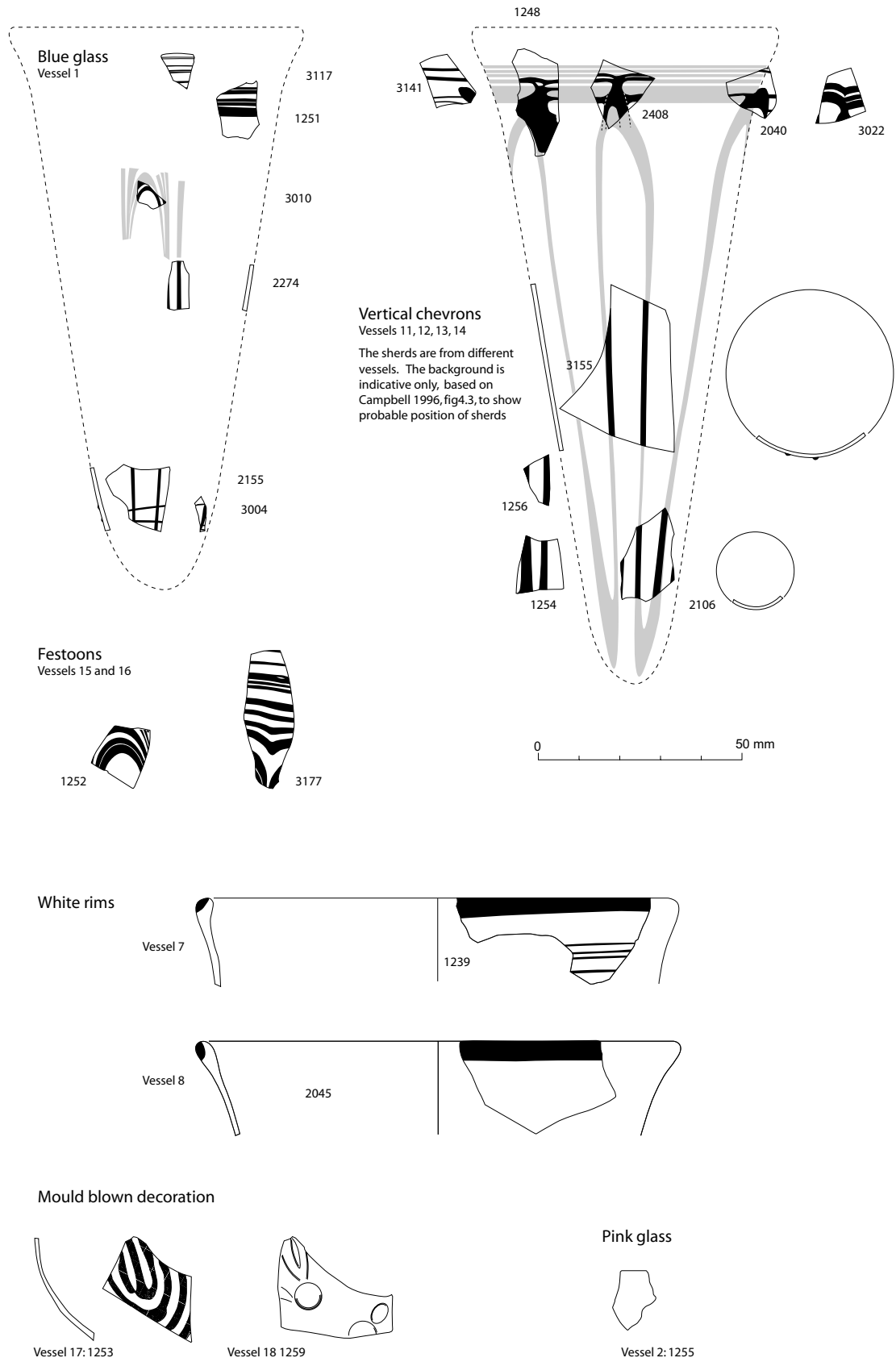


Fig. 50. Early medieval imported glass vessels: lid, bowl, beakers and jug.

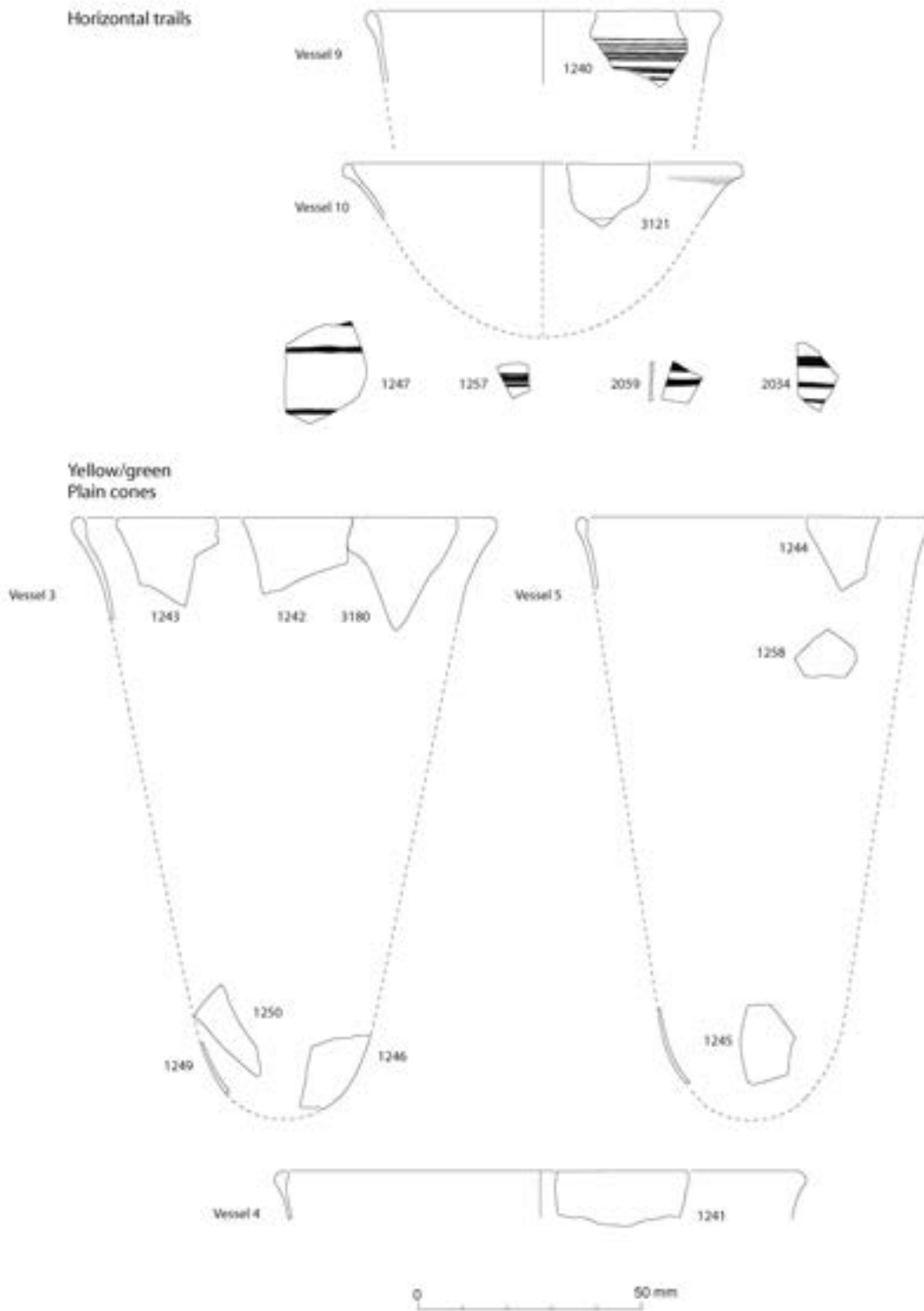


Fig. 51. Early medieval imported glass vessels.

they must be contemporary products of the same workshop. The Whithorn example came from Period I, Stage 10 deposits, which can be ascribed to the later seventh century and has the *floruit* of E ware pottery on the site. The rim of *Vessel 7* from the old excavations has a band of white trails beneath the rim. These are missing

in *Vessel 8*, though a similar band could have existed further down the vessel. It is very likely however, that **2045** and **1239** are from different vessels as they have apparently different diameters. These white-rimmed vessels appear to be precursors of a series of eighth- and ninth-century vessels which have bicoloured rims, often

with twisted *reticella* patterns (Evison 1982), though there is an early example in a late seventh-century context at Whithorn with a blue rim (Campbell 1997, 308, vessel 34).

Another unusual vessel is the sky blue cone (*Vessel 1*) with a complicated decorative scheme. The upper part has horizontal trails, the middle vertical running chevrons, and the lower has spiral, partly marvered, trails. Pale blue vessels are rare in western Britain, but the form and decoration of chevrons are matched in the more normal coloured yellow/green cones (see below). The addition of an unmarvered spiral basal trail to a cone is however very unusual, and is only matched by a pale yellow vessel from Whithorn (*Vessel 26*), which also comes from the later seventh-century Stage 10 deposits, and by **1247**. The only other vessels with basal spiral unmarvered trails are a possible bowl from Castle Hill, Dalry (Smith 1919, Fig. 3, 6), but here the trails are self-coloured, and a cup or funnel beaker with white trails from Longbury Bank, Dyfed, dated to the seventh/eighth century (Campbell & Lane 1993a, Fig. 7, vessel 2). Neither of these vessels are blue. White-trailed blue vessels are known from Balinderry, Ballycatteen, Dinas Powys and again Whithorn, where one vessel was in a late sixth-century context (Campbell 1997, 303, Vessel 18). The balance of evidence would suggest the *Vessel 1* is later seventh century, as the decorative technique is likely to be more significant in dating than the colour of the vessel.

Other vessels with ‘merrythought’ vertical asymmetric running chevrons are represented by a number of sherds showing the tops of the chevrons (*Vessels 11–14*). This form of decoration is characteristic of Group C vessels, and it is probable that some of the rims with bands of horizontal trails belong to this form of vessel. It is not possible to be sure how many vessels are represented, but there are at least five distinguishable from the body colours. The Mote of Mark examples are distinctive in having very narrow tops to the chevrons, which are only partly marvered. This narrow style matches *Vessel 23* and others from Whithorn, which again come from the later seventh-century Stage 10 deposits. The chevron decoration, though not with the same narrow style, is found on sites such as Dinas Powys, Hen Gastell and Longbury Bank in Wales, and Armagh in Ireland. One sherd, **2106**, is interesting as it shows how narrow the base of the cones were (cf. Campbell 1996a, Fig. 4.3). In this case the shape must be approaching that of an early funnel beaker, a form characteristic of the eighth/ninth centuries. This lends weight to a later seventh-century date for this form of decoration, supporting the stratigraphic evidence from Whithorn. The 10 sherds with vertical trails came from the same type of vessel, but are not so distinctive and therefore cannot be assigned to particular vessels or dated so precisely.

Vessels with pulled festoon decoration are represented by two sherds (*Vessels 15 & 16*). This type of decoration

is rare in the West, though common on a wide variety of bowls, cups and beakers in north-western Europe in the later fifth and sixth centuries. The western examples appear to be mainly from cones, and are found at sites such as Dinas Powys, New Pieces, Castle Hill Dalry and Whithorn. The Whithorn examples are poorly stratified, and as the continental dating is unlikely to be applicable to these rather different forms, they can only be broadly ascribed to the sixth or seventh centuries.

Most the remaining trailed sherds can be attributed to one or other of these cones described above, but a few sherds seem to belong to bowls or cups. **1247** is the base of a colourless bowl with widely spaced white horizontal trails which may not belong to any of the rim sherds, while **3151** may be from the same vessel. *Vessel 10* is a pale green deep bowl, cup or funnel beaker, while **2212** may be from the base of the same vessel.

Apart from the blue vessel, almost all the other sherds are coloured various shades of a pale yellow/green colour which is characteristic of western imports and differentiates them from Anglo-Saxon and north-western Continental glass. One vessel however, is a pale pink colour (*Vessel 2*), and another pale amber/pink (*Vessel 9*). Although red glass is characteristic of the eighth/ninth centuries (Evison 1982), these Carolingian vessels are a deep red quite unlike the pale pink of *Vessel 2*. The colour is however matched at Whithorn, where there is a series of unusual pink/amber dichroic vessels like *Vessel 9*, and an unusual pink vessel (Campbell 1997, 303, *Vessel 20*), which is probably a stemmed beaker, similar in colour to *Vessel 2*. The Whithorn vessel occurs in a context dated to around AD 700 by dendrochronology (Hill 1997, 130, 326). *Vessel 2* need not be the same date, particularly as the form of the vessel is indeterminate, but if it is of this date, it would be the latest datable import from the site.

Group D

Group D vessels are similar in form to Group C, but are undecorated. With the size of sherds in this assemblage it is not always possible to be sure whether a vessel was plain or not, but four rims appear to be from plain vessels, in colours ranging from brown to yellow or green (*Vessels 3, 5 & 6*), and one dark brown rim (*Vessel 4*) may also have been plain. Little can be said about these vessels. At Whithorn there were two phases of undecorated vessels, one early in the sixth century, and one in the late seventh/early eighth. *Vessel 4* is more likely to belong to a late phase, as very dark colours are found in eighth-century Saxon glass. *Vessel 2* may also be a plain vessel.

Waste

The one surviving glass droplet is not sufficient to prove there was glass melting taking place on the site, though it is of similar deep blue colour to one of the beads, **2044**.

Context and chronology (Table 16)

Only three of the glass vessel fragments were stratified

	Context group	Vessels
1a	Pre-rampart contexts	1
1b	Earliest stratified contexts within the interior	
2	Rampart contexts	
3a	Earlier occupation contexts	2
3b	Latest stratified occupation contexts	1
4	Disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting	8
5	Post-occupation accumulation	5
6 & 8	1913 excavation assemblage and backfill	26
7	Topsoil and unstratified	26
	Total	69

Table 16. Summary of representation of glass vessels in context groups.

in Phase 3 occupation deposits. Phase 3a produced **2259** and **3177**. **2259** is undiagnostic, and is too small to be regarded as securely stratified. **3177**, from *Vessel 16*, is larger and distinctive, but unfortunately the type of decoration cannot be accurately dated to closer than sixth or seventh century. Phase 3b produced **2045**, which is the unusual white-rimmed vessel (*Vessel 8*) paralleled at Whithorn in a late seventh-century context, and therefore gives a good *terminus post quem* for this phase. Phase 4 produced nine sherds, three of which (**2155**, **2408**, **3141**) can be paralleled in the same late seventh-century context at Whithorn. The others are of more general sixth/seventh-century types. There are no vessels of demonstrably eighth/ninth century Saxon types, though *Vessels 2, 4, 7 and 8* have features which suggest a date well into the seventh century and perhaps towards AD 700. Finally, **3155** was a large sherd, intact on excavation but broken thereafter, from a Phase 1 context. This would support the evidence of the Phase 1 E ware sherd in dating the Phase 1 deposits to the sixth/seventh centuries.

Early Medieval pottery (Figs. 52, 53)

The pottery from the 1973 and 1979 excavations comprises 55 sherds of E ware and 2 of Bi (LR2) amphora, as well as 6 other sherds which cannot be identified as early Medieval imports (all catalogued below). In addition, as with the glass, certain sherds were loaned to teaching collections in the 1970s and 9 sherds can now be located. The assemblage as a whole will be discussed together with the 33 E ware sherds, the single D ware sherd and 3 sherds of uncertain identification from Curle's excavation, though with the proviso that it was not possible to compare the old and new collections directly with each other. A single Roman Samian sherd (**1231**) was also recorded by Curle 'from near the surface...too small to afford any indication of the kind of bowl to which it had belonged' (1914, 161). The sherd has a smooth convex profile along one edge. This and the presence of linear striations indicate rubbing. Samian is not infrequently found on Late Roman (Cool 2000)/Early Medieval sites in Celtic areas and may have been

collected for use as pigment (Alcock and Alcock 1990, 115–6; Rahtz *et al.*, 1992, 147, 97, for uses to which Samian may have been put).

The range of imports is not as wide as that at key sites such as Whithorn Priory (Campbell 1997) or Dinas Powys (Alcock 1963, Campbell 1991), which have abundant Mediterranean imports as well as Continental ones, but it is still a large collection in relation to most sites, which usually produce only a few sherds.

Mediterranean imports are confined to two joining sherds of a Bi (LR2) amphora. These large globular vessels were produced in the Aegean area (kiln sites are known in the Argolid, Peloponnese) and were probably used for transporting wine or oil. Most Insular examples are concentrated in south-west England, but there is a scatter further north, with Whithorn Priory and Dumbarton Rock being the only two other Scottish sites. It has been argued that the south-western examples are indicative of direct trade between the Byzantine Empire and Britain in the period around 500–550, and associated with tin and lead/silver exchange (Campbell 1996a). The few northern sites may represent redistribution from the power centres of south-west England to the north. The Mote of Mark sherds are very abraded, and do not come from the occupation deposits, but could indicate some early sixth-century activity on the site. The possibility remains, however, that the sherd was a casual loss at a later date, having been picked up from a site such as Whithorn, or was derived from a vessel curated for some length of time (amphora can survive intact for centuries in the Mediterranean). Most sites which produce quantities of Continental pottery, and were also part of the Mediterranean trading network, produce more than one sherd of amphorae. Given the scale of excavation at the Mote of Mark, and the close links with Whithorn, a site with abundant Mediterranean imports, the lack of Mediterranean imports strongly suggests that occupation did not commence before the mid sixth century.

Continental imports consist of one sherd of D ware and 88 sherds of E ware (a further 9 sherds from the 1973 excavations were recorded in the site records as E

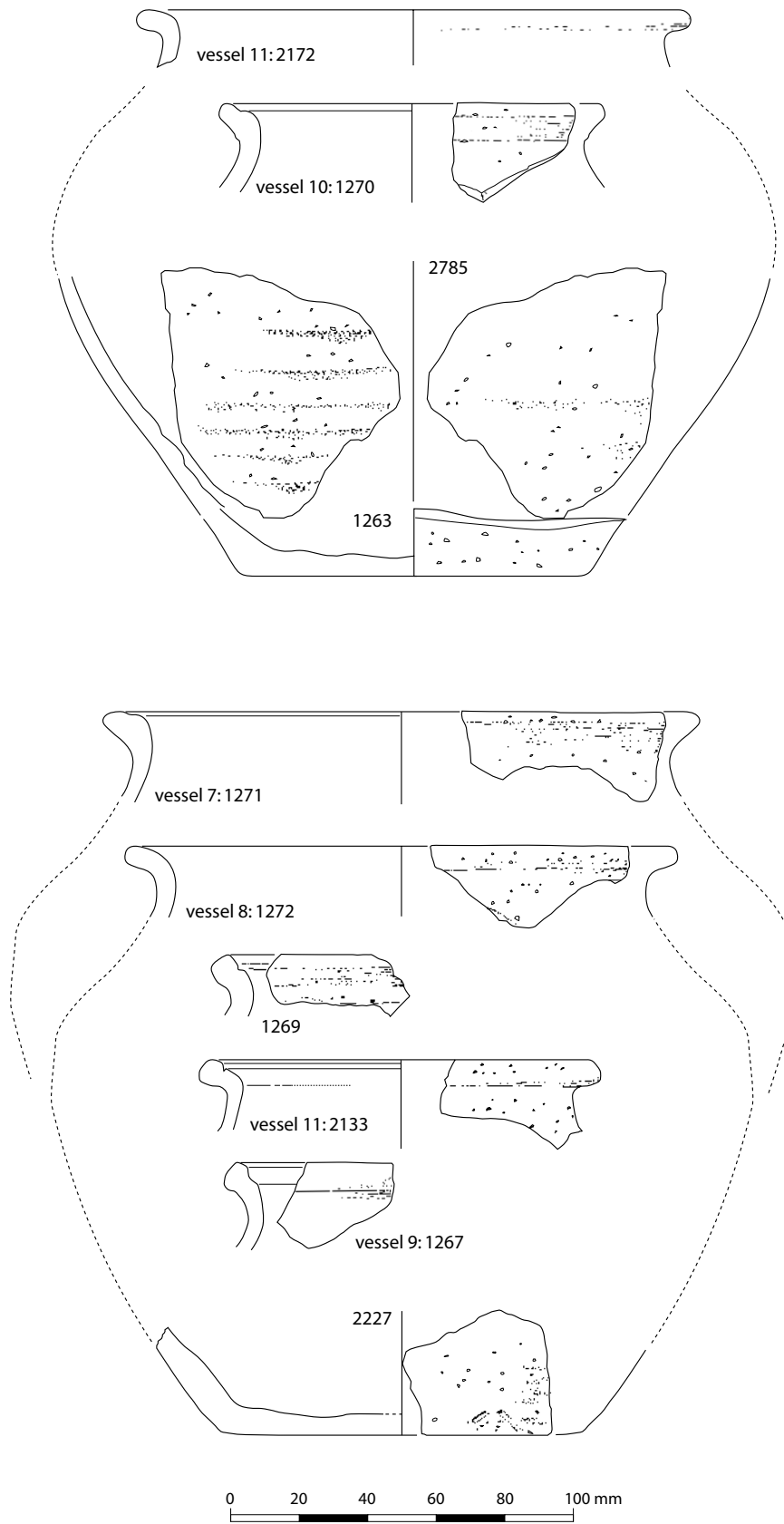


Fig. 52. Reconstructed E Ware jars.

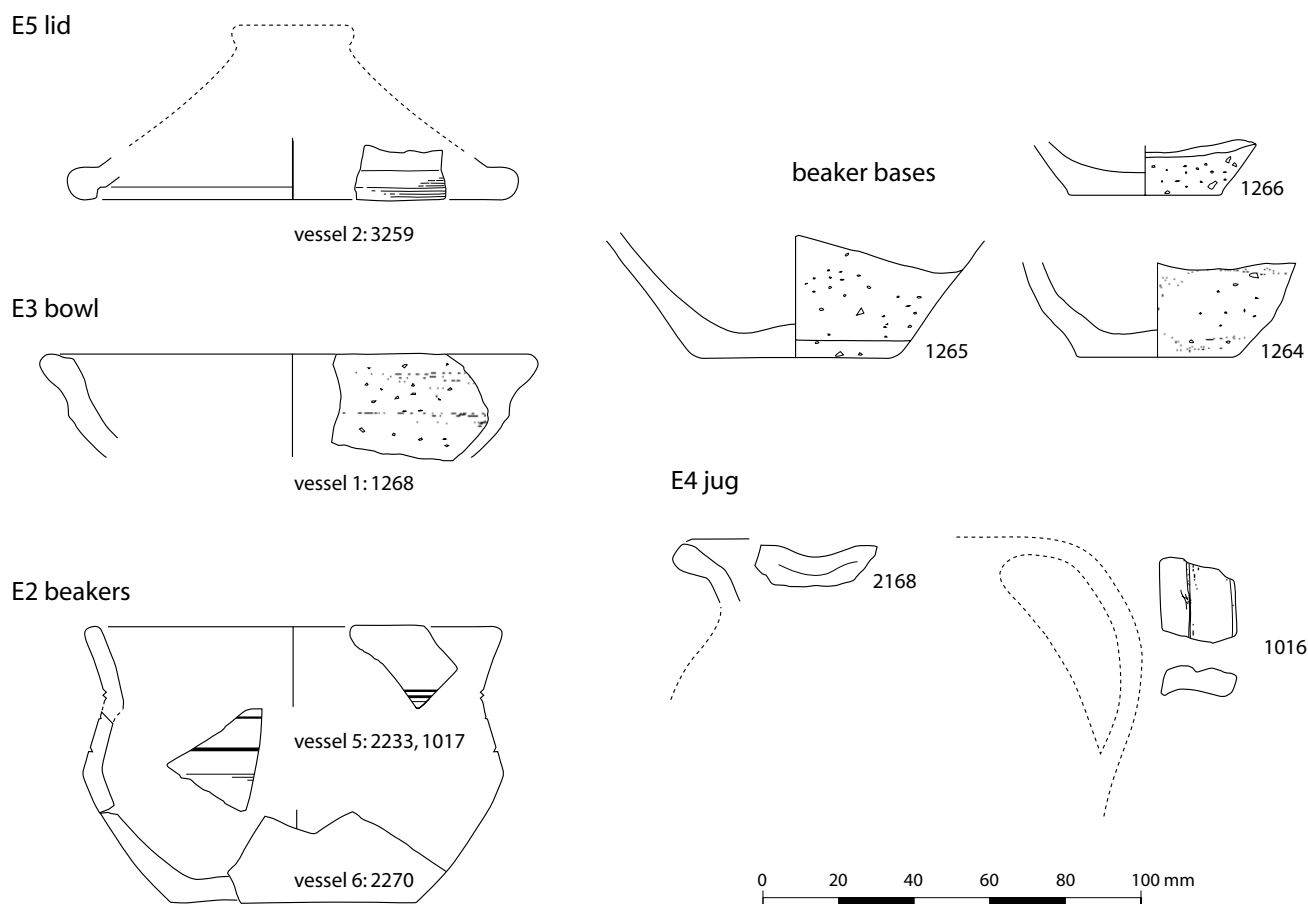


Fig. 53. Reconstructed E Ware vessels: lid, bowl, beakers, jug.

ware but cannot now be located). The D ware sherd is from a mortarium (food grinding and mixing bowl) of Rigoir's form 29 (Rigoir *et al.* 1973, Pl.xvii). This is a sixth-century form, and is common on the British sites which have produced D ware. The ware was produced in western France, around Bordeaux and perhaps elsewhere. It is much rarer in insular contexts than E ware, being found on about nine sites as opposed to E ware's 70. The distribution is confined to western Britain, and it is always accompanied by imported glass, and usually by E ware. There are some indications that it results from an intermediate period of trading, which overlaps between the Mediterranean system of the early sixth century, and the late sixth/seventh century E ware trade.

The E ware forms the bulk of the imported pottery assemblage. The minimum number of vessels represented can be assessed as 13: 7 E1 jars, 2 E2 beakers, 1 E3 bowl, 1 E4 jug, 1 E5 lid and 1 miniature jug. These numbers rank the Mote of Mark as fourth highest of the 70 E ware sites, and puts it among a group of important high status sites including the royal sites of Dunadd (Lane & Campbell, 2000), Clogher (Warner 1988) and Lagore (Hencken 1950), and such sites as Dinas Powys (Alcock 1963), Whithorn Priory (Hill 1997) and Longbury Bank

(Campbell & Lane 1993a). Notably, like the Mote of Mark, all of these sites have produced evidence of fine metalworking, typically brooches. It has been suggested that a suite of characteristics typical of royal or aristocratic sites can be isolated and used to suggest that sites without documentary references to royal associations were in fact of aristocratic status (Campbell 1996a,b). The Mote of Mark shares most of these characteristics – abundant fine metalworking, precious metals, fortifications and exotic imports.

As far as the individual vessels are concerned, the E ware assemblage is unusual in having a wide range of forms other than the common E1 jars and E2 beakers, again a characteristic shared with other major import centres. The E1 jars are by far the commonest form of E ware. The Mote of Mark jars are particularly varied in their rim forms, though most can be matched elsewhere. Two have triangular rims with a groove on the upper surface (*Vessels 6 & 7*), and three have everted and infolded rims with a strong lid seat (*Vessels 9, 11 & 13*). These are both forms sufficiently idiosyncratic as to probably represent the work of individual potters. Similar examples are known from Whithorn amongst other sites, and *Vessel 7* is matched almost exactly by E ware vessel

9 from Whithorn. *Vessel 8* has an uncommon L-shaped rim with flat top, but examples are known from Dunadd and Kildalloig Dun in Argyll, and Randalstown in Meath.

Vessel 5, an E2 beaker, is very unusual in having incised grooves on the body. Occasional grooves are the only decoration ever found on E ware vessels, and are very rare, occurring on only a few E1 jars and E3 bowls, but apart from *Vessel 5* never on E2 beakers. The rim may match a bodysherd (**1017**) with two grooves, which comes from an E2 beaker with a poppyhead profile. This shape is paralleled in sixth-century forms in Frankish cemeteries, and may therefore be an early form of E ware. The E3 bowl, *Vessel 1*, is typical of the E ware bowl form.

Vessel 3, an E4 jug, is represented only by part of a pinched spout, as no handle survives. Jugs seem to be characteristic of high status sites, with a concentration of six at Dunadd, and others at Clatchard Craig, Fife (Campbell 1986), and Dinas Powys. There is one handle from the Mote of Mark however, but this is a miniature handle (*Vessel 4*, **1016**), about half the width of a normal handle, though it shares the characteristic wheelthrown section of all French Medieval pottery. This must come from a small, handled beaker or jug such as those found in northern French Frankish cemeteries (Campbell 1991, illus. 57). A fragment of a thin-walled vessel with a pinched spout (**2168**) is probably the spout of this vessel. This vessel is unique amongst the insular E ware assemblage, though there is a possible small jug from Whithorn (*Vessel 6*) which came from an exceptionally early context for E ware, around 550. On the Continent, it is a form which seems characteristic of early Frankish settlement, and may be restricted to the sixth century.

Vessel 2, the E5 lid, is also a rare type with only 5 others known, though the sherd is so small it is impossible to be absolutely certain that this is the form. Lids fitted E1 jars, but their rarity suggests that most lids were of organic material such as cloth or leather. Pottery lids may have been restricted to E1 jars with cooking, as opposed to storage, functions, and are otherwise found only on undefended sites.

Four sherds appear to belong to one vessel of an unidentified ware. This ware has a superficial close similarity to E ware, but differs in the nature of the fabric in being granular in texture and fracture. Two sherds are stratified in Phase 3a deposits (**2258**, **2279**). These two are similar to two other from less securely stratified deposits (**2127**, **2178**). One of these sherds (**2178**) has a speck of glaze on the surface, and the others appear to have a surface of decayed glaze. It is possible that this is an unrecognised import of exceptionally early Continental glazed ware. Alternatively, the fabric seems similar to Scottish white gritty wares of the 12th–14th centuries, which can be very difficult to separate from E ware, but which are not glazed. It is also possible that it is an unrecognised early Medieval unglazed import, or a variety of E ware, and that the glaze is an accidental later post-depositional accretion of vitrification related to the

metalworking activities on the site. Close examination of the sherd **2279** shows that the unusual surface texture extends across the broken surfaces of the sherd and is therefore likely to be post-depositional alteration. Although most E ware vessels share a common fabric, occasional vessels do fall outside the normal range, and have rounded quartz inclusions. The form of the base, and the internal rilling, look very similar to E ware and other early Medieval French wares, but it is impossible to be sure which of the three alternatives for the origin of this vessel is most likely. The balance of evidence would suggest that this is an unusual variant of E ware which has suffered post-depositional vitrification in a metal-working hearth.

Condition and wear patterns

Many of the sherds are noticeably abraded, which is unusual in E ware, which has a very hard fabric. This may indicate some post-depositional agricultural activity. Many of the sherds are blackened on their outer surfaces, though none appear to have sooting (this could be due to cleaning). With such small sherds, it is not clear whether this blackening represents usage as cooking vessels, or is kiln darkening caused by late reduction. In some cases there is also post-depositional blackening acquired from black soil, which covers broken surfaces. There are no signs of purple colour on the interiors which appears at a few sites and has been analysed as belonging to a purple dye from the plant Dyer's madder (*Rubia tinctorum*).

Context and chronology

The B ware belongs to the first half of sixth century, the D ware to the mid sixth century, and the E ware generally to the later sixth to late seventh centuries, though a few forms are noted as being early, perhaps as early as the mid sixth century.

Only seven sherds are recorded from the Phase 3 occupation deposits, but there is one from the Phase 1, pre-rampart phase, and 13 from the Phase 4 abandonment. Of the seven Phase 3 sherds, one is missing, and two others (**2258**, **2279**) are the unidentified ware.

The Phase 1 sherd (**2270**) is undoubtedly E ware, the base of a classic E2 beaker. This is a sixth- and seventh-century form, but likely to be earlier rather than later in the E ware sequence. The sherd is slightly abraded and has signs of usage. Although most E ware appears to date generally to the seventh century, there are some earlier examples, and at Whithorn the earliest E ware is in deposits of around 550. This would give a *terminus post quem* of around 550 for Phase 1 at the Mote of Mark, a date which agrees with the relative lack of Mediterranean imports.

The Phase 3 sherds include a substantial rim sherd (**2133**) from Phase 3b, which is unabraded and again indisputably E ware. The other three E ware sherds are fairly small, though the largest is fresh (**2281**) and comes from Phase 3a. The other two (**2783**, **2784**) are abraded and come from the same context as the unidentified ware

sherds. The E ware suggests that Phases 3a and 3b are later sixth- or seventh-century in date.

Summary of all Early Medieval imports

The total of 18 glass, 13 E ware, 1 D ware and 1 Bi imported vessels form a large assemblage, the fourth largest in Britain and Ireland. Campbell (1991, 1996a, 1996b) has outlined an explanation for the presence of these imports on western sites in terms of a trading system linking western France and Insular sites in the sixth and seventh centuries. This trading system arose after the cessation of an earlier, Mediterranean-based trading system of the early sixth century and differed in being directed to Wales, Scotland and Ireland rather than south-west England. Importation was directed at a number of high status secular sites, and imports were redistributed from these primary sites to surrounding client sites. The Mote of Mark shares a suite of characteristics with these primary centres which suggests they were of aristocratic status, but whether it was an aristocratic residence, or merely under aristocratic control cannot be determined from the imports alone.

The Mote of Mark glass and E ware shares a number of typological features with the assemblage from Whithorn, which is the largest and best dated Insular collection. As well as providing some firm chronology for the occupation deposits, these links raise questions about the relationship between the two sites. As was shown above, the typological links enable the Phase 3b deposits to be dated, at least in part, to the later seventh century, and raise the possibility that the site continued in use till around 700. The date of construction of the rampart is unlikely to date earlier than the mid-sixth century, given that the E ware base **2270** is securely stratified beneath the rampart. Taken together the assemblage shows some occupation in the second half of the sixth century, but with a *floruit* in the seventh, possibly lasting until the end of the seventh century.

The fact that Whithorn and the Mote of Mark share a significant number of glass and pottery vessel types which are otherwise rare or unique suggests either that they were supplied at the same time by the same merchants, or that the sites were part of a redistributive system along the Solway coast. As these two sites are the only ones in the region to have produced imports, it makes it difficult to decide between the two explanations. However, there are no other examples of two major import sites having such close links in vessel types, hinting at some contemporary relationship between the sites.

Catalogues

Copper-alloy objects

Artefacts and scrap

- 1293** *Context group:* 1913 assemblage
Site context: Curle: not known
- Dimension rating:* 315
Strip of circular-headed studs or rivets; twelve studs survive on the strip. Length: 61mm. (Curle, 1914, Fig. 15/4). Diameter of heads 4–5mm. length of shanks 5–10mm; diameter of shanks: tapering, mean 1.5mm. (Fig. 40)
- 1800** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 263
Scrap. A flat ribbon-like strip, folded and re-folded upon itself into a relatively compact shape, presumably for re-melting in a crucible. There is a small puncture hole in the face of the strip. The strip is now broken at one of the folds. Overall dimensions: 20mm × 16mm; width of strip: 13mm; thickness of strip: 0.35; extended length of strip: 92mm. (Fig. 40)
- 1801** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 206
Scrap. This fragment of sheet metal has been folded and re-folded upon itself into a very neat and compact parcel ready for re-cycling within a crucible. There are slight criss-cross scratchmarks on the surface. Overall dimensions: 18.5 × 14.5 × 9mm; thickness of sheet: 0.35mm.
- 2141** *Context group:* backfill of earlier excavations
Site context: b7: 6
Dimension rating: 80
Very thin copper-alloy strip.
- 2297** *Context group:* backfill of earlier excavations
Site context: b17: 10c
Dimension rating: 520
Strip of copper-alloy round-headed studs or rivets. Four studs survive on strip which is intact at one end. Diameter of stud head: 9.5mm; length of shanks: 9.5mm–10.5mm; diameter of shanks: tapering, mean 2.75mm. A thin casting flange remains around the circumference of two rivets at the intact end. The last rivet on the strip at this end has a squared-off face which may indicate that the mould was formed from a stud or strip of studs which had been removed from a longer strip. The heads of the studs are flat except that the upper surface is raised at a point immediately above the shank. This suggests that the heads of the original models were brazed or forged on to their respective shanks. (Fig. 40)
- 2552** *Context group:* unstratified
Dimension rating: 630
Copper-alloy strip.
- 3028** *Context group:* topsoil
Site context: 1: 1
Dimension rating: 374
Conical copper-alloy boss with iron core projecting from apex of cone. Three holes for attachment to organic backing visible near circumference of boss. Diameter of boss: 19mm; height of cone 8mm; diameter of attachment holes 2.5mm. (Fig. 40)
- 3258** *Context group:* backfill of earlier excavations
Site context: 1: gateway
Dimension rating: 88
Cylindrical shaft. Diameter: 4mm; extant length: 22mm.

Ingot

- 2786** *Context group:* unstratified
Dimension rating: 300
Small copper-alloy bar ingot in two pieces; rectangular, tapering towards one end. Extant length 71mm; mean cross-section 9mm × 4.25mm.

Casting waste

- 1238** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 304
Copper alloy waste from mould ingate and run-in channels. (Fig. 40)
- 2100** *Context group:* occupation, earlier contexts
Site context: b5:7
Dimension rating: 437
Irregular disc of corroded bronze with protrusion from one face; possible casting debris.
- 3044** *Context group:* topsoil
Site context: 1:1
Dimension rating: 492
Bronze strip, bubbly with the appearance of having been melted; possible casting debris.
- 3077** *Context group:* topsoil
Site context: 1:1
Dimension rating: 176
Small trapezoidal fragment of copper alloy; possible casting waste.
- 3131** *Context group:* topsoil
Site context: 1:1
Dimension rating: 81
Waste. Small fragment of casting debris.
- 3192** *Context group:* unstratified
Dimension rating: 506
Waste. Large vesicular drop of copper alloy with charcoal attached.

Iron objects*Billets and bulk*

- 1295** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 952
Iron billet or ingot. Trapezoidal bar of rectangular cross section, narrowing towards forged hook-like fold-over at one end. Truncated obliquely at opposite end. Total length: 73.0; maximum width: 20.0; thickness: 8.0. (Fig. 19)
- 2058** *Context group:* occupation, later contexts
Site context: b3: 5
Dimension rating: 3937
Iron bar, rectangular cross section, heavily corroded. An intermediate stage in the refining and smithing process. Length 254mm; cross-section: 12.5 × 15.5mm. (Fig. 19)
- 2226** *Context group:* disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting
Site context: b3/5b: 5
Dimension rating: 3872

Wedge shaped iron billet. An intermediate stage in the refining and smithing process. (Fig. 19)

- 2272** *Context group:* backfill of earlier excavations
Site context: b17: 10
Dimension rating: 1900
Iron bar rectangular cross-section, heavily corroded; circular patch of corrosion (16mm diameter) on one face. An intermediate stage in the refining and smithing process. Length 190mm, mean cross section 10mm × 8mm. (Fig. 19)

Tools and socketed items (Fig. 41)

- 1296** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 1470
Tanged knife with broad trapezoidal blade and wide tang with rectangular cross-section. Angular junction between tang and blade. Total length: 110.0; blade width: 19.5; median tang width: 11.0; length of blade: 56. (Fig. 41)
- 1297** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 910
Corroded and damaged iron knife or spatulate tool. If this was a knife the pointed end is now lost. The tang is slightly rounded and the shoulder between tang and blade is a smooth curve rather than angular. Total length: 89.0; blade width: 16.0; median tang width: 6.0; extant length blade: 49.0.
- 1298** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 1200
Socketed iron ferrule or spike. Circular sectioned socketed object, tapering to a well-defined solid blunt point. Length: 95.5; median diameter of socket: 10.5; maximum diameter 14.0.
- 1299** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 750
Iron socketed object. Only a fragment of the socket survives. Diameter socket: 16.0; extant length: 54.0. (Fig. 41)
- 1300** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 320
Fragment of iron socketed tool, with flattened expansion above the socket, non-diagnostic. Extant length: 33.0; diameter of socket: 9.0. (Fig. 41)
- 1305** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 396
Cylindrical iron object with flattened anvil-like, hammered-head expansion at one end. Possible miniature anvil or planishing rod. Length: 28.5; diameter 12.0; diameter at expanded end: 16.0. (Fig. 41)
- 1307** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 720
Rectangular sectioned, slightly waisted bar, flattened by hammering at one end into a curvilinear axe-shape.

Length: 60.5; median width at bar end: 13.5; maximum width of expansion: 22.5. (Fig. 42)

- 1724** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 180
Small non-diagnostic fragment from a socketed object. Length: 16.0; diameter of socket: 10.0.
- 2074** *Context group:* backfill of earlier excavations
Site context: b1: 9
Dimension rating: 390
Iron tweezers formed from single rectangular strip of iron; pincer ends; uniform cross-section. Length: 60mm; cross-section 6.25mm × 1mm. (Fig. 42)
- 2099** *Context group:* backfill of earlier excavations
Site context: b6: 2
Dimension rating: 260
Iron rod, bent, with flat, notched expansion or fixing plate for small hook or loop, broken at rivet hole. Corroded. Diameter of rod: c.4mm; width of expansion: 13mm ; diameter of notch: 2.5mm. (Fig. 42)
- 2235** *Context group:* backfill of earlier excavations
Site context: b3/5: 2
Dimension rating: 504
Iron socketed object, tapering from circular cross section 11.5mm (thickness 1mm) to flattened cross-section ending in a damaged blunt point. Total extant length 72mm (heavily corroded and broken).
- 2253** *Context group:* backfill of earlier excavations
Site context: b17: 6
Dimension rating: 1265
Fragments of socketed iron rod tapering away from socket; rounded cross section: 4–5mm. (Fig. 41)
- 2298** *Context group:* backfill of earlier excavations
Site context: b17: 10c
Dimension rating: 700
Heavily corroded rectangular iron bar; extent length 86mm, tapering towards one end; cross section 9.5mm × 3mm–1.5mm (varying thickness).

Bars and rods

- 1303** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 150
Small iron spike. Extended length: 50.0; diameter: 3.0.
- 1306** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 938
Long iron spike with slightly expanded cross section towards one end, tapering towards the other end. Rectangular cross-section. Length: 125.0; width: 7.5; thickness: 5.0. (Fig. 42)
- 1712** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 314
Iron bar or nail, tapering to blunt end, rectangular cross section. Length 57.0; width 5.5; thickness: 3.0. (Fig. 42)
- 1713** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 405
Flat iron bar or strip, tapering slightly to blunt point; rectangular cross section. Length 70.5; width: 5.75; thickness: 2.25. (Fig. 42)
- 1714** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 283
Iron bar or heavy nail, broken; rectangular cross-section. Length 43.6; width: 6.5; thickness: 3.0. (Fig. 42)
- 1725** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 364
Non diagnostic rectangular cross-sectioned small iron bar. Length: 52.0; width: 7.0.
- 1726** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 561
Iron bar, rectangular cross section, expanded towards one end. Length 52.0; width: 11.0.
- 2225** *Context group:* backfill of earlier excavations
Site context: b1: 7
Dimension rating: 273
Small rectangular strip of iron; heavily coated with buff corrosion product.
- 2400** *Context group:* backfill of earlier excavations
Site context: b17: 6
Dimension rating: 189
Fragment of hooked iron object ?round sectioned with expanded end, corroded.
- 2401** *Context group:* backfill of earlier excavations
Site context: b17: 6
Dimension rating: 200
Fragment of hooked iron object ?round sectioned, corroded.

Nails and studs

- 1367** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 433
Tanged stud or head from a discoidal projecting headed pin, much corroded. Diam: 26mm. length of tang: 9mm.
- 1710** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 180
Bent and corroded iron rod or nail with flat expanded end and rectangular cross section. Length: 59.5. (Fig. 42)
- 1711** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 175
Corroded iron nail, tapering, rectangular cross-section. Length: 57.0. (Fig. 42)
- 1715** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 235
Iron nail; expanded end tapering to blunt point; rectangular cross section. Length: 47.0; width: 5.0; thickness: 4.0. (Fig. 42)
- 1716** *Context group:* 1915 assemblage
Site context: Curle: not known

Dimension rating: 207

Iron nail; expanded, hammered end, tapering, bent and broken; rectangular cross-section. Length: 34.5; width 6.0; thickness: 4.75. (Fig. 42)

- 2195** *Context group:* backfill of earlier excavations
Site context: b7: 7
Dimension rating: 240
Iron rectangular object with circular sectioned shank ?nail.
- 2234** *Context group:* post-occupation accumulation
Site context: b3/5b: 2
Dimension rating: 177
Subcircular disc of iron. Possible stud or nail head.

Bindings and fittings

- 1301** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 600
Rectangular cross-sectioned iron ring or hoop. External diameter: 29.0; internal diameter 23.5; average thickness of ring: 2.5; depth: 8.0. (Fig. 42)
- 1304** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 210
Iron rod, circular section (diameter: 4mm) bent to form ring-and-shank.
- 2220** *Context group:* occupation, earlier contexts
Site context: b3/5b: 6
Dimension rating: 225
Broken iron ring or loop. Circular cross-section. Width of loop: 30mm; cross-section: 4mm.
- 2319** *Context group:* disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting
Site context: b9: 2
Dimension rating: 450
Iron rod (4mm cross-section); twisted and bent to form link with fragment of second rod.
- 3086** *Context group:* topsoil
Site context: 1: 1
Dimension rating: 71
Flattened section of thin hollow iron binding.
- 3111** *Context group:* topsoil
Site context: 1: 1
Dimension rating: 170
Loop and shield-shaped flattened plate. Possible attachment of small bucket or similar vessel. Extant length 27mm; thickness of plate 2.5mm; cross-section of loop 2.5 × 5.5mm.
- 3238** *Context group:* backfill of earlier excavations
Site context: 1: gateway
Dimension rating: 1650
Iron plate folded into triangular shape.

Non-diagnostic items

Twenty-six, mostly very small, non-diagnostic fragments of iron were recorded. The mean dimension rating of the total of undiagnostic fragments is 185. The group may be summarised as follows.

Disturbed subsoil

2 fragments. *Dimension rating:* 682.

Earlier occupation contexts

1 fragment. *Dimension rating:* 180.

Disturbance of latest occupation contexts or, possibly, activity post-dating the slighting of the ramparts

2 fragments. *Dimension rating:* 393.

1913 excavations and backfill

17 fragments. Mean dimension rating for the context group: 103.

Topsoil

4 fragments. Mean dimension rating for the context group: 184.

Lead objects

- 1228** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 491
Flat, lead spindle whorl, decorated with four incised concentric lines in two groups, closely spaced (Curle, 1913–14, Fig. 15/7; HH228). Two lines border the circumference of the piece; the other two border the very slightly raised lip of the central hole. The same pattern occurs on both faces. Diam: 25mm; diameter of hole: 6mm; thickness: 3.5 mm.
- 1229** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 434
Flat lead perforated disc with scalloped edge. The central hole is wide and the disk is thin and light. Diam: 23.5mm; diameter of hole 9mm; thickness: 2mm (Curle, 1914, Fig.15/9; HH229).

Bone objects

Comb

- 2214** *Context group:* post-occupation accumulation
Site context: b5/3: 2
Dimension rating: 84
Decorated bone comb fragments (2, joining), ring and dot decoration. Max. dimensions of largest fragment: 13mm × 7mm × 2mm.

Fitting

- 2062** *Context group:* backfill of earlier excavations
Site context: b6: 2
Dimension rating: 252
Bone toggle. Complete, with one bevelled edge. Length 20mm, oval diameter: 12–14mm.
- 2190** *Context group:* backfill of earlier excavations
Site context: b6: 2
Dimension rating: 825
Antler hollowed at base – possible knife handle. Length 75mm.

Incised/inscribed bone

- 2252** *Context group:* unstratified

Dimension rating: 875

Bone fragment (with recent break) bearing incomplete runic inscription. 38mm × 30mm. (Fig. 43)

- 2042** *Context group:* backfill of earlier excavations
Site context: b1: 7
Dimension rating: 238
 Small fragment of burnt bone with possible incised line.

Tool

- 3144** *Context group:* topsoil
Site context: 1: 1
Dimension rating: 295
 Bone (matapodial) point, broken at shaft end, polished surface. Extant length: 45mm, diameter: 9mm. (Fig. 43)

Pins

- 1292** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 165
 Nail headed bone pin, constricted immediately below head, swelling slightly and tapering to blunt point. Very slight damage visible on point. Length: 47.0; maximum diameter: 4.0mm. (Fig. 43)
- 2300** *Context group:* backfill of earlier excavations
Site context: b18: 4
Dimension rating: 70
 Knob-headed bone pin. The ball-head is faceted as a result of the ball having been cut with a knife or similar tool. The shaft swells slightly towards the centre, the point is sharp. Length 35mm; maximum diameter of shaft: 3.2mm; diameter of head: 0.5mm. (Fig. 43)

Stone objects

Grindstones, rubbers and mauls

- 1286** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 7315
 Slab of granular quartz rich stone. Flat surfaces top and bottom. Probable quernstone or grindstone fragment, 103mm × 77mm × 60mm thickness.
- 1287** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 5500
 Plano-convex granite block, worn smooth on one surface. Probable rubber or grindstone. 95mm × 77mm × 58 mm thickness.
- 2580** *Context group:* occupation, earlier contexts
Site context: b5/10/3: 7
Dimension rating: 4674
 Sandstone, burnt red; one face concave and possibly used as a small grindstone or mortar.
- 3240** *Context group:* backfill of earlier excavations
Site context: 1: 4
Dimension rating: 1170
 Fragment of granite, worn smooth on one surface. Possible quern or other grindstone.

Small granite pebbles, possibly rubbers or mauls

These objects are all ovoid, of average dimensions 41mm by 27mm. Six were recorded in contexts representing the backfill of the 1913 excavations (b1: 4), the seventh was in the topsoil on the western knoll (2629, a4: 2).

- 2218** Small elongated ovoid granite pebble, grey with red mottling. Possible rubber or maul.
- 2565** Small ovoid granite pebble, dark grey, mottled red. Possible rubber or maul.
- 2566** Small flattened ovoid granite pebble, dark grey, mottled red. Possible rubber or maul.
- 2567** Small ovoid granite pebble, mottled red/brown. Possible rubber or maul.
- 2568** Small ovoid granite pebble, mottled red/brown. Possible rubber or maul.
- 2569** Small angular ovoid granite pebble, mottled red/brown. Possible rubber or maul.
- 2629** Small ovoid/round granite pebble, slightly damaged. Possible rubber or maul.

Playing pieces

- 2001** *Context group:* backfill of earlier excavations
Site context: b1 : 2
 Possible playing piece.
- 2003** *Context group:* backfill of earlier excavations
Site context: b1 : 2
Dimension rating: 460
 White/brown mottled subcircular pebble. Apparently polished on one face. Possible playing piece. Diameter: 32mm, thickness: 8.5mm.
- 2052** *Context group:* disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting
Site context: b3: 4
Dimension rating: 314
 Polished mottled brown pebble. Possible playing piece. Diameter: 20mm, thickness: 8mm.
- 2095** *Context group:* occupation, later contexts
Site context: b1: 8
Dimension rating: 254
 Grey mottled subcircular polished pebble. Possible playing piece. Diameter: 20mm, thickness: 5mm.
- 2648** *Context group:* unstratified
Dimension rating: 363
 Small round pebble, possible gaming piece. Diameter c.22mm.

Inscribed and incised stones

- 2115** *Context group:* unstratified
Dimension rating: 7000
 Irregular sandstone block with scored line across one face, transected by a second line, more lightly scored, approximately at right angles to the first (actual intersection at 100/80 degrees). Possible cross-incised stone. Max. dimensions: 155mm × 70mm × 48mm. (Fig. 44)
- 2150** *Context group:* backfill of earlier excavations

Site context: b8: 2

Dimension rating: 3600

Sandstone fragment, red-brown with one smooth, curved, surface. This surface is incised with narrow, predominantly vertical, strokes, regularly spaced and resembling an inscription, possibly runic but not capable of decipherment. 75mm × 38mm, curved surface: 75mm × 40mm, length of strokes: 15mm. (Fig. 44)

Sharpening stones and whetstones

2015 *Context group:* backfill of earlier excavations

Site context: b2: 4

Possible sharpening stone.

2102 *Context group:* disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting

Site context: b9: 2

Possible sharpening stone.

2229 *Context group:* disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting

Site context: b3/5b: 5

Dimension rating: 990

Cylindrical polished fine-grained, dark sandstone with rounded tapering end. Truncated. Whetstone or burnisher. Extant length: 58mm, max. thickness: 22mm. (Fig. 45)

2321 *Context group:* topsoil

Site context: b17 : 2

Dimension rating: 640

Whetstone or burnisher fragment, with rounded, though badly damaged, proximal end, oval in cross section. Maximum diameter of 25mm. The extant length is a maximum of 44mm. Extant length: 44mm, max. thickness: 26mm.

Whorl

1227 *Context group:* 1913 assemblage

Site context: Curle: not known

Dimension rating: 804

Sandstone spindle whorl, bun-shaped, decorated with three concentric ribs defined by two well defined, evenly spaced concentric grooves on one face; one shallow, irregular curvilinear incision with open crossed ends on opposite face (HH 227). Diameter: 31.0; diameter hole: 8.0; thickness: 12.5. (Fig. 45)

Ingot Moulds

1289 *Context group:* 1913 assemblage

Site context: Curle: not known

Dimension rating: 804

Sandstone ingot mould. Rectangular block of fine-grained sandstone, U-profile rectangular groove in upper surface. The block has been truncated across the axis of the groove (HH289). Cross section: 45.0mm wide × 31.0mm deep. The surface of the stone is dark orange in colour, the sides of the ingot groove are buff, the lower surface is grey. Width of ingot groove: 16.0; depth: 10.0; surviving length: 24.0.

1901 *Context group:* 1913 assemblage

Site context: Curle: not known

Dimension rating: 804

Ingot mould. Coarse grained rectangular quartzite block with rectangular groove worked in upper face. The block is truncated across the axis of the groove and along the length of the groove. The core of the stone is discoloured to a dark brown in the area of the groove (HH200). Max. dimensions: 38mm in depth × 50mm in surviving width; length 66mm. Surviving width of groove: 12.5; depth of groove: 9.5; surviving length of groove: 47.0.

2996 *Context group:* unstratified

Ingot mould. Roughly rectangular sandstone block with elongated oval depression in one face. Buff-pink stone, slightly darker red in depression. Max. dimensions: 93 × 85 × 45; depression: 60mm × 20mm × 7mm deep. (Fig. 45)

Quartz objects

2009 *Context group:* backfill of earlier excavations

Site context: b3: 2

Dimension rating: 240

Annular quartz bead of which one third survives. The upper and lower faces are flat with bevelled edges. Projected max. diameter: 24mm, hole: 7mm, depth 13mm.

3239 *Context group:* backfill of earlier excavations

Site context: 1: 4

Dimension rating: 389

Fragment from original globular object. Shaped around circumference. Worn very smooth at, at least, two points on surface. Original diameter c.32mm; original height c.22mm.

Quartz fragments

In addition to the recognisable artefacts, four very small undiagnostic fragments of quartz, no larger than around 15mm in diameter were recorded during the more recent excavations. One is a distinctive pale-pink translucent quartz (**2681**). In NMAS, there are a further four lumps of quartz, on average 20mm across, included within a box containing 140 flints (HH285).

Of these eight undiagnostic pieces, four are from the 1913 excavations, two are from the backfill of those earlier excavations and two fragments are from the topsoil.

Retouched flint artefacts (Fig. 47)

2047 *Context group:* occupation, later contexts

Site context: b1: 8

Pebble cortex with retouch or just damage?

2093 *Context group:* backfill of earlier excavations

Site context: b7: 2

Pebble flint.

2170 *Context group:* disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting

Site context: b5/10: 5

Pebble cortex. Small flake with steep retouch.

2429 *Context group:* topsoil

Site context: b17: 2

2635 *Context group:* topsoil

- Site context:* b17:2
Incomplete flake.
- 3029** *Context group:* topsoil
Site context: 1: 1
- 2086** *Context group:* backfill of earlier excavations
Site context: b8: 2
Flake with irregular retouch.
- 2313** *Context group:* disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting.
Site context: b9: 2
Tabular cortex. (Fig. 47, 1)
- 3229** *Context group:* topsoil
Site context: 1: 1
Broken flake.
- 2004** *Context group:* post-occupation accumulation
Site context: b4: 2
Large, thick simple barbed and tanged arrowhead. (Fig. 47, 4)
- 2007** *Context group:* backfill of earlier excavations
Site context: b1: 5
A small tertiary flake with irregular retouch all round on both faces. Arrow-head reject?
- 2046** *Context group:* occupation, later contexts
Site context: b1: 8
A very small tertiary piece, battered all round.
- 2067** *Context group:* topsoil
Site context: c2: 2
Spurred piece? Shiny, irregular material with poor fracture. A chunk not a flake.
- 2309** *Context group:* disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting
Site context: b9: 7
Spurred piece. Triangular shape. Could be an arrow-head blank/reject.
- 2432** *Context group:* unstratified
Site context: unstratified
Spurred piece. A small pebble fragment with a point produced by notching.
- 2617** *Context group:* disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting
Site context: b4: 8
Spurred piece. A very small flake with a some shaping.
- 2649** *Context group:* backfill of earlier excavations
Site context: b15: 2
Thumbnail scraper, made on a flake. (Fig. 47, 5)
- 3072** *Context group:* topsoil
Site context: 1: 1
A flake trimmed to a crude triangle. Oblique arrow-head blank/reject?
- 3129** *Context group:* topsoil
Site context: 1: 1
Butt of an oblique arrow-head with point snapped off so original shape uncertain. (Fig. 47, 3)
- 2647** *Context group:* unstratified
Site context: b1/6/8: unstratified
- Spurred piece. Made on an ancient frost-shattered piece.
- 2018** *Context group:* backfill of earlier excavations
Site context: b3: 2
A thick, narrow, backed blade with the tip snapped off.
- 2078** *Context group:* backfill of earlier excavations
Site context: b7: 2
Spurred piece. A thin flake with the distal end snapped off.
- 2104** *Context group:* backfill of earlier excavations
Site context: b8: 2
Oblique arrow-head fragment? Similar to 3129. Tertiary flake with tip snapped off and subsequently edge battered. Reminiscent of a gunflint. (Fig. 47, 2)
- 2231** *Context group:* disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting
Site context: b3/5b: 5
Serrated piece. A large, thin flake (compared to the rest) with distal end snapped off. (Fig. 47, 6)
- 2630** *Context group:* topsoil
Site context: b17: 2
Scraper? A very small fragment.
- 2636** *Context group:* topsoil
Site context: b17: 2
Knife? Probably slightly burnt then trampled and broken.
- 3011** *Context group:* topsoil
Site context: 2: 1
Small fragment only, probably just casual retouch.
- 3059** *Context group:* topsoil
Site context: 1: 1
Spurred piece? A very small fragment of a flake. Impossible to be sure it is a deliberate piece.
- 3063** *Context group:* topsoil
Site context: 1: 1
Flint flake narrowing to a point like an awl but reworked along one edge. ? possible scraper.
- 3073** *Context group:* topsoil
Site context: 1: 1
A very small fragment of a bifacial object. Tip of an awl or point? (Fig. 47, 7)
- 3103** *Context group:* topsoil
Site context: 1: 1
Tip of a pointed object. Awl fragment?
- 3113** *Context group:* topsoil
Site context: 1: 1
Spurred piece? Possibly just a trample damaged piece.
- 3183** *Context group:* backfill of earlier excavations
Site context: 1: 5
Tanged piece fragment, incomplete, long narrow piece. (Fig. 47, 8)

Jet objects

Bangles and rings

- 2254** *Context group:* backfill of earlier excavations
Site context: b16: 2
Dimension rating: 210
Fragment of shale bangle, D section, perpendicular to

plane of circumference, broken along length and split laterally. Surviving length: 28mm; width from inner to outer circumference: 8mm. (Fig. 49)

- 2311** *Context group:* disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting
Site context: b9: 2
Dimension rating: 208
Fragment of shale ring, D section parallel with plane of circumference. Width from inner to outer circumference: 13mm, projected maximum diameter of rim: 70mm; projected diameter of perforation: 43mm. (Fig. 49)

Beads and whorls

- 3075** *Context group:* topsoil
Site context: 2: 1
Dimension rating: 420
Half jet bead, slight wedge shape; perforation marked by striations along length. Max. diam: 25mm; depth: 15mm, diam. perforation: 3.5mm. (Fig. 49)
- 3135** *Context group:* disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting
Site context: 2: 2
Dimension rating: 256.5
Quadrant of jet bead with two parallel lines of 'slash' decoration on surface at right angles to perforation. Diameter of perforation 2.8mm. (Fig. 49)
- 2174** *Context group:* topsoil
Site context: a2: 2
Dimension rating: 660
Jet spindle whorl (or bead) with off-centre perforation. Truncated cone with concave upper surface, edge chipped. Max. diam: 30mm, max depth: 24mm, diam perforation: 2.5mm. (Fig. 49)
- 9999** *Context group:* unstratified
Dimension rating: 340
One quarter of a globular bead, broader in profile at one end. The top and bottom are flattened, the upper face, roughly finished. The bead has fractured along the perforation, possibly during manufacture. Reconstructed diameter: 28mm; diameter of perforation: 2.8mm; height: 17mm. (Fig. 49)

Pinhead

- 1230** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 265
Dome-shaped jet pin head. Diameter 25mm; height of dome 18mm. Diameter of pin-shaft hole 2.75mm (Curle, 1914, Fig 15/11). (Fig. 49)

Rubber

- 2744** *Context group:* topsoil
Site context: b17:2
Dimension rating: 720
Rectangular block, subangular facets, surfaces smoothed but damaged by chipping. Possible rubber or smoothing tool. (Fig. 49)

Fragment

- 2292** *Context group:* disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting
Site context: b9: 2
Dimension rating: 210
Small thin fragment of jet with one face possibly faceted.

Glass artefacts other than vessels

Beads

- 1261** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 20
Blue, translucent, glass tubular bead, broader and rounded at one end, narrower, exhibiting cut-off at other end. Diameter: 5.5; height: 3.5; hole: 3.0. (Fig. 46)
- 2044** *Context group:* occupation, later contexts
Site context: b1: 8
Dimension rating: 20
Small complete annular bead, translucent blue, with bubbles. Diameter: 6 mm; height: 4 mm; hole: 4mm.
- 2245** *Context group:* disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting
Site context: b9: 7
Dimension rating: 72
Half an apple-green annular bead with four broad opaque white marvered horizontal bands. Wound round core with dark glass, deep red in places. Diameter 15mm; depth 6mm. (Fig. 46)
- 2352** *Context group:* backfill of earlier excavations
Site context: b1: 7
Dimension rating: 63
Half a bead, semi-opaque blue, barrel shaped, metal opacified with bubbles. Diameter 10 mm; height: 8mm; hole: 4mm. (Fig. 46)
- 3015** *Context group:* topsoil
Site context: 2: 1
Dimension rating: 50
Annular glass bead. Red-brown with intersecting wavy lines of white trails. Diameter: 8mm; depth: 4mm; hole: 3.75mm. (Fig. 46)
- 3026** *Context group:* topsoil
Site context: 2: 1
Tiny fragment of turquoise blue opaque glass, rounded on one side. Possible bead.
- 3057** *Context group:* topsoil
Site context: 1: 1
Dimension rating: 39
Incomplete white glass paste segmented bead (2 segments surviving). Maximum diameter: 6.5mm; height: 7mm; hole: 1.5mm. (Fig. 46)

Settings, droplets of waste and fragments

- 1232** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 400

Boss or pinhead. Globular swirl of glassy paste, pale apple-green, cracked and fragmented. At least two small applied bosses almost diametrically opposed on circumference of the object. A third boss is visible, centrally placed on the upper surface. The base is slightly flattened. Diameter: 18.0; thickness: 14.0; projection of bosses: 1.5. (Fig. 46)

- 1260** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 400
Oval plaque of pale green glass, broken. Upper surface with scattered small spots of opaque yellow and larger opaque white glass. Dots applied in pierced holes then marvered. Metal bubbly, layered, both surfaces frosted. There are traces of a metal band round one original edge which appears to have been the original setting as the glass curves over the top of it. Original diameter c5cm?; thickness: 6.5mm.
- 1262** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 220
Thick sherd, frosted one side, pale green. Roman window glass or base of bowl, 16mm × 14mm × 2mm thick.
- 2148** *Context group:* disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting
Site context: b5:3
Dimension rating: 154
Small fragment.
- 3019** *Context group:* topsoil
Site context: 2: 1
Tiny irregular globule of dark blue glass.
- 3038** *Context group:* topsoil
Site context: 2:1
Tiny irregular fragment of blue bubbly vitrification. Possibly waste.
- 3102** *Context group:* topsoil
Site context: 1:1
Dimension rating: 168
Irregular cuboidal fragment of pale aquamarine glass. Two original opposing surfaces survive, one showing signs of considerable wear. There are traces of another original face on one side. The glass is heavily crazed. Possibly Roman window glass or a broken glass mosaic cube. Thickness. 8mm.

Early Medieval vessel glass (Fig. 50–51)

Vessels

Sherds are grouped as vessels and in order of decorative characteristics. Context details and descriptions of individual sherds are listed below.

Blue

- Vessel 1 1251, 2155, 2215, 2274, 3004, 3006, 3010, ?3117**
French Blue cone with opaque white decoration. Band of seven fine horizontal opaque white marvered trails below rim (3117), with vertical marvered chevrons below (2274, 3010), overlain near the base by spiral unmarvered horizontal trails (2155, 2215, 3004). Metal

fine, deep sky blue. T1–2 mm.

Pink

- Vessel 2 1255**
Bodysherd. Pale pink.

Yellow/green

Plain cones

Vessel 3 1242, 1243, 1246, 1249, 1250, 3180

Two rim and three bodysherds of cone or deep cup. Rim fire-rounded and thickened. Colour greenish-yellow, metal good, few bubbles. Exterior scratched. 1246 shows inturn toward base. RD 10cm, 50°.

Vessel 4 1241

Rim of cone. Rim vertical, fire-rounded and thickened internally. Colour pale greyish brown. Metal very bubbly, exterior very scratched. The streak shown in Harden 1959, Fig. 27e is a bubble trail. RD 12cm, 30°.

Vessel 5 1244, 1245, 1258

Rim of cone, rim fire-rounded and thickened internally. Colour bright apple green. Metal with many small bubbles. RD 8cm.

Vessel 6 3013

Rim of conical vessel. Rim fire-rounded, slightly thickened and inturned. Metal good. Deep brownish-yellow. RD 8cm. Surface cloudy.

White rims

Vessel 7 1239

Rim of conical vessel with opaque white trail marvered into the outer lip of the rim. Rim fire-rounded and thickened. Band of four fine horizontal opaque white marvered trails below the rim. Metal good, one large flaw in inner rim. Colour very pale dirty green. Exterior clouded. RD 8cm 45°.

Vessel 8 2045

Rim of conical vessel with opaque white trail marvered into the outer lip of the rim. Rim fire-rounded and thickened. Metal good, outer surface decayed, yellowish green. RD 6cm. T 0.7mm.

Horizontal trails

Vessel 9 1240

Rim of cone, rim fire-rounded and thickened. Band of very fine horizontal marvered trails of opaque white. Metal bubbly with horizontal bubbles. Colour very pale yellow with pinkish streak. RD c.8cm 30°.

Vessel 10 3121

Rim of cup or deep bowl with traces of a single fine horizontal opaque white marvered trail below rim. Rim fire-rounded and thickened externally. Metal good, pale green. RD 9cm T 1mm.

Other horizontal trails

1247, 1257, 2059, 2341,

Vertical chevrons

Vessel 11 1248

Bodysherd with band of fine horizontal opaque white marvered trails overlain by part-marvered vertical chevron. The opaque white has black streaks of

inclusions. Metal very pale yellow, brilliant surface similar to 1247.

Vessel 12 2040, 3141

Bodysherds with opaque white marvered trails consisting of three horizontal trails overlain by the top of a chevron unmarvered. White trails have black mineral specks producing greenish tinge. Metal fine, apple green.

Vessel 13 2408

Sherd with opaque white marvered trails consisting of three horizontal trails overlain by the top of a chevron only part marvered. Metal good, almost colourless.

Vessel 14 3022

Sherd with opaque white marvered trails consisting of three horizontal trails and the top of a chevron. Fully marvered. Metal good, pale yellowish green.

Other vertical chevrons

1254, 1256, 2106, 2243, 3155, 3014, 3002

Vertical trails

2244, 2217, 3081

Bodysherds from conical vessel with opaque white marvered vertical trail. Metal fine, yellowish green. There is the remains of a scar on the surface of 2244, possibly a pontil scar? T 0.7mm.

Festoons

Vessel 15 1252

Bodysherd, almost colourless. Opaque white marvered festoon.

Vessel 16 3177

Bodysherd of conical vessel with opaque white marvered trails. Decoration of ten horizontal trails, the lower three pulled down into a festoon. Metal excellent, very pale greenish yellow, no bubbles. Trails composed of bubbled glass, few black and white specks. T 0.5mm. 79, 2, 6.

Mould-blown decoration

Vessel 17 1253

Bodysherd with four faint vertical mould-blown ribs. Metal excellent, almost colourless, few scattered round bubbles. T 1.5mm.

Vessel 18 1259

Base of cup or bowl with two mould-blown bosses at the end of ribs. Metal excellent, pale yellow. T 1–2mm.

Other mould-blown decoration

3151

Catalogue of vessel sherds listed individually

1239 *Context group:* 1913 assemblage

Site context: Curle: not known

Dimension rating: 144

Rim of conical vessel with opaque white trail marvered into the outer lip of the rim. Rim fire-rounded and thickened. Band of four fine horizontal opaque white marvered trails below the rim. Metal good, one large flaw in inner rim. Colour very pale dirty green. Exterior clouded. RD 8cm, 45°.

1240 *Context group:* 1913 assemblage

Site context: Curle: not known

Dimension rating: 270

Rim of cone, rim fire-rounded and thickened. Band of very fine horizontal marvered trails of opaque white. Metal bubbly with horizontal bubbles. Colour very pale yellow with pinkish streak. RD c.8cm, 30°.

1241 *Context group:* 1913 assemblage

Site context: Curle: not known

Dimension rating: 364

Rim of cone. Rim vertical, fire-rounded and thickened internally. Colour pale greyish brown. Metal very bubbly, exterior very scratched. The streak shown in Harden 1959, Fig. 27e is a bubble trail. RD 12cm, 30°.

1242 *Context group:* 1913 assemblage

Site context: Curle: not known

Dimension rating: 280

Rim of cone or deep cup. Rim fire-rounded and thickened. Colour greenish-yellow, metal good, few bubbles. Exterior scratched. RD 10cm, 50°.

1243 *Context group:* 1913 assemblage

Site context: Curle: not known

Dimension rating: 306

Rim of cone or deep cup. Rim fire-rounded and thickened. Colour greenish-yellow, metal good, few bubbles. Exterior scratched. RD 10cm, 50°. Joins 1242.

1244 *Context group:* 1913 assemblage

Site context: Curle: not known

Dimension rating: 140

Rim of cone, rim fire-rounded and thickened internally. Colour bright apple green. Metal with many small bubbles. RD 8cm.

1245 *Context group:* 1913 assemblage

Site context: Curle: not known

Dimension rating: 0

Bodysherd, same vessel as 1244.

1246 *Context group:* 1913 assemblage

Site context: Curle: not known

Dimension rating: 0

Bodysherd, same vessel as 1242. Curved sherd indicating near base.

1247 *Context group:* 1913 assemblage

Site context: Curle: not known

Dimension rating: 324

Bodysherd near base of bowl or cup. Three spiral partially marvered opaque white trails. Metal excellent, no bubbles, brilliant surface, very pale yellow.

1248 *Context group:* 1913 assemblage

Site context: Curle: not known

Dimension rating: 210

Bodysherd with band of fine horizontal opaque white marvered trails overlain by part-marvered vertical chevron. The opaque white has black streaks of inclusions. Metal very pale yellow, brilliant surface similar to 1247.

1249 *Context group:* 1913 assemblage

Site context: Curle: not known

Dimension rating: 0

Bodysherd, same vessel as 1242.

1250 *Context group:* 1913 assemblage

Site context: Curle: not known

- Dimension rating:* 0
Bodysherd, same vessel as 1242.
- 1251** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 120
Bodysherd of French Blue cone with opaque white decoration, band of seven fine horizontal opaque white marvered trails below rim. Same vessel as **2155**.
- 1252** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 144
Bodysherd, almost colourless. Opaque white marvered festoon.
- 1253** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 345
Bodysherd with four faint ?vertical mould-blown ribs. Metal excellent, almost colourless, few scattered round bubbles. T 1.5mm.
- 1254** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 132
Bodysherd with opaque white marvered vertical trails. Metal pale yellow.
- 1255** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 0
Bodysherd. Pale pink.
- 1256** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 50
Bodysherd with opaque white marvered vertical trails. Colourless.
- 1257** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 42
Bodysherd with opaque white marvered horizontal trails. Yellow-green.
- 1258** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 0
Bodysherd, same vessel as 1244.
- 1259** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 276
Base of cup or bowl with two mould-blown bosses at the end of ribs. Metal excellent, pale yellow. T 1–2mm.
- 2040** *Context group:* topsoil
Site context: c1: 2
Dimension rating: 112
Sherd with opaque white marvered trails consisting of three horizontal trails overlain by the top of a chevron unmarvered. White trails have black mineral specks producing greenish tinge. Metal fine, apple green.
- 2045** *Context group:* occupation, later contexts
Site context: b1: 8
Dimension rating: 264
Rim of conical vessel with opaque white trail marvered into the outer lip of the rim. Rim fire-rounded and thickened. Metal good, outer surface decayed, yellowish green. RD 6cm. T 0.7mm.
- 2059** *Context group:* topsoil
Site context: c3: 2
Dimension rating: 48
Sherd with three ?horizontal opaque white marvered trails. Metal colourless.
- 2065** *Context group:* post-occupation accumulation
Site context: b5: 2
Dimension rating: 0
Vessel sherd.
- 2088** *Context group:* backfill of earlier excavations
Site context: b7: 2
Dimension rating: 0
Vessel rim.
- 2106** *Context group:* disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting
Site context: b9: 2
Dimension rating: 189
Near base sherd from cone with four opaque white marvered vertical trails. Metal fine, vertical bubbles, almost colourless. D 2cm, T 1mm.
- 2113** *Context group:* backfill of earlier excavations
Site context: b7: 3
Dimension rating: 49
Greenish-yellow, undecorated.
- 2144** *Context group:* post-occupation accumulation
Site context: b14: 2
Dimension rating: 73
Pale golden green, undecorated.
- 2155** *Context group:* disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting
Site context: b5/10: 5
Dimension rating: 119
Bodysherd from near base of beaker with opaque white marvered trails. Decoration of two vertical trails, fully marvered, overlain by a spiral horizontal trail, partially marvered. Metal fine, sky blue. T 1mm, D 4cm.
- 2165** *Context group:* topsoil
Site context: a2: 2
Dimension rating: 117
Vessel rim.
- 2212** *Context group:* topsoil
Site context: a3: 2
Dimension rating: 210
Base of ?bowl. Undecorated, pale green. T 1.2mm. D 6cm.
- 2215** *Context group:* post-occupation accumulation
Site context: b5: 2
Dimension rating: 5
Tiny flake from base of vessel with opaque white marvered trails. Decoration of Horizontal over vertical trail. T 2mm. Same vessel as **2155**.
- 2217** *Context group:* post-occupation accumulation
Site context: b5b: 2
Dimension rating: 75
Fragment of pale yellow/green glass.

- 2243** *Context group:* disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting
Site context: b9: 7
Dimension rating: 34
Sherd with one unmarvered opaque white trail. Metal almost colourless.
- 2244** *Context group:* disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting
Site context: b9: 7
Dimension rating: 72
Sherd from conical vessel with opaque white marvered vertical trail. Metal fine, yellowish green. There is the remains of a scar on the surface, possibly a pontil scar? T 0.7mm.
- 2246** *Context group:* topsoil
Site context: b17: 2
Dimension rating: 20
Tiny flake of pale aquamarine glass.
- 2259** *Context group:* occupation, earlier contexts
Site context: b5/10/: 7
Dimension rating: 51
Fragment of very pale green glass with white marvered trails on concave surface.
- 2274** *Context group:* topsoil
Site context: a2: 2
Dimension rating: 55
Sherd from near base of vessel with opaque white marvered trails. Decoration of two vertical trails, from near base of cone. T 1mm. Same vessel as 2155.
- 2341** *Context group:* topsoil
Site context: b17: 2
Dimension rating: 71
Sherd with three opaque white partly marvered horizontal trails. Metal good, cloudy surface, pale green.
- 2353** *Context group:* topsoil
Site context: b17: 2
Dimension rating: 81
Pale yellow, undecorated.
- 2408** *Context group:* disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting
Site context: b9: 7
Dimension rating: 144
Sherd with opaque white marvered trails consisting of three horizontal trails overlain by the top of a chevron only part marvered. Metal good, almost colourless.
- 2553** *Context group:* post-occupation accumulation
Site context: b5: 2
Dimension rating: 0
Vessel sherd
- 3002** *Context group:* topsoil
Site context: 2: 1
Dimension rating: 64
Pale amber, one trail.
- 3004** *Context group:* topsoil
Site context: 2: 1
Dimension rating: 18
Tiny sherd of vessel with opaque white marvered trails. Decoration of one vertical marvered trail overlain by three partially marvered horizontal trails. Same vessel as **2155**.
- 3006** *Context group:* topsoil
Site context: 2: 1
Dimension rating: 2
Tiny flake of blue glass, from base of vessel 2155.
- 3007** *Context group:* topsoil
Site context: 2: 1
Dimension rating: 3
Tiny flake of colourless glass with amber inset (?trail).
- 3010** *Context group:* topsoil
Site context: 2: 1
Dimension rating: 35
Tiny sherd of vessel with opaque white marvered trails. Decoration of loop from merrythought chevron. Probably from near base of vessel. Same vessel as **2155**.
- 3012** *Context group:* topsoil
Site context: 2: 1
Dimension rating: 0
Vessel sherd.
- 3013** *Context group:* topsoil
Site context: 2: 1
Dimension rating: 112
Rim of conical vessel. Rim fire-rounded, slightly thickened and inturned. Metal good. Deep brownish-yellow. RD 8cm. Surface cloudy.
- 3014** *Context group:* topsoil
Site context: 2: 1
Dimension rating: 75
Colourless, one trail.
- 3021** *Context group:* topsoil
Site context: 2: 1
Dimension rating: 105
Vessel sherd.
- 3022** *Context group:* topsoil
Site context: 1: 1
Dimension rating: 132
Sherd with opaque white marvered trails consisting of three horizontal trails and the top of a chevron. Fully marvered. Metal good, pale yellowish green.
- 3041** *Context group:* topsoil
Site context: 1: 1
Dimension rating: 64
Small fragment of pale yellow/green vessel glass, undecorated.
- 3053** *Context group:* topsoil
Site context: 2: 1
Dimension rating: 50.5
Tiny fragment of pale pink glass.
- 3056** *Context group:* topsoil
Site context: 2: 1
Dimension rating: 85
Pale green glass fragment with narrow, opaque white marvered trail (trail is with direction of bubbles in glass).
- 3061** *Context group:* topsoil
Site context: 1: 1

- Dimension rating:* 42
Tiny fragment of pale blue glass with opaque white marvered trail. ?Heat-crazed.
- 3081** *Context group:* topsoil
Site context: 1: 1
Dimension rating: 46
Trapezoidal fragment of yellow glass. Striations near edge suggest deliberate cutting to shape. Small sherd similar to **2244**, but with no trails.
- 3117** *Context group:* topsoil
Site context: 1: 1
Dimension rating: 50
Small sherd from near rim of vessel with opaque white marvered trails. Decoration of seven very fine horizontal trails. Metal deep sky blue. T 1mm.
- 3119** *Context group:* topsoil
Site context: 1: 1
Dimension rating: 29
Tiny fragment of colourless, undecorated glass.
- 3121** *Context group:* backfill of earlier excavations
Site context: 2: bf73
Dimension rating: 208
Rim of cup or deep bowl with traces of a single fine horizontal opaque white marvered trail below rim. Rim fire-rounded and thickened externally. Metal good, pale green. RD 9cm T 1mm.
- 3141** *Context group:* disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting
Site context: 2: 3
Dimension rating: 108
Sherd with opaque white marvered trails consisting of four horizontal trails overlain by the top of a chevron unmarvered. Metal fine, apple green.
- 3151** *Context group:* disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting
Site context: 2: 3
Dimension rating: 84
Sherd from base of ?bowl. Metal fine, colourless with blue tinge. Vessel mould-blown.
- 3153** *Context group:* disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting
Site context: 2: 3
Dimension rating: 57
Greenish-yellow, undecorated
- 3155** *Context group:* disturbed subsoil, pre-rampart
Site context: 1: 3
Dimension rating: 928
Lower part of cone with opaque white vertical marvered trails. Six joining fragments. Metal with many vertical bubbles, very pale greenish yellow. D 4cm T 1mm.
- 3177** *Context group:* occupation, earlier contexts
Site context: 2: 6
Dimension rating: 350
Bodysherd of conical vessel with opaque white marvered trails. Decoration of ten horizontal trails, the lower three pulled down into a festoon. Metal excellent, very pale

greenish yellow, no bubbles. Trails composed of bubbled glass, few black and white specks. T 0.5mm.

- 3178** *Context group:* backfill of earlier excavations
Site context: 1: 5
Dimension rating: 116
Sherd of clear yellow green glass, scratched and dull patches on both faces included a 2.5mm band on inner faces.
- 3180** *Context group:* backfill of earlier excavations
Site context: 1: 5
Dimension rating: 368
Rim of conical vessel, undecorated. Rim fire-rounded and thickened. Metal good, greenish yellow. RD 10cm, T 0.8mm.
- 3191** *Context group:* topsoil
Site context: 2: sect
Dimension rating: 28
Colourless, undecorated.

Pottery

Roman Samian sherd

- 1231** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 124
Small abraded sliver of Samian pottery. Inner face shows intermittent traces of original red gloss surface, otherwise severely abraded with linear striations suggesting that the sherd has been rubbed. One edge displays a smooth convex profile. Dimensions: 31mm x 5mm.

B ware amphora

- 2156** *Context group:* disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting
Site context: b5/10: 5
Dimension rating: 1710; *section:* 7
Inner face: orange-buff
Outer face: orange-buff
Core: orange-buff
Two joining bodysherds of B1 amphora. MS 5 cm. Buff fabric with large angular yellow limestone temper. Both sherds very abraded. Virtually gritless sherd in orange buff fabric, soft and abraded. Now broken in two pieces; not clearly an ancient break. Sandwich fracture: orange-buff/orange/orange-buff.

D ware mortarium

- 1273** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 2880; *section:*
Inner face: grey
Outer face: grey
Core: light grey
Body sherd of grey ware mortarium; rilled on outer face from wheel throwing; studded on inner face with large (1–3mm diameter) ?quartz grits; fabric is smooth and gritless.

E Ware

The E ware fabric is of the standard description (e.g. Campbell & Lane 1993a); only differences from this basic type are mentioned.

D Diameter**RD Rim Diameter****BD Basal Diameter****T Thickness**

25° indicates amount of rim or base circumference surviving

Identified vessels

Vessel 1 E3 bowl. **1268**

Vessel 2 E5 lid. **3259**

Vessel 3 E4 jug. **2120**

Vessel 4 E4 miniature jug. **2168, 1016**

Vessel 5 E2 beaker. **2233, 1017**

Vessel 6 E2 beaker. **2270**

Vessel 7 E1 jar. **1271**

Vessel 8 E1 jar. **1272**

Vessel 9 E1 jar. **1267**

Vessel 10 E1 jar. **1270**

Vessel 11 E1 jar. **2133**

Vessel 12 E1 jar. **2172**

1001 *Context group:* 1913 assemblage

Site context: stray find

Dimension rating: 2325; *section:* 7

Inner face: light buff

Outer face: buff

Core: buff/pink

Body sherd labelled 'from the Mote of Mark, Colvend, Stewartry of Kbt., Robt. Service, 1890'. Joins **1263**.

1002 *Context group:* 1913 assemblage

Site context: Curle: not known

Dimension rating: 675; *section:* 4

Inner face: buff, brown

Outer face: buff/brown

Core: buff/brown

Base of vessel exhibiting string marks.

1003 *Context group:* 1913 assemblage

Site context: Curle: not known

Dimension rating: 1650; *section:* 6

Inner face: buff

Outer face: orange-buff

Core: orange-buff/grey/pink/grey/buff

Body sherd, sandwich section: orange-buff, grey, pink, grey, buff. Heavily wheel-rilled internally.

1007 *Context group:* 1913 assemblage

Site context: Curle: not known

Dimension rating: 3450; *section:* 6

Inner face: buff

Outer face: brown-buff

Core: buff

Body sherd, probably from the Mote of Mark.

1008 *Context group:* 1913 assemblage

Site context: Curle: not known

Dimension rating: 1075; *section:* 6

Inner face: dark brown

Outer face: dark brown

Core: grey-brown

Body sherd.

1009 *Context group:* 1913 assemblage

Site context: Curle: not known

Dimension rating: 825; *section:* 6

Inner face: buff/brown

Outer face: buff-pink

Core: dark grey sandwich

Body sherd.

1010 *Context group:* 1913 assemblage

Site context: Curle: not known

Dimension rating: 980; *section:* 6

Inner face: buff

Outer face: grey-brown

Core: grey

Body sherd.

1011 *Context group:* 1913 assemblage

Site context: Curle: not known

Dimension rating: 575; *section:* 4

Inner face: buff

Outer face: orange-brown

Core: orange-buff

Body sherd.

1012 *Context group:* 1913 assemblage

Site context: Curle: not known

Dimension rating: 850; *section:* 4

Inner face: buff-brown

Outer face: red-brown

Core: brown

Body sherd.

1013 *Context group:* 1913 assemblage

Site context: Curle: not known

Dimension rating: 800; *section:* 4

Inner face: buff

Outer face: buff-brown

Core: buff-brown

Body sherd.

1014 *Context group:* 1913 assemblage

Site context: Curle: not known

Dimension rating: 500; *section:* 5

Inner face: buff

Outer face: orange-brown

Core: orange-buff

Body sherd.

1015 *Context group:* 1913 assemblage

Site context: Curle: not known

Dimension rating: 750; *section:* 5

Inner face: orange

Outer face: brown/dark brown

Core: orange-brown

Body sherd.

1016 *Context group:* 1913 assemblage

Site context: Curle: not known

Dimension rating: 400; *section:* 6

Inner face: buff

Outer face: buff

Core: buff

Handle of small vessel, wheel-thrown with single longitudinal groove. Very abraded. Off-white. MS 2cm.

- 1017** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 350; *section:* 5
Inner face: buff
Outer face: buff
Core: buff
Bodysherd of small beaker, poppy-head shape, with two deep incised grooves above waist. MD 9cm, T 4mm, MS 3cm.
- 1018** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 475; *section:* 4
Inner face: buff
Outer face: buff
Core: buff
Body sherd with wide and shallow grooved indentation on outer face.
- 1019** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 650; *section:* 4
Inner face: buff
Outer face: buff/brown
Core: grey-brown
Body sherd.
- 1020** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 290; *section:* 5
Inner face: buff
Outer face: buff
Core: buff
Body sherd.
- 1021** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 500; *section:* 7
Inner face: red/orange
Outer face: grey
Core: grey/orange
Body sherd.
- 1022** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 462; *section:* 6
Inner face: red-brown
Outer face: brown
Core: red-brown
Body sherd.
- 1023** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 528; *section:* 7
Inner face: buff
Outer face: brown
Core: buff/brown
Body sherd.
- 1024** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 200; *section:* 5
Inner face: buff
Outer face: brown
Core: buff/brown
Body sherd.
- 1025** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 250; *section:* 7
Inner face: buff
Outer face: buff
Core: grey sandwich
Body sherd.
- 1026** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 300; *section:* 4
Inner face: orange/red
Outer face: orange/red
Core: orange/red
Body sherd.
- 1263** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 986; *section:* 6
Inner face: light buff
Outer face: buff to grey
Core: buff/light orange/light buff sandwich
Basal part of E1 jar, concave base, with string cut-off. Walls with internal rilling. Colour off white/orange/off-white. BD 10cm, MS 10 + 6cm. Joins **1001**.
- 1264** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 865; *section:* 6
Inner face: buff
Outer face: buff/brown
Core: orange buff
Base of E2 beaker, with internal raised spiral and string cut-off. Some sand adhering to exterior. Orange-brown. BD 4.5cm, MS 6cm.
- 1265** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 999; *section:* 5
Inner face: light buff to grey
Outer face: buff
Core: light brown to dark grey
Base of E2 beaker, string cut-off, internal raised spiral. Exterior of base has coarse sand, identical to temper, adhering as if placed wet or leather hard on a bed of sand. Beige/yellow/beige. BD 5cm, T 6–7mm, MS 8cm.
- 1266** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 348; *section:* 5
Inner face: buff
Outer face: buff
Core: grey
Basal sherd of E2 beaker. BD 4–5cm, MS 2cm.
- 1267** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 590; *section:* 5
Inner face: buff/brown
Outer face: buff/brown
Core: buff to grey
Rim of E1 jar, everted at 90°, with very strong lid seat giving stepped profile. Orange/grey/orange. RD 16–18cm, MS 3cm.
- 1268** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 1000; *section:* 6

- Inner face:* grey brown
Outer face: cream/light grey
Core: grey
Rim and upper body of E3 bowl. Rim rounded, sharp carination 16mm below rim. No sooting. Colour: pale grey. Dimensions: RD c.16cm, MS 4cm.
- 1269** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 570; *section:* 6
Inner face: light buff to grey
Outer face: cream to grey
Core: buff to grey
Rim of E1 jar with very strong lid seat.
- 1270** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 700; *section:* 6
Inner face: buff
Outer face: cream/light grey
Core: grey to buff
Rim of E1 jar, everted at 60°, triangular profile, with groove on upper surface. Abraded. Grey/white/pale yellow. MS 4cm.
- 1271** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 1120; *section:* 5
Inner face: grey
Outer face: buff
Core: grey
Rim of E1 jar, everted at 45°, thickened triangular profile, with groove on top surface. Orange/grey. RD 18cm, MS 5cm.
- 1272** *Context group:* 1913 assemblage
Site context: Curle: not known
Dimension rating: 912; *section:* 5
Inner face: dark grey to buff
Outer face: dark grey to buff
Core: buff/brown
Rim of E1 jar, everted at 60°, rounded, unthickened. Black/grey/buff. RD 16–18cm, MS 5cm.
- 2008** *Context group:* backfill of earlier excavations
Site context: b2: 4
Dimension rating: 506; *section:* 5
Inner face: buff
Outer face: grey
Core: buff
Body sherd, MS 4cm. B2, 4.
- 2016** *Context group:* disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting
Site context: b4: 3
Dimension rating: 461; *section:* 5
Inner face: pink-buff
Outer face: grey
Core: pink-buff/grey
This sherd appears to have some grog present in addition to red mineral inclusions. MS 3cm. black/pink.
- 2020** *Context group:* backfill of earlier excavations
Site context: b1: 7
Dimension rating: 336; *section:* 5
Inner face: orange-buff
- Outer face:* black
Core: orange-buff/black
Body sherd, MS 2cm. Abraded.
- 2025** *Context group:* backfill of earlier excavations
Site context: b3: 2
Dimension rating: 837; *section:* 4.5
Inner face: pink-buff
Outer face: dark grey
Core: dark grey-buff
Body sherd, MS 5cm. black, pink.
- 2038** *Context group:* topsoil
Site context: c1: 2
Dimension rating: 875; *section:* 5
Inner face: buff
Outer face: grey-buff
Core: brown-buff
Body sherd, MS 5cm.
- 2051** *Context group:* disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting
Site context: b3: 4
Dimension rating: 644; *section:* 4.5
Inner face: pink-buff
Outer face: dark grey
Core: buff-dark grey
Body sherd, MS 4cm.
- 2066** *Context group:* topsoil
Site context: c2: 2
Dimension rating: 150; *section:* 3.5
Inner face: cream-buff
Outer face: buff
Core: buff
Body sherd, MS 1 cm white.
- 2070** *Context group:* post-occupation accumulation
Site context: b5: 2
Dimension rating: 325; *section:*
Inner face:
Outer face: brown
Core: grey-brown
Abraded body sherd of E ware; slight red tinge on outer face. Probably burnt. MS 2cm. black E2.
- 2082** *Context group:* backfill of earlier excavations
Site context: b7: 2
Dimension rating: 360; *section:* 4
Inner face: orange-buff
Outer face: grey
Core: orange-grey
Body sherd, MS 3cm. black/pink.
- 2085** *Context group:* backfill of earlier excavations
Site context: b7: 2
Dimension rating: 294; *section:* 5
Inner face: buff
Outer face: dark grey
Core: buff-dark grey
Sherd of E ware but fabric has more sandy appearance than other E sherds; finer quartz and no obvious grits over 1mm. MS 2cm. B7, 2.
- 2087** *Context group:* backfill of earlier excavations
Site context: b7: 2
Dimension rating: 882; *section:* 6

- Inner face:* buff
Outer face: buff-brown
Core: buff
Body sherd, MS 4cm. same as 2143.
- 2120** *Context group:* post-occupation accumulation
Site context: b13: 2
Dimension rating: 665; *section:* 6
Inner face: buff
Outer face: buff
Core: buff
Rim of E4 jug. Part of trefoil or pinched spout rim. Fabric pale buff, sparse orange iron ore. T 7 mm, MS 4 cm.
- 2125** *Context group:* backfill of earlier excavations
Site context: b1: 7
Dimension rating: 528; *section:* 4.5
Inner face: cream
Outer face: cream
Core: grey-brown
Body sherd, MS 3cm. Cream.
- 2128** *Context group:* backfill of earlier excavations
Site context: b1: 7
Dimension rating: 1085; *section:* 4
Inner face: buff
Outer face: buff-grey
Core: buff
Body sherd, MS 5cm.
- 2133** *Context group:* occupation, later contexts
Site context: b3: 5
Dimension rating: 912; *section:* 3.5
Inner face: buff
Outer face: buff-grey
Core: buff
Rim of small E1 jar. Rim sharply everted then folded in creating deep lid-seat groove. Fabric gritty, grey/fawn/buff, little iron ore. T 4mm. RD 12cm. MS 5cm. 45°. B3, 5.
- 2143** *Context group:* backfill of earlier excavations
Site context: b1: 8
Dimension rating: 322; *section:* 9
Inner face: cream
Outer face: cream
Core: cream/orange/cream/orange/cream
Body sherd; double-sandwich section; higher than average density of red mineral inclusions or, possibly, grog, MS 2cm.
- 2151** *Context group:* topsoil
Site context: a2: 2
Dimension rating: 483; *section:* 6
Inner face: buff
Outer face: dark grey
Core: black-buff
Body sherd of E ware with rilling on inner face, MS 3cm.
- 2154** *Context group:* disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting
Site context: b5/10: 5
Dimension rating: 492; *section:* 7
Inner face: pink-buff
Outer face: grey-buff
Core: pink-buff/dark grey
Body sherd, MS 4cm.
- 2168** *Context group:* disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting
Site context: b5/10: 5
Dimension rating: 364; *section:* 5
Inner face: orange-buff
Outer face: buff
Core: buff
Rim of small jug. Part of trefoil or pinched spout. Sherd burnt, reddish. T 6cm, MS 3cm.
- 2172** *Context group:* backfill of earlier excavations
Site context: b6: 2
Dimension rating: 310; *section:* 6
Inner face: buff
Outer face: buff-dark brown
Core: grey-brown
Rim of E1 jar. Rim sharply everted, L-shaped. Fabric dark grey/biege. RD 16cm, MS 3cm. 25°.
- 2196** *Context group:* backfill of earlier excavations
Site context: b6: 2
Dimension rating: 280; *section:* 6
Inner face: grey
Outer face: buff
Core: grey-orange
Body sherd, MS 2cm.
- 2204** *Context group:* backfill of earlier excavations
Site context: b1: 3
Dimension rating: 475; *section:* 4.5
Inner face: grey-buff
Outer face: grey
Core: grey-buff
Body sherd, MS 2cm.
- 2205** *Context group:* backfill of earlier excavations
Site context: b1: 7
Dimension rating: 480; *section:* 5
Inner face: buff-brown
Outer face: brown
Core: dark brown
Body sherd, MS 3cm.
- 2206** *Context group:* post-occupation accumulation
Site context: b5: 2
Dimension rating: 560; *section:* 6
Inner face: buff
Outer face: grey-brown
Core: buff-dark grey
Body sherd, MS 3cm.
- 2221** *Context group:* disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting
Site context: b5/3b: 5
Dimension rating: 170; *section:* 4.5
Inner face: buff
Outer face: buff
Core: buff
Body sherd, MS 2cm.
- 2227** *Context group:* disturbance of latest occupation within the ramparts, possible late occupation post-dating

- rampart slighting
Site context: b3/5: 5
Dimension rating: 2210; *section:* 7
Inner face: buff
Outer face: dark grey
Core: grey-buff
 Base of E1 jar. Base with string cut-off. Fabric Black/biege. BD 9cm, MS 7cm. 45°.
- 2233** *Context group:* post-occupation accumulation
Site context: b5/10/3b : 2
Dimension rating: 253; *section:* 4.5
Inner face: buff
Outer face: buff
Core: buff
 Rim of E2 beaker. Two incised or rilled lines of decoration 15mm below rim. Fabric buff, sparsly gritty with orange iron ore. T 5mm RD 8cm MS 3cm. 30°.
- 2256** *Context group:* unstratified
Dimension rating: 660; *section:* 9
Inner face: buff
Outer face: brown-buff
Core: buff
 Body sherd, MS 4cm.
- 2270** *Context group:* disturbed subsoil, pre-rampart
Site context: b17: 9
Dimension rating: 1768; *section:* 5
Inner face: buff
Outer face: buff-grey
Core: grey-brown
 Base of E2 beaker. Basal angle, with string cut-off on base and lifting marks on lower wall. Base poorly finished. fabric hard, black/buff. BD 6cm. MS 6cm. 100°. B17, 9.
- 2276** *Context group:* topsoil
Site context: a2: 2
Dimension rating: 165;
Inner face:
Outer face: buff-brown
Core: buff
 Body sherd, MS 1cm.
- 2277** *Context group:* topsoil
Site context: a2: 2
Dimension rating: 440; *section:* 4.5
Inner face: buff-brown
Outer face: black
Core: black-brown
 Body sherd, MS 3cm.
- 2281** *Context group:* occupation, earlier contexts
Site context: b9: 10
Dimension rating: 858; *section:* 6
Inner face: buff
Outer face: buff
Core: buff
 Body sherd, MS 4cm.
- 2310** *Context group:* disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting
Site context: b9: 2
Dimension rating: 391; *section:* 5
Inner face: buff
- Outer face:* black
Core: buff
 Body sherd; light groove on outer face, possibly marking neck of vessel, MS 2cm.
- 2405** *Context group:* topsoil
Site context: a2: 2
Dimension rating: 360; *section:* 5
Inner face: brown-buff
Outer face: black
Core: black-brown
 Body sherd, MS 2cm.
- 2406** *Context group:* topsoil
Site context: a2: 2
Dimension rating: 260; *section:* 7.5
Inner face: buff
Outer face: black
Core: brown-black
 Body sherd, MS 2cm.
- 2409** *Context group:* topsoil
Site context: c1: 2
Dimension rating: 418; *Section:* 5
Inner face: buff
Outer face: grey-brown
Core: grey-buff
 Body sherd, MS 2cm.
- 2410** *Context group:* backfill of earlier excavations
Site context: b7: 2
Dimension rating: 153; *section:* 4.5
Inner face: buff
Outer face: buff
Core: buff
 Body sherd, wipe marks on outer surface, MS 1cm.
- 2560** *Context group:* backfill of earlier excavations
Site context: b6: 2
Dimension rating: 315; *section:* 4
Inner face: buff
Outer face: dark brown
Core: buff-dark brown
 Body sherd; very thin lamination, 0.1mm thick, of orange-red clay within matrix of fabric, MS 2cm.
- 2684** *Context group:* topsoil
Site context: b17: 2
Dimension rating: 400; *section:* 4
Inner face: black
Outer face: buff/brown
Core: grey
 MS 3cm.
- 2685** *Context group:* topsoil
Site context: b17: 2
Dimension rating: 250; *section:* 5
Inner face: dark brown
Outer face: grey/buff
Core: grey
 MS 2cm.
- 2686** *Context group:* topsoil
Site context: b17: 2
Dimension rating: 104; *section:* 5
Inner face: black
Outer face: buff
Core: grey

- MS 1cm.
- 2783** *Context group:* occupation, earlier contexts
Site context: b5/10: 6
Dimension rating: 476; *section:* 5.5
Inner face: orange
Outer face: grey-buff
Core: orange-grey
Body sherd, heavily wheel rilled on inside face, MS 3cm.
- 2784** *Context group:* occupation, earlier contexts
Site context: b5/10: 6
Dimension rating: 475; *sSection:* 4
Inner face: buff
Outer face: dark grey
Core: dark grey
Body sherd, MS 3cm
- 2785** *Context group:* disturbance of latest occupation within the ramparts, possible late occupation post-dating rampart slighting
Site context: b5/10: 4
Dimension rating: 3500; *Section:* 5
Inner face: buff
Outer face: grey-brown
Core: brown-buff
Large body sherd with distinct rilling on inner face; quartz grits up to 2.5mm, MS 8cm.
- 3024** *Context group:* topsoil
Site context: 2: 1
Dimension rating: 324; *section:* 4.5
Inner face: orange
Outer face: dark brown
Core: orange/grey
Body sherd, MS 2cm.
- 3047** *Context group:* topsoil
Site context: 1: 1
Dimension rating: 2030; *section:* 4
Inner face: orange/pink
Outer face: grey/buff
Core: orange/pink
Body sherd, E1 jar MS 7cm. sooted exterior. Pink fabric.
- 3068** *Context group:* topsoil
Site context: 1: 1
Dimension rating: 209; *section:*
Inner face:
Outer face: brown
Core: orange
Flake from rim of ?E1 jar. MS 2cm. 10°
- 3074** *Context group:* topsoil
Site context: 1: 1
Dimension rating: 475; *section:* 5
Inner face: black
Outer face: buff-brown
Core: black
Burnt body sherd, MS 3cm.
- 3084** *Context group:* topsoil
Site context: 1: 1
Dimension rating: 573; *section:* 3.5
Inner face: buff
Outer face: buff-brown
Core: grey-buff
- Body sherd, MS 3cm.
- 3095** *Context group:* topsoil
Site context: 1: 1
Dimension rating: 220; *section:* 4
Inner face: buff
Outer face: buff
Core: buff
Body sherd, MS 1cm.
- 3101** *Context group:* topsoil
Site context: 1: 1
Dimension rating: 264; *section:* 3.5
Inner face: brown
Outer face: brown
Core: buff/grey/buff
Body sherd; sandwich section, MS 3cm.
- 3115** *Context group:* topsoil
Site context: 1: 1
Dimension rating: 262; *section:* 4.5
Inner face: buff
Outer face: buff
Core: orange/buff
Body sherd, MS 1cm.
- 3172** *Context group:* backfill of earlier excavations
Site context: 1: 4
Dimension rating: 614; *section:* 4.5
Inner face: buff
Outer face: grey
Core: buff
Body sherd of E ware; slightly more sandy than usual, MS 3cm, abraded.
- 3187** *Context group:* backfill of earlier excavations
Site context: 1: 5
Dimension rating: 1843; *section:* 3.5
Inner face: buff
Outer face: grey-buff
Core: grey/buff
Body sherd, Grey/Buff, very like Dunadd, MS 5cm.
- 3259** *Context group:* backfill of earlier excavations
Site context: 1: gateway
Dimension rating: 299; *section:* 5.5
Inner face: grey-buff
Outer face: grey-buff
Core: buff
Rim sherd of E5 lid. Fabric hard gritty, dark grey. RD 16–18cm, MS 2.5cm. 15°.
- Unidentified fabrics**
- 2089** *Context group:* backfill of earlier excavations
Site context: b7: 2
Dimension rating: 294; *section:* 3
Inner face: pink-grey
Outer face: cream-buff
Core: red
Body sherd, MS 2 cm. finely sandy, red fabric. Could this be a crucible?
- 2142** *Context group:* unstratified
Site context: b3: unstratified
Dimension rating: 706; *section:* 7
Inner face: orange
Outer face: orange

Core: orange

Fabric orange, soft, finely gritty. Inclusions mainly quartz, tiny, sub-rounded, abundant, some iron ore. No surfaces, but possibly a base sherd. ?Roman.

1004 *Context group:* 1913 assemblage

Site context: Curle: not known

Dimension rating: 700; *section:* 6

Inner face: orange pink

Outer face: grey, buff

Core: orange-red

Base of vessel; the fabric is sandy with a lot of fine quartz present but not deliberately added. Possible string marks on base.

1005 *Context group:* 1913 assemblage

Site context: Curle: not known

Dimension rating: 1350; *section:* 7

Inner face: orange, buff

Outer face: orange/buff

Core: orange/buff

Body sherd in two fragments, soft, fine gritless. The surfaces are smooth and slightly soapy; possibly not wheel-thrown.

1006 *Context group:* 1913 assemblage

Site context: Curle: not known

Dimension rating: 750; *section:* 4

Inner face: buff

Outer face: buff-pink

Core: buff-pink

Body sherd with slight curvature; very sandy texture, soft, abraded, no apparent inclusions.

2127 *Context group:* post-occupation accumulation

Site context: b12: 2

Dimension rating: 2300; *section:* 6

Inner face: buff

Outer face: grey-buff

Core: dark grey-buff

Bodysherd of jar, same fabric as 2279. Strong internal rilling, outer surface smooth with traces of possible decayed glaze. MS 6cm.

2178 *Context group:* unstratified

Dimension rating: 386; *section:* 4.5

Inner face: buff

Outer face: grey-buff

Core: buff

Slightly soapy fabric, similar to 2127, with traces of colourless glaze. MS 2cm. grey/cream.

2258 *Context group:* occupation, earlier contexts

Site context: b5/10/3: 7

Dimension rating: 323; *section:* 7

Inner face: buff

Outer face: buff

Core: buff

Body sherd with slight horizontal groove on outer face. Quartz grit inclusions up to 3mm. MS 3cm. Similar to **2178**. green/blue copper stain. White, very abraded.

2279 *Context group:* occupation, earlier contexts

Site context: b5/10: 6

Dimension rating: 1176; *section:*

Inner face: grey-buff

Outer face: buff

Core: grey-buff

Base of large vessel. White fabric with grey exterior surface which resembles decayed glaze. Very abraded. Fabric granular, full of tiny sub-rounded quartz, some black minerals (iron ore?), as well as larger sub-angular quartz up to 1 mm. MS 5cm. T 7–10mm.

Not located

2138 *Context group:* topsoil

Site context: c2: 2

Body sherd.

2163 *Context group:* topsoil

Site context: a2: 2

Body sherd.

2187 *Context group:* occupation, later contexts

Site context: b1: 8

Body sherd.

2239 *Context group:* disturbance of latest occupation within

the ramparts, possible late occupation post-dating rampart slighting

Site context: b9: 2

Dimension rating: 350

Base of vessel.

2240 *Context group:* disturbance of latest occupation within

the ramparts, possible late occupation post-dating rampart slighting

Site context: b9: 2

Dimension rating: 896

Body sherd.

2286 *Context group:* disturbance of latest occupation within

the ramparts, possible late occupation post-dating rampart slighting

Site context: b9: 2

Body sherd.

2411 *Context group:* topsoil

Site context: c1: 2

Dimension rating: 925

Body sherd.

2572 *Context group:* disturbance of latest occupation within

the ramparts, possible late occupation post-dating rampart slighting

Site context: b9: 2

Body sherd.

2228 *Context group:* disturbance of latest occupation within

the ramparts, possible late occupation post-dating rampart slighting

Site context: b3/5: 5

Dimension rating: 728; *section:* 4

Body sherd.

5 Animal Bones

Jennifer Bourdillon

Introduction

This report covers animal bones which were excavated in widely different seasons. There were those from the most recent seasons, in 1973 and 1979, but many bones had been collected on the first excavation of the site in 1913. At that time animal bones from archaeological sites were seldom studied routinely and in depth, so it was a rare and happy circumstance that the bones excavated in 1913 should be backfilled securely. They were recovered in the 1970s and in more than doubling the available material they have greatly enhanced the present study. There is now a substantial base of data for discussion, more than 7,500 fragments with a total weight of over 80kg; and with some material excavated once and other known material excavated twice, more detailed questions may be asked on the taphonomic processes and on the accuracy of the sample. However, there was no systematic sieving in any of the three excavation seasons and this limits the information available from the site.

Methods

The material was studied context by context. First the state of preservation was noted for each assemblage as a whole. Then all bones were identified as far as possible to species and to bone of the body, using mainly the copious material in the collection of the Faunal Remains Unit at the University of Southampton, but using also the private collection of Mrs. Sheila Hamilton-Dyer. For the main assemblages, records were made by hand on standard working sheets: details were kept of all fused and unfused epiphyses, and young porous material was listed. All measured bones, and all mandibles and loose teeth used in ageing, were recorded on computer. For the discussion on the likely ages of the animals, the evidence from tooth wear was simplified into a few broad groupings based on the wear of the lower molars. However, the records are more detailed and follow the methods and diagrams of Grant (1975) for all toothwear for the mandibular cheek rows and for loose lower third molars. Measurements of fused bones were taken with Vernier callipers to an accuracy of 0.1mm, and in accordance

with the recommendations of von den Driesch (1976). Her abbreviations are used in the tables.

Following a full examination of the use of Minimum Numbers of Individuals in the report on the large assemblage of animal bones from Saxon Southampton (Bourdillon and Coy 1980, 82), this method of calculation was not used for the Mote of Mark material. Bones were weighed by species and context and these results may serve as the better corrective to any random fluctuations in the fragment count.

The material is now stored in the National Museum of Scotland in Edinburgh, and all working sheets have been lodged with the excavator, together with the computer listings of individual measurements and of molar and mandible ageing.

Distribution across the site

The horizontal distribution of animal bone has been discussed above in the context of the possible development of a midden in the lee of the south rampart. The distribution of bone across the principal context groups confirms the concentration of material in the southern part of the central hollow in contrast to the areas of occupation in the rest of the site (Fig. 48). Ninety-two percent of all bone was recorded in the area excavated and backfilled by Curle (Fig. 48). Away from the putative midden, the only significant contexts containing bone are those sealed by the south rampart (3.8%) and those comprising the make-up of the rampart itself (3%). Stratified occupation contexts within the interior produced less than 0.5% of the total.

The condition of the material

In total, 7537 fragments were identified (Table 17). Of these, the backfill from 1913 accounted for by far the largest proportion, by weight and by number. Table 19 shows a great deal of unidentifiable material – 7982 fragments (51% of the total). In general such a high proportion may be a sign of considerable abrasion and attrition before burial or of poor preservation in the ground. Much of the present unidentified material comes as small and light fragments, little more than scraps of

Cattle	Sheep/ goat	Goat	Pig	Roe deer	Fowl	Other bird	Total
5600	689	2	1242	1	2	1	7537

Table 17. Identified bone fragments (number count).

Cattle	Sheep/ goat	Goat	Pig	Total
70580	2870	45	8239	81734

Table 18. Identified bone fragments (weight).

Total unidentified fragments (number)	7982
Percentage of all fragments	51
Total unidentified fragments (weight gm)	24670
Percentage of all fragments	23

Table 19. Unidentified fragments.

bones with a mean weight of only 3gm. In part this is attributable to careful excavation; nevertheless there must be an element of concern that so much could not be identified. There is also a high ratio of recovered loose teeth (21% for cattle, 13% for sheep/goat and 25% for pig by fragment distribution over the body), and this seems to confirm that the bones had disintegrated quite badly in the past, probably from remaining on the surface for some time before they were tidied into middens or buried in the closer protection of the soil. The hard rock of the hill itself would, of course, have raised problems of disposal, and perhaps the fact most worthy of comment was that so much could be usefully recovered at all. The bones from the 1913 backfill included marginally more material that could not be identified (53% by fragment count, with a mean weight of 3.5g), but gave a low proportion of loose teeth. They have not suffered unduly from their second burial.

Some part of the attrition of the material may have stemmed from the activities of dogs. Though no bones of any carnivores were found, there were occasional heavy toothmarks which would fit with dog gnawing – on 76 fragments out of 4197 from the 1913 backfill (1.8%), and again sporadically from the later excavations. However, compared with many other excavations, such signs of chewing were few in number and sporadic, with no clear concentrations.

Some of the recovered bones were hard and calcined as from burning at great heat: This was particularly so in some of the rampart contexts (for example, area 2 rampart layer 2 and B4 (7)). For the layers of occupation build-up, many bones from the 1973 and 1979 seasons showed a considerable degree of erosion; by contrast many bones from the 1913 backfill were well preserved.

The recovered assemblage

The species list in Table 20 shows an overwhelming concentration on the main domestic food mammals: largely cattle, but with a considerable amount of pig and less from sheep (or sheep/goat). There were two bones of domestic fowl. Food bones from the wild were minimally represented in the recovered assemblage with a single fragment of roe deer and nothing else. There was also a find of white-tailed eagle.

The domestic mammals

The absence of horse

A single fragment has been claimed as of possible pony, a pathological proximal fragment of femur which has been reported on by Baker and Brothwell (1980, 116) in their work on pathological animal bones from archaeological sites. The present writer, however, would identify this bone as definitely from cattle, partly on its small size (39mm for the diameter of a *caput* which, though worn and arthritic, was none the less a fused adult specimen), but more conclusively on the rounded and unbroken morphology of the *caput* itself and on the lines of completed fusion which are exactly those of cattle. This re-identification leaves no horse bones at all from the present assemblage. Horse bones are of good size relative to other domestic mammals and there should be no bias against their recovery. If the material represents general food waste, it seems likely that horses were not eaten on the site. The absence of finds, however, may also spring from the steep and rocky nature of the terrain. Small horses may have been used on occasion for riding or as pack animals in the general area but not brought up the steep approach into the fort.

Cattle

The bones of cattle dominate the assemblage. This is evident from the fragment count in Table 17 (5600 fragments, or 74% of all the identified bones); and at 86% the dominance is clearer still by weight (Table 19). Cattle generally represent a good measure of achievement for the many years that it takes to rear them. In considering their ages one wonders whether there is a bias against the younger individuals whose porous bones might have been more at risk in the process of double burial in the backfill. The results from epiphyseal fusion (Table 21) show few young individuals, and the mandibles are all of animals in their prime or of older ones. The looser lower third molars, on the other hand, do show some younger

% count				% weight			
Cattle	Sheep/goat	Pig	Total	Cattle	Sheep/goat	Pig	Total
74.4	9.1	16.5	7531	86.4	3.5	10.1	81680

Table 20. Relative representation of main domestic mammals.

	Early-fusing epiphyses				Middle-fusing epiphyses			
	Number	Fused %	number	Fused %	number	fused%		
Early	25	98.0	6	16.7	14	57.1		
	351	95.7		134	64.2		221	59.3

Neonatal or very young bones (which have been included in the above table where relevant):

Occupation: humerus, astragalus, cervical vertebra

Rampart: humerus, 2 x tibia, 3 x astragalus, calcaneum

Backfill 1913: ulna, femus, tibia. 2 x phalanx

Others: pelvis

Table 21. Epiphyseal fusion in cattle.

		Jaws		Loose	Total	
		No	%	m3/M3	No	%
Stage 1	M1 not yet in wear					
Stage 2	M2 not yet in wear					
Stage 2/3				2	2	2.6
Stage 3	M3 not yet in wear			15	15	19.2
Stage 3/4		1	7.1		1	1.3
Stage 4	M3 coming into wear	6	42.9	21	27	34.6
Stage 5	M3 in full wear	7	50	26	33	42.3
Total		14		64	78	

Table 22. Ageing by mandibles in cattle.

individuals (Table 22). In addition to these standard methods of assessing age, it is also possible to gain an idea of youthfulness by quantifying any foetal or neonatal material, and this has been listed with the epiphyseal data in Table 21. The double process of recovery from backfill contexts may introduce a bias to the assemblage. Nevertheless, there such bones are represented; certainly not many but enough to show some measure of breeding activity close to the site.

Distribution over the body for cattle (Table 23) shows no clear separation of wastage at any point of kill. The measurements (Table 24) show cattle which are small but not diminutive. Certainly they do not seem to have benefited from the widespread Roman improvement in cattle sizes, an improvement which spread throughout the Empire but which, on continental evidence, ended abruptly at the *limes* (e.g. Teichert 1984). Closer to the present site, the improved Roman cattle were clearly present at Vindolanda on Hadrian's Wall (Hodgson 1977). In many places the Roman improvements in the stock left an imprint in the sizes of cattle for many years after the Romans had left (see for example Crabtree 1989 for the large assemblage of bones from West Stow in both

the early and the Middle Saxon period); but the north Solway coast appears never to have been seriously Romanised, and the native stock may be presumed to have continued there with little change. Indeed, on withers heights from the five whole metapodials (Table 25), which cluster neatly round a mean of 1.10m, the cattle would have fitted inconspicuously into Iron Age herds.

A feature of these measurements is that they are very consistent, not even clearly bimodal. This, with the regular pattern of their ageing, suggests controlled and successful exploitation of a basic non-specialised herd.

Sheep/goat

Among the common domesticates, the bones of sheep/goat were poorly represented. Only two sure goat bones were found. One of these, a left distal humerus has the 'clear' goat morphology of the medial joint (illustrated in Boessneck *et al.* 1964). Goat bones are often rather larger than those of their contemporary sheep, but this fragment was small, with a distal breadth measurement of 29.2mm and a distal trochlear breadth of 26.6mm (Bd and BT of von den Driesch), measurements very similar to those given by individuals which undoubtedly are

(a) by fragments

	Head	Loose teeth	Long bones	Feet/ankles	Spine	Girdles	Ribs	Total
Early	41	114	32	57	41	21	93	399
Occupation	66	171	115	111	115	82	203	863
Cobbles		5						5
Late	14	59	30	30	11	10	31	185
Rampart	65	219	124	111	80	39	147	785
Backfill 1913	317	498	322	418	371	238	884	3048
Others	30	117	20	38	32	16	62	315
Total	533	1183	643	765	650	406	1420	5600

Early								
1973		16						16
1979	41	98	32	57	41	21	93	383
Occupation								
1973		19	1	5	1	3	2	31
1979 1.4	25	53	32	29	37	24	93	293
1979 1.5	41	99	82	77	77	55	108	539
Rampart								
1973	28	152	73	71	25	16	35	400
1979	37	67	51	40	55	23	112	385

(b) percentaged by fragments

Early	10.3	28.6	8.0	14.3	10.3	5.3	23.2
Occupation	7.6	19.8	13.3	12.9	13.3	9.5	23.6
Late	7.6	31.9	16.2	16.2	5.9	5.4	16.8
Rampart	8.2	27.9	15.8	14.1	10.2	5.0	18.8
Backfill 1913	10.4	16.3	10.6	13.7	12.2	7.8	29.0
Total	9.5	21.1	11.5	13.7	11.6	7.3	25.3

Table 23. Distribution over the body in cattle.

sheep: the rough guide of size differences between sheep and goat cannot be used even as a clue on those bones of the body where morphological distinctions are not clear. There are enough positive identifications of sheep to suggest that the fragments listed as 'sheep/goat' are mainly of sheep; but the results are presented with caution.

The recovered horn cores of the sheep were mostly broken, but tended to be fairly long and fairly straight (in contrast, say, to the crescents from Anglo-Saxon Hamwic, illustrated in Bourdillon and Coy 1980, 99); but as at Hamwic they occasionally showed a light indentation on the medial surface. There were no horn cores from goat.

A few of the sheep/goats that are represented died really young – Table 26 shows some neonatal material. There is some evidence, too, of young animals from the mandibles (Table 27). But such evidence is minor. The sheep/goats from the Mote of Mark, on the other hand, do not by their ages suggest a rural centre of much breeding and of many casualties. One may take it they were animals reared to a good age for eating, with a few perhaps kept rather longer for their wool. Alternatively, it might be suggested that the food supply to the summit of the rock comprised only a proportion of the available resource.

Details of distribution over the body are given in Table 28. Measurements show slender individuals (Table 29). There was only one whole fused bone, a metacarpus, on which a withers height could be calculated, and this gave a figure of 0.59m. As with the cattle, there is no suggestion of any relic of Roman husbandry practices or of residual Roman stock. These animals were in the clear tradition of the Iron Age.

Pig

Pigs were much better represented. There was certainly no adult wild pig; a few young and porous fragments handled as rather larger than the rest, and one large third metacarpal from the 1913 backfill, complete with its unfused epiphysis, gave a Greatest Length of 79.4mm, quite high in the range for domestic archaeological material. One cannot, therefore, completely rule out the possibility that, had this animal lived, it might have grown beyond the normal range. More likely, though, is the interpretation that a good number of domestic pigs were doing very well in the area and that some of them, presumably young males, were making the most of good conditions and good food.

The general pattern of ageing fits the structure

	x	Range	n	S	CV
Scapula					
SLC Minimum at neck	47.3	43.4–50.3	8	2.6	5.4
GLP Length at articulation	60.7	56.1–68.3	10	3.3	5.5
LG Glenoid Length	50.0	39.5–58.0	11	4.3	8.6
BG Glenoid Breadth	42.2	38.1–49.1	13	2.8	6.7
Humerus					
Bd Distal Breadth	71.2	61.6–85.0	22	5.6	7.9
BT Breadth of Trochlea	63.3	59.1–67.6	14	3.0	4.7
Radius					
Bp Proximal Breadth	69.9	59.5–77.0	19	4.0	5.7
Bd Distal Breadth	63.4	59.5–73.2	12	3.7	5.9
Metacarpus					
GL Greatest Length		174.0,178.0,184.0			
Bd Distal Breadth	51.4	49.0–55.6	12	2.1	4.1
DFB Breadth at d1 epiphysis	46.9	42.8–51.1	12	2.6	5.4
Pelvis					
LA Length of Acetabulum	58.1	54.1–61.8	6	2.6	4.5
Femur					
DC Diameter of Caput	39.4	38.0–43.0	8	1.6	4.2
Tibia					
Bp Proximal Breadth	84.5	79.6–91.3	6	4.1	4.9
Bd Distal Breadth	53.2	48.0–56.0	18	2.0	3.8
Calcaneum					
GL Greatest Length	119.4	114.0–137.0	10	6.8	5.7
Astragalus					
GL Greatest Length	59.5	54.6–63.9	41	2.1	3.5
Bp Proximal Breadth	40.2	35.6–45.0	38	2.3	5.6
Bd Distal Breadth	37.4	31.1–41.0	41	1.8	4.8
Metatarsus					
GL Greatest Length		205.0, 206.0			

Table 24. Selected measurements of cattle (in mm).

From Metacarpus:	Greatest Length x 6.125	= 1.066, 1.090, 1.127
From Metatarsus:	Greatest Length x 5.45	= 1.117, 1.123
		Overall x = 1.105 (n=5)

Table 25. Cattle Withers Heights (in m) by Fock's (1966) factors.

commonly found with pig bones from so many archaeological sites, where most of the animals passed beyond the youngest groups to be killed for food as near-adults, with few living much longer since there is no long term use save breeding for which full-grown pigs may be kept. There were no fused bones from the final-fusing group (Table 30). For the evidence from teeth, there was a loose lower third molar in heavy wear, at Grants (1975) stage 'F', which must have come from an old individual, but the other jaws given as in full wear were at no more than stage 'D' and would have come from very recent adults. Indeed, the concentration by age-group, away both

from the young and from the old, is very marked (Table 31).

Distribution over the body (Table 32) shows a high proportion of loose teeth, and a conspicuous shortage of ribs. This would fit with much serious disturbance before burial and, for the ribs, perhaps, some scavenging by dogs.

With young material, not yet finally fused, there could be no measurements of greatest length for any long bones, and there was therefore no chance to calculate withers heights. The measurements of breadth, however, showed that the animals were sturdy (Table 33).

	Early-fusing epiphyses		Middle-fusing epiphyses		Late-fusing epiphyses	
	n	Fused %	n	Fused %	n	Fused %
Early	2	100.0	2	100.0	5	60.0
Occupation	9	88.9	1	100.0	7	28.6
Late	1	100.0	1	100.0	-	
Rampart	6	83.3	6	33.3	3	33.3
Backfill 1913	22	95.5	13	69.2	30	30.0
Others	5	100.0	-		3	33.3
Total	45	93.3	23	65.2	48	33.3

Neonatal or very young bones (which have been included in the above table where relevant):

Occupation: humerus

Rampart: scapula. 2 x metacarpus, 2 x tibia

Table 26. Epiphyseal fusion in sheep/goat.

		Jaws		Loose m3/M3	Total	
		No	%		No	%
Stage 1	M1 not yet in wear	1	16.7		1	4.2
Stage 2	M2 not yet in wear	1	16.7		1	4.2
Stage 2/3				3	3	12.5
Stage 3	M3 not yet in wear			1	1	4.2
Stage 4	M3 coming into wear	1	16.6	6	7	29.2
Stage 5	M3 in full wear	3	50	8	11	45.7
Total		6		18	24	

Table 27. Ageing by mandibles for sheep and sheep/goat.

(a) by fragments

	Head	Loose teeth	Long- bones	Feet/ ankles	Spine	Girdles	Ribs	Total
Early	3	10	8	7	8	-	6	42
Occupation	7	9	23	5	14	8	20	86
Late	-	4	3	1	2	2	1	13
Rampart	3	14	6	12	6	4	19	64
Backfill 1913	23	49	72	23	73	22	180	442
Others	2	6	7	7	1	1	18	42
Total	38	92	119	55	104	37	244	689

(b) percentaged by fragments

	Head	Loose teeth	Long bones	Feet/ ankles	Spine	Girdles	Ribs
Backfill 1913	5.2	11.1	16.3	5.2	16.5	5.0	40.7
Total	5.5	13.4	17.2	8	15.1	5.4	35.4

Table 28. Distribution of bones over the body in sheep/goat.

The wild mammals

Very little material was recovered from wild species. There was a single fragment of roe deer, *Capreolus capreolus* – a fused right distal humerus. No other post-cranial deer was found from any species, nor was there any antler, though antler had been used to fashion a knife-handle (above, p.116, no. 2190). With a site that was rich for its time in other classes of finds this dearth of deer bones is strange. The area is well wooded today

and one imagines that it would have been wooded in the past and good for deer.

The other wild mammal whose bones were found was rabbit, *Oryctolagus cuniculus*. Rabbit bones, however, would not be expected at this period. In England they are seen as a Norman introduction (see the discussion in Bourdillon and Coy 1980, 114, on the absence of their bones from the large Saxon assemblage at Southampton), and as having come from the continent of Europe. One

	x	Range	n	S	CV
Scapula					
SLC Minimum at neck	20.6	19.0–21.9	5	1.2	5.9
Humerus					
Bd Distal Breadth	29.5	25.0–32.8	14	2.4	8.0
BT Breadth of Trochlea	28.3	25.6–30.2	9	1.6	5.7
Radius					
Bp Proximal Breadth	29.8	27.9–33.4	7	1.9	6.4
GL Greatest Length		119.1			
Pelvis					
LA Length of Acetabulum	27.2	24.8–30.4	6	2.0	7.4
Tibia					
Bd Distal Breadth	24.6	22.5–26.5	10	1.2	5.0

Table 29. Selected measurements of sheep (in mm).

	Early-Fusing Epiphyses n	Fused %	Middle- Fusing Epiphyses n	Fused %	Late-Fusing Epiphyses n	Fused %
Early	2	66.6	2	50.0	5	-
Occupation	17	82.4	14	21.4	7	-
Late	-		4		3	-
Rampart	21	71.4	15	66.7	21	-
Backfill 1913	34	70.6	34	20.6	55	-
Others	4	75.0	7	27.6	7	-
Total	78	73.4	76	30.3	98	-

Table 30. Epiphyseal fusion in pig.

		Jaws n	%	Loose m3/M3	Total n	%
Stage 1	M1 not yet in wear					
Stage 1/2		1	4.0	1	2	4.0
Stage 2	M2 not yet in wear	1	4.0	2	3	6.0
Stage 2/3		3	12.0		3.0	6.0
Stage 3	M3 not yet in wear	7	28.0	9	16	32
Stage 3/4		1	4.0		1	2.0
Stage 4	M3 coming into wear	7	28.0	10	17	34.0
Stage 4/5		3	12.0		3	6.0
Stage 5	M3 in full wear	2	8.0	3	5	10.0
Total		25		25	50	

Table 31. Ageing by mandibles for pig.

would not expect them in these islands at the time of the Mote of Mark, still less so far to the north. The rabbit fragments came from the 1913 backfill and with the history of double burial they cannot be taken as secure.

The bird remains

There were three fragments of bird. Two, of these, a right *ulna* and *carpometacarpus*, perhaps from a single wing were of domestic fowl. They were notably smaller than modern material and are likely to have come from

(a) by fragments

	Head	Loose teeth	Long-bones	Feet/ankles	Spine	Girdles	Ribs	Total
Early	11	26	12	5	7	7	-	68
Occupation	38	29	21	21	13	21	9	152
Late	2	13	5	5	4	-	-	29
Rampart	32	54	43	34	13	24	9	209
Backfill 1913	128	166	153	93	75	71	17	703
Others	14	19	13	16	9	2	8	81
Total	225	307	247	174	121	125	43	1242

(b) percentaged by fragments

	Head	Loose teeth	Long-bones	Feet/ankles	Spine	Girdles	Ribs
Occupation	20.0	19.1	13.8	13.8	8.6	13.8	5.9
Rampart	15.3	25.3	20.6	16.3	6.2	11.5	4.3
Backfill 1913	18.2	23.6	21.8	13.2	10.7	10.1	2.4
Total	18.1	24.7	19.9	14.0	9.7	10.1	3.5

Table 32. Distribution of bones over the body in pig.

	x	range	n	S	CV
Scapula					
SLC Minimum at neck	22.8	18.4–26.7	17	2.6	11.5
GLP Length at articulation	32.9	28.8–37.0	15	2.7	8.1
Humerus					
Bd Distal breadth	39.2	34.0–43.9	11	2.5	6.4
BT Breadth of Trochlea	30.9	29.1–33.8	6	1.6	5.3
Radius					
Bp Proximal Breadth	28.3	27.0–29.6	10	0.7	2.6
Pelvis					
Length of Acetabulum	32.3	28.8–34.0	10	1.8	5.6
Tibia					
Bd Distal breadth	29.0	27.2–30.6	7	1.4	4.9
Astragalus					
GL Greatest Length	39.1	35.8–44.0	11	2.5	6.4

Table 33. Selected measurements of pig (in mm).

archaeological times (greatest length of the ulna: 70.5mm) and they have therefore been included in the tables. The question is why so little fowl was found. Though sieving would have given a fuller answer to its abundance or otherwise, if the two fragments suggest or even establish its presence at the time they also expose its rarity.

The wild bird fragment is of great interest, though it need not be taken as food waste. It may confidently be taken as genuine, for it is of white-tailed eagle, *Haliaeetus albicilla*, also known as sea eagle. For this species any modern intrusion would be strange, and stranger still in that the fragment (a right distal tibiotarsus) showed a series of very small horizontal knifecuts on the lateral front shaft. Bones of white-tailed eagle have been recovered from time to time from prehistoric sites and recently an early Anglo-Saxon find has been published from the Middle Thames valley (Miles in Gelling 1987).

Gelling herself adduces much place-name evidence to suggest that the species was still found quite widely in Anglo-Saxon times, inland as well as on the coast. For the present specimen, of course, the rough cliffs by the Mote of Mark would have been the classic habitat. The very fine cutting seen on the shaft may indicate that the bird was valued for its feathers.

No other bones were found from wild birds. This is strange, since the Solway Firth now has major reserves especially of waterfowl, and even in unsieved material one would expect a fair indication of bird bones if they are present in any numbers in the soil.

The absence of fish

It is usual for fish to be very rare in unsieved assemblages and one must not make too much from arguments of absence when recovery may be in question. However,

this was a coastal site and it is surprising that there were no fragments of fish at all. There were one or two tiny round shells from rampart contexts, but there were no signs of any systematic collection of shellfish, though these are gathered today from the bay at the foot of the fort.

Signs of pathological and other irregularities

Many specimens with pathological or genetic irregularities were seen by Dr. J. R. Baker, who supplied a short report to the excavators and who also incorporated some of this material in his important joint study with Dr. D. Brothwell on animal pathology from a range of archaeological sites (Baker and Brothwell 1980).

Of these specimens, most showed only minor irregularities, probably of genetic origin. In cattle, several first and second *phalanges* showed a minor lesion or depression of the articular surface of the bone. The affected specimens represent about 7% of the present material, but Baker and Brothwell (1980, 110–112) have found rather higher figures on some other archaeological sites. Other minor irregularities in cattle that were probably also of genetic origin were a groove on a right *distal astragalus* from pre-rampart, context B17 (13), and slight pitting on a fragment of a fused distal epiphysis of *humerus*. In addition, there was the fragment of a first rib which was almost certainly bifid at its lower end: this is a more substantial abnormality, but Baker and Brothwell refer to this in their study (1980, 38) and take it to have been a congenital, non-inherited defect. One pig bone was affected with a similar lesion: rampart, context B17 (11) gave a fused right *distal scapula* which showed a minor groove in the articular surface. No similar material was noticed from sheep or goat.

An *articular condyle* of a cattle mandible from layer B6, context 8, shows a depression in the articular facet and a hole penetrating the bone. The cause of this is unknown.

Other bones are of more use as indicators of the state of health of the animals, and the report is generally good. Baker and Brothwell (1980, 49) discuss evidence of rickets as not uncommon from archaeological material; but they found only one specimen in the present sample which might indicate the disease – a fragment of rib, probably bovine, with an irregularity of the costochondral junction which is suggestive of healing rickets. This may imply a generally adequate diet, but with a deficiency of some sort, perhaps phosphorus relative to calcium, leading to some lack of vitamin D. One may add to this, as suggestion of some lack, some malformation on a cattle molar from the rampart context B17, (11), where an angle between the root of the tooth and the crown ‘is suggestive of a period of retarded growth (perhaps from over-wintering) with overcrowding of the teeth in the jaw followed by a period of normal growth’ (Baker, pers. comm.). This

adds up to some evidence, then, of occasional malnutrition, but not to serious long-term shortage.

For degenerative disease, Baker and Brothwell (1980, 115) see a considerable number of cases widespread in archaeological material. From the Mote of Mark assemblage there were two cases, neither of them likely to have been serious. A fragment of bovine pelvis showed ‘mild arthritic changes as indicated by slight lipping of the *acetabulum* and slight grooving and erosion of the articular surface’ (Baker, pers. comm.). The operative word could well be ‘mild’. There was also the head of a femur with some pitting of the postero-lateral surface. Baker and Brothwell suggest that this may be a case of early arthritis (1980, 116). One would not query their veterinary judgement, but where they consider the bone as from a pony, the present writer identifies it as from cattle (see above). It comes from the same context as the pelvis described above and both bones are from the same side of the body (the right). They could articulate, and if both femur and *caput* came from the same animal the incidence of degenerative disease by individuals would be minor indeed.

Conclusions

The general pattern from the artefactual repertoire has shown a settlement which had wide and interesting trading links. Something a little more out of the ordinary, of more than local interest, might have been expected in the evidence from the animal bones. In the event, the evidence supports a regular pattern of husbandry, but with nothing exotic in the diet. The single bone of roe deer is meagre evidence for hunting in the nearby wild countryside; the region’s presumed rich resources of wild birds were not exploited for food; and if fish were taken, and with the sea so close it is hard to believe that they were not, they would only have been small ones, whose bones have escaped detection in the process of excavation.

The domestic animals do indeed show deliberate patterns of exploitation, with different and successful strategies for each of the three main species. Cattle are demanding to rear and to winter over many years, and more so perhaps in the north, yet many of these cattle were fully adult. The pigs were younger than the cattle, as befits the exploitation of the species; but they seem to have been plentiful, and they were certainly sturdy animals and probably large for their time. The sheep or goats, though small individuals, were mostly eaten in their prime. All this suggests deliberate organisation, and a control that met – bar the occasional strain in over-wintering the cattle – with regular success.

Lastly, there is no indication that Roman improvements to the stock of cattle and sheep had any lasting impact in this region which for part of the period of Empire had been within the frontier of the province.

6 The Objects Cast in the Clay Moulds

Introduction

Four hundred and eighty two mould fragments survive from the Mote of Mark, though it is likely that several hundred additional fragments were recovered in 1913, as according to Curle's testimony, large numbers of nondescript fragments were given away locally (Curle 1914, 151–2). Two hundred and four fragments bear diagnostic features relating to the technology of production or to the artefact to be cast. One hundred and ninety-one moulds are representative of the latter category. The principal broad classes of artefact produced include penannular brooches, buckles and strap or belt fittings, pins, studs and decorative panels or mounts. There are also a number of plain castings which may be the backs of decorative pieces. The identification of a mould fragment as either a primary or secondary valve is a guide to whether an object is inherently plain or simply the back of a decorative piece.

The range of objects

Penannular Brooches (Fig. 54B)

Six mould fragments are recorded which were used to cast penannular brooches. One mould, at least, was designed to cast two brooches in the same mould (1130). Two additional moulds may conceivably represent the lozenge-shaped (1119) and circular (1116) terminals of brooches but insufficient survives to confirm these identifications. In this respect the moulds 1120 and 1222 are related in design to 1119 in comprising a pellet enclosed within a sub-rectangular panel bordered by linear ribs and should, perhaps, be considered as possible brooch terminals. The certain brooches are small, c.200–250mm diameter. Two of the three decorated moulds are secondary valves; the third is not differentiable. All four of the plain moulds are primary valves. This suggests that the plain moulds represent the backs of brooches and, on the surviving evidence, that all the Mote of Mark brooches carried decorated terminals on the front, or visible, side. The decoration of the terminals is limited but consistent, in the use of pellets, either singly or in a group of four, in a sunken field defined by a raised rib around the rim of the terminal. Circular and sub-square or lozenge terminals are represented. Both single and group-of-four pellets occur on circular terminals but

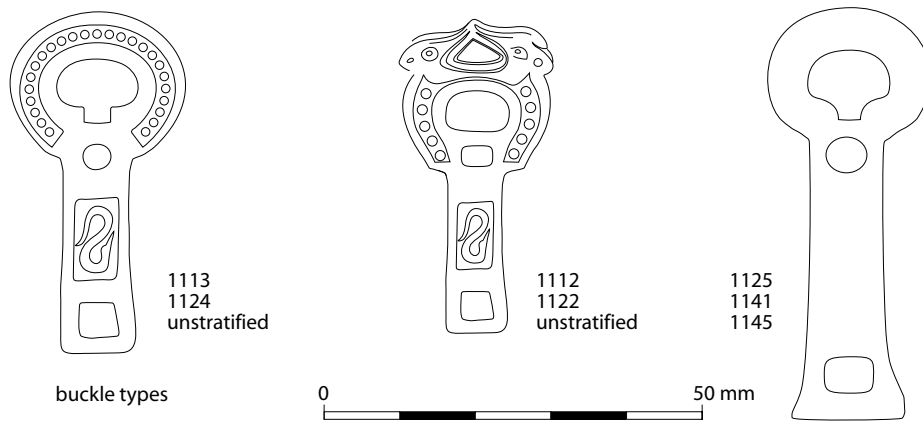
group-of-four pellets occur on square terminals only.

All the brooch moulds derive from the 1913 excavations or from a context representing the backfill of those excavations. Curle distinguished three categories of artefact represented by the moulds (1914, 141). His first class (a) included 'penannular brooches, crosses, and other ornaments richly decorated with patterns in Celtic art'. His second class (b) comprised 'penannular brooches of Celtic type, but plain, or little if at all enriched'. His third class (c) included 'simple pins, comb-like objects, and articles of unascertained use'. It is now clear that the decorated items within class (a), some of which Curle initially saw as the terminals of penannular brooches, are in fact components of roundels and axe-blade plates. The penannular brooches catalogued in the present report correspond to the plainer artefacts of Curle's class (b). Curle observed that these items came, for the most part, from the eastern side of the clay dump, specifying, in particular, the double mould (1130). These objects occurred at 'a depth of about 2 feet, but some from the very bottom level' (Curle 1914, 144). These stratigraphic observations can be reconstructed, with the aid of data recovered during the 1973 excavations, to suggest that the penannular brooch moulds were found on and below the horizon on which the clay dump lay (Fig. 37).

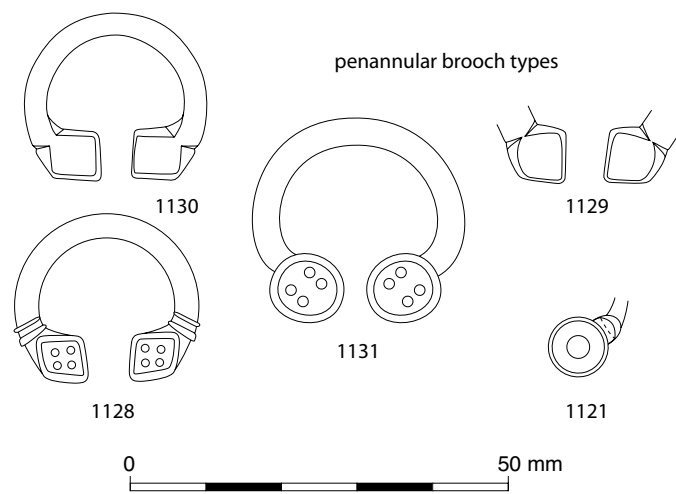
Comparanda

The penannular brooches belong to Fowler's Classes G (square) and H (expanded, flattened) (Fowler 1963). No moulds for E or F brooches are identifiable – in Britain these E brooches seem to be essentially late Roman types that survived into the fifth century but not beyond, while F brooches seem to be larger variants of the E type which may have had longer survival value, (for the chronology of E and F brooches, Laing 1993, 10–15).

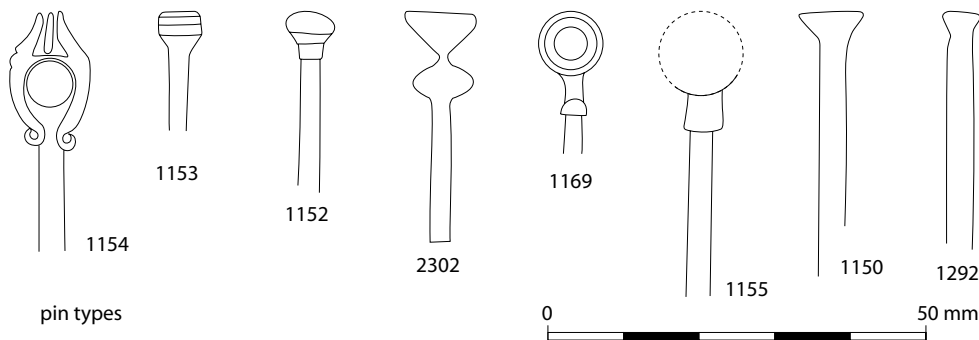
The G brooch moulds from the Mote of Mark have already been discussed by several writers (Graham-Campbell *et al.*, 1976; Dickinson 1982; Laing 1993, 15–17; Lane and Campbell 2000, 111). In her 1982 paper, Dickinson defined four main types of Class G penannular, with 8 sub-groups for her Class G1. Laing (1993, 15) argued that the subgroups of G1 were not meaningful statistically, and also disputed her grouping. In the same study it was proposed that a simpler scheme should be followed for the G penannulars, with four groups re-defined as Ga, b, c, and d. Of these the Ga brooches



A



B



C

Fig. 54. Reconstructed objects cast in moulds: A. buckles; B. penannular brooches; C. pins.

(Dickinson's G1) are not represented at the Mote of Mark, and appear to have been late Roman types which survived into the fifth century. Of Laing's 1993 scheme neither Gb (most of Dickinson's G3) nor Gd (variants of the G3 group) are represented at the Mote. In fact, only one type of G is represented, that defined as Gc (Laing 1993, 16). This type of brooch is typified by a lozenge shaped terminal with four raised dots in a field with a raised border, probably designed to take enamel. It is a type

only represented at the Mote of Mark, and therefore meaningful chronological comparisons cannot be made.

As was noted in 1993, several of the moulds assumed by Dickinson to represent fronts are likely to bear the impression of the plain backs of brooches (Dickinson nos 47-9 - here nos **1130**, **1129** and **2248**).

In her 1963 paper, Fowler defined all brooches with expanded, flattened terminals as class H (1963, 109). In 1993, this group was redefined as two separate traditions,

Class H (with flaring terminals) and Class J (with rounded terminals) (Laing 1993, 18–19). In the 1993 study it was suggested that one mould from the Mote may have been for a Class H brooch (1188 – Laing 1993, no 18). This is not now thought to be a brooch mould. All the Mote of Mark moulds for brooches with rounded terminals, therefore, belong to Class J as defined in 1993.

There are two certain moulds for J brooches, and a possible third. Of these one (**1131**) has a terminal which is decorated with four pellets within a ring and the other (**1121**) has an inner circle containing a pellet and a simple cusp separating terminal and hoop. Both these seem to be related to two surviving brooches, one from Walls, Shetland (HD 446) which originally contained red enamel (Laing 1993, 42), and one from Kildonan, Argyll (Fairhurst 1938–9, 224 and Fig. 10), the latter dated by the excavator to the seventh century. Both these brooch moulds conform to Class Ja; class Jb brooches have elaborately decorated terminals, and it is possible that item 1116 represents the terminal of a brooch of this type, though the mould is too incomplete to make identification certain. If it was for a penannular brooch, it was one in the tradition of a silver example from the hoard from Croy, Inverness (FC 12), from a hoard deposited in the ninth century (Laing, 1993, no. 51 and refs), or another silver terminal from Jarlshof, Shetland (HSA 4163A), again probably of the Viking age (Laing 1993, no. 53). Possibly closer in date is the brooch produced from a pair of moulds from Clatchard's Craig, Fife, presumably of the seventh century (Close-Brooks 1986, 157 and illus. 23).

The penannular brooches produced at the Mote of Mark, then, were of a limited number of types. The typically late Roman types are absent, but so are those of the Viking Age. Although J brooches were produced at Dunadd, Argyll, in the seventh century they were not a common type, and the Dunadd brooch mould assemblage is very different from that from the Mote of Mark. There is nothing in the assemblage which would be out of keeping with a seventh, or even a late sixth century date, though at present there are few enough parallels for any meaningful deductions to be made about chronology from the design of the brooches themselves.

Buckle loops, buckle plates, strap fittings and shanked objects (Fig. 54A)

A number of moulds represent items which may have been used as fittings on leather belts or straps. Eighteen moulds were used to cast buckles, now represented by the fragmentary survival of the impressions of ten buckle loops (five decorated, five plain backs) and eight buckle plates (four decorated, four plain and probably backs). A further seven would appear to have been for strengthening plates or strap ends. In the latter category, four objects would have had blunt or pointed blade shapes. In addition there are five shanked objects which appear to have been designed for attachment to organic components by means

of an integral spike or rivet. Item **1171** may be for a tapering strap end with bulbous terminal secured by a rivet or, alternatively, for a tapering or triangular buckle plate. Items **1187** and **2761** are both for circular plates, 38mm and 40mm in diameter, respectively, secured at the centre by a long spike or rivet.

A distinguishing characteristic of the buckles cast at the Mote of Mark is their small size (between 20mm and 25mm diameter at the hoop) and that they were cast in one piece with their plate and not hinged (see below). The openings of the loops on surviving examples appear to represent two strap thicknesses, at least at the narrow tongue end of straps. A smaller strap is indicated by loop-holes in the range 8.5mm to 12.5mm (mean 10.5mm). A slightly larger strap is indicated by two buckle loop-holes at 16mm and 16.5mm. The widths of fittings applied to straps, rather than the holes through which the straps passed may also provide an indication of scale. The range is 8mm to 21mm with a mean at 13mm. These buckles and fittings must have operated on very narrow straps or have been set in pairs or some other multiple arrangement on wider straps, as is the case with, for example, modern harness and saddlery. It is instructive to compare the presumed width of the straps intended for use with the Mote of Mark buckles with the actual strap widths in use with harness buried under mound 17 at Sutton Hoo (Carver 1998, 183). The plates of the Mote of Mark buckles, in addition to being correspondingly narrow, were elongated with a slight expansion at the termination to accommodate a rectangular hole in the plate. It may be postulated that the attachment at the distal end by means of a stud or rivet would have allowed the pivoting movement of the buckle that a harness, or Sam Brown belt, would require.

Of the nine decorated moulds used to cast buckles or buckle plates, six are secondary valves and none can be shown to be primary valves. Of the nine plain moulds, seven are primary valves and none can be shown to be secondary valves. It seems likely therefore that the majority, if not all, of the buckles of this category cast on site were intended to be decorated. Similarly, the shanked objects are known from primary valves. The visible faces of such pieces might well have been decorated and, although this cannot be demonstrated, decorated moulds classified as curvilinear decorated panels could plausibly have supplied the secondary component. Four distinct decorative traits are represented on the buckles and their plates. These included pseudo-granulation, serpentines, confronted animal heads and loose, thin interlace and scrollwork. Four of the decorated buckle loops have pseudo-granulation, or pellet and tramline motifs, running around the loop; the fifth (**1132**) has thin linear scrollwork and may be related to the buckle plate (**1142**) which carries thin, light, interlace. On one of the buckles, the pellet and tramline motif terminated in the heads of two confronted, open-mouthed beasts. Three of the decorated buckle plate moulds carry a serpentine motif; the fourth

(1142) carries a thin, light, interlace as described above.

Buckle plates and the circular shanked disc (2761) occur in contexts pre-dating the last phase of metalworking on the site.

Comparanda

The technical detail of loop and buckle plate cast in one is a feature of some late Roman buckles (e.g. Hawkes' & Dunning's Class IIB 1961, 57) but not the most commonly encountered in the post-Roman period, where the buckle loop is usually hinged on to the plate. This is the case, for example, with most Anglo-Saxon buckles (e.g. the Kentish examples discussed by Aberg 1923, 116–128) and the moulds for buckles in Anglo-Saxon style from Dunadd (Campbell & Lane 1993b, Fig. 6.5; Lane and Campbell 2000, 127)), as well as with most of the later (Viking-age) buckles from Celtic Britain (Laing 1993, nos 158–161), and the various buckles from Ireland (Laing 1975a, 333–4). At the Mote of Mark, the pin seems to have been attached by looping round a bar formed between the loop and a hole in the plate just below the hoop. This constructional technique seems to represent a late Roman survival in the Byzantine east, occurring occasionally in the Frankish world, as for example on a buckle in the grave of a blacksmith/goldsmith at Herouville, Dept Calvados, France, datable to the sixth century (DeCaens 1971). The same type of buckle is represented in the female sarcophagus burial at St Denis, also of the sixth century (von Welck 1996, vol 2, 935, and Fig. vi, 2, 7–8). There are several small cast-in-one buckles from a number of locations in Burgundy (Musée Philandrier, Chatillon sur Seine collections) and from the Namur region, including one mould (Aufleger 1996, Fig. 473) That Byzantine and other eastern buckles of this type were reaching the West in the sixth century is apparent from examples found in Kent (Smith 1923, 60).

Those buckles that are decorated display two types of ornament, interlaced and traditional Romano-Celtic. The Mote of Mark buckles stand at an interesting intermediary stage between the confronted animals of late Roman buckles and the confronted animals of some later penannular brooches, exemplified in the moulds from Birsay, Orkney (Curle 1982, 111 and illus 13) or the dragon brooches from Freswick Links, Caithness (Batey 1987, 106 and pl. 20) and the St Ninian's Isle Treasure (Wilson 1973, 79, cat. no. 28) The confronted animal motif is commonly represented in a series of late Roman buckles that have sometimes been found in Anglo-Saxon graves (Hawkes & Dunning 1961). Of particular relevance for purposes of comparison is a buckle from Colchester, Essex, where the creatures appear to be stylized dolphins with a line of stamped dots on their bodies reminiscent of the pellets on the Mote of Mark buckles (Hawkes & Dunning 1961, Fig. 17e). Similar open-jawed creatures confront one another on a ring from the late Roman, Thetford, treasure, Norfolk (Potter & Johns 1973, 84

(no. 6) and Fig.6), and the same device is apparent in the pairs of confronted hippocamps on two hanging-bowl escutcheons from Faversham, Kent (Brenan 1990, 214 and cat. no. 27). There are no buckles from Celtic Britain or Ireland that are similar to the Mote of Mark examples, but two confronted animals in the opposite position (where the buckle loop met the plate) can be seen on a buckle-loop from Orkney in the National Museum of Antiquities of Scotland (reg. FC 157) (Laing 1972–4) – the buckle animals here have snub snouts (like seals) in the Pictish tradition, and seem related, albeit distantly, to Hawkes & Dunning's Type IIIA (1961, 51).

The shanked disc (1187) is provided with a square strap attachment on the circumference and would seem to be comparable to items of horse gear known from seventh century Frankish contexts. For example, there is a set of three, in silver, from a grave at Ittenheim, Alsace (Hachmann 1971, Pl.154) and others from grave 17, Niederhone (Von Welck, vol.2 1996, 920).

Pins (Fig. 54C)

Thirty-six moulds were recorded which had been used to cast pins. Many of the moulds accommodated the casting of more than one pin. No complete moulds survive although the details of pin heads are retained on fifteen moulds as follows: 4 disc heads (2 of which were decorated, including a disc head flanked by confronted gaping-mouthed animals with curling tails); 2 knobbed heads; 7 nail heads; 1 mould for both nail and knobbed type and 1 thistle head. Total lengths are not ascertainable although two bone pins, which may have been models for knobbed and nail-head types, were found. Their respective lengths are 35mm and 47mm. The maximum surviving length of shafts in a mould is 36 mm. Other than pin moulds recorded during the 1913 excavations, only one mould, for casting both a pin and studs, is securely stratified. This example (2263) is associated with a context pre-dating the final metalworking phase on-site.

Comparanda

The moulds for pins are all for the stick variety, and are within a tradition of Roman and post-Roman dress- and hair-fasteners. Work at Colchester, Essex, has recognized six basic Romano-British bone pin types, and has assigned them to various chronological horizons, of which those with bulbous heads, with faceted heads, with disc heads and with cotton reel heads were all current in the later Roman period (Crummy 1979 and 1983). Similar types were current in other materials, including copper alloy, glass and jet. It is notable however that pins in Roman Britain during the first three centuries AD were hair pins, and that these fell out of favour during the fourth century, probably due to changing hair styles (Cool 1990; Cool 2000, 48–9). Dress pins seem only to have come into fashion at the end of the Roman period perhaps due to a change in fashion. Bone pins, other than those made

from pigs' fibulae, are relatively rare on early medieval sites, and may have had a status connotation. The relationship of Roman and Roman Iron Age pins to later types has been discussed by Stevenson (1955, esp. 286).

The types of pin represented in the moulds are limited – simple ball- and nail-headed varieties, with the addition of four more elaborate types, one with a discoidal head with a fillet on the shaft below the head (1169), of which a portion of what is probably another also survives (1155), a pin with a doorknob head with a collar between it and the shank (1152), a thistle-headed pin (2302) and a pin with a head formed of two confronted hippocamps with open jaws and a boss between them (1154). No comparable thistle-headed pins are known to us from Scotland, though a pin from North Ronaldsay, Orkney (Royal Mus. Scotland FC 181) is relatively similar – its bordered ladder pattern band on the shank suggests a relatively early date (Laing 1975b, no. 43). A thistle-headed pin very similar to that which was made at the Mote of Mark is represented at Lough Faughan crannog, Co. Down (Collins 1955, Fig. 9/25), a site which had produced no material later than the ninth century.

The discoidal pin with a fillet is best paralleled from Lagore, Co. Meath (Hencken 1950, Fig. 16, 226) – the Lagore pin has a setting in the head, which was possibly the case with the Mote of Mark example. The relationship of this type of pin to others in the Celtic area has been discussed by Laing (1975b, 56–58).

The 'doorknob' headed pin is without ready parallel in the Celtic areas of Britain and Ireland, though the type is generally similar to various bone pins, and a bone variant is found in an Anglo-Saxon context at Whitby, Yorks (Peers & Radford 1943, Fig. 21).

The closest parallel for the pin with hippocamps can be found in Anglo-Saxon England. The motif echoes the design of some of the buckle loops discussed above, and probably has a Romano-British ancestry. A garnet inlaid

pin with a pair of confronted bird heads comes from Wingham (Smith 1923, Fig. 63). The same pin, with axe-blade head, is discussed in the context of the decorated panel moulds (below).

Studs or rivets

The assemblage includes 26 moulds which were used to cast tanged studs or rivets. All but the largest (one example is more appropriately described as a shafted disc than a stud) were cast in strips of multiples, capable of being separated and trimmed for individual use. With the exception of the shafted disc, the size range incorporates small examples with heads of 6.5–8mm diameter and large studs at 8–10mm diameter. The average shaft length is 8mm (Table 33). They may have been used to attach items to leatherwork or simply to decorate or strengthen the surface of leatherwork. Rivets of varying degrees of complexity and decoration are known to have been used in fastening buckle plates to their leather straps. Similar rivets (6–7mm diameter) were employed in fastening components of the bridle accompanying the burial under mound 17 at Sutton Hoo. In this example the copper-alloy rivets were gilded. These moulds represent one of the few categories where actual artefacts of copper alloy cast in the moulds survive on site.

Decorative plates and bosses (Fig. 55)

A number of moulds were employed in the manufacture of decorative objects which do not fit into the above, more clearly defined, categories. Seventy-nine moulds may be broadly classified as decorative plates, the plain backs of such objects, and related items. A further eight moulds were used to cast bosses. The precise nature of the majority of these objects cannot now be determined because of the fragmentary condition of the moulds. Nevertheless, the character of the decoration is generally clear enough and, in some instances, the objects them-

	x	range	n	S	CV
Scapula					
SLC Minimum at neck	22.8	18.4–26.7	17	2.6	11.5
GLP Length at articulation	32.9	28.8–37.0	15	2.7	8.1
Humerus					
Bd Distal breadth	39.2	34.0–43.9	11	2.5	6.4
BT Breadth of Trochlea	30.9	29.1–33.8	6	1.6	5.3
Radius					
Bp Proximal Breadth	28.3	27.0–29.6	10	0.7	2.6
Pelvis					
Length of Acetabulum	32.3	28.8–34.0	10	1.8	5.6
Tibia					
Bd Distal breadth	29.0	27.2–30.6	7	1.4	4.9
Astragalus					
GL Greatest Length	39.1	35.8–44.0	11	2.5	6.4

Table 33. Stud dimensions.

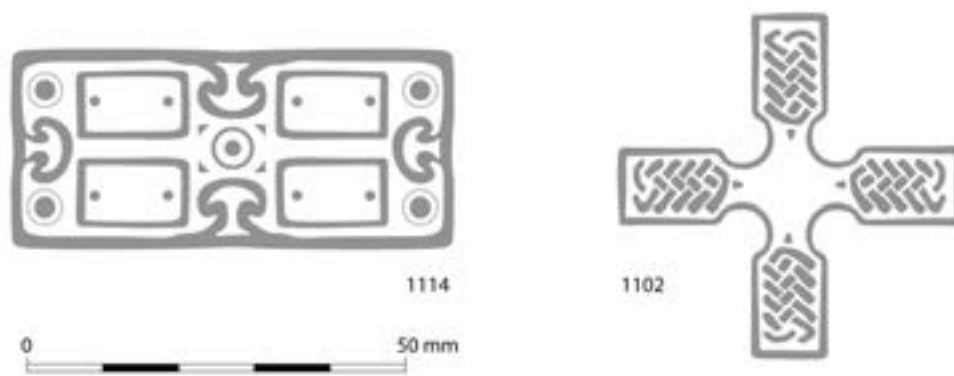


Fig. 55. Reconstructions of decorative plates cast in the moulds on the site.

selves may be reconstructed. Certain of the objects cast in these moulds were certainly roundels and others were axe-blade plates, Horse 'brasses' are one, but not the only, interpretation of the roundels and axe-blade plates (Carver 1998, 110–113, plate V). One rectangular panel with pelta and circle decoration in a cruciform arrangement might plausibly be interpreted as an applied decoration to the cover of a reliquary or gospel book. On the other hand, the plate may have been intended to take enamel – enamelled buckles are known from Ireland, for example from Rathinaun, Lough Gara, Co. Sligo (Laing 1975, 333). At least two moulds would appear to be intended to cast components of crosses with arcs at the junction of the arms. A mount-mould with single-strand interlace which is clearly for a cross is represented in the assemblage of material from Hartlepool, Tyne and Wear, a Northumbrian monastery, and there dated to the seventh-eighth century (Cramp & Daniels 1987; Webster & Backhouse 1991, Fig. 106a). The centre of the cross had a beaded ring, again reminiscent of the ring on mould 1103 from the Mote. In this context it is worth noting that a trapezoidal mount-mould from Hartlepool combines interlace with a backward-looking animal which could be seen as the descendant of the simpler creatures on some of the Mote of Mark moulds (Webster & Backhouse 1991, Fig. 106c).

The predominant decoration is a tight, regular, interlace, often three-stranded and apparently symmetrical. A number of the pieces were bordered with running scrolls, pellet and tramlines, plait and rope-work or a combination of these motifs. Both curvilinear and straight edges to the designs are represented. Other motifs which occur, but less frequently, include palmettes and related 'late Celtic' designs.

Fifty-two moulds for curvilinear panels were recorded, of which thirty-six are decorated and fifteen are plain with one indeterminate example. Interlace, occurs on twenty-two moulds. Both triple and single strand interlace is represented, although it is clear that, on at least one mould, the multiple strand quality has been effaced by degradation of the mould and this may be true of others.

The interlace is invariably tight, only two examples of loose interlace are represented. Four of the interlace decorated moulds have rows of pellets as an associated decorative motif. In three instances the pellets are constrained by a 'tramline' bands as a border. Two of these moulds have single cable ropework as an additional bordering zone. One mould uses cabling in combination with plaitwork-between-tramlines as a border. There are fourteen moulds for curvilinear panels bearing miscellaneous decorative features other than interlace.

Twenty-three moulds for rectilinear panels were recorded, of which twelve are decorated and nine are plain. Two are insufficiently clear to allow determination. Eight of the decorated moulds carry interlace which, in common with the moulds for curvilinear panels, is predominantly tight. Three of these moulds have clear three-strand interlace although the same caveat applies with regard to abrasion of the casting surface as was noted in respect of the curvilinear panels.

The decorated panel moulds described above are predominantly secondary valves (86%). The percentage is higher (93%) for those carrying interlace decoration. These percentages are in line with that for the assemblage as a whole (82%) and it has been suggested above (p. 34) that the patterns for decorated objects were characteristically placed face-up, backside-down in primary valves. The plain moulds, on the other hand, while primary valves are in the majority (61%), exhibit greater variety. The preponderance of primary valves suggests that many may represent the plain backs of curvilinear and rectilinear panels, of which the fronts of some may have been decorated. Others, however, must have been used to cast plain objects.

Eight moulds for casting bosses were recorded. The sizes range between 12mm and 18mm diameter. Four are decorated and the remaining four are plain. One fragmentary mould (1206) carries a tight, three-strand interlace on what would appear to be intended as a domed boss. Another mould (1136) has the impression of two domed bosses, one of which carries a running scroll border. The remaining two decorated boss moulds may

be components of more complex object moulds. One (**1116**) has a design of concentric ribbing around an inner ring of pellets which encloses a circular raised setting, perhaps for a precious stone. There is just a hint of a second circular component adjacent to the first. Item **1221** is very fragmentary. The design would appear to comprise a stepped circular boss with a perpendicular herringbone projection. The plain boss moulds include one stepped boss, two domed bosses (one with a small oval notch or inset) and a very abraded mould for a pair of flattened domes. Where valves can be differentiated, all the boss moulds would seem to be primary valves.

The majority of the moulds for curvilinear and rectilinear panels were recovered during the 1913 season of excavations and it is now difficult to assign a precise context to them. Nevertheless, Curle observed that ‘all the pieces of moulds for the richest ornaments’ including the axe-blade plates **1094** and **1104** and the roundel **1103**, ‘crosses, and other ornaments richly decorated with patterns in Celtic art, came from the front or west side of the building represented by the clay floor and the stone foundation, and especially towards its north end’ (Curle 1914, 141–144). Comparable, though generally less elaborate, moulds were recorded in pockets of intact stratigraphy in 1973 and 1979 and it is possible to demonstrate that curvilinear and rectilinear decorative panels were in production on site prior to the final phase of metalworking and abandonment. It is particularly noteworthy that the mould for a roundel, comprising zones of interlace and concentric circles, (**2273**) was recorded embedded in a charcoal layer close to the base of the rampart sequence on the south side, suggesting that interlace decorated metalwork production had begun before rampart construction had been completed.

Axe-blade shaped plates and roundels – a special category (Fig. 56)

Among the categories of artefact cast in the decorated moulds from the Mote of Mark were roundels and axe-blade plates. Many are too fragmentary for precise and confident interpretation, nevertheless, item **1103** is clearly a roundel mould, as is **2273** and possibly **1094**. Item **1104** is indisputably an axe-blade plate; **1093**, **1101** and **1096** may possibly be.

Speake has discussed and illustrated a variety of objects on which interlace decoration occupies an axe-blade shape, including mould **1104** from the Mote of Mark, in the context of re-used axe-blade foils on the Anglo-Saxon satchel from Swallowcliffe Down (Speake 1989, 76–80). These include a pendant (Mundford, Norfolk), mounts on a wooden base (Caenby, Lincs.), a gilt-bronze hinged mount (Hardingstone, Northants), horse brasses (Faversham), components of hanging-bowl escutcheons (Lullingstone, Kent) and cruciforms (e.g. Standlake, Oxford, where there is also a roundel with two animals in Style II: Hawkes, Speake and Northover 1979, 390 and Pl. IX, 32). We might also add a mount with style II ribbon

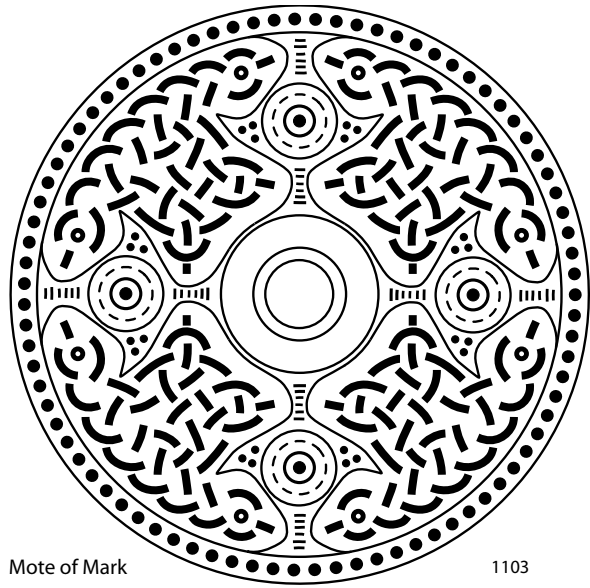
interlace and appended bird heads from Barham, Suffolk (BM, MLA 1984, 1–3,1) and the more recent discovery of an elaborately decorated horse harness, accompanying the burial of a young man and, in an adjacent pit, his horse, under mound 17 at Sutton Hoo (Carver 1998, 110–3; 183). In an earlier context, an axe-blade mount was found in a sixth-century context associated with a horse burial at Lakenheath, Suffolk (Caruth & Anderson 1999, 246), and there is another (unpublished) example which was a metal-detecting find from Langford, near Newark, Notts. Both these latter mounts have plain axe-shaped blades rising to a Style I human mask. The Langford example has a silver-plated axe and gilded mask, with traces of an attachment pin on the back. The association of the Lakenheath mount with a horse-burial is noteworthy: apart from at this site, and at Sutton Hoo, horse burials are not well attested in England, though they are relatively common on the Continent in the period (well-exemplified by the series associated with the burial of the late fifth-century Frankish king Childeric: Brulet 1981; Brulet 1996). On the Continent are to be found circular interlace-decorated harness-mounts similar in general style to those being produced at the Mote of Mark, for example from gr. 1/1951 at Momlingen (Kr. Miltenberg), Germany, which is presumed to be Frankish, and dated to the seventh century. The mounts, which are c.8.5cm in diameter, have a central boss and one has a cruciform arrangement, the non-zoomorphic interlace being filled with dots, after the manner of the Sutton Hoo regalia (von Welck 1996, pl. 221). Among other examples of interlace-decorated harness mounts is one now in the Landesmuseum, Bonn, with angular interlace.

It seems clear that such axe-blade motifs could, and did, carry decorative fills other than interlace. The Swallowcliffe Down Satchel mount employs re-used ‘Celtic scrollwork and trumpet spiral’ foils as well as interlace (Speake 1989, 68). An axe-blade appended to a circular escutcheon on a hanging bowl from Kemsing, Kent, is decorated with a leaf pattern cross. The roundel itself is decorated with a trumpet pattern running scroll (BM, MLA 1994, 10–9, 1). A further hanging bowl escutcheon from Loveden Hill, Lincs is decorated with a running scroll design; an axe-blade motif is inserted on the periphery, interrupting the scroll (BM, MLA 1963, 10–11,1).

A pin from Wingham, Kent, has an axe-blade head, decorated with gold and garnet cloisonné birds and filigree (BM, MLA, 79, 5–24). It is also true that combinations of axe-blade shapes could be assembled to create cruciform patterns with, as Speake points out, ideological significance (1989, 80). A pendant from Wilton, Norfolk, illustrates the way in which a cross can be created by assembling axe-blade plates around a central roundel. In the instance of the Wilton pendant, the axe-blades are formed in gold and garnet cloisonné work; the roundel frames a solidus of Heraclius I and Constantine (AD 620, BM, MLA, 59, 5–12.1).

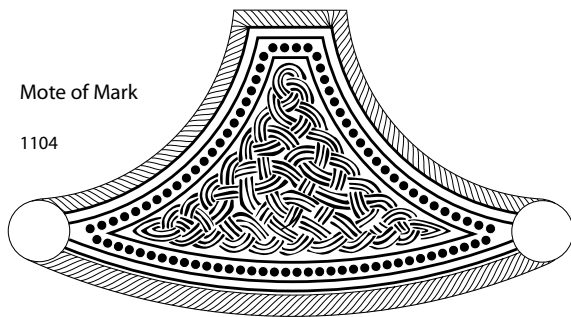


2273



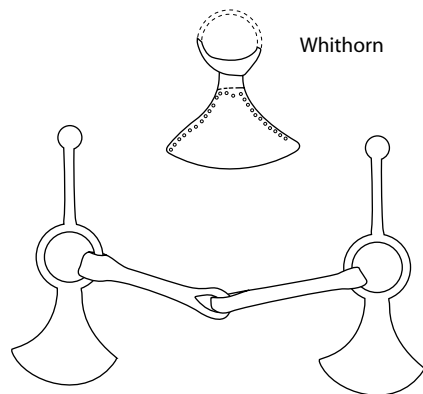
Mote of Mark

1103



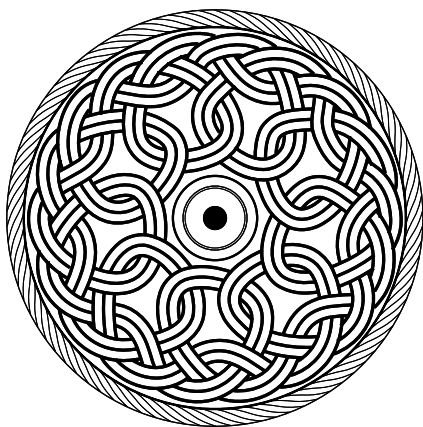
Mote of Mark

1104



Whithorn

Lagore



Sutton Hoo mound 17
(after Carver, 1998)

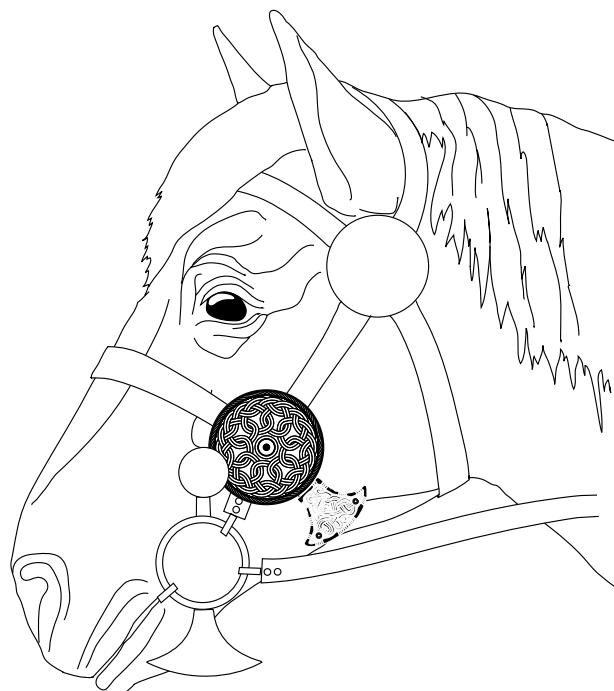


Fig. 56. Decorative metalwork from the Mote of Mark and horse-gear from Sutton Hoo, Lagore and Whithorn compared.

The impression gained from these pieces, however, is that the employment of these motifs in the formation of Christian crosses is a secondary development influenced by the currency and development of such crosses in Late Roman Christian iconography. Rather, the axe-blade, solo, or frequently in association with roundels, is a coherent stylistic signature in its own right. Tight interlace decoration is a recurring feature of these objects and, although the motif is not restricted to one class of artefact, an association with horse gear has been postulated in more than one instance. In this respect plain side-bars on the iron bit from Lagore and the fragmentary bit from Whithorn may be noted, particularly in comparison with the morphologically similar but highly decorated side bars from Sutton Hoo mound 17.

The distribution of interlace decorated axe-blades, with the exception of the Mote of Mark moulds, appears to be predominantly Anglo-Saxon and south-eastern. The interlace decoration on these pieces, (again with the exception of the Mote of Mark moulds), is also Anglo-Saxon. If the interlace is not itself invariably zoomorphic and Style II, then elements of the frame or associated components frequently are. Nevertheless, these Anglo-Saxon objects need to be considered if we are to understand the influences at work at the Mote of Mark.

The principal points of comparison between the Anglo-Saxon artefacts and the metalwork cast in the clay moulds are:

- a) The regular association of axe-blade plates and roundels in the Anglo-Saxon repertoire on the one hand and the significant component of axe-blade plates and roundels in the artefacts produced at the Mote of Mark.
- b) The high quality, aristocratic character of these artefacts.
- c) The predominance of tight, three-strand interlace in both sets of material.
- d) The identification of certain of the Anglo-Saxon pieces as horse bridle gear on the one hand, and the presence of buckles, strap fittings and roundels designed to operate as strap connectors at the Mote of Mark, on the other hand.

The significant differences between the two groups of material are:

- a) The predominantly zoomorphic character and Style II associations of the Anglo-Saxon material on the one hand, in contrast to the almost complete absence of any indication of such features on the Mote of Mark roundels and axe-blade plates. The single exception is the possibility that the terminations of the interlaced strands on mould **1103** are intended to represent animal heads and tails.
- b) The nature of the evidence – as moulds at the Mote of Mark – and as finished artefacts in use, repaired and re-used in the Anglo-Saxon areas.

The association of paired axe-blade plates flanking a centrally placed roundel on a wooden background at Caenby; paired axe-blades flanking the circular escutcheon of a hanging bowl at Lullingstone; an axe-blade shaped projection to a circular disc at Faversham and the juxtaposition, radially aligned, of axe-blade plate and roundel as strap connectors on the bridle under mound 17 at Sutton Hoo suggests a logical design relationship between the two types of artefact. The tight three-strand interlace of the Mote of Mark moulds is, perhaps, best paralleled on the Faversham and Hardington roundels. Although Hardington has no associated axe-plates, both roundels are compartmentalised into four sub-triangular units of interlace. That on Hardington although zoomorphic (Speake 1980, Fig. 10e) seems, otherwise, to be a particularly good match for the interlace on axe plate **1104** from the Mote of Mark. Similarly, the treatment of the animal heads on the axe plate flanking the strap-connecting roundel at Sutton Hoo (mound 17, Carver 1998, plate 111b, bottom right) is reminiscent of the vestigial animal heads on roundel **1103** from the Mote of Mark. One, perhaps two, roundels at the Mote of Mark are compartmentalised into four units, reminiscent of the treatment of the Hardington and Faversham pieces. A third roundel (**2273**) has two concentric zones of decoration, interlace in the inner zone and linked circles in the outer. One of the roundels from Sutton Hoo mound 17 has two concentric decorative zones although, in this case, the interlace is clearly zoomorphic. Concentrically organised interlaced designs occur on roundels from Anglo-Saxon contexts at, for example, Allington Hill, Cambs, and Spelsbury, Oxon, (Speake 1980, plate 15, b, i), where the interlace is zoomorphic, and from near Keswick, Cumbria, where the interlace is non-zoomorphic (O'Sullivan 1990, 145–7). The device of interlocking rings, present on Mote of Mark roundel **2273**, however, is an unusual one. One of the few parallels occurs on a drinking horn mount from mound 1 at Sutton Hoo. A recurring feature of the axe-blade plates and roundels is the presence of bosses, both functional, masking studs for attachment to a base, or skeuomorphic and decorative. It is probable that the pellet in the midst of interlace on mould **1098** (a possible axe-blade plate?), and the pellet and circle device, between the panels of interlace on mould **1103**, represent such features, corresponding to the four bosses disposed regularly within the decorative field of the Hardington disc and the bosses or decorative panels central to the fields of interlace decoration on the Mundford, Lullingstone and Caenby axe-blade plates. A central boss is a feature of a roundel from Spelsbury, Oxon (Speake 1980, Pl. 15, i), on mounts from Faversham, Kent (Speake 1980, Pl. 15, f, h) and on a further example from Standlake, Oxon. with two Style II animals (Hawkes, Speake and Northover 1979, 390) and this feature is also characteristic of some Continental discs, such as those from Momlingen.

It might be argued, therefore, that some items of the

metalworking repertoire at the Mote of Mark, particularly the axe-blade plates and associated roundels, are influenced by, or owe their inspiration to, contemporary artefacts current in the Anglo-Saxon areas. These items have a particularly aristocratic quality and some, at least are associated with prestigious horse bridle sets. The significance of these potential associations is discussed further below.

Decoration: general considerations (Fig. 57)

Interlace: the influences

The most commonly used decorative technique is interlace, which occurs on 32 moulds of which 3 moulds are too badly damaged for detailed classification. The majority of the interlace employed is tight (26 examples) with only three instances of loose interlace. Of these, three-stranded decoration occurs on 16 moulds and single stranded designs on 13 moulds. It is possible, however, that abrasion of the casting face has obscured the original three-stranded quality of some pieces. Interlace at the Mote of Mark, was most commonly employed in decorating the faces of curvilinear panels and roundels (22 examples) and rectilinear panels (8 examples, see above). A loose, light interlace occurs on one strap fitting and a tight three-stranded interlace on the surface of a curvilinear bossed object. While early Medieval interlace can bend back on itself, this was not a feature of the symmetrical interlace found in the Roman world. For the most part the interlace at the Mote of Mark displays rounded patterns (e.g. no. **1094**) and, in this respect differs from that on the Culbin Sands, Moray, sword pommel (Laing 1993, no. 238), on the bone mould from Rathinaun, Lough Gara, Co. Sligo (Laing & Laing 1990, Fig. 50), or on the interlace decorated disc from near Keswick, Cumbria (O'Sullivan 1990; Laing 1993, no. 195).

In only one instance does interlace decoration display any characteristics reminiscent of the zoomorphism of Anglo-Saxon Style II. The terminations of single strands in the outer angles of the panels of roundel **1103** might be taken to represent the eyes and heads of vestigial serpents; corresponding loose ends terminating in the innermost angles of the panels might be taken to be tails. These are the certainly the clearest and, perhaps, the only instances of incomplete interlace on the moulds. This observation tends to lend weight to the suggestion that the device is deliberate and zoomorphic although the identification has been questioned. Cable ropework is used to border interlace decorated panels in three instances. One of these has an inner border of plaitwork (**1094**). A herringbone border of plaitwork is used in what appears to be a badly damaged decorative panel. On this example the herringbone effect is created by two opposed cables either side of a central rib (**1218**).

The origins of the interlace represented in the Mote of Mark moulds appear complex. The designs are clearly related to pseudo gold filigree and granular work – a

cabled border imitating filigree is apparent on **1104** and **1094**, and the beading on, for example, **1103** and **1104** is clearly intended to imitate granular work. Similarly, the 'stitching' pattern border on **1094** can be seen as representing filigree work of the type encountered on the buckle from grave 68 at Sarre, Kent (Speake 1980, Pl.6f). The use of multiple borders at the Mote of Mark is also in keeping with the traditions of filigree jewellery making. The mounts cast at the Mote of Mark may, therefore, have been intended as versions of gold-decorated objects that might also have been made on the site, as attested by the gold coil and by the traces of gold droplets on two of the crucibles (see above). It is also possible that the bronze castings were finished by gilding, as was the case with the harness fittings at Sutton Hoo (mound 17: Carver 1998, 132–6, 183).

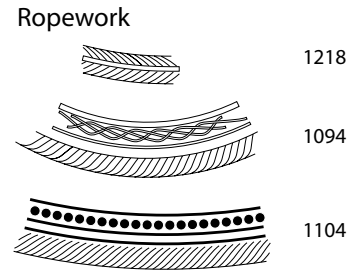
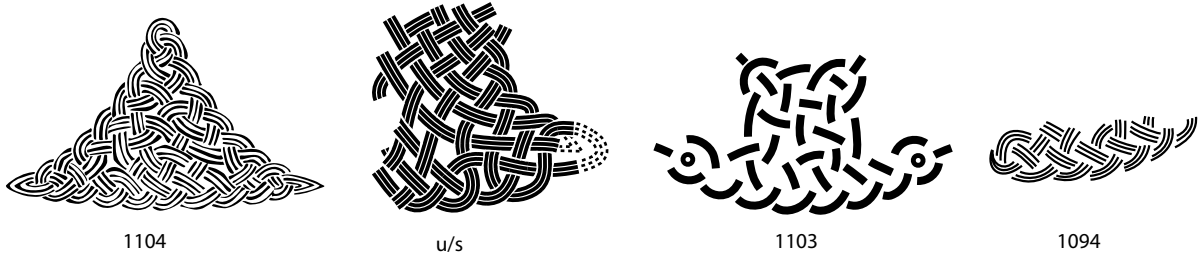
There is no evidence that interlace was developed independently in the Celtic areas out of earlier locally available patterns. With the exception of an interlace knot on the back of a penannular brooch from the Roman fort of Newstead, Roxburgh (Fowler 1960, Fig. 7), there are no examples of Romano-British interlace (more accurately, plaitwork) patterns anywhere in the north of Britain, although such patterns are encountered in mosaic pavements in the south, for example at Lydney, Glos (Wheeler & Wheeler 1932, Pl. XXII B). Importantly, however, a symmetrical plaitwork in filigree is encountered on a gold armet from Rhayadr, Powys, recently assigned to a British workshop. This bracelet has triple strand interlace, and a 'Celtic' derived pattern on the end (Cool 1986; Henig 1995, 91).

There is growing evidence that interlace developed in Anglo-Saxon England around the middle years of the sixth century independently of the development of filigree work, and it seems likely that this development of interlace lies behind its imitation in the Celtic world.

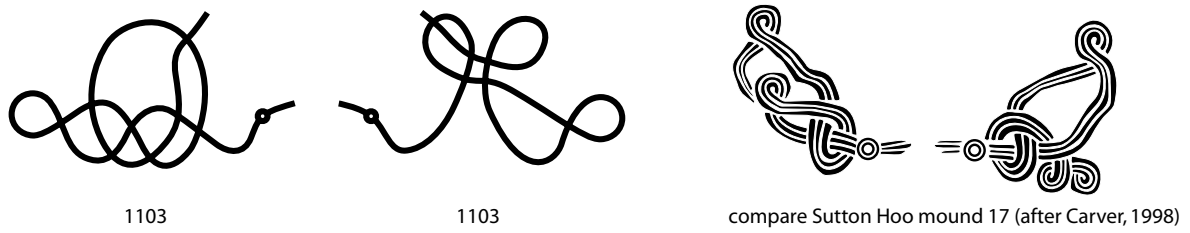
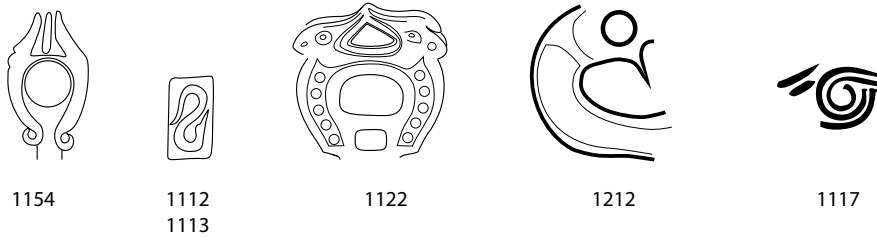
The use of a pellet to infill a loop of interlace and thought by one of us (LRL) to be represented on roundel **1103** is a device found in Anglo-Saxon England on a small group of square-headed brooches of the mid-sixth century. It does not seem to have been fashionable much later. These brooches, studied by John Hines, comprise those from Nettleton Top, and Ruskington, Lincs and from Thornborough, North Yorks, together possibly with a new find from Tothill, Lincs (Hines 1992, 320–1). On these brooches the interlace bends back on itself, as on the Mote of Mark moulds (Hines. loc.cit.). Hines has rightly stressed the essential difference between plaitwork and interlace, since the former does not bend back on itself (1992, 321).

The type of interlace represented on these brooches is not zoomorphic, and other examples of non-zoomorphic interlace of probable sixth-century date are known from England. Plaitwork is apparent on some pagan Anglian cremation urns, for example Spong Hill, Norfolk, no. 1797 (Hills 1981, Fig. 76). This type of design may owe its inspiration however to Scandinavian models – interlace

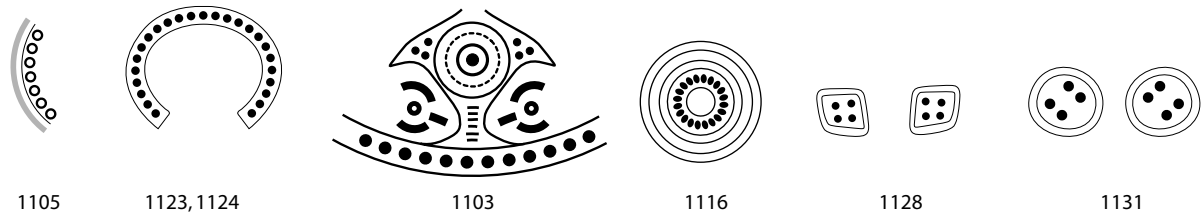
Interlace



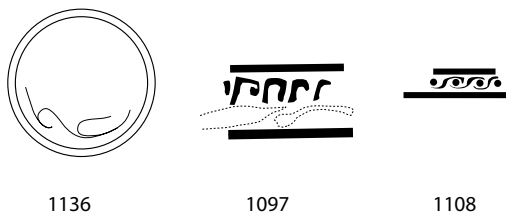
Zoomorphs



Pellets



Running scrolls



Peltas, deltas, sunbursts

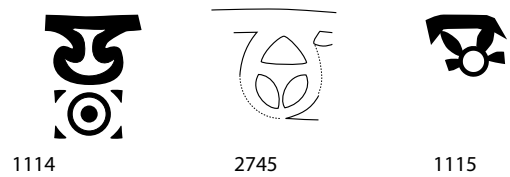


Fig. 57. An index of decorative motifs employed in moulds.

patterns are apparent on bucket pots in Norway from the late fifth century (Magnus 1984). More relevant perhaps than the ceramic models are those in metalwork. The classic Anglo-Saxon example is on the sword mounts from Coombe, Kent, which employs multi-strand interlace as well as zoomorphic features (Davidson & Webster 1967, 26). In their discussion of the Coombe sword mounts, Davidson and Webster drew attention to a number of other sixth-century finds with non-zoomorphic interlace, such as a pair of belt mounts from Bifrons, Kent (which has produced no seventh-century material) and a set of probable harness mounts from Eastry in the same county with three-strand interlace which they have dated to c.550 (1967, 30). They also discussed a number of other pieces with Style I ornament, in which the animal bodies are extended into interlace patterns, most notably on a disc from Chichester (op.cit. 31). Their overall conclusion was that the Coombe sword was made between 550 and 590 by a Kentish smith used to working in Style I but coming under the influence of Style II from the Frankish world (op.cit. 36).

In a discussion of the date of a hanging bowl print from Hadleigh Road, Ipswich, Christopher Scull argued that this example of triple-strand interlace, combined with red enamel and millefiori work, should be dated to the sixth century rather than later. He grouped with it a stylistically similar triple-strand interlace pattern on a disc mount from Hockwold-cum-Wilton (1985).

A feature shared in common between these pieces and the Mote of Mark interlace is the use of multiple strands (invariably three) to build up the individual ribbons. This is a feature of Continental metalwork of the second half of the sixth century, and has been seen as a precursor there of Style II zoomorphic ornament (Haseloff 1981, 594–7).

The development of non-zoomorphic and zoomorphic interlace on the Continent has been the subject of study by Gunther Haseloff (1981, 591–2). Cable ornament seems to have survived from the Roman period in Italy, where it occurs for example at San Clemente, Rome, and where it is datable to 533–5 (Haseloff 1981, 596). Haseloff has discussed the possible development of interlace on Lombard radiate brooches, notably one from gr.22 at Castel Trosino, on which both zoomorphic and non-zoomorphic interlace can be seen (1981, Fig. 433). Similar interlace is apparent on a brooch from Friedenskirche, Germany. Both are datable to the sixth century, as is the ornament on a radiate brooch from gr. 1803 at Krefeld-Gellep (1981, 644 and Fig. 450). In Haseloff's scheme, interlace developed around the middle of the sixth century under the influence of Roman traditions, and was transmitted to central Europe on Lombard brooches, to be taken up by the Franks and Alamanni (1981, 709). Haseloff saw such interlace as a contributor to Style II in Central Europe. A separate tradition saw the spread of zoomorphic interlace in Style II from Scandinavia, and interlace, both zoomorphic and non-zoomorphic, was to

be found in several regions in north-west Europe from the middle of the sixth century.

Many of the arguments concerning the date of the occurrence of interlace in Frankia have centred on the material from the supposed grave of queen Arnegunde at St Denis, which included Style II decorated garter buckles. Arnegunde is believed to have been born between 520 and 525. Roth has argued that the interlace is in keeping with the seventh century rather than the sixth (1986), and there is a growing consensus of opinion that the burial is no earlier than 590. James (1992, 249) outlines the various arguments.

It would seem possible, then, that interlace related in style to that found at the Mote of Mark was already in use on the Continent in the second half of the sixth century, and that it was taken up by artists in England during the same period. While it is, of course, possible that influences reached the West directly from the Continent, an indirect route, through Anglo-Saxon England, would seem more probable.

Filigree and granular work in Scotland

The development of filigree and granular work in Anglo-Saxon England may have been a result of growing contacts between south-eastern England and the Merovingian Frankish world in the later sixth and early seventh centuries. During this period gold was entering southern England in some quantity, mostly in the form of coin, and the composition of the gold in Anglo-Saxon jewellery closely matches the variation in the composition of the gold coins (Hawkes, Merrick & Metcalf 1966; Brown & Schweizer 1973). Filigree and granular work were both well established by the opening years of the seventh century, as attested by their occurrence in the Taplow, Surrey, burial, recently re-appraised by Webster (1992). There are a few pieces of imported filigree and granular work in Celtic Britain and Ireland – the most notable in Ireland is an elliptical piece, believed to be Anglo-Saxon, from the royal crannog at Lagore, from a primary context associated with E Ware which Hencken dated to the seventh century (1950, 86–7 and Fig. 23). Reappraisal of the chronology of Lagore would support this date (Warner 1986). At Garryduff, Co Cork, a tiny gold wren decorated with filigree appears to be a native product (O'Kelly 1962, 27–30), and has been dated by Whitfield to the seventh century (1987, 83). Of the other early pieces of filigree from the Celtic areas the gold and garnet stud from Dunadd appears to have come from a Kentish type of disc brooch, and has been dated to the earlier seventh century (Campbell & Lane 1993, 56; Lane and Campbell 2000, 150–1), while from Dalmeny, Midlothian, there is a gold and garnet harness pyramid in a style related to those from Sutton Hoo, for which an early seventh century date is perfectly feasible (Laing 1975c, 46 and discussion). Nearer the Mote of Mark, a pendant decorated with filigree was recovered from a midden at Tynron Doon, Dumfriesshire, for which, again,

the closest parallels are within the seventh century (Williams 1971). The Pictish penannular brooch fragment from the Croy, Inverness, hoard, has a central setting of garnet cloisonne work, a type of decoration not found in Scotland but current in later sixth and seventh century Anglo-Saxon England. The setting may be cannibalised from an imported Anglo-Saxon piece of gold and garnet work of the seventh century: the setting may be Pictish but copying an Anglo-Saxon original. Niamh Whitfield has drawn attention to the fact that the back plate for the filigree is set into the terminal of the brooch using rivets collared with a ring of ornamental wire, a device employed on the Hunterston Brooch from Ayrshire and on a sword pommel from Cumbria, now in the British Museum (Whitfield 1987, 82). In Scotland filigree and granular work are first apparent on the Hunterston Brooch and on brooches from Croy and from Dunbeath, Caithness. Stevenson saw the Hunterston Brooch as a product of around AD 700, produced as a direct result of Anglo-Saxon influence, perhaps by an Anglo-Saxon craftsman working for a Celtic patron (Stevenson 1974). Whitfield has drawn attention to the fact that the artist of the Hunterston Brooch employed a technique known as hollow-platform work that is also encountered on the 'Tara' brooch and on certain Anglo-Saxon pieces, notably a pair of buckles from Faversham, Kent (Whitfield 1987, 78). In a detailed discussion of the filigree of the Hunterston and 'Tara' brooches she has pointed out that the filigree on the Hunterston brooch is more sophisticated than on Anglo-Saxon and other Germanic prototypes while 'Tara' was made in a workshop where foreign elements had been more fully assimilated than they had in that which produced the 'Tara' brooch' (Whitfield 1993, 126). She has suggested in the same discussion a date of around 700 for 'Tara' and a date perhaps a generation earlier for Hunterston. If Hunterston is as late as the end of the seventh century, at least fifty years separate it from such items as the Faversham buckles, for by this period 'hollow platform' work and some of the other techniques employed on the Hunterston Brooch (such as the lacertines of filigree with head looped round a central pellet eye) were out of fashion in England. The main reason for dating Hunterston so late lies in the similarity of some of the animal ornament to that in the Lindisfarne Gospels, but there is no reason to suppose that the Lindisfarne creatures are created for the first time in that book. Indeed, there is growing evidence that the ornament of manuscripts followed metalwork rather than vice versa (e.g. Youngs 1995), and the Hunterston dragons compared to Lindisfarne Gospel ornament can be shown to have a respectable ancestry in earlier Celtic art (Stevenson 1955b, 108). A date nearer 650 than 700 for Hunterston, would fit in better with the rest of the evidence for developing filigree work in the Celtic world. We may conclude, therefore, that it is possible that filigree and granular work may have been introduced to Scotland from Anglo-Saxon England, perhaps during the early

seventh century. In this connection the probable Dalriadic origin of the Hunterston brooch has been discussed, as well as the role of Dalriada in the development of Celtic art of the 'Golden Age' (Laing 1993, 6–8; Laing 1995).

Pellets

The use of pellets – either singly; framed by circles; in groups of 3 or 4 or, most commonly, in rows framed by raised tramlines, constitutes the second most commonly occurring decorative device. They are presumably derived from granular work. Tramline and pellet combinations occur 3 or, possibly, 4 times as elements in the decorative borders of curvilinear panels (as discussed above in the context of gold granular and filigree work) and 4 times on the loops of buckles. Pellets grouped in threes are used in the angles between panels on roundel **1103** and pellets grouped in fours occur on the terminals of two penannular brooches. One of the brooches has square terminals (**1128**), the other has round terminals (**1131**).

Zoomorphs

Zoomorphic treatments are relatively rare. The vestigial serpent heads, thought to be represented on roundel **1103** have been mentioned above. Opposed beast-heads with gaping jaws decorated the loop of one buckle (**1122**); another pair of animals with open mouths and curly tails flank the knobbed head of a pin (**1154**). A boss-eyed bird or animal is employed as a motif on a curvilinear object (**1212**). The spiralling curves on mould **1117** are suggestive of a limb joint.

'Celtic ornament'

Little need be said about the limited repertoire of the Celtic ornament displayed on the moulds. It comprises peltas, running scrolls and concave sided triangle ornament, along with ring-and-dot. Running scrolls are used on 5 moulds. In three instances, these border rectangular panels of interlace. In one instance the scroll work is applied to the hoop of a buckle. In the remaining instance a running scroll borders a circular boss. Absent from the range are confronted trumpets, 'Durrow spiral' scrolls (unless **1117** incorporates one) or any of the more sophisticated decorative devices of classic early Christian period Celtic metalwork.

Conclusions

Interlace patterns, and their borders, at the Mote of Mark, while influenced by filigree and granular work, need not be seen as simply copies, but have affinities with other interlace work current in the late sixth and earlier seventh centuries in Anglo-Saxon England.

The moulds from the Mote of Mark are stylistically in keeping with a date of manufacture in the late sixth or early seventh century, which is compatible with the associated E ware and glass. Interlace of the type represented at the Mote was current in England from 550–575 onwards and provides a possible *terminus post*

quem for the Mote of Mark assemblage. In view of the use of the pellet infill only found in England in the sixth century, a date towards the end of that century may be

considered for the origin of the style.

The principal decorative components of the assemblage are summarized below in tabular form.

Cat	Context	Artefact	Interlace, tight unless specified	Zoomorph	Pellet	Circle, delta in circle, pelta	Running scroll	Ropework, plaitwork, tramlines
1206	1913 excavation	circular boss	three strand					
1116	1913 excavation	circular boss			row			
1136	1913 excavation	circular boss					running scroll	
1221	1913 excavation	circular boss						plaitwork
1139	1913 excavation	curv. panel	not classified					
1133	1913 excavation	curv. panel	single strand, loose					
1103	1913 excavation	curv. panel	single strand	serpentine	three, row	concentric circles		tramlines and pellet
1098	1913 excavation	curv. panel	single strand		single			
1099	1913 excavation	curv. panel	single strand					
1100	1913 excavation	curv. panel	single strand					
1109	1913 excavation	curv. panel	single strand					
1190	1913 excavation	curv. panel	single strand					
1211	1913 excavation	curv. panel	single strand					
2273	burnt timber at base of south rampart	curv. panel	single strand			interlocking circles		
1118	1913 excavation	curv. panel	three strand, loose					
1093	1913 excavation	curv. panel	three strand		row			
1094	1913 excavation	curv. panel	three strand					single cable rope, tramlines and plaitwork
1096	1913 excavation	curv. panel	three strand					
1101	1913 excavation	curv. panel	three strand					
1104	1913 excavation	curv. panel	three strand		row			single cable, tramlines and pellet
1105	1913 excavation	curv. panel	three strand		row			tramlines and pellet
1106	1913 excavation	curv. panel	three strand					
1107	1913 excavation	curv. panel	three strand					
1110	1913 excavation	curv. panel	three strand					
1134	1913 excavation	curv. panel	three strand					
1135	1913 excavation	curv. panel	three strand					
1212	1913 excavation	curv. panel		bird				
1119	1913 excavation	curv. panel			single			
1218	1913 excavation	curv. panel						herringbone
1225	1913 excavation	curv. panel				concentric circles		
1117	1913 excavation	panel		limb				
1095	1913 excavation	panel, rectilinear	single strand				running scroll	tramlines and running scroll
1097	1913 excavation	panel, rectilinear	single strand				running scroll	tramlines and running scroll

Cat	Context	Artefact	Interlace, tight unless specified	Zoomorph	Pellet	Circle, delta in circle, pelta	Running scroll	Ropework, plaitwork, tramlines
1600	1913 excavation	panel, rectilinear	single strand					
2374	occupation; earlier contexts	panel, rectilinear	single strand					
1108	1913 excavation	panel, rectilinear	three strand				running scroll	tramlines and running scroll
1111	1913 excavation	panel, rectilinear	three strand					single cable
1214	1913 excavation	panel, rectilinear	three strand					
2745	occupation, earlier contexts	panel, rectilinear				delta in circle		
1114	1913 excavation	panel, rectilinear			single	Single circle, pelta		
1115	1913 excavation	panel, rectilinear				sunburst		
1121	1913 excavation	penannular brooch			single	single circle		
1128	1913 excavation	penannular brooch			four			
1130	1913 excavation	penannular brooch				concentric circles		
1131	1913 excavation	penannular brooch			four			
1154	1913 excavation	pin(s), head		opposed heads				
1142	1913 excavation	strap fitment	single strand, loose					
1122	1913 excavation	strap fitment		opposed heads	row			tramlines and pellet
1112	1913 excavation	strap fitment		serpentine				
1113	1913 excavation	strap fitment		serpentine				
2000	unstratified	strap fitment		serpentine				
1123	1913 excavation	strap fitment			row			tramlines and pellet
1124	1913 excavation	strap fitment			row			tramlines and pellet
1127	1913 excavation	strap fitment			row			tramlines and pellet
1132	1913 excavation	strap fitment					running scroll	

7 Discussion and Synthesis

The background: South-West Scotland in the sixth and seventh centuries

Sally Foster has commented that 'It is not true any longer to state as Henderson did in 1967, that the Picts are 'quite the darkest of the peoples of Dark Age Britain'. This is a cap which...I would pass to the Britons of Strathclyde' (1997, 14). She might well have extended the honour to the whole of south-west Scotland. The Mote of Mark is significant in that it is the most extensively excavated secular site in south-west Scotland at which occupation can be dated to the sixth and seventh centuries, a period in which the native population saw increasing influence and control being exercised by the Angles of Bernicia. To understand the evidence presented by the excavations at the Mote of Mark, it is necessary to review what little is known of Galloway in the period of the Mote's occupation.

Galloway is a blunt wedge protruding from the western seaboard of mainland Britain. Inland, its rugged hills, moorland and lochs, typical of the Scottish border country, send rivers south to meet the Solway at deeply indented estuaries. The coastal lands are good farmland, particularly on the Solway Plain near Carlisle. In the far west the promontory terminates in the twin headlands of the Rhinns. The particular topographic and locational characteristics of the district have, at times, contributed to a certain isolation of the region from adjacent areas of mainland Britain while, at the same time, permitting access to a wider world of connexions through the medium of the western seaways. Ulster is 35km to the west across the North Channel; the Isle of Man is 30km to the south.

The map of archaeological discoveries of the fifth to eighth centuries in south-west Scotland remains little changed since the Mote of Mark was re-investigated in 1973, and most of the recent finds relate to an increased understanding of the activities of the church rather than secular society. The ecclesiastical evidence has recently been reviewed by Smith (1996), who has pointed out that despite the fact that Galloway can be seen as the 'cradle of Christianity' in Scotland, there was a strong pagan survival in eastern Dumfriesshire in the sixth century, as attested by the *Life* of St Kentigern (1996, 24). The dominant element in the population in the period during which the Mote of Mark was occupied was the Britons, though arguments have been advanced for the presence of both Irish settlers and Picts in Galloway, as well as the Angles of Bernicia.

Settlement patterns (Fig. 58)

The settlement pattern, as currently understood, in late prehistory, is to a large extent a reflection of the priorities of active fieldwork. Recent work by the RCAHMS has increased the previously recorded density of enclosed settlements in eastern Dumfriesshire by 40% for example (Cowley 2000; RCAHMS 1997, 118–161). Nevertheless, certain patterns may be discerned which may be thought to have some validity. There is, for example, a clearly greater and consistent density of settlement, represented by circular and rectangular enclosed farms and forts, in Liddesdale, Annandale and Nithsdale to the Dee than further west. Beyond the Dee there would appear to be localised significant concentrations of enclosed settlement on the west side of the Machars headland and on the isthmus of the Rhinns and a string of coastal forts on the west side of the Rhinns and the southern tip of the Machers. The great majority of these settlements are undated but most are considered to have originated in the later first millennium BC on the analogy of other Borders settlements (Cowley 2000). Some, however, show indications of continuity into the early centuries AD, an observation equally applicable to fortified sites (for example: Castle O'er, Mercer, forthcoming). Others show evidence of early Medieval activity (for example: Trusty's Hill, (Thomas 1961) Tynron Doon, (Williams 1971) while the Mote of Mark was clearly defended for the first time in the late sixth or early seventh century AD.

The pattern of Roman military advance into Scotland might be considered to have by-passed Galloway. On the other hand, a closer inspection of the correlation between the military roads, temporary camps, garrisoned forts and the distribution of British settlement, suggests that the divided route between Birrens and Crawford, the outlying auxiliary fort at Glenlochar on the Dee and the detachment at Gatehouse of Fleet, effectively locked up the areas of concentrated population. The significance of this observation is that the Roman military dispositions of the first and second centuries, although not all contemporary, provide a confirmation of the continuity of population density in certain areas which may well continue to have validity for the succeeding centuries (Fig. 58).

The significance of western Galloway at an early period is suggested by the listing in Ptolemy's *Geography* of two 'cities' (Gk. *Poleis*) associated with the Novantae. The cities are Rerigonion and Lucopibia. Rerigonion derives from Celtic **Rerigonio* meaning 'a very royal

place'. It has been equated with Pen Rhionydd or Penrhyn Rhionydd 'in the North', one of the three tribal thrones of Welsh bardic tradition (Watson 1926, 34; Bromwich 1978, 4). The location is thought to be on Loch Ryan, on the strength of Ptolemy's Rerigonion Gulf, which, together with the equation of the peninsula and promontory of the Novantae with the Rhinns and Mull of Galloway, places the 'city' and, in part, the people, at the western extremity of south-west Scotland. Rivet and Smith favour Stranraer as the location of Rerigonion, but, if the Welsh association is correct, the place ought to be on a headland (Rivet and Smith 1979, 447). The second 'city' of the Novantae, Lucopibia or * Leucovia, should, on the basis of Ptolemy's co-ordinates, lie between the Dee and the Rinns. Whithorn (Candida Casa) has been considered a possible candidate for the location or to have derived its name from it. The Celtic element *Leuco* is closely translated by the Latin Candida – white, bright, radiant (Rivet and Smith 1979, 388–390; Hill 1997, 27). Rivet and Smith's preference for Glenlocharron would seem to rest on an assumption, not necessarily correct, that the location is likely to be a Roman fort (Rivet and Smith 1979, 390). Cowley has suggested that Ptolemy's identification of the Novantae, in the second century AD, provides a context of socio-political organisation against which background the documented kingdoms of the first millennium AD evolved (Cowley 2000).

On the strength of the, admittedly unproven, associations outlined above, there would seem to be no clear evidence for suggesting that the territory of the Novantae extended further east than the Dee. Furthermore, the pattern of settlement distribution and the identifiable evidence for Roman intervention in south-west Scotland might be used to support the hypothesis that two distinct populations are represented on the north Solway coastline. The boundary of differentiation is, approximately, the Dee (Fig. 59). If this hypothesis should be accepted, then it might explain why a seemingly important political centre, remembered in early Medieval Wales, does not figure in the literary tradition which developed around the royal house of Rheged in the way, for example, that Aberffraw is central to the symbolism of kingship in Gwynedd. In other words, Rheged may not have extended to the Rhinns. (For the early literary tradition concerning Rheged see, among others, I. Williams 1960, trans. J. E. C. Williams 1968; I. Williams 1935; for Aberffraw see Bromwich 1978, 3, 228–9, 235).

Territorial and administrative divisions

Hill has discussed the potentially significant Gaulish contribution to the development of Christianity on the Machers and the Rhinns. This association must be relevant to any consideration of the long distance trading connexions represented by the glass and ceramics at

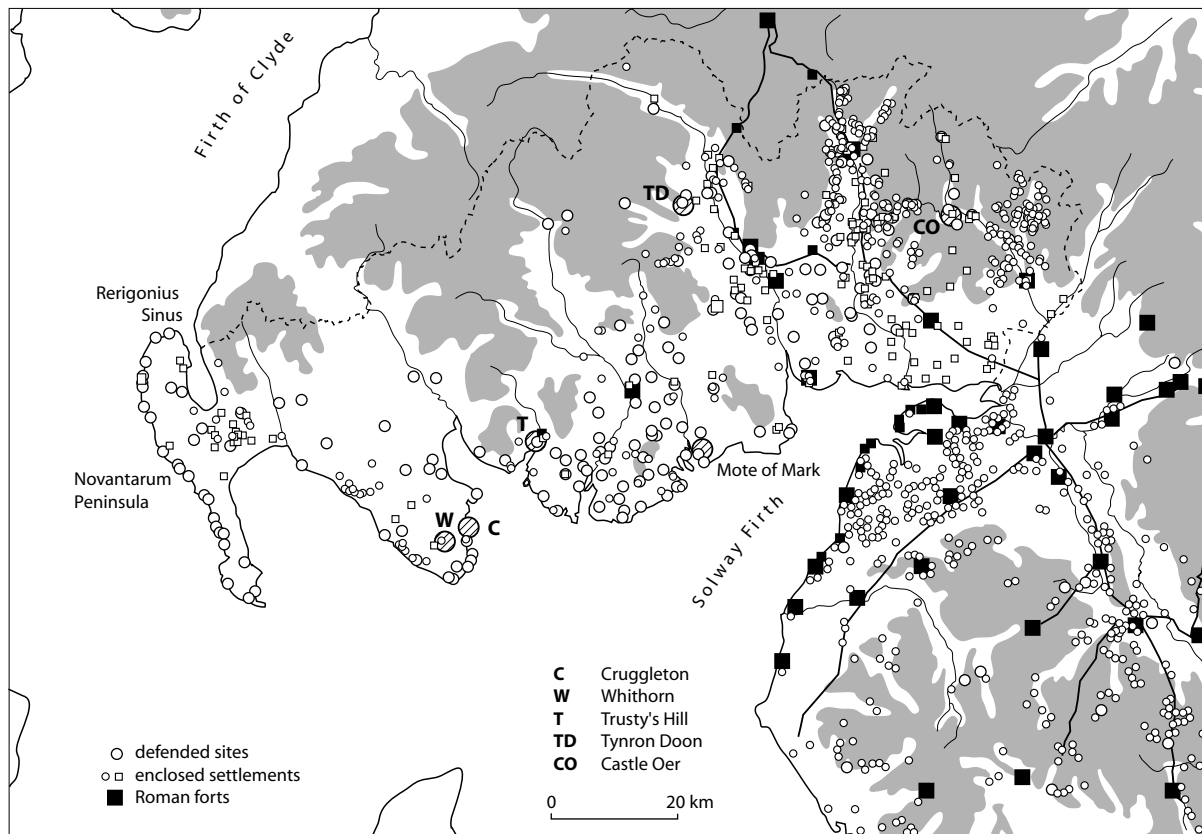


Fig. 58. Settlement patterns in south-west Scotland in late prehistory and the early historic period.

Whithorn (Hill 1997, 11–12). Hill has further developed the argument that the major ecclesiastical centres, episcopal monasteria, may have operated within relatively small territories or paruchiae linked to the centres of secular power, themselves integrated within these trading networks (Hill 1997, 13–14). A limited number of such secular power bases may be identified between Liddesdale and the Rhinns on the basis of the association of fortification and early Medieval artefacts or radiocarbon dates. The associations, however, are for the most part circumstantial and the power must not necessarily be presumed to be regalian. Nevertheless, the possible contenders are Castle O'er, Eskdale, Tynron Doon, Nithsdale, Trusty's Hill, Gatehouse of Fleet, close to Fleet Bay, Mote of Mark, Rough Firth at the estuary of the Urr Water, Cruggleton on the east coast of the Machers and the apocryphal Pen Rhionydd on Loch Ryan. The data is lamentably incomplete and will not support analysis. When further information becomes available, however, we may well begin to perceive, as Hill has in the context of Whithorn, a territorial organisation, based on units smaller than the kingdom within which the business of secular power and religious responsibilities can be seen to operate. The boundaries of such territories are likely to be determined by topographic features and other landmarks and may include a cross-section of the landscape in terms of land use. In Wales such a unit would be known as a *cantref*. This concept underpins the theoretical model of Welsh land organisation represented in *Cyfraith Hywel*, (Jenkins 1986, 120–2; Longley 1997, Fig. 4.1) and although the *cantref* had become an archaic unit in Wales by the twelfth century and had been superseded for administrative purposes by its subdivision, the commote, there are strong indications that, in an earlier period, the *cantref* was a practical, rather than simply theoretical framework for administration. In early Gwynedd each *cantref* had access to the coastline; the boundaries were predominantly upland watersheds permitting river valleys to be included within these territories. Occasionally, major rivers would delimit *cantrefi*, or provide subdivision within them. That such territories could exercise a degree of autonomy or have originated as small independent kingdoms is indicated by the history of Rhos on the north coastline of Wales. In the sixth century Rhos is said to have been ruled by Cynlas, cousin of Maelgwn, king of the adjacent Gwynedd, west of the river Conwy. When Rhos emerges into the clearer light of a later history it can be seen to have become a *cantref* of greater Gwynedd and to be subdivided into three constituent commotes, each with its commotal centre or administrative power base (W. *maerdref*). It may plausibly be argued that each of the *maerdrefi* of Rhos originate in, or on, the site of a hillfort. The forts are Dinorben (commote: Is Dulas), Bryn Euryn (commote: Uwch Dulas), Deganwy (commote: Creuddyn).

Peopling the landscape

That something close to the concept of the *cantref*

pertained in north Britain in the sixth and seventh centuries is indicated by the listing of levies in *Senchus fer nAlban* (Bannerman, 1974, 27–157) The document contains many ambiguities but does seem to represent a basis of assessment for dues and military service in Dalriada in the seventh century (Bannerman 1974, 154–5). As such it may be compared with the Anglo-Saxon Tribal Hidage which, Higham has recently argued, was a tribute list emanating from Edwin's Northumbria (Higham 1995, 76–99). It is also of relevance that Bede, after describing Edwin's overlordship in Anglesey and Man, was able to account for the carrying capacity of the two islands in units of measure described as the 'lands of one family' (HE.II.9).

The significance of the *Senchus fer nAlban* for our present purpose is that, firstly, the regions of Dalriada are described in terms of the *Cenela*, kindreds or major lineages of the kingdom, secondly, that Islay, held by the *Cenel nOengusa* appears to be described as a *cet treb*, a term cognate with Welsh *cantref* and that, thirdly, groups of houses which form the basis of the assessment seem in some instances, to have been allocated in incremental multiples of five to certain leaders (Bannerman 1974). The *tref* (literally one-hundredth part of a *cantref* and *cet treb*, both of which may be translated as 'one-hundred-settlements') would seem originally to have signified an individual holding. Gradually, in Wales, it came to represent a convenient unit of taxation and to comprise the holdings of a number of individual tenants, often, but not always, linked by a commonality of kin or tenure. In seventh century Dalriada, and probably in Wales too, the *treb/tref* still represented the settlement nucleus of a freeholding head of a family. In Wales, this concept would come to be described as the *gwely* – the homesteads and inalienable land, identified by the common descent of the heirs to that land (Jones 1996) although in time, the division of inheritance among male heirs to the *gwely* would cause fragmentation of the land and the multiplication of holdings. In Ireland a phrase used to describe the five-farms in clientship that constituted the property qualification of the lowest grade of nobleman lord was *coicthreb* (five-farmsteads). The clients in question would be freemen farmers (Ir. *Boaire*).

In Anglo-Saxon England a nobleman's property qualification might be defined as five hides; a normal freeman farmer's property would be recognised as one hide. The relationship is, in its theoretical manifestation, strikingly similar to that of the Irish lord and his client. Bannerman has suggested that the association of multiples of 5 'houses' with certain leaders of the *Cenel Loarn* in Dalriada is a statement of that relationship. We might be tempted to pursue this argument further and see, in a Welsh context, the theoretical hierarchy of *maenol* (the territorial definition of the estate of a lord) and *tref*, within the *cantref*, as an echo of a similar basis for assessment in an earlier period when *gwestfa* (hospitality) was levied on the *maenol* and provided by the lord, in

kind, for his king as a mark of the lord's status (Jenkins 1986, 121–2). It is clear that a Welsh king, as a major lord, had bondmen who provided him with seasonal food renders and estate workers who tilled the fields of his estates (Jenkins 1986, 124–6, 128–9). Equally, there are numerous oblique references in thirteenth and fourteenth century royal surveys to the bondmen of freeholders and it is clear that a substantial infrastructure of bond holdings underpinned the free townships and hamlets and had probably always done so. Some of these bondmen held their land under the restrictive tenancy of *tir cyfrif* which is generally indicative of tied estate workers (Ellis 1838 *passim*; Carr 1971–2 *passim*).

The *cet treb* of Islay had a territorial definition, as did the *cantrefi* of Wales. This particular *cet treb* could also be defined by its dynastic affiliations; it was in the hands of the Cenel nOengusa. It may be that the co-incident of dynastic and territorial association is a recurrent characteristic of the *cet treb/cantref*. The size of such units is likely to be determined by considerations of geography, environment and productivity. Islay, for example, extends to 600 sq km, supported between 350 and 430 taxable settlement units and could be described as one *cet treb*. Anglesey, to take a Welsh example for which near contemporary data is available, extends to 715 sq km, supported 960 taxable settlement units and comprised three *cantrefi*. The determining characteristic of overall size would seem to be carrying capacity and, by extension, population density. The populations in each *cantref* are broadly similar in this example at between 300 and 400 units per *cantref*. The physical extent of the *cet treb* on Islay is, however, 2–5 times that of each of the Anglesey *cantrefi*. The determinant of carrying capacity is even more clearly evident on Man. Bede described Man as less fertile than Anglesey with a carrying capacity of rather more than three hundred taxable units (HE II, 9). If, on this assessment, Man, like Islay, could be considered to be the equivalent of a *cantref*, then its physical extent, and its taxable population, is very close to that of Islay but, like Islay, occupies an area close to 2.5 times that of an Anglesey *cantref*. It is tempting to hypothesise the former presence of such territorial and dynastic units, focussed on the major river valleys and their estuaries underpinning the political and social geography of early Medieval settlement along the north Solway coast.

In summary, the evidence for levies of dues, tribute or men in Scottish Dalriada, Anglo-Saxon England and Wales in the seventh century suggests an organised landscape capable of assessing and collecting these obligations, within a hierarchical framework, across the cultural areas involved, in a broadly comparable way. The unit of taxation would seem to be the family farm of the established freeholding farmer. Bond tenants and tied estate workers seem not to be included in the reckoning. Nevertheless, while the index would seem to be the individual freeholder referred to under some term

of assessment such as *tref*, *gwely* or hide, collection may have been at the level of the great estate (*W. maenol*) or lords in respect of their clientele. Larger units of subdivision existed within kingdoms for administrative purposes (read tax) and in the west in the seventh century the scale of such units would seem to have been the *cantref*. It is unclear at what stage the subdivision of the *cantref*, the *commote*, came into existence. It is equally unclear whether fortifications need to be royal in this early period. They would, however, undoubtedly signal lordship and be integrated within the network of dynastic associations.

Rheged (Fig. 59)

The appearance of kingdoms in the historical record is a feature which characterises the fifth to seventh centuries in this area, and the pattern in general terms is one of smaller kingdoms coalescing into larger, with short-lived power bases dependant on the success of individual potentates and their war-bands, *Gwyr y Gogledd*, the Men of the North. It has frequently been assumed that by the sixth century the coastal region of south-west Scotland had come within the boundaries of the kingdom of Rheged. Higham has suggested that Rheged was a late sixth century kingdom focussed on the Lake District of Cumbria, and was based on the former tribal territory of the Carvetii (Higham 1986, 252–3). It is often asserted that the capital of Rheged was Carlisle (e.g. by Chadwick 1963, 159), but the evidence for sixth-century Carlisle is limited (Cramp 1995, 4 summarizes) and as Higham and Jones have pointed out, given the peripatetic nature of early kingship, it is likely that there were several centres. One might have been near the Lyvennet Beck, Crosby Ravensworth, Cumbria (Higham and Jones 1985, 133).

The early Medieval kingdom of Rheged is an elusive concept. The evidence is ambiguous and largely dependent on an acceptance of the historicity of the literary record (Dumville 1988, 3; Koch, 1988). The existence of Rheged is supposed from a nucleus of early Welsh poetry contained in the thirteenth century manuscript collection, the Book of Taliesin (Williams 1960, trans. Caerwyn Williams 1968) and from the survival of a tradition centering on the principal characters associated with Rheged preserved within verse monologues of the ninth century (Williams 1935; Williams 1980). There are also a handful of place-name associations which deserve consideration. Among 60 or so poems collected within the Book of Taliesin, mostly originating in the period between the ninth and twelfth centuries, Williams identified a core of genuinely early material. These, in Bromwich's estimation, have a claim to be regarded as representing the authentic work of the bard (Bromwich 1978, 517).

The *Historia Brittonum* synchronises the floruit of Taliesin with the reign of Ida of Northumbria and, by implication, with that of Maelgwn Gwynedd (HB. 61, 62; Dumville 1993, III, 7), that is to say, the mid sixth century. Much, but not all, of this ostensibly sixth century poetry

is addressed to Urien the king and his son Owain. Urien is described as ‘Urien *Rheged*; Rheged’s defender, famous lord and anchor of his land; Lord of Rheged’. Owain is similarly described as ‘Lord of Rheged’ (Williams 1960, BT 57, lines 13, 14; BT 56, line 27; BT 67 line 3). Urien is described in *Historia Brittonum* as one of four kings who fought against the sons of Ida. Theodoric is singled out as the particular adversary of Urien and his sons (HB 64). If this association is historically accurate, then part of Urien’s active career, and possibly his fatal final campaign, fell within the 570s.

Those poems in the corpus attributed to Taliesin which directly concern Rheged embody around two dozen names indicative of geographical locations (Table 34). Some occur only once, others more frequently. Some are descriptive of the king, his people and their homeland, others describe adversaries and the location of battles. In only a small number of instances can these names be confidently associated with known locations. Proportionately, names associated with the king and homeland of Rheged are the most frequent with 10 places receiving a total of 28 mentions in the poems. Eleven battles or campaigns are mentioned a total of 16 times.

Apart from the names of individuals such as Fflamddwyn, ‘the torcher’, the peoples against whom Rheged fought receive a total of 4 mentions. In a very small number of instances place names occur in contexts of uncertain status. These place names, their context, status and possible locations are listed in Table 33 and plotted on Fig. 59. References are to Sir Ifor Williams’ edition of the manuscripts (1960).

It is clear that Rheged lay among the northern kingdoms, that is ‘north of the Humber Sea’ as *Historia Brittonum* might have put it (HB, 61). Urien was the golden king of the North (Williams 1960 iii, 26). The people of Rheged were Britons, in alliance with Britons (viii.26; vii, 31). Their adversaries were the English or, more specifically, the Anglians (x, 13; vii 25) although there were campaigns in other territories. The identifier, Rheged, is the most commonly occurring territorial term in the poems (8 times). However, Urien’s men could also be described as the men of Catraeth and their king as lord of Catraeth. Urien was also known as lord of ‘the fair land of Erechwydd’. Argoed, Arfynydd, Llwyfenydd, Eirch and Goddau all appear to have been regions within the kingdom.

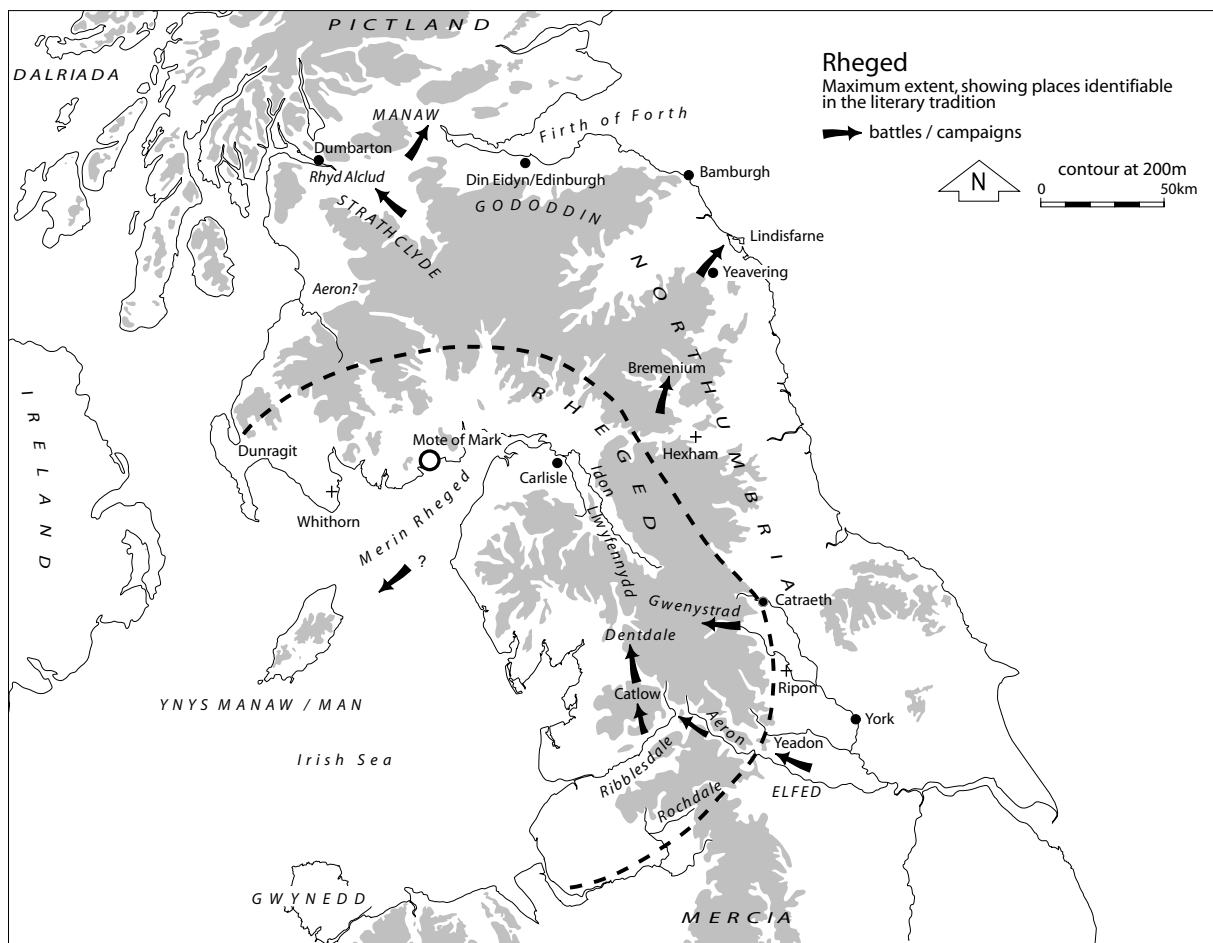


Fig. 59. The Mote of Mark in relation to the historic kingdom of Rheged and its literary evidence.

<i>Name</i>	<i>No. of occurrences</i>	<i>Interpretation/ Location</i>	<i>Context</i>
<i>Rheged</i>	8	The land of Rheged	Urien and Owain as lords of Rheged; Epithet of Urien; 'People of Rheged'
<i>Catraeth</i>	2	Catarractonium (Ptolemy), Cataractam (Bede). Catterick, on the Swale, Yorks.	The men of Catraeth (Urien's men); the lord of Catraeth (Urien) (ii.i; viii.9)
<i>Erechwydd</i>	4	'land of the fresh waters' Location uncertain but equally descriptive of the Lake District as of the cataracts on the Swale,	The lord of Erechwydd, Urien Erechwydd, most fair land of Erechwydd (ii.i; 18, 19; vi.13)
<i>Goddau</i>	2	Uncertain, a forested place	Goddau and Rheged are mustering (vi.4; vii.44).
<i>Dyfwy</i>	2	Possible place names, uncertain location	Mentioned in connection with the mustering of the armies of Goddau and Rheged (vi.5; viii.34)
<i>Argoed, Argoed Llwyfein</i>	3	The region named after Llwyfein Wood. Possibly in or next to Llwyfennydd	Mentioned three times in the context of a battle (vi.5, 20)
<i>Arfynydd</i>	1	'The region by the mountains'. Uncertain location	The army of Rheged mustering from Argoed to Afynydd (vi.5)
<i>(Gwyr) Prydein</i>	2	Britons	The Britons caused destruction in the hosts; British lord (11.6; vii.31)
<i>Llwyfennydd</i>	5	A region, perhaps taking its name from elm woods possibly the Lyvnet valley	The rightful king of Llwyfennydd; Llwyfennydd's lands, mine are their riches; Splendid lord of Llwyfennydd (vii.19; iv.21; viii.27; ix.10; x.8)
<i>Gododdin</i>	1	The land of Gododdin, the former territory of the Votadini (Ptolemy) on the east coast from the Forth to the Tyne	A reference to someone from the land of Gododdin (vii.16)
<i>Rhyd Alclud</i>	1	The ford of Alclud, near 'the rock on the Clyde', Dumbarton. Stronghold of the Strathclyde Britons	A battle at Rhyd Alclud (vii.21)
<i>Brewyn</i>	1	Bremenium (Ptolemy) one of the 'cities' of the Votadini. Roman fort of High Rochester on Dere Street	A battle at the barracks of Brewyn (vii.22).
<i>Katlew</i>	1	Catlow?	A battle at the Copse of Catlow (vii.23).
<i>Pencoed</i>	1	Uncertain place name - head, or end, of the wood	Battle at Pencoed (vii.25)
<i>Eigyl (Eingyl)</i>	2	Angles	The Angles are without protection. To go to resist the Angles. (iii.20; vii.28)
<i>Lech Wen</i>	1	Gwên's stone. Not located	Site of a battle (ii.29).
<i>Lloegr Lloegrwys</i>	2	Lloegr; the men of Lloegr. England, the English	Englishmen killed and homesteads burnt by Urien; 'The wide host of England sleep with light in their eyes' killed at the hands of Owain' (iii.9; x13).
<i>Eirch</i>	1	Speckled, dappled ?sparkling, ?glistening. River name, or district. Not located	The people of Llwynfennydd and the whole of Erch are united (iv.21).
<i>Mathreu</i>	1	A place name. 'The settlement on the plain'. Not located	A place where a battle had not gone well for the men of Rheged (vii.5).
<i>Powys</i>	2	Possibly a reference to the territory in eastern Wales	'with armies in Powys'; next to, bordering Powys? (vii.14; viii.33).
<i>Gwen Ystrad</i>	2	A valley or strath. Possibly Wensleydale.	The campaign base of the battle leader. A place of battle at a river crossing (11.7, 15).
<i>Idon</i>	1	A very obscure reference to a possible <i>Idon</i> – the river Eden (Ituna, Ptolemy).	A possible, but obscure reference to 'the plentiful wine of Idon' in the context of a battle at a river crossing in Gwên Ystrad.
<i>Gogledd</i>	2	The North, the territory of the north Britons.	Golden king of the north, supreme ruler. The poet is unwilling to return to the north for the sake of kings of lesser stature than Urien (iii.26; ix.7)
<i>Brython</i>	1	Britons	Very powerful was Urien in the British alliance (viii.25).
<i>Mynaw</i>	1	Manaw (Manaw Gododdin, on the Forth, or the Isle of Man)	A campaign to Manaw for 'more wealth' (v.6).

Table 34. *Rheged place-names in the early Taliesin poems.*

The most certain of these identifications is Catraeth. The name is first documented by Ptolemy where Caturractorium may be taken from the British *Caturactorion (battle ramparts), soon to become Latin Cataracta by association with the nearby rapids on the Swale (Rivet and Smith 1979, 302–4) and applied to the Roman fort and town of Catterick, Yorkshire. Dumville, following Alcock, has objected to an association of Urien with Catraeth on the grounds that Catterick (the Roman site) had been in English hands from the second half of the fifth century (Dumville 1988, 3). A recent assessment of the totality of evidence, however, suggests, as we might expect, that a more complex situation prevailed. Firstly, much of the Anglian material appears to be sixth rather than fifth century in date (P R Wilson *et al.* 1996, 51). Secondly, it is not possible to exclude the possibility of a population of mixed cultural associations. On the basis of the dispersed pattern of Anglian material, the area was either ‘under Anglian dominance or, more probably, the Anglian settlement pattern was integrated with that of the indigenous population’ (Wilson *et al.* 1996, 54). However this may be, if the plain had been lost to Anglian settlement, it remains conceivable that the Pennine valleys were still held by Rheged and that the name Catraeth was retained regionally. Regional centres and their territories could share the same names and an emotional and symbolic association may have attached to what had become a border region. Elfed, to the south, retained some measure of independence into the reign of Edwin. In the 670s Wilfrid celebrated the consecration of his church at Ripon by recalling lands from Dentedale to Airedale which the British clergy ‘fleeing from our own hostile sword’ had deserted (VSW, cap 17). Smyth has noted a certain immediacy in Stephanus’ text which led him to suggest that the dismemberment of Pennine Rheged had occurred relatively recently (Smyth 1984, 24).

An occurrence of Rheged in a later poem in the Book of Taliesin allows the possibility that the Solway was known, in the early Middle Ages as ‘the Sea of Rheged’ (W. *Merin Rheged*; BT 78, 15). The context is the phrase ‘*tra merin reget*’ – across the sea of Rheged. If we can accept this association then the boundaries of Rheged must have marched with one, if not both, shores of the Solway. Ptolemy tells us that the territory of the Brigantes stretched from sea to sea (Geography II, 3, 10; trans. Rivet and Smith 1979, 141). It does not seem inconceivable that the early historic kingdom inherited some of the territorial integrity of Brigantia. Further, it seems particularly appropriate that the dynasty of Urien retained, as a defining epithet, a link with the Pennine edge at Catraeth where the Tees and the Swale leave the high ground for the plain close to where the tribal oppidum of Stanwick formerly stood.

Llwyfenydd is referred to five times. Urien is the rightful king and splendid lord of Llwyfenydd. The Lyvennet which flows into the Eden near Penrith may

preserve the name of the district (I Williams 1960, xxix; trans. J E C Williams 1968, xlv).

Of the eleven locations of battles or campaigns, no convincing interpretation can be offered for four of the named places. Nevertheless, the remainder allows, with varying degrees of confidence, some estimation of the wider interests or ambitions of Rheged during this period. Taliesin, if we may believe it, sings of battles at Rhyd Alclud, a ford on the Clyde near Dumbarton rock; at the *cellau* of Brewyn, the ruined structures of the Roman fort of Bremenium (High Rochester) on Dere Street and of a campaign to Manaw Gododdin, or possibly the Isle of Man, to gather riches. We are also told of Urien protecting or defending in Aeron. This could be in Ayrshire, against aggression from the north or, conceivably, closer to home, against incursion on the border of Elfed in Airedale. This latter engagement pulls into sharper focus a reference to a battle at the copse of Catlow (W. *kat ymprysc Katleu*, Williams 1960, 7, vii.23). If this can be equated with the Catlow listed by Wilfrid among other lands forcibly wrested from the British, including Yeadon in Airedale, then Urien was protecting or defending his homeland on its south-eastern border (VSW, cap. 17).

There would seem, also, to have been battles within Rheged. Fflamddwyn, the ‘flame-bearer’ or ‘torcher’, attacked with four armies, demanding hostages. Fflamddwyn and his men are described elsewhere as English (Williams 1960, X, 11–14) and Owain as the scourge of the eastlands (Williams 1960, vi.9 note). Men of Goddau and Rheged from Argoed as far as Arfynydd mustered at Dyfwy. The battle, fought at a defended location, was known as the strife of Argoed Llwyfain. At Gwen Ystrad a river crossing was defended against ‘border-crossing armies’ by ‘a thin rampart and lone, weary men’ (Clancy 1970). There is an oblique reference to ‘the wine of Idon’ which may be taken as a metaphor for a river running red with blood. The location is unknown but Gwen Ystrad means the Strath or wide valley of Gwên, perhaps marked by Llech Wen (the stone of Gwen) (Williams 1960, II notes). Wensleydale is a possibility. Idon may be the river Eden (Ptolemy’s Ituna: Rivet and Smith 1979, 380). The two valleys are not the same although Wensleydale gives access to the Eden over Mallers Common.

Finally, there are two place names that appear to incorporate the element Rheged. One, Dun Reichet (modern Dunragit), overlooks Luce Bay, close to the Rhinns of Galloway. The other, Recedham (modern Rochdale) is in the southern Pennines. Dun Reichet is an Irish name, first attested in the ninth century martyrology of Oengus (Bromwich 1978, 518). Recedham occurs in Domesday book (eleventh century). Both names may embody that characteristic of being descriptive as viewed by outsiders. For example, as Dun Breatann, ‘fort of the Britons’, (for Dumbarton) was applied by the Scots to describe Allt Clwyd, ‘the rock on the Clyde’, so Dun

Rheged may have been applied to a fort on the margins of Rheged. If Dunragit and Rochdale are indicative of genuine Rheged names, they must be considered to be at the very furthest extremities of Rheged territory (Fig. 59). There is, however, another possible explanation for the name of Dunragit. It may in fact incorporate the word *gwaragedd*, 'women', and the name may mean 'fort of the women' or 'fort of the hags'. The same placename element is encountered in Cumbria in the name *Raswrajet* (Armstrong, Mawer *et al.* 1950, 103). If this is the case, the entire argument that Rheged extended into the Rhinns loses much of its strength. This would throw into doubt the suggestion made by McCarthy that Rheged was confined to the Rhinns of Galloway, and that it originated in the pre-Christian tribal organization of the Novantae (McCarthy 2002). His argument hinges to a large extent on the significance of the placename, and without it there is no firm evidence to support it.

The balance of evidence, if we can accept the poetry as contemporary, or near contemporary, testimony, would suggest that Rheged once occupied a considerable swathe of the central Pennines with core settlement areas in the valleys of the major river systems flowing north west to the Solway and east to the Pennine edge. One of Urien's epithets was 'lord of the fair land of Erechwydd' which might be translated as 'the fresh-water country'. It is possible that the distinctive regional names, Argoed, Arfynydd, Llwyfenydd, Erechwydd, etc., represent administrative units, comparable to the *cantrefi* discussed above (p.160). Argoed and Arfynydd, for example, are referred to in the context of the mustering of armies which brings to mind the regional basis of the army and navy levies represented in the *Senchus Fer nAlban* (Bannerman 1974, 27–156). These names have the topographically descriptive qualities found in better documented *cantrefi* in Gwynedd, in North-west Wales, where *ar-* as a prefix (meaning over-by or hard-against) or *-ydd* as a suffix occur regularly. Rheged may have inherited much of the core of Brigantia. However, by the sixth century, Anglians were pressing from the east and on the southern boundary along the Aire and Ribble to Dentdale. It is possible, but not certain, that Rheged extended along the north Solway coastline and if so, it is likely that these territories were among the last to succumb to the Anglian advance, retaining an element of independence into the mid-seventh century.

Irish and Pictish presence

In the fifth summer of his governorship, c.AD 81–2, Agricola took his army into Galloway. He appears to have encountered an Irish prince in exile and to have contemplated an Irish campaign (Hutton and Ogilvie 1970, 71, cap. 24). That Irish contact was regular, and may have involved settlement, has been indicated by Nicolaisen, in his study of the distribution of Gaelic *sliabh* names in Scotland which shows a particularly dense

concentration on the Rhinns (Nicolaisen 1976, 39–46). Nevertheless, despite claims based on ecclesiastical evidence and place-names suggesting Irish settlement in Galloway, there is little tangible evidence for settlement on any scale before the Viking age (Laing and Laing 1990, 162–4 review the evidence).

The evidence for the Picts is hardly stronger and is arguably more contentious. Carvings on a rock face at the fort at Trusty's Hill, Kirkcudbright (conveniently illustrated by Allen and Anderson 1903, 477–8) are extremely enigmatic but do raise the question of a Pictish presence in south-west Scotland, albeit a fleeting one. The components of the design include a 'double-disc and z-rod', a 'swimming elephant', a 'sword' and a human head. The 'double-disc and z-rod' is unusual, as the rod is woven through the bars connecting the double disc – the floriated ends of the rod are more in the style of Class II monuments than Class I, which might imply that they are engraved version of a symbol seen carved in relief. The 'swimming elephant' is a version that looks as though it was carved by someone who had seen the symbol at some time in the past but was not familiar with it. The 'sword' and horned human head do not have their counterparts anywhere in the repertoire of symbols, nor indeed anywhere in insular early Medieval art. If Forsyth (1997, 87f) is correct in suggesting that only symbols used frequently are in fact symbols, then the Trusty's Hill assemblage is a nonsense statement. An alternative explanation, that they were carved by someone who had seen Pictish symbols but was unfamiliar with them, is possible. This could have been in antiquity or more recently. It could not, however, have been a product of the later nineteenth century, since the symbols were noted and drawn by Stuart (1856, pl.97). Cessford (1994) has suggested that the horned head is a local symbol for a pagan deity by Christian Britons or Angles; Laing (2000) that it pre-dates the other symbols which are probably of the ninth century.

There is a lost massive silver chain from Drumlanrig Castle, Penpont, Dumfriesshire (O.S.1960, list, 60), not far from Trusty's Hill, a type of object often associated with the Picts on account of the symbols found on some, the Pictish origin of which, however, has been disputed (for example by Alcock 1987, 248 and Cessford 1999, 153). A brooch, associated with sword blade and sickle fragment from Carronbridge, Dumfries & Galloway, has been claimed as 'Pictish' and dated to the ninth-tenth century (Owen and Welander 1995). Although it displays Pictish features, it is not necessarily Pictish, and could be an eighth-century derivative of the type of brooches produced at the Mote of Mark. Finally, there is a later (twelfth-century) literary tradition of the 'Picts of Galloway' which has been discussed and rejected by Wainwright (1955, 40–42).

Secular settlements

Of the secular sites in south-west Scotland, known or

believed to have been occupied in the period under review, Tynron Doon, Dumfries and Trusty's Hill, Kirkcudbright, remain the most significant. Tynron Doon is a multi-vallate hillfort. A midden at the base of a steep slope below the ramparts, and which seemed to post-date the occupation of the fort, yielded part of a gold bracteate pendant with filigree ornament that is usually (though not necessarily correctly) assumed to be a seventh-century Anglo-Saxon import (Williams 1971; Laing 1975, 33). The midden also produced metalworking waste and vitrified stone. There is no evidence however that the fort itself is other than Iron Age, or that it was modified in the early Medieval period.

Trusty's Hill is a small fort with vitrified rampart enclosing an area some 24 metres by 15 metres in extent, close to the Solway coast. Like the Mote of Mark, its name has a 'Dark Age' connotation, being derived from Pictish *Drust* (Anglicised as Tristan). The post-Roman activity at Trusty's Hill is mainly attested by the 'Pictish' carvings. Excavation by Charles Thomas in 1960 produced no diagnostic finds, other than a rotary quern. An original fort was postulated, enclosed by a stone-built rampart about 1.2 metres wide (surely too narrow), with timber lacing and with an additional strong outer defence of rampart and rock-cut ditch on the eastern side. A sub-circular stone built hut was found in the hollow on the east side of the entrance, near the symbols. To this were added less substantial outlying ramparts revetted only on their outer faces, and an extension of the original fort entrance with out-turned banks. The vitrification of the fort was explained by the accidental firing of timber huts built against the main rampart. (Thomas 1961; Laing 1975a, 6; Stell 1990, 121–2). It was suggested that Trusty's Hill originated in the Iron Age. However, all phases of activity could have taken place in the early Medieval period. Rotary querns were still current and there is now evidence for multi-phase building within the early Medieval period on forts such as Dundurn. Castle O'er, Eskdale, has recently been proposed as an early Medieval stronghold on the basis of radiocarbon determinations. Two phases have been postulated in a sequence which saw an original summit area of 120m by 60m, enclosed within multiple ramparts, reduced to an area of 95m by 35m within a drystone wall (Cowley 2000; Stell 1990, 139).

Related to Trusty's Hill and the Mote of Mark are a number of other small forts (all unexcavated) in Kirkcudbright. They comprise Castlegower with an oval vitrified citadel enclosing an area 40 metres by 16 metres, and a series of outworks, Twynholm (Campbeltown Mote), with a stone-built citadel 30 metres by 16 metres, again with outworks, Barnheugh, with a stone citadel 40 metres by 25 metres and dual earthworks, Stroanfeegan, with a citadel 47 metres by 42 metres and again with outworks in this case partly overlying the original enclosure, and Edgarton, with a vitrified rampart forming a citadel 25 metres by 15 metres, again with complex

outworks (Laing 1975b, 6; Feachem 1977, 129–31). Without excavation it is of course impossible to tell whether these are Iron Age or Dark Age sites or both, but it seems possible that some at least may have served as the residences of the elite in Galloway.

The stone-walled fort at Castlehaven, Borgue, Kirkcudbright, is frequently claimed to be of the Iron Age with secondary occupation in the early Medieval period (Barbour 1907; post-Roman occupation suggested by Alcock 1993, Fig. 5). It is essentially a sub-rectangular galleried dun, of the type found in Argyll, with outer enclosure. Excavation produced a range of finds in keeping with a Roman Iron Age date, notably a spiral finger ring, a glass bead of Meare Derivative type, and a Class D7 penannular brooch, as well as pieces of Medieval mail suggestive of a later Medieval use of the site, perhaps by Edward Baliol (Stell 1990, 129). The dating and affinities of the penannular brooch have been discussed by one of the authors, who suggested a fourth-century date (Laing 1993, 17). The sub-rectangular shape is noteworthy: in Argyll duns that are of this type have been seen to be Early Medieval rather than Iron Age, and it has been suggested that Roman material is residual (Gilmour 2000; Alcock 2003, 186–9). A notable feature of Castlehaven is the outer enclosure, which makes it similar to those in a group identified in Mull – falls into Class 5 of the series (Alcock 2003, 188 and Fig. 59).

There are two timber halls identified in the area, the more diagnostic that from Cruggleton Castle, Wigtowns, where, underlying the later stone-built castle, a palisade was found to have cut off the precipitous headland. Within this, a post-built rectangular building 6 metres by 3.7 metres, was defined by four posts along each side and gable end posts. The interior was divided in two by a screen, which provided radiocarbon dating of 650–980 (Ewart 1985, 14–18). The second is at Kirkconnel, Dumfriesshire, and was found underlying a pillow mound on a Medieval village site. Dating was provided by an eye bead and small sherd of handmade pottery; less diagnostic was a spindle whorl, worked flint flake and iron knife (Clough and Laing 1969). The interpretation of this hall is very problematic due to extensive disturbance, but appears to have been sub-rectangular and of post construction, the post-holes suggesting substantial uprights. Alcock has suggested that the true wall-line lay outside the area excavated, and that the recognised post-holes were for roof supports (1995, 136); with hindsight this seems a probable explanation. It also seems possible that both the Kirkconnel and Cruggleton halls belong to the Anglian rather than British phase of occupation in south-west Scotland, as was originally suggested (Clough and Laing 1969). They show features in keeping with structures at Whithorn, and the coarse sherd from Kirkconnel is more readily explicable as Anglian than as the sole representative of an otherwise unknown ceramic tradition in Rheged. This would seem to be reinforced by the discovery of similar pottery from the Anglian site at

Fremington in the Eden Valley (Oliver, Howard-Davis and Newman 1996). The eye bead would be quite at home in an Anglian context, being a type produced in the Rhineland in the sixth century and seventh centuries, which is well-represented in England (Guido 1999, 26 and pl.2).

The remainder of the archaeological finds of the period in the region comprise mostly stray finds, several from the sand-dunes at Luce Bay, Wigtown. Apart from the Anglian material from these dunes, and a putatively Irish rod of millefiori (Cramp 1970, 17), there is a penannular brooch of Class Ja, (Rynne 1965; Laing 1975a, 53; Laing 1993, 56, no.43) and three Class G brooches (Rynne 1965; Rynne 1968; Dickinson 1982, 48). This metalwork is not out of keeping with the repertoire of the Mote of Mark workshop.

The Angles in South-West Scotland

Historical evidence

The Anglian advance into south-west Scotland is poorly documented. Bede, writing in 731 or slightly earlier (HE V, xxiii), treated it as a *fait accompli* when he summarized the disposition of the Northumbrian dioceses, referring to a resident bishop, Pecthelm 'in the church called Candia Casa [Whithorn], where recently the number of the lay faithful has increased, and which in consequence has been promoted to a see with him as first bishop'.

There is no evidence for a military campaign resulting in take-over, and it seems probable that the annexation of south-west Scotland was a gradual process perhaps achieved as much by increasing encroachment in British-held territory as by pitched battle. The success of the enterprise can be gauged by the fact that the sophisticated Ruthwell Cross was erected, according to current opinion, in the second quarter of the eighth century (Maclean 1992, 70), and that Pecthelm was a respected and senior figure in the Church, who had been consulted by Bishop Boniface on a theological matter and who had corresponded with Bede (Hill 1997, 18). Bede's reference to the diocese based on Candida Casa seems to suggest that it was a recent creation, but it does not of course follow that the Anglian penetration of the rest of the south-west was the work of the early years of the eighth century.

The second half of the sixth century and the first half of the seventh century were a period of confrontation between the Britons of the North and West and the increasingly powerful kingdom of Northumbria. The *Historia Brittonum* succinctly presents the traditional view from a ninth century British perspective:

[In the time of Ida,] 'Eudeyrn fought bravely against the English', [then] 'Four kings, Urien and Rhydderch and Gwallawg and Morgant fought [against Ida's sons]. Sometimes the enemy, sometimes the British citizens were victorious, (HB 63)

These events purport to span the forty-five years from the accession of Ida to the accession of Aethelfrith. The literary evidence for the location of battles and campaigns involving Rheged has been reviewed above (p.161). To these references we might add the *Historia Brittonum*'s account of the death of Urien, on campaign against the English near Lindisfarne (VSW, cap. 17; HB 63). This latter event is supported, not necessarily entirely independently, by the Welsh saga tradition of the ninth century and the triads (Bromwich 1978, 518). During this period the poetic record, if we may give it credence, records conflict both within and outside British Rheged. The battle is taken to the enemy: Urien has the English bottled up on Lindisfarne; he is fighting among the ruins of the Roman fort at High Rochester on Dere Street; he burns the homesteads of the English (HB 63; Williams 1960, vii.22; iii.9). Then we hear of his worn out army defending a river crossing in Gwen Ystrad; next the muster of Argoed and Arfynydd are raising a rampart on the high ground to resist the advance of the Anglian Fflamddwyn (Williams 1960, vii.15). None of these engagements against the English, however, can be located within south-west Scotland. It would seem to be Pennine Rheged that bore the brunt of Northumbrian aggression during the later sixth century. Nevertheless, as there were internal disputes within Northumbria, so the Britons also fought among themselves. Rheged raided Manaw 'for more booty' (Williams 1960, v.6); the death of Urien was brought about at the instigation of another British king (HB 63); if Aeron is Ayrshire, then Urien defended his borders against northern attack (Williams 1960, viii.22). The battle of Afderydd, we are told, took place near Carlisle between Britons (A C s.a. 573).

The question of whether or not the Mote of Mark belonged to Rheged at this time has been discussed above (p.161). By the time of the death of Urien, Rheged may have been in decline (Kirby 1962, 80). The possible date for the beginning of the Anglian advance into Scotland lies in the reign of Aethelfrith of Bernicia (592–616). Smyth, on the other hand, has argued that the king who made the most significant inroads into British territories in south-west Scotland and north-west England was Ecgfrith rather than Aethelfrith (Smyth 1984, 24). Bede, however, notes that Aethelfrith ravaged the Britons more than any of his predecessors, making their lands either tributary or ready for English settlement (HE I, 34). Higham has argued that these references relate to British territory close to Bernicia (Higham 1995, 78). His triumph over Aedan, king of the Scots, at Degaстан in 603 (possibly at Addinston, Berwickshire – Cramp 1995, 8), probably gave him extensive control in Lowland Scotland. Hunter-Blair has suggested that following Degaстан, Northumbrian annexation was concentrated in the south-west rather than the south-east (1954, 160). Cramp has proposed that Bernician control of the Cumbrian coastal plain was achieved in stages up to the mid-seventh century (1995, 9), but that it was not fully accomplished by the

time of Aethelfrith's death. By the time of Edwin (c.616–33) the Northumbrians could claim overlordship in the Isle of Man, which would be explicable if they also exercised that authority over south-west Scotland. There is evidence for a group of mound burials near Kirkby Stephen in Cumbria, dating to this period, equipped with horse trappings, perhaps pointing to Anglo-Saxon consolidation around this time (O'Sullivan 1993).

Not all contact between Rheged and Northumbria was so directly confrontational during this period, however. A reference in the *Life of Kentigern* by Jocelyn of Furness (cap xxxii) suggests that there were pagan Angles round Hoddom c. 600, seemingly not in conflict with the Britons, although given the lateness of the source (twelfth century) this is not necessarily factual. More relevant is the tradition, preserved in both the *Welsh Annals* and *Historia Brittonum* that Rhun son of Urien Rheged was, in some capacity involved in the baptism of Edwin of Northumbria's daughter Eanfled and, in the following year, Edwin himself. (HB, 63; AC sub anno 626). Slightly later, Oswiu, king in Northumbria from 642 to 670, appears to have first married Rhiainfellt, grand-daughter of Rhun before taking Eanfled as his second wife. It is just chronologically possible that he met and married his British wife during his years of exile as his brother Eanfrith appears to have married a Pictish girl while similarly estranged from Northumbria (Dumville 1993, III, 12; Hunter-Blair 1954, 160).

Dynastic marriages and youthful relationships forged in exile are not guarantees of continuing cordiality between kingdoms. Edwin's later career ('one of the three Great Oppressions of Anglesey, nurtured within,' Bromwich 1978, 48, 54) and his feud with Cadwallon of Gwynedd is a case in point. Neither would such marriage ties lead obviously to the political assimilation of one or other kingdom as has been suggested for Rheged in the 630s or 640s. On the other hand, Thomas Charles-Edwards has considered the way in which the queen's household or retinue within a kingdom, separately from that of the king or other royal officials, might provide a point of access to royal favour and influence. In particular, it has been suggested, Rhiainfellt, Oswiu's British wife, may have provided a focus of loyalty for the British nobility of Rheged (Charles-Edwards 1989, 32). While it is possible that both Edwin and Oswiu claimed some degree of overlordship in Rheged (HE II, 5) there is no evidence that Rheged had been absorbed by Northumbria at this date. Nevertheless, such relationships might very well provide a context for the assimilation of external influences including, perhaps, the appearance of Anglicising characteristics.

Kenneth Jackson was of the view that the Anglian penetration of the south-west was by a 'scattered upper crust of landlords [rather] than a really thick settlement of peasants', a view with which in general terms Duncan (1975, 65) and Smyth (1984, 23–4) have agreed, and which certainly fits the evidence. Discussing the Anglian

settlement of south-east Scotland, Smith has argued for penetration starting in the sixth century (1991, 285), and it may well be that there was a comparable expansion into Dumfries and Galloway that began around the same time, initially peaceful, perhaps even encouraged by the British communities. The process of integration has been discussed by Smith (1983).

Some progress in studying the Anglian penetration of the south-west has been made through the study of toponymy, though it must be underlined that this cannot be tied to a chronological horizon sufficiently precise to provide a picture of settlement. Brooke in a recent study of the evidence for Galloway and Carrick (1991) has argued that three 'shires' can be discerned from the clustering of place-names of Anglian origin, which she has linked to church dedications and other evidence to suggest a co-existence with British occupied areas. She has seen tribute as being extracted from the Britons in these areas by Anglian overlords. While this may be a possible inference for the period after the initial takeover, (i.e. from the late seventh and eighth century) it sheds little light over the process of annexation itself, or the date at which it happened.

The Anglian presence at the Mote of Mark

Archaeology is little more helpful. The finds of Anglian material from Scotland have been reviewed by one of the present writers (Laing 1975a) and more recently and extensively by Proudfoot and Aliaga-Kelly (1996) and Cessford (1999). What is notable is that all the evidence of settlement (loom weights, grubenhaus, halls) comes from south-east Scotland, and with the exception of the finds from Mote of Mark and from Tynron Doon there are few certain finds of Anglian material in the South-west datable prior to the eighth century. Exceptional, perhaps, is the find of a sixth-century small long-brooch from Botel (Buittle), on the site of the later medieval castle (Penman 1998, 475). Botel lies on the Water of Urr, less than five miles from the Mote of Mark, and its proximity can hardly be fortuitous. In this connection the discovery of the gold filigree bracteate at Tynron Doon assumes a certain significance, since it is a seventh-century item recovered from a midden in a native hillfort (Williams 1971; Laing 1975a, 45). It is a high-status item, which is likely to have reached the fort either through high-level exchange mechanisms or through (less probably) the taking of booty; either way it gives no suggestion that there was settlement of ordinary Angles in the area.

The diagnostically Anglian material from the Mote of Mark comprises one certain runic inscription on a fragment of bone, a second, very uncertain runic inscription on a fragment of sandstone, and a rock crystal bead. The runic inscription is certainly Anglo-Saxon, and probably late seventh century in date. It represents a diminutive form of a personal name – *Athili*. The context of this object, however, outside the rampart on the seaward

slope of the hill, does not aid our understanding of the Anglian presence at the Mote. The rock crystal bead is a type of artefact associated with Anglo-Saxon burials (Huggett 1988). They may be assumed to be indicative of high status, but on the evidence of their association with cremation burials are not associated with one sex (Richards 1987, 199). Although rock crystal is native to England, it is assumed from the size of the crystal balls also found in Anglo-Saxon graves that such beads were imported, and origins in Germany, Switzerland and Scotland have all been suggested (Arnold 1997, 107). Interestingly, the distribution map of such beads in England is south-eastern, with a concentration at Sleaford, Lincs and with only two finds north of the Humber (Huggett 1988, map). There is no evidence for the production of rock crystal beads in Scotland in the early Medieval period, and it is likely therefore that the bead is ultimately of Continental origin.

In an earlier discussion of the material (Laing 1975b, 41), it was considered possible that a pair of iron tweezers, a bone comb fragment with ring-and-dot ornament and a green and white cable bead may have been Anglian, as may have been some sherds of orange-buff friable ware. These items are now thought to be less certainly so. There is no real reason to suppose the tweezers are Anglian as opposed to 'British'. In the absence of tweezers from other 'Celtic' sites it is very difficult to be certain. Ring-and-dot ornament (on the bone comb) is found widely in late Roman and post-Roman Britain, for example at Dinas Powys, Glamorgan (Alcock 1963, Fig. 34, no.11), or Lagore, Co Meath (Hencken 1950, Fig. 102, A & B). The glass bead, in term of design, conforms to Guido's 'Meare Derivative', and is matched by her type 11d. These are beads of Iron Age origin, but all have yellow cables at right angles to the piercing rather than green (Guido 1978, 81). It is noteworthy that there appear to have been no glass beads found at Whithorn, and this type of bead does not appear represented in the published Irish or Scottish site finds. There is no close parallel for the cabled bead among the corpus of Anglo-saxon finds (Guido 1999): the closest parallels, which are not very similar, come from east Anglia, for example from Morning Thorpe, Norfolk, gr 173, dated to the sixth century (Green, Rogerson and White, 1987, II, 257 Fig. 354, Div).

The occurrence of (albeit few) high-status artefacts from the south-west perhaps ties in with the evidence from Cumbria, recently reviewed by O'Sullivan (1993). The Anglian material from these areas comprises mostly high-status metalwork, which again contrasts with south-eastern Scotland. There, with the exception of a gold and garnet harness pyramid from Wester Craigie, near Dalmeny, Midlothian, which may have come from a burial (see Alcock 1981, 173; Proudfoot & Aliaga-Kelly 1996, 4), and a scabbard button from Markle, East Lothian (Proudfoot and Aliaga-Kelly 1996, 4), both of seventh-century date, the material is generally more in keeping with burials or with domestic occupation.

The Mote of Mark was fortified during the late sixth century. Whether or not we are able to accept the historicity of the poetic record alluded to above, we may at least agree with Dumville that, 'if in any sense genuine, [these sources] constitute a capital source for the period' and that 'whatever the status of the poetry, the known transmission in traditional literature of a societal context proper to the founding era of that literature justifies the use of it to describe the heroic ethos of the sub-Roman northern Britons' (Dumville 1993, III, 6). These literary depictions, then, inform our understanding of the social and, perhaps, the political context of the Mote of Mark.

High quality non-ferrous metalworking was carried out within the defences of the fort, at least until the middle of the seventh century, and, perhaps, into the second half of the seventh century. Anglo-Saxon influence or inspiration has been detected on certain diagnostic items of metalwork produced on site. Speake has referred to the complexity of influences at work in the creation of decorated metalwork in this period and Campbell and Lane have drawn attention to the Anglo-Saxon influences present in the metalworking repertoire at Dunadd in the seventh century (Speake 1989, 76; Campbell and Lane 1993, 52–63). Whether direct Northumbrian involvement or, more probably, the assimilation of contiguous cultural influences, was involved is now difficult to establish. Possible contexts which may have given rise to Anglicising tendencies have been discussed above. These might include a requirement to provide tribute or gifts acceptable to a Northumbrian overlord, or may derive from closer personal relationships between members of the British and Northumbrian royal houses and their respective entourages.

Metalworking and occupation was brought to an abrupt end with the destruction of the ramparts by fire. The walls were deliberately demolished or slighted and no further occupation can be demonstrated. In the 670s, Wilfrid reminisced on the long list of former British lands in Pennine Rheged which were now under the control of his church at Ripon. The Britons, he remembered, had fled before the hostile sword of Northumbria (VSW, cap. 17). Soon after, the appearance of British mercenary warbands on the north-eastern coastline of Ireland has been taken by Smyth to indicate a significant dislocation in the power base of north Britain (Smyth 1984, 25–6). It may be that the political fragmentation of Rheged was achieved during the third rather than the second quarter of the seventh century. Such a date would accord with the archaeological evidence for the destruction of the Mote of Mark, although whether the hostile sword of Northumbria was in evidence, we are not able to say.

Status and the social context of the Mote of Mark (Table 35)

It is clear that those who lived and worked at the Mote of Mark did not exist in isolation from their surrounding

landscape. There are exotic artefacts present, raw materials imported and artefacts produced, it would seem, for the use of others. Stylistic influences on these artefacts suggests outside contact. Binchy, discussing pagan Celtic Ireland, has famously characterised the social context as tribal, rural, hierarchical and familiar (in a Thomas Davies lecture for 1953, quoted, for example, by Byrne 1973, 28 and Kelly 1988, 3). Elements of this description might be held to be equally true of the western seaboard of mainland Britain in the early Medieval centuries. The bonds of society remained, predominantly, those of kinship and the structure of society was, essentially, hierarchical. For our present purpose we are concerned to examine the evidence from the Mote of Mark in an attempt to establish a context for the site in the structure of contemporary society. Hillforts, in the early Medieval west and north have been frequently categorised, with some justification, as ‘high-status’ establishments. Before proceeding to review the evidence for high-status at the Mote of Mark, however, it may be appropriate to consider what is meant by status, whether status is distinguishable from wealth and what the material manifestations of status

might be. The evidence for social structure in the ‘British’ areas of mainland Britain during the early Medieval centuries is limited. We are forced to fall back on the documentary evidence of a later period in Wales and the comparative evidence of adjacent societies in Ireland and Anglo-Saxon England.

In Ireland, during the early middle ages, noble status depended, firstly, on birth and, secondly, on having a certain number of clients, who were freemen, and who paid fixed and regular food renders and other services. There were consequences of this status of which the most obvious tangible manifestations might be the products of the renders and services due. In another circumstance a craftsman or a skilled professional could acquire status through mastery of his art. Further, increasing wealth could, indirectly convey status. If a non-noble freeman grew rich enough to acquire clients of his own, through the provision of a fief, and if his family maintained that position over three generations, then noble status as a lord of clients would be inherited by his grandson.

In Wales there may, in an early period, have operated a system comparable to that in Ireland, whereby status

Categories of evidence	Evidence	Distinctive quality
Location/topography	Yes	Locally prominent
	Not certain	Hierarchical use of space – not necessarily large
	Yes	Small but defensible
	Yes	Coastal, estuarine or on line of communication
Function	Not certain	Collection site for renders
	Yes	Craft centre. High quality metalwork
	No	Evidence of administrative function (carved stones or symbols of inauguration)
	No	Ritual association, as, for example, mound
Locational association	No	Part of a complex of sites
	Possible	Strategic and economic associations
	No	Major early Christian site in immediate vicinity
	No	Later Medieval castle on site
Defences (military activities or fire)	Possible	Multivallation
	Yes	Fort built by clients (evidence of clientship)
	Yes	Sieges, burning of defences
Structures	No	Size of house. Large – possibly circular for a king
Material culture	Yes	Wealth; fine quality artifacts
	Yes	Items indicative of tribute
	Yes	Exotic items (imports)
	Yes	Feasting an important adjunct
	Yes	Prestige attached to horses and horsemanship
Economy	Possible	Consumption of food indicative of renders (clientship).
	Yes	Men of skill present
	No	the presence of many crafts and skills (mixed industrial waste) may differentiate the house of a king from that of a master craftsman
Historical / documentary associations	No	Reference in annals and other documentation indicative of high status, for example, sieges and burnings

Table 35. Status indicators.

was inextricably vested in lordship over clients. By the time clear evidence is available to us in Wales, however, that link had been broken. If a Welshman was free, and of native descent, he was *nobilis* (w. *bonheddig*). If he was also the head of a household he was *optimas* (w. *uchelwr*). He could be, but did not have to be, a lord of clients. This distinction would be equally familiar to a seventh century Anglo-Saxon (Charles-Edwards 1993, 364).

For our present purpose, however, the point is academic, as there are other indications at the Mote of Mark to suggest the presence of clients, not least in the control of labour services required to construct the ramparts. The significant point is that while wealth may be an *indication* of status, it does not, in itself, *convey* status. This depends on birth and lordship or professional specialism.

The definition of 'high status' sites in early Medieval Britain and Ireland has been the focus of considerable attention in recent years. In particular, attempts have been made to establish a series of criteria for the definition of 'high status', for Ireland (Warner 1988), Wales (Dark 1994a) and South-West England (Alcock 1995, 143–8). Although no exactly similar study has been attempted for Scotland, the matter has been addressed by Alcock in a series of studies (1987, 1988, 1989 *et al.*, 1990). A selection of the more relevant criteria are tabulated above with reference to the evidence from the Mote of Mark with the caveat that a number of these characteristics were regarded by the commentators as indicative of specifically royal status (Table 35).

Location and topography

Alcock has highlighted locally prominent situations, strategically sited on estuaries or on the coastline or on lines of communication as a recurring characteristic of early Historic fortifications. Further, he has developed the concept of the nuclear fort to embrace those sites that employ a 'hierarchical use of space'. Warner suggests that an early Medieval Irish site of high status might be small but defensible. The contrast, in these characteristics is, on the one hand, with prehistoric fortifications which might be focal to their territories and, on the other hand, early Medieval strongholds which might require to be in communication with the components of a wider landscape. This might be particularly relevant to the residences of kings and major lords where itineration and access to the exotic cargoes of long-distance trade were considerations. Topographic location, then, might, through the prominence of a landmark in the landscape, convey status, on the one hand, and, in so far as access to routeways is a desirable or necessary adjunct to the business of lordship, on the other hand, be indicative of status.

Although the Mote of Mark does not conform to the type of site defined by Stevenson in 1949 as a 'nuclear fort', to which category many of the major high status sites in Scotland such as Dunadd and Dundurn belong, it

does share with such sites a preference for a hill with a rock boss and with level terraces (for the definition of 'hierarchical use of space', Alcock *et al.* 1989, 210). Dunadd, Dundurn and Dumbarton Rock are comparable in the stepped topography of the hills on which they were set. It is noteworthy that in terms of area enclosed, the Mote of Mark is small (3/4 acre), and the central hollow in which the main metalworking activity seems to have taken place even smaller (just over 10m square). Any comparative assessment of size, however, must make reference to the habitable area of the site with which comparison is being made. In the case of early Medieval fortifications in the Celtic world this is frequently much smaller than the total area fortified. It is useful to compare the Mote with the occupiable area at Dunadd and Dunollie, both in Argyll, or that at Alt Clut, Dumbarton Rock, Strathclyde, or Dundurn, Perth (Alcock, Alcock and Driscoll 1989, 210). These sites, while ostensibly much larger than the Mote of Mark, have comparatively small occupiable areas. In Wales a somewhat larger occupiable area can be seen at Dinas Powys, Glamorgan, and a much larger area at Dinas Emrys, Gwynedd. At the top end of the scale is Cadbury Castle, Somerset, which has an interior of 18 acres. The Mote of Mark is not the landmark that, for example, the comparably situated estuarine strongholds of Deganwy, Gwynedd, and Dumbarton are. Nevertheless it is locally prominent and the small surface area merely emphasises the strength of the defences.

Similarly, comparison may be made between the Mote of Mark and crannogs, generally accepted as high-status residences (Edwards 1990, 41; Mytum 1992, 145). At Ballinderry 2 crannog, Co. Offaly the timber platform was 11.5m square (Hencken 1942). At Buiston crannog, Ayrshire, the platform was at least 28m in diameter, and supported a structure c.7m in diameter (Munro 1882, 190–239; Crone 1991). Moynagh Lough, at c.16m across, in the eighth century, a circular 'house' some 11.2m in diameter, (Bradley 1993, 74–5). High-status metalworking was one of the main activities at the crannog, with the products of metalworking accounting for 25% of the finds. The excavator postulated a resident smith (Bradley 1993, 80).

The type of rampart construction may also be significant. Timber framing seems to have been widespread in fortification on known high-status sites, most notably at Cadbury Castle, Somerset (Alcock 1995), Dumbarton Rock, Strathclyde (Alcock & Alcock 1990), Burghead, Moray (Alcock 2003, 192–7), Dundurn, Perth (Alcock *et al.* 1989), Clatchard Craig, Fife (Close-Brooks 1986, 131–3) and Green Castle, Potnockie, Banff (Ralston 1987). The use of a front and rear facing of carefully-laid stones was a feature not only of the Mote of Mark but of Burghead and Bryn Euryn, Clwyd.

Locational associations

There is no evidence to suggest that the Mote of Mark

was one of a complex of inter-related sites in the local landscape, as Warner suggests might be represented by a *dun* and its *baile* in an Irish context (Warner 1988, 61). Neither is there evidence that the Mote of Mark was one of a number of residences in the wider landscape maintained by a king, or major lord, for the collection of dues and as a basis of regional administration (Longley 1997, 41–54; Campbell *et al.* 1982, 58–61; Alcock 1981, 179). Such evidence is likely to derive from documentary sources which, for the Mote of Mark, there are none.

Defences

The ramparts provided a strong protection enhancing the natural defensive qualities of the site. It may be argued that the scale of the work and the topographical situation is above that normally required to define the residence of a commoner. In an Irish context one of the labour services required of a base client was that of helping in the construction of the rampart around his lord's *dun* (Kelly 1988, 30). In a Welsh context, although the evidence is later, the king's bondmen (w. *eilltion*) are required to make the buildings of his court (Jenkins 1986, 125). The term *aillt*, pl. *eilltion* must originally have carried the meaning 'client' (Jenkins 1986, 310–11). In a practical context, certain of a king's tenants, drawn from those bond settlements distributed throughout the commote (in the hinterland of a king's estate) rather than from the ranks of the estate workers, were required to make or repair the fence of enclosing wall around his *llys*. Access to such labour services therefore, might be taken to be an indication of status.

Warner has seen the presence of multivallation, on Irish sites, as unusual and possibly indicative of status (Warner 1988, 58). The recognition that a king's *dun* might be provided with an *additional* rampart – 'the rampart of clientship' – may be a legal schematization of this observation. It should be allowed, moreover, that, in other areas, more prosaic considerations might apply. The Mote of Mark may have been provided with an additional line of defence on the northern, landward, slopes where the approach is more gentle. This suggestion rests entirely on the quantity of tumbled rampart material at a break of slope on this side, and has not been tested.

Finally, sieges, burnings and the destruction of fort defences are a recurrent association of the listing of strongholds in the documentary sources relating to the seventh and early eighth centuries (Alcock 1988, 30; Bannerman 1974, 9–26). The nature and pre-occupations of the records mean that most of these sites have royal associations. The Mote of Mark was burnt and slighted. The documentary record, however, remains silent.

Structures

Warner has suggested that, in early Medieval Ireland, it might be possible to distinguish a royal fortress from other settlements by the scale of its building or buildings (1988, 65, 67). At present there is limited archaeological

evidence to support the possibility (Warner 1988, 65). Nevertheless, given the requirements of accommodation and hospitality appropriate to a royal site, one might expect a greater provision in this respect. *Crith Gablach* identifies the house of a noble as one of the components of noble status (Charles-Edwards 1986, 53–73). The house was, however, a relatively unimportant component and in the lawbook's schematic comparison of the size of houses appropriate to different grades, the only significant distinctions are between the house of a king with its numerous cubicles of chambers (*imdai*) and the house of the lowest grade of freeman. We cannot presume that such considerations apply in the British and Anglo-Saxon areas of mainland Britain. Nevertheless, where structures have been identified, size differentials may be thought to be related to status. There is greater evidence from Anglo-Saxon England than from the British west and north. For example, at the extensively excavated settlement at Chalton, Hampshire, fifty-seven rectangular structures were recorded, of which all but the smallest appear to have been provided with opposed doorways on the long sides, a partitioned 'chamber' towards one end and indications of a hearth in the main compartment. The majority (60%) of these structures were between 7m and 9.5m long and between 4m and 5m wide. These buildings were considerably smaller than the range of halls at another Hampshire site, Cowdery's Down where a sequence of halls were built, between 10.5m and 22.5m in length. The presence of large halls at this site has suggested the interpretation of an estate centre, not necessarily royal but comparable to the great hall of a royal vill (Welch 1992, 50–51). Similarly, the sequence of halls at Yeavinger have been associated with the Northumbrian kings of the seventh century. The largest are up to 23m in length. In a British context the hall at Cadbury Castle, Somerset, is recorded at 19m by 10m and at Doon Hill, Dunbar, 25m by 11.5m (Alcock 1995, 135). In comparison, the postulated hall within the ramparts of Dinas Powys is suggested to have stood 14m by 5.75m (Alcock 1987, 27). The rectangular structure within a palisade on a sea cliff at Cruggleton, Wigtownshire, was smaller still at 6m by 3.5m. The timber hall at Kirkconnel (see above, p.00) was not totally excavated, but appears to have been about 20m by 8m, with arcades of roof supports (for this interpretation, Alcock 1995, 136). The single postulated structure at the Mote of Mark would not have been large. At about 8.5m by 4m it may be compared with the middle-range buildings from Anglo-Saxon settlements. It would seem to have been comparable to the rectangular buildings from Chalton, for example, referred to above. Its construction, employing post-pads, is one encountered in Roman Britain, and was employed in the latest timber building of the fifth-century phase at Birdoswald, on Hadrian's Wall (Wilmott 2000, 14). Outside Roman Britain it seems to have been employed in a post-Roman context at the Dod, Roxburghshire, at Portnockie in Banff

and Pool in Orkney (Smith 1991; Ralston 1997, 24).

It may be of incidental interest to note that the conventional scheme of *Crith Cablach* identifies the following house dimensions appropriate to the grades of society (corrected to modern units at 9in:1ft). The house of a king should be 8.5m; the houses of the nobility – 6m to 7m; the upper ranks of freemen – 6.2m and the lower ranks of freemen – c.4.5m (Charles-Edwards 1986, 53–73). It is, unfortunately, unclear whether the jurist envisaged a circular or rectangular structure. Arguments have been advanced for both (Murray 1979, 83). All that can be reasonably said concerning the putative Mote of Mark building is that it was potentially large enough to have been considered substantial but not sufficiently large to have been, in itself, an indication of exceptionally high status. There may, moreover, have once been other structures in the areas unexcavated.

Material culture

High quality artefacts, exotic items, the products of long distance trade, artefacts which might be appropriate to the processes of gift exchange or tribute or with pursuits such as feasting, warfare or horsemanship have all been taken to be indicative of the high status of sites on which they occur (Alcock 1988; Nieke and Duncan 1988; Warner 1988). With the exception of items associated with warfare, there is evidence for all of the above in the repertoire of artefacts represented at the Mote of Mark. In contrast with Lagore or Buiston, or with Dunadd and Dunollie, Argyll, weapons are absent from the Mote of Mark, unless mould 1193 is for a spear-butt. Weapons however are not associated with other high-status sites, such as Garranes, Co. Cork, assumed to be the rath of the Eoganachta (Ryan, in Ó Ríordáin 1942, 145–50), Dinas Powys (Alcock 1963) or Dundurn (Alcock *et al.* 1989). The explanation for this may lie partly in the high value set on them. Warfare, nevertheless, may be inferred from the burning and slighting of the ramparts.

Exotica and long distance trade are represented by the occurrence of two joining sherds from a single eastern Mediterranean wine amphora; by a single sherd of continental grey ware mortarium and, more convincingly, by numerous sherds of continental wheel thrown pottery of Class E and fragments of continental glass vessels. Together, the E ware and the glass constitute the fourth largest assemblage of such material yet recorded from locations in Britain and Ireland. Whether the abraded sherds of amphora can be considered as sufficient evidence for the importation of wine to the site and, by extension, of feasting, or whether they are best seen as evidence for the long survival of a useful container, the evidence of the glassware is more convincing. The glass is vessel glass. Sherds of broken vessels may be re-used as cullet, and the workshop at the Mote of Mark might provide an appropriate context. Campbell has shown, however, that complete vessels were reaching western British destinations. The distribution pattern of glass and, for that matter

E ware, in contrast to the industrial waste of moulds and crucibles, shows a distinct concentration in, and immediately adjacent to, the putative house. For these reasons we may be justified in proposing that the glassware might have been an accessory to the high-status consumption of drink. In this connexion we are reminded of references to ‘a glass of mead’, ‘sparkling wine from glass vessels’ and wine drunk from ‘brimming glass vessels’ in *Y Gododdin* (Williams 1938, lines 1008, 1009, 797, 1144; Jarman 1988, lines 776, 625, 883).

High quality artefacts were produced on-site. These include decorative items such as roundels and axe-blade plates which may, on the analogy of Sutton Hoo, mound 17, for example, have formed components of horse bridles. Decorated strap fittings and buckles, if not from horse gear, may have been intended for use with baldricks or related belts. The influence of artefact types current in early seventh century Anglo-Saxon England may be detected in the association of roundels and axe-blade plates. A nod in the direction of zoomorphic interlace on one roundel may be another manifestation of the assimilation of such influences. Alternatively, in the political context of seventh century Rheged, such pieces may represent an attempt to produce artefacts acceptable as tribute or census to an Anglian overlord. The artefacts produced on-site may not necessarily have been intended for use on-site. Nevertheless, the Mote of Mark is clearly integrated within a network of high status processes.

The status associated with the artefacts, therefore, as distinct from the skill required to produce them, is conveyed to the recipient of the goods. Both Irish and Welsh traditions suggest that certain items of precious metalwork could constitute badges of rank. *Crith Gabhlach* stipulates that the mark of one of the lowest grades of nobility is the wearing of a brooch of the value of an ounce of silver (Kelly 1988, 114). Regardless of whether we are able to agree with Dumville that the story-line of *Y Gododdin* ‘seems to work best in a mid-sixth century context’ (and why not?) it is possible to accept his assessment of the value of the material in describing the ‘heroic ethos of the sub-Roman northern Britons’ (Dumville 1993, 6–7). The warriors of *Gododdin* are repeatedly described as ‘brooch-wearing in the front rank’. Similarly, torque-wearing and gold-torque-resplendent are epithets appropriate to kings and heroes (Williams 1938, lines 21, 30, 39, 40, 46, 185; Jarman 1988, lines 31, 40, 49, 50, 56, 195). It is fair to say, however, that *cae* (brooch) in the text could be used to describe a variety of closures such as clasps, belts, collars or, in later poetry, coronets (w. *talaith*) (Williams 1938, 69 n.21).

The point is largely academic, however, as the ‘torque-wearing warrior’ and ‘gold-torqued kings’ are likely to be as anachronistic in the sixth, or seventh, let alone the ninth, century as a ‘laurel-crowned hero’ would be in the twentieth. The significance is in the continuing identification of certain distinctive and precious items of dress

as status symbols, whether torques in the Iron Age, military buckles in the late Roman Empire or elaborate brooches in early Medieval north and western Britain and Ireland.

The use of brooches as insignia in the late Antique world seems to have persisted into Medieval times - the Merovingian Childeric was buried in the late fifth century with a brooch which copied a Roman type pinned on officials by the Roman emperor at their investiture (James 1982, 27), and the tradition persisted in the Byzantine world to the tenth century (James 1977, 100). Penannular brooches however are the best attested 'status symbols' of early Christian Celtic society, and their importance in this context has been emphasised by Nieké (1993). The penannular brooches manufactured at the Mote of Mark are very small. Nevertheless, it has been suggested above that some of the more highly decorated items produced at the Mote of Mark were intended for high ranking recipients and would have been regarded as high status goods.

Economy and status

Certain economic conditions have been regarded as having an association with high-status. Warner has suggested that the presence of craft workshops might be appropriate to a royal site although he makes the important distinction that this criterion is only applicable where the activities of a number and variety of skills are represented. Otherwise the establishment, in default of additional evidence, might be the home of a master craftsman (Warner 1988, 66). This latter characteristic is certainly evidenced at the Mote of Mark. The question may now be addressed as to whether a metalworking centre could be regarded, in itself, as 'high status'. In early Irish literature it is apparent that some smiths had a particular status in Celtic society: they enjoyed free status, owned and inherited property, made oaths, entered into contracts and attended assemblies as members of the *nemed* class, albeit as a lower appendage of that class, without full *nemed* privileges (Kelly 1988, 10). They were privy to the business and mysteries of the tribe (Gillies 1981, 76–7). The blacksmith (*gobae*) was credited with almost magical properties and the skills of the master smith of the rank of *ollam* appear to have been valued above the conventional honour price of seven *sets* given by *Crith Gabhlach* (Kelly 1988, 62–3). The status of the blacksmith in Ireland is well-attested in the literature (Scott 1985). Coppersmiths (*umaige*) and workers in precious metals (*cerd*) were of comparable status – equal to that of judges and physicians. In the *Tain Bo Cuailnge*, the master smith Caulann invited king Conchobor and his retinue to a feast in the smith's *liss* or court (O'Rahilly 1976, 17). Significantly, Caulann specified that Conchobor should not bring too many guests, since his estates were not extensive. While the *Tain* apparently reflects a more archaic society than that of the early Christian period, it is clear from the Lives of various

saints that master-craftsmen were still revered members of society (Gillies 1981, 76). There is comparable evidence from Anglo-Saxon England (Evans 1997, 134). Among the Franks there are high-status warrior graves with the equipment of the smith. A goldsmith was buried with sword, scramasax, spear, shield, horse-bit, various personal belongings and the tools of his trade, including a balance and touchstone in grave 4 at Wallerstadten in Germany, around AD 600 (Moller 1987, 65). There is a fifth-sixth century goldsmith's grave at Schonebeck on the Elbe, which is presumed to be Thuringian (Schmidt 1983, 533) and another of the seventh century from Vendel, Sweden (Arrhenius, 1979). At Hérouvillette, Normandy, a grave contained tools suitable for both heavy and light metalworking (DeCaens 1971, 83–80), and the tools appropriate to both heavy and light metalworking were found in a seventh- or eighth-century assemblage in a grave at Tattershall Thorpe, Lincs (Hinton 1993). In Kent the otherwise unique name of Faversham means 'the home or village of the smith' (Fellows-Jensen 1990, 20), and the pagan Anglo-Saxon cemetery there has produced a rich array of metalwork – the site being known, probably not fortuitously, as King's Field (Hinton 1998, 9). The laws of Aethelberht of Kent in the early seventh century stated that 'if anyone kills the king's own smith, or his messenger, he is to pay the ordinary *leodgild*' This is assumed to be the equivalent of *wergild*, and accorded the smith the same value as a freeman, even when he was not free (Hinton 1998, 9). The evidence from the early literature of Wales supports a similar tradition. As Culhwch approaches Arthur's court, as recounted in 'Culhwch ac Olwen', he is initially refused entry by Glewlwyd Gafaelfawr, the porter. The feast had begun and the criteria for entry were strict – 'only the son of a king of a rightful dominion, or a craftsman who brought his craft' might enter. The manuscripts containing this story are late (fourteenth century) but the latest redaction is thought to be as early as the eleventh century – and represent one of the earliest surviving Welsh prose tales (Jones and Jones 1974, introduction; Roberts 1992, 214; Bromwich and Evans 1988, 4). The significance here is that, in a literary context, at least, the value of a craftsman is regarded as equivalent to the status of the son of a king and both are welcome visitors to the royal court.

The recognition of high-status in aspects of the material culture of a site has been discussed above. One component of the economy of a settlement which might provide a clue to status is the nature of the food resource available. Warner has suggested that the provision of food renders might be detectable in certain joints of meat or in the age of animals. Alcock has discussed the relevance of documentary sources, including the detail of food renders in *Cyfraith Hywel*, in an interpretation of the archaeological evidence for food consumption at Dinas Powys (Warner 1988, Alcock 1987, 67–82). It may not, however, be possible to differentiate food renders from the totality of the food resource available for the simple reason that

most residences of the nobility, including that of the king, are likely to have incorporated a home farm. Such lords are unlikely to have relied entirely on hospitality and food gifts or to have run establishments solely as collection centres. Irish kings and lords are assumed to have maintained their own farms (Kelly 1988, 30) and it makes no sense of the obligation on a base client to join the reaping party in his lord's cornfields if this were not so. The residents would have benefited from both the produce of the home farm in addition to the renders of clients and bondmen. It may, on the other hand, be possible to deduce something of the status of the occupants of an establishment from the nature and proportions of the food consumed.

The distinction between food renders (*W. dawnbwyd*), deliverable to a lord's residence, and winter season hospitality (*W. gwestfa*) provided by a freeholding nobleman in his own house for a king or very high-ranking lord, will be discussed in more detail below. It is possible, in a Welsh context, to differentiate between the less honourable and dependent relationship incurred by the payment of *dawnbwyd*, on the one hand, and the honourable provision of hospitality, on the other. Although regional economic variations may influence the components of renders, there would seem, nevertheless, to be a recognisable distinction between the context of renders and the menu accompanying *gwestfa*. In early Medieval Wales it was appropriate that a lord should be feasted on beef and mead. In the same context pork, mutton and ale would suffice for *dawnbwyd*. Beef was very clearly the dominant meat dish for those who feasted on the summit of the Mote and, occasionally, quality beverages may have been consumed, on the evidence of the fine glass debris from the site. That is not to suggest that these feasts necessarily imply the provision of *gwestfa*, but that food and drink appropriate to the status of a lord was served there.

Finally, and appropriate only to a royal establishment, one might expect evidence of tribute from territories beyond the boundaries of a kingdom. Such tribute was only payable to a king as overlord and, for numerous practical reasons, would need to be transportable over long distances. Small precious items and animals, particularly cattle, 'tax on the hoof' in Thomas Charles-Edwards' phrase. There are no artefacts from the Mote of Mark indicative of the receipt of tribute. There is, however, considerable evidence for the production of artefacts which would not be out of place in the processes of supplying tribute or the exchange of gifts.

We may conclude by accepting that there is no evidence at the Mote of Mark for royal status. The defences of the rock, on the other hand, are an indication of access to a labour source that could only be available to a lord of clients. There is some evidence, in the food resource and, indirectly in the use of exotic artefacts, particularly drinking glasses, for feasting at a level appropriate to a lord.

The scale of operations, on the summit of the hill at least, is small. There are craft skills of high quality present but there is not the proliferation of crafts that a major estate centre might support. The craft skills, on the other hand might be mechanisms by which the lord of the Mote of Mark acquired his status and the wealth to maintain it. The Mote of Mark, therefore, is likely to have been the workshop and home base of a master craftsman of high status.

The economy of the Mote of Mark

The workshop

It is clear from the excavated evidence that the Mote of Mark was the nucleus of the metalworking workshop, turning out a range of cast copper-alloy artefacts, many of which were of high quality. It is unclear what economic mechanisms underpinned this production. Nevertheless, given the small area of the enclosed hilltop, the extent to which the, predominantly copper-alloy, industry occupied the available area of the interior and the relatively limited range of evidence for other craft specialisation or other activities on the site, the Mote would seem to have been the residence of a master smith rather than that of a lord who retained such a craftsman under his patronage. It has been argued above that the provision of defences and other associations suggest that the master smith was, himself, a lord. The manufacturing processes and their products have been described in detail in previous sections.

The agricultural regime

As a lord, the master smith of the Mote of Mark, will have had clients or bondmen who owed him labour services and food gifts or renders. He will not have been entirely self-sufficient but will, almost certainly, have maintained his own farm in the vicinity of the stronghold on the rock. *Crith Gabhlach* lists the appropriate buildings of a substantial farm which include an outhouse, kiln, barn, pigsty, calf pen and sheep pen. Schematised as these may be, there is no reason why mainland Britain should be significantly different (Kelly 1988, 110). The presence of neo-natal skeletal material of cattle and sheep is a possible indication of breeding close to the site. The farm may have been run by his own family, perhaps with the assistance of tied tenants providing labour services. Both early Welsh and early Irish society appear to have made provision for such resident estate workers (Charles-Edwards 1993, 367–9; Kelly 1988, 33–38; Jenkins 1986, 125–6). He will certainly have been able to take advantage of seasonal or periodic labour services such as an Irish client (*W. aillt*) owed his lord. In a later Welsh context, on the one hand, estate workers provided agricultural labour on the 'home farm'. On the other hand, bondmen, disposed on their own holdings in the wider landscape performed carrying duties, repaired mills and water

courses and, significantly, provided the labour for the repair and maintenance of their lord's residence and its enclosure. The detail of these services is best known from royal and ecclesiastical surveys of the thirteenth and fourteenth centuries (Ellis 1838) by which time most of the payments, including hospitality, had been commuted to cash. Nevertheless, there are indications of the antiquity of such a social framework in Wales as early as the eighth century (Davies 1982, 129–32; 201–20; Charles-Edwards 1993, 395–400).

In addition to the produce of his own fields, the lord of the Mote of Mark, depending on his status, might expect to receive food renders from his clients or bondmen. The relationships between lord and client and their provision are slightly different in early Medieval Ireland to those of Wales. The Welsh evidence is somewhat later and circumstances may have changed. We cannot be certain what arrangements might have been in place in Rheged in the sixth and seventh centuries. Nevertheless, certain basic principles might be held to apply. In early Ireland a lord would expect, in addition to the payment of food gifts from his clients, to be provided with hospitality during the winter season. In a Welsh context a clear distinction is made between the payment of food renders and the provision of hospitality. A lord would expect to *receive* food renders (*W. dawnbwyd*) but would also be expected to *provide* hospitality (*W. gwestfa*) for a higher-ranking lord who would almost invariably be the king. The former was regarded as a somewhat subservient obligation and a mark of dependency; the latter was honourable and a mark of status. The nature of recorded renders, both schematised in law books and in practice, emphasises these distinctions of status and culture.

Dawnbwyd was payable in both the summer and winter seasons and typically comprised drink, bread and an accompaniment to bread, usually meat but also dairy produce. Such renders are recorded as early as the eighth and ninth centuries in Wales. Comparable renders were payable by a base client to his lord in Ireland in the eighth century and are also recorded in Wessex (seventh century) and Mercia (late eighth century) (Davies 1979; Kelly 1988, 30; Faith 1997, 38–9). *Gwestfa* (hospitality, literally 'spending-the-night place'; Charles-Edwards 1993, 556) was provided by a free-holding nobleman, at his own residence, for his king and this access and companionship conferred status. Later, after *gwestfa* had been commuted to food renders and ultimately cash, payable at the recipient's court, it is possible to identify the appropriate components of *gwestfa* and to differentiate between *gwestfa* and *dawnbwyd*. Significantly, the meat of *dawnbwyd* seems predominantly, and perhaps originally, to have been pork or mutton rather than beef. The drink was ale (Charles-Edwards 1993, 396–8). *Gwestfa*, on the other hand, comprised beef and mead (Jenkins 1986, 128; Charles-Edwards 1993, 370–4, where it is argued that the inclusion of pork and butter is a late

addition and more appropriate to *dawnbwyd*). The meat of Irish renders was primarily beef, with the addition of bacon, bread and dairy products. The documentation of these obligations is necessarily schematised and there must have been regional variations. Nevertheless, the differentiation of status is real enough, particularly concerning the distinction between ale and mead.

The animal bone assemblage from the Mote of Mark, predominantly from a midden deposit close to the rampart on the south side, must represent consumption on the hill. It may not be fully representative of the complete range and relative quantities of meat consumed if it is allowed that there may have been ancillary activities outside the fortification at the base of the rock. The supply of victuals for consumption within the defences on the summit may, therefore, have been selective. As such, it is entirely in accordance with the emphasis in the Welsh record on beef as the appropriate meat with which to feed a lord. There is no direct evidence for the drink consumed. Nevertheless, the concentration of fine glass fragments in the area of the putative structure close to the north rampart lends weight to the suggestion that the glass may have reached the site as vessels rather than cullet. The poetic record confirms the perceived appropriateness of glasses as receptacles for up-market drink such as wine and mead (Jarman 1988, lines 625, 776, 883; Williams 1970, lines 797, 1008–1009, 1144). It would seem then, that, even if no high-lord visited the Mote of Mark to receive *gwestfa*, the master-smith and his company on the hill occasionally feasted in the appropriate style.

Relative proportions of cattle, sheep and pigs recorded at a selection of broadly contemporary settlements are presented in Table 36 for comparison. The proportion of domesticated species represented at the Mote of Mark can, therefore, be seen to be in keeping with many western and northern sites in the early Medieval period. High representations of cattle are recorded at the fortifications from mainland north Britain: Clatchard Craig and Dundurn (Pictland), Mote of Mark (British Rheged), Dunollie and Dunadd (Dalriadic Scotland) and Castle Rock, Edinburgh (British Gododdin). With the exception of the Brough of Birsay, cattle are numerically dominant in all the examples selected although pigs are particularly well represented at Dinas Powys, Glamorgan, and Rathmullan, Co. Down. Sheep were important at Larrybane promontory fort, Co. Antrim. Although the sample is small at Iona it is particularly interesting to compare the exceptionally high incidence of beef at the two ecclesiastical sites with the low representation at the two undefended settlements. However, proportional variations are sure to reflect local conditions and such economic considerations are likely to exert as much influence on the agricultural regime as the schema of the law texts.

It was suggested that sheep became more common at Whithorn in periods II–IV with the inception of the

Site	Site type	Cattle	Sheep	Pigs
<i>Dunadd</i>	Hillfort	79	12	10
<i>Clatchard Craig</i>	Hillfort	77	13	10
<i>Mote of Mark</i>	Hillfort	74	9	16
<i>Dundurn</i>	Hillfort	64	8	28
<i>Dunollie</i>	Hillfort	64	17	19
<i>Edinburgh castle</i>	Hillfort	60	13	27
<i>Dinas Powys</i>	Hillfort	42	21	35
	Hillfort average	66	13	21
<i>Larrybane</i>	Promontory fort	58	37	5
<i>Ballyfounder</i>	ring fort	71	11	18
<i>Knowth, phase 1</i>	ring fort	66	13	21
<i>Rathmullan</i>	ring fort	43	18	39
	ring fort average	60	14	26
<i>Lough Faughan</i>	Crannog	79	9	13
<i>Lagore</i>	Crannog	71	15	14
<i>Moynagh Lough</i>	Crannog	66	12	22
	Crannog average	72	12	16
<i>Whithorn</i>	Ecclesiastical	82	3	15
<i>Iona Vallum</i>	Ecclesiastical	91	6	3
	Ecclesiastical average	87	4	9
<i>Buckquoy</i>	Undefined settlement	51	24	22
<i>Birsay</i>	Undefined settlement	46	53	1
	Settlement average	49	39	12
	Average all sites	66	17	17

Table 36. Animal Bones from early Medieval sites.

Northumbrian phase and an increase of wool production (Hill *et al.* 1997, 607). Wool was comparatively unimportant in Period I. The rarity of spindle whorls from the Mote of Mark (two in 1913, none 1973–9) may be in keeping with the relative unimportance of sheep in the economy at this time although, again, the possibility of agricultural processes being undertaken down from the hill must be considered. Nevertheless, the rarity of sheep is in contrast to the situation in Anglo-Saxon England, where sheep appear to have been particularly well represented (Clutton-Brock 1976, 380; Arnold 1997, 35). The statistics from the pagan Saxon settlement at West Stow, Suffolk, are particularly informative in this respect, where even in phase I, sheep outnumber cattle.

The significance of dairying in the early Medieval economy has been alluded to. Legge (1981, 79–103) and McCormick (1983, 253–267) have both considered the criteria for identifying dairying in the recorded animal bone assemblages of archaeological sites. In theory, a predominantly dairy regime would slaughter male calves at a young age and retain the cows for milking. The cows would continue to calve every year to ensure lactation, ensuring a continuous supply of surplus males and an

ageing population of cows. This process ought to show in the food waste as a preponderance of evidence for immature males and a smaller proportion of older cattle, mostly cows. The Mote of Mark assemblage, on the contrary, comprises a high proportion of beasts slaughtered in their prime or at an older age, with few young animals (Table 34). This pattern is indicative either of an emphasis on meat production (McCormick 1983, 260) or modified dairying whereby young animals, rather than being consumed on site, are distributed elsewhere. In an early Irish context, for example, cattle would be supplied by a lord to a base client as the major element of a fief (Kelly 1988 27, 29; Charles-Edwards 1986, 67–72). There are two difficulties, however, in pursuing this analogy. The obvious one is that Rheged is not Ireland and there is no good evidence to suggest an equivalent to the fief of cattle in early Wales. Nevertheless, Charles-Edwards allows the hypothetical possibility of an association between lordship and cattle in an early British context, in areas uninfluenced by the Roman emphasis on the association of lordship and land (Charles-Edwards 1993, 461). The second, perhaps insurmountable difficulty, is that the fief of cattle in early Ireland,

comprising between 8 and 20 beasts, was composed predominantly of cows, with bulls present in the ratio of about 10 cows to one bull. That is to say, the lord would still be left with a surplus of male cattle. An alternative explanation would be to regard the animal bone assemblage from within the fortification as a selection of meat, not only from the resource as a whole but from within the cattle herd, to supply the table of those who dined on the hill.

There are other reasons for supposing that ancillary farming practices were undertaken outside the fort itself. The particular topographic circumstances of the site militate against a full range of agricultural processes being represented on the hill top. Bread was an important element in the early Medieval diet. Bread flour was worth as much as the meat and drink together in commuted *gwestfa* (Jenkins 1986, 128). However, no certain corn-grinding stones are recorded from the Mote of Mark, although item 1286 is a possibility. Nevertheless, querns are known from comparable and contemporary sites. The excavations at Lagore Crannog, Co. Meath, produced 43 querns (Hencken 1950, 173). Seventeen rotary querns and one saddle quern are known from Dunadd (Craw 1929–30, 120; Lane and Campbell 2000, 180–186). At Dinas Powys, Glamorgan, 5 querns were recorded (Alcock 1987, 138). Dundurn, where the scale of excavation was limited, nevertheless, produced 2 quernstone fragments (Alcock *et al.* 1989, 219). Kiondroghad, a comparably small metalworking site on the Isle of Man produced 2 querns (Gelling 1979, 81). Finally, further along the Solway coast, at Whithorn, 20 querns have been recorded (Hill 1997, 459). We must assume, therefore, that milling took place outside the confines of the rampart at the Mote of Mark.

The absence of fish bones and those of wild fowl have been noticed in the report on the animal bone assemblage. The almost complete absence of deer (one bone from a roe deer out of 7537 identifiable bone fragments) suggests that hunting and fishing did not play a major role in the economy. This lack of evidence for hunting is also reflected at other sites. At Dinas Powys, Alcock comments that ‘hunting, fishing and fowling made only a slight addition to the table’ (1987, 36). At Dundurn, similarly, there is little indication of hunting (2 deer bones and 1 heron from a total sample of 727). At Clatchard Craig, Fife, between 2 and 6 deer were recorded from a sample of around 760 identifiable bones (Close-Brooks 1988, microfiche). These statistics might seem to be at odds with the literary evidence (Alcock 1987, 36–7; Williams 1970, lines 1101–1117; Jarman 1988, lxii–lxiii). More significantly the legal texts from Wales and Ireland refer to hunting (Jenkins 1986, 21–3, 184–7; Kelly 1988, 106–7, 276). The Welsh legal texts, however, are concerned with the prerogatives of kings. Even the ‘delightful cradle-song’ commonly referred to as *Pais Dinogad* (Dinogad’s Coat) from the opening phrase of a seventeen line interpolation in Y Gododdin, concerns a man who has eight servants and hunts wild boar and stag. The poem is

more likely an elegy than a lullaby (Jarman 1988, lxii).

To what extent hunting contributed to the supply of food, therefore, is debatable and it is noteworthy that hunting was of limited importance in pagan Anglo-Saxon England (Arnold 1997, 35). Hunting certainly became a prestige activity – falconry appears to have spread from the continent to England in the eighth century (Carrington 1996, 462) and the influence of the Carolingian court on hunting in Pictland, for example, has been commented on.

Trade and exchange: continental imports

The Mote of Mark was in receipt of the products of trade and exchange. Such contacts were not confined to the products of the local landscape but extended to the wider world of trading connexions along the western seaways. Most important among the exotic material from the site is the imported pottery and glass. During the late fifth and early sixth century a pattern of trade brought wine, oil and other commodities, including fine red tableware to the secular strongholds of south-western Britain whence they were redistributed (Campbell 1996a). Current thinking has argued that the main imports of A (red wares) and B wares (amphorae) were the outcome of direct trade from the Byzantine world with the southwest peninsula of England (for tin) and south Wales and south-west England (for lead and silver) (Fulford 1989; Thomas 1988; Lane 1994, 105). While Thomas has argued that the occurrence of Mediterranean pottery of these groups could have been the result of the arrival of one cargo (1988), the considerable quantity from Tintagel, Cornwall, the wide distribution of finds and the variety of fabric variations would seem to refute this (Campbell 1996a, 81). The relatively small numbers from most sites may simply reflect the status of the pottery as the ancillary but durable component in the transport of perishable materials (Lane 1994). Very few of these goods appear to have reached the shores of the Irish Sea although there are significant exceptions. The recent excavations at Whithorn have produced nine sherds of African Red Slip ware and 211 sherds of predominantly eastern Mediterranean amphorae, representing a minimum of four and ten vessels respectively (Campbell 1997, 315–6). Clearly, imports were reaching the Solway coast and the quantity of material together with the association of Red Slip ware with amphorae strongly suggests that this represents direct trade to a nearby port (Campbell 1997, 316). The two sherds of a single Bi Aegean wine amphora from the Mote of Mark indicate that the site shared in this process although the quantity of material is insufficient to permit the conclusion that this occurred directly rather than through redistribution. African Red Slip wares and class B amphorae are not otherwise commonly represented in Scotland – they occur further north at Dumbarton, (Alcock & Alcock 1990) and as a single sherd of African Red Slip ware from Iona (Thomas 1981).

The earlier sixth century trading axis represented by Mediterranean imports was superseded around the middle of the century and was replaced by mercantile connexions between north-western Britain and Ireland and western France (Campbell 1996). D ware appears to have been traded from western France in the sixth century, and bridges the trade gap between the Mediterranean wares of classes A and B and the later Frankish E ware. It occurs on some southern sites (such as Dinas Powys) abandoned by the seventh century. In Scotland it is represented again at Whithorn (by a single sherd) and also at Dunadd (Lane 1994, 106). Glass and E ware may, like the ceramic component of earlier imports, have been simply the imperishable parts of larger cargoes of perishable goods – wine, salt, dyes, nuts, honey or spices have all been suggested by Campbell (Lane 1994, 107). E ware, now dated to the later sixth and seventh centuries, appears to have come from Western France, probably the Loire valley near Nantes (Lane 1994, 107). The largest imported assemblage is known from Dunadd in Dalriada, (Lane 1994, 107). The trade seems to have been directed at royal or noble centres of power, although some pottery was traded out from these centres reaching, for example, Pictland.

During the later sixth and much of the seventh century, the evidence of pottery and glass is much clearer in allowing us to suggest that the Mote of Mark participated directly in the business of exchange and the receipt of imported goods. There is one single sherd of mid-sixth century, grey, D ware mortarium. There are however, 96 sherds of E ware pottery jars, beakers, bowls and jugs, representing a minimum of 12 vessels. There are also 71 fragments of continental glass representing a minimum of 18 vessels, mostly beakers but including bowls and cups. Together, this assemblage of pottery and glass represents the fourth largest collection of the period from Britain and Ireland. Significantly, however, Whithorn has produced even more material. There are a number of close parallels between the pottery and glass from the Mote of Mark and that from Whithorn, to the extent that Campbell has suggested that some items must be contemporary products of the same workshop (above p.105). Campbell finds it difficult to choose between the two possible scenarios that, either the two sites were supplied at the same time by the same merchants, or that the sites were part of a redistributive system along the Solway coast. The Mote of Mark has an estuarine location. Whithorn is not coastal but it has been suggested that it may have been served by a port at the Isle of Whithorn (Hill *et al.* 1997, 5–6). There may have been other trading stations on the Solway. The sands at the head of Luce Bay have been proposed as the possible location of an early Medieval emporium (Hill *et al.* 1997, 14)

Given the partial excavation of most of the sites which have produced imported pottery and glass, it is as yet difficult to make inferences about the mechanisms that lie behind the trade or exchange. While the commodities

offered by Frankish traders can readily be inferred, what was offered in return? For the earlier trade that brought B Ware to south-west Scotland, Alcock has suggested that the commodities sought by the Byzantine world were furs (Alcock 1993, 40; Lombard 1969 for later Arabic trade with the west for furs), and these could have been also sought by the later Frankish traders. Celtic ornamental metalwork of the sixth-seventh centuries is conspicuous by its general absence in Frankish Gaul, and it seems unlikely that traders were seeking ores so far north. Yet traders from the Frankish world were clearly arriving at a central place near Iona, as attested by the *Life of St Columba* (Adomnan uses the term ‘caput regionis’). The question may be asked whether the trade is not concomitant with an endeavour by Frankish kings to extend their influence in Celtic Britain and Ireland, in the way that they were establishing control in the same period in south-east England among the Anglo-Saxons (on this, Wood 1994; Hodges 1989). Similarly, Hill has argued that the evangelisation of Galloway was strongly influenced by and perhaps directly effected by Gaulish clerics travelling these same routes (Hill *et al.* 1997, 12, citing C. Thomas).

Trade and exchange: small items and raw materials

Of manufactured articles, the only probable import from Ireland is the glass bead with green and white cables (p.101, no. 2245) which belongs to a series of glass beads as yet not properly studied but which seem to be the counterpart of the glass bangles that occur on high status sites in Ireland around the seventh century (and in one instance in Scotland). Its presence at the Mote of Mark reminds us of the proximity of eastern Ireland and the Isle of Man and the feasibility of contact with these regions.

Raw materials for the manufacturing processes at the Mote of Mark seem to have come from both locally and from a distance. Local resources were utilised. The antler used for a knife handle could easily have come from the woodland that probably then, as now, extended in the hinterland of the site. Bone clearly was derived from food refuse on the midden and we are reminded of the Irish jurists’ jocular reference to those things which confer status on a comb-maker, including racing a dog for a bone and chanting on a dunghill to summon the antlers and bones to the top (Kelly 1988, 63). Stone artefacts were also mostly of local derivation. Although the Mote itself is a granite outcrop, a diversity of stones was available as beach pebbles at the foot of the rock, and others could be found in the adjacent gravels. The most commonly used lithic material for artefacts appears to have been sandstone, which is similarly available not far from the site. Flints, too, are found locally.

It is suggested elsewhere in the report that the ores used in metalworking were for the most part local. The source of the gold is debatable – the nearest source is the

Leadhills in Lanarkshire – but the copper and iron ores could have been relatively local (see p.38). Lead is similarly available in south-west Scotland, but the source of the tin is unknown.

More exotic is the jet, for which a Yorkshire origin has been suggested (p.102). Cannel coal is not native to this part of Scotland, although Ayrshire is a likely source. The material appears to have been worked into bangles as an alternative to glass versions in many parts of the Celtic world. These D-shaped bangles (or pendants) of jet, lignite or shale are the equivalent of the glass bangles found in Ireland, to which reference has been made above, and may be another indication of status. They occur for example at Whithorn, where they appear to have been worked (as was the case at the Mote of Mark), and all stages of their production is represented at Ronaldsway in the Isle of Man (Laing & Laing 1988, 409), and, in a slightly later form, at Kingarth (Anderson 1900, 311) and Little Dunagoil on Bute (Marshall 1964, pl. 15, 1–4).

Anglo-Saxon contact and influence has been discussed elsewhere in the report (p.167–8).

Conclusions

The excavations of 1973 and 1979 made considerable progress towards answering some of the questions posed about the site and outlined in the Introduction. It is likely that the occupation on the site began prior to the construction of the ramparts, probably in the mid-sixth century, and that the fortifications were constructed when pottery and glass were already being imported to the site and metalworking underway. It is fairly clear that the ramparts were constructed in one phase, probably towards the end of the sixth century, and thereafter occupation and industry continued into the seventh century, at which time the ramparts were fired and slighted. The date of this is not clear, but lies in the mid to late seventh century. Additionally, the excavations have increased understanding of the development of ornamental metalworking in a formative stage before the eighth-century *floruit* of ornamental metalworking in ‘Celtic’ Britain and Ireland, and of high-status craftsmanship in the period, as well as increasing overall understanding of the character of south-west Scotland at the time of the Anglian advance.

Bibliography

- Aberg, N 1923 *The Anglo-Saxons in England in the Early Centuries after the Invasion*. Uppsala.
- AC: Annales Cambriae, in (ed. and trans.) J. Morris 1980, *Nennius: British History and the Welsh Annals*, 85–91. Chichester.
- Alcock, L 1963 *Dinas Powys, an Iron Age, Dark Age and early Medieval Settlement in Glamorgan*. Cardiff.
- Alcock, L 1975 Dry bones and living documents. in Evans, J G, Limbrey, S and Cleere, H (eds), *The effect of man on the landscape: the Highland zone*. (= CBA Res Rep 11), 117–122, London.
- Alcock, L 1975–6 ‘A multi-disciplinary chronology for Alt Clut, Castle Rock, Dumbarton’, *Proc Soc Antiq Scot*, 107, 103–113.
- Alcock, L 1979 ‘The North Britons, the Picts and the Scots’, in Casey, P J (ed) *The End of Roman Britain* (= BAR 71), 134–42, Oxford.
- Alcock, L 1981 ‘Quantity or Quality: the Anglian graves of Bernicia’, in Evison, V I (ed) *Angles, Saxons and Jutes*, 168–86, Oxford.
- Alcock, L 1987 *Economy, society and warfare among the Britons and Saxons*. Cardiff.
- Alcock, L 1988 ‘The activities of potentates in Celtic Britain, 500–800 AD: a positivist approach’, in Driscoll, S T & Nieke, M (eds), *Power and Politics in early medieval Britain and Ireland*, 22–39, Edinburgh.
- Alcock, L 1993 *The neighbours of the Picts: Angles, Britons and Scots, at war and at home*. Rosemarkie.
- Alcock, L 1994 ‘Message from the Dark Side of the Moon: Western and Northern Britain in the Age of Sutton Hoo’, in Carver, M (ed), 205–15.
- Alcock, L 1995 *Cadbury Castle Somerset, The early medieval archaeology*. Cardiff.
- Alcock, L 2003 *Kings and Warriors, Craftsmen and Priests*, Edinburgh.
- Alcock, L & Alcock, E A 1988 ‘Reconnaissance excavations on Early Historic fortifications. 1974–84: 2, Excavations at Dunollie Castle, Oban, Argyll, 1978’, *Proc Soc Antiq Scot*, 117, 119–148.
- Alcock, L & Alcock E A 1990 ‘Reconnaissance excavations on Early Historic Fortifications and other royal sites in Scotland 1974–84: 4, Excavations at Alt Clut, Clyde Rock, Strathclyde, 1974–75’, *Proc. Soc. Antiq. Scot.*, 120, 95–149.
- Alcock, L, Alcock, E A, & Driscoll, S T 1989 ‘Reconnaissance excavations on Early Historic fortifications and other royal sites in Scotland, 1974–84: 3, Excavations at Dundurn,’ *Proc Soc Antiq Scot*, 119, 189–227.
- Allen, J & Anderson, J 1903 *Early Christian Monuments of Scotland*. Edinburgh.
- Anderson, J 1900 ‘Description of a Collection of objects found in excavations at St Blane’s’, *Proc Soc Antiq Scot*, XXXIV (1899–1900), 307–25.
- Anon 1867–74 ‘Brooches lately found at Ardagh in the County of Limerick’ *Trans Roy Ir Acad* 24, (1867–74), 433–54.
- Armstrong, A M *et al.* 1950 *The Placenames of Cumberland*, Cambridge.
- Arnold, C 1997 *An Archaeology of the Early Anglo-Saxon Kingdoms*, 2nd ed. London.
- Arrhenius, B 1979 ‘Ein Goldschmildegrab von Havgaradsberg, Vendel, Uppland, Schweden’, *Frumittelalterliche Studien*, 13, 393–414.
- Attenborough, F L 1922 *The Laws of the Earliest English Kings*. London.
- Aufleger, M 1996 ‘Metallarbeiten und Metallverarbeitung’, in von Welck, K (ed), 618–28.
- Baker, J & Brothwell, D 1980 *Animal Diseases in Archaeology*. London.
- Bannerman, J 1974 *Studies in the History of Dalriada*, Edinburgh.
- Barbour, I 1907 Notice of a stone fort near Kirkandrews, *Proc.Soc.Antiq.Scot.*, 41, 68–80.
- Batey, C 1987 *Freswick Links, Caithness*, (=Brit Arch Reps, Brit Ser 179). Oxford.
- Bayley, J 1984 ‘Crucibles and clay moulds from Dunadd, Argyll’, *Ancient Monuments Lab report No 4237*, March, 1984 (unpublished).
- Bayley, J 1991a ‘Archaeological evidence for Parting’, in Pernicka, E & Wagner, G A (eds), *Archaeometry '90; Proceedings of the 27th International Symposium on Archaeometry in Heidelberg*. Basel.
- Bayley, J 1991b ‘Anglo-Saxon non-ferrous metalworking: a survey’, *World Archaeology* 23(1), 115–130.
- Bayley, J 1992a ‘The metalworking evidence’, in Milne, G and Richards, J (eds), *Wharram, a study of settlement on the Yorkshire Wolds, 7 Two Anglo-Saxon Buildings and Associated Finds*, 59–66, York.
- Bayley, J 1992b *Anglo-Scandinavian Non-ferrous Metalworking from 16–22 Coppergate, York* (=Archaeology of York, Vol.17 fasc.7), York.
- Bayley, J 1996 ‘Clay Piece-Moulds’, in Hinton, D A *The Gold, Silver and other Non-Ferrous Alloy Objects from Hamwic*, (Southampton Finds, vol.2). Stroud, 83–4.
- Beninger, E 1966 ‘Der Langobardenfriedhof von Poysdorf’, *Archaeologica Austriaca*, 40, 167–87.
- Blockley, K 1989 *Prestatyn 1984–5: an Iron Age farmstead and Romano-British industrial settlement in North Wales*, (= Brit Arch Reps Brit Ser 210), Oxford.
- Boessneck J, Muller, H-H & Teichert, M 1964 *Osteologische Unterscheidungsmerkmale zwischen Schaf und Ziege*. *Kuhn-Archiv* 78. 1–2, 1–129.
- Boon, G C 1974 *Callewa, the Roman Town of Silchester*, Newton

- Abbot.
- Bourdillon, J & Coy, J 1980 'The animal bones' in Holdsworth, P (ed), *Excavations at Melbourn Street, Southampton 1972-76* (=CBA Res Rep 33), 79-121, London.
- Bourke, E 1994 'Glass vessels of the first nine centuries AD in Ireland', *J Roy Soc Antiq Ireland* 124, 163-209.
- Bradley, J 1993 'Moynagh Lough: An Insular Workshop of the Second Quarter of the Eighth Century', in Spearman, M & Higgitt, J (eds), *The Age of Migrating Ideas*, 74-81, Stroud.
- Brenan, J 1990 *Hanging Bowls and their Contexts*, (=Brit Arch Reps Brit Ser 220), Oxford.
- Brinch Madsen, H 1984 'Metal casting techniques, production and workshops', in Bencard, M (ed), *Ribe Excavations 1970-76*, vol. 2, 15-189.
- Bromwich, R & Evans, D S 1988 *Culhwch ac Olwen*. Cardiff.
- Bromwich, R 1978 *Trioedd Ynys Prydein*. Cardiff.
- Brooke, D 1991 'The Northumbrian settlements in Galloway and Carrick an historical assessment', *Proc Soc Antiq Scot*, 121, 295-327.
- Brown, P D C & Schweizer, F 1973 'X-Ray Fluorescent Analysis of Anglo-Saxon jewellery', *Archaeometry* 15, 2 (1973), 175-92.
- Brulet, R 1996 'Tournai und der Bestattungplatzum Saint-Brice', in von Welck, K (ed) *Die Franken*, 163-70, Mannheim.
- Brulet, R 1981 'Tournai: fouille d'une necropole du Bas-Empire', *Archeologia*, 145, 55-59.
- BT, *The Book of Taliesin*, Evans J Gwenogfryn (ed). 1910, Llanbedrog.
- Buick, G R 1893 'The crannog of Moylarg. Second paper.' *J Roy Soc Antiq Ir*, 23, 27-43.
- Bushe-Fox, J P 1913 *First Report on the Excavations of the Site of Wroxeter, Shropshire*, (= Soc Ant Lond Res Rep I), Oxford.
- Bushe-Fox, J P 1914 *Second Report on the Excavations of the Site at Wroxeter, Shropshire, 1913*, (= Soc Ant Lond Res Rep II), Oxford.
- Bushe-Fox, J P 1916 *Third Report on the Excavations of the Site at Wroxeter, Shropshire, 1914*, (= Soc Ant Lond Res Rep IV), Oxford.
- Byrne, F J 1973 *Irish Kings and High Kings*, London.
- Campbell, E 1986 'The Dark Age pottery - E ware' in Close-Brooks, J, 'Excavations at Clatchard Craig, Fife', *Proc Soc Antiq Scot*, 116(1985-6), 155-6.
- Campbell, E 1991 *Imported goods in the early medieval Celtic West: with special reference to Dinas Powys*. Unpublished PhD thesis, University of Wales, College of Cardiff.
- Campbell, E 1996a 'Trade in the Dark Age West: a peripheral activity?' in Crawford, B (ed) *Scotland in Dark Age Britain*, 79-91, St Andrews.
- Campbell, E 1996b 'The archaeological evidence for contacts: imports, trade and economy in Celtic Britain AD 400-800', In K R Dark (ed) *External contacts and the economy of Late Roman and Post-Roman Britain*, 83-96, Woodbridge.
- Campbell, E 'A review of glass vessels in western Britain and Ireland AD 400-800', in Price, J (ed) *Glass in Britain, AD 350-800*. London.
- Campbell, E 1997 'The early medieval imports', In Hill, P *Whithorn and St Ninian: The excavations of a monastic town 1984-91*, 297-322, Stroud.
- Campbell, E 2000 'A review of glass vessels in western Britain and Ireland AD 400-800', in Price, J. (ed) 33-56, London.
- Campbell, E (forthcoming) *Imported pottery and glass in Atlantic Britain and Ireland, AD 400-800*.
- Campbell, E & Lane, A 1993a 'Excavations at Longbury Bank, Dyfed, and early medieval settlement in South Wales', *Medieval Archaeol.* 37, 15-77.
- Campbell, E & Lane, A 1993b 'Celtic and Germanic interaction in Scottish Dalriada: the seventh-century metalworking site at Dunadd', in Spearman & Higgitt, (eds), 52-63.
- Campbell, J et al. 1982 *The Anglo-Saxons*, London.
- Capelle, T & Vierck, H 1971 'Modeln der Merowinger- und Wikingerzeit', *Frumittelalterliche Studien*, 5, 50, Abb 4, 1-2, 42-100.
- Carr, A D 1971-2 'The Extent of Anglesey 1352', *Trans Anglesey Antiq. Soc.*, 150-272.
- Carrington, A 1996 'The horseman and the falcon: mounted falconers in Pictish sculpture', *Proc Soc Ant Scot* 126, 459-68.
- Carson, R A G & O'Kelly, C 1977 'A Catalogue of the Roman Coins from Newgrange Co Meath and Notes on the Coins and Related Finds', *Proc Roy Ir Acad*, 77C, 35-55.
- Caruth, J & Anderson, S 1999 'RAF Lakenheath Saxon Cemetery', *Current Archaeology*, 163, 244-50.
- Carver, M (ed) 1992 *The Age of Sutton Hoo*, Woodbridge.
- Carver, M 1998 *Sutton Hoo, Burial Ground of Kings*, London.
- Cessford, C 1994a 'Early Historic Chains of Power', *Pictish Arts Society J*, 6, 19-26.
- Cessford, C 1994b 'Pictish Raiders at Trusty's Hill?' *Trans Dumfriesshire Galloway Natur Hist Antiq Soc*, LXIX, 81-88.
- Cessford, C 1995 'Torcs in Early Historic Scotland', *Oxford J Archaeol*, 14, no 2, 229-242.
- Cessford, C 1999 'Relations Between the Britons of Southern Scotland and Anglo-Saxon Northumbria', in Hawkes, J & Mills, S (eds) *Northumbria's Golden Age*, 150-60, Stroud.
- Chadwick, N K 1963 'The conversion of Northumbria: a comparison of sources', in Chadwick, N K (ed) *Celt and Saxon: Studies in the Early British Border*, 138-66, Cambridge.
- Charles-Edwards, T M 1986, 'Crith Gablach and the Law of Status', *Peritia*, 5, 53-73.
- Charles-Edwards, T M 1989 'Early Medieval Kingships in the British Isles', in Bassett, S (ed) *The Origins of Anglo-Saxon Kingdoms*, 28-39, Leicester.
- Charles-Edwards, T M 1993 *Kinship in Early Wales and Ireland*, Oxford.
- Clancy, J P 1970 *The Earliest Welsh Poetry*. London.
- Close-Brooks, J 1986 'Excavations at Clatchard Craig, Fife', *Proc Soc Ant Scot*, 116, 117-84.
- Clough, T H McK & Laing, L R 1969 'Excavations at Kirkconnel, Waterbeck, Dumfriesshire, 1968', *Trans Dumfriesshire Galloway Natur. Hist Antiq Soc.*, 46, 128-39.
- Clutton-Brock, J 1976 'The animal resources', in Wilson, D (ed) *The Archaeology of Anglo-Saxon England*, 373-392, London.
- Coffey, G & Armstrong, E C R 1910 'Scandinavian objects found at Kilmainham and Islandbridge', *Proc Roy Irish Acad*, 28C, 107-22.
- Coles, F R 1893 *The Motes, Forts and Doons in the East and West divisions of the Stewartry of Kirkcudbright*, *Proc Soc Antiq Scot*, XXVI, (1892-3), 92-185.
- Coles, J M 1964. *New aspects of the Mesolithic settlement of*

- South-West Scotland. *Trans. Dumfriesshire Galloway Natur Hist Antiq Soc*, 41, 67–98.
- Collins, A E P 1955 'Excavations at Lough Faughan Crannog, Co Down', *Ulster J Arch*, 18, 45–80.
- Cool, H E M 1986 'A Romano-British gold workshop of the second century', *Britannia*, XVII, 231–7.
- Cool, H E M 1990 'Roman metal hair pins from southern Britain', *Archaeol J*, 147, 148–82.
- Cool, H E M 2000 'The parts left over: material culture into the fifth century', in Wilmott, R & Wilson, P (eds) *The Late Roman Transition in the North*, Oxford (= Brit Arch Reps Brit Ser 299), 47–65.
- Cowley, D C 2000 'Site morphology and regional variation in the later prehistoric settlement of south-west Scotland'. In Harding, J and Johnston R (eds) *Northern Pasts – Interpretations of the Later Prehistory of Northern England and Southern Scotland* (=British Archaeol Rep. Brit Ser 302), Oxford.
- Crabtree, P 1989 *The Animal Bones from West Stow* (=East Anglian Archaeology 2).
- Cramp, R 1970 'Decorated window-glass and millefiori from Monkwearmouth', *Antiq J*, 50, pt.2, 327–335.
- Cramp, R 1984 *British Academy Corpus of Anglo-Saxon Sculpture, I, Northumberland and Co Durham*, Oxford.
- Cramp, R 1995 *Whithorn and the Northumbrian Expansion Westwards*, (=Third Whithorn Lecture), Whithorn.
- Cramp, R & Daniels, R 1987 'New finds from the Anglo-Saxon monastery of Hartlepool, Cleveland, *Antiquity*, LXI, 424–31.
- Craw, J H 1929–30 'Excavations at Dunadd and other sites on the Pottalloch Estates, Argyll,' *Proc Soc Antiq Scot*, LXIV, 111–146.
- Crone, A 1991 'Buiston Crannog', *Current Archaeology*, 127, 295–7.
- Crone, A 2000 *The History of a Scottish Lowland Crannog: Excavations at Buiston, Ayrshire, 1989–90*, Edinburgh.
- Crummy, N 1979 'A chronology of Romano-British bone pins', *Britannia*, 10, 157–64.
- Crummy, N 1983 *The Roman small finds from Excavations in Colchester, 1971–9*, (=Colchester Excavation Reports 2), Colchester.
- Curle, A O 1914 'Report on the Excavation in September 1913, of a Vitrified fort at Rockcliffe, Dalbeattie, known as the Mote of Mark', *Proc Soc Ant Scot*, XLVIII, 125–168.
- Curle, C L 1982 *Pictish and Norse Finds from the Brough of Birsay, 1934–74* (=Soc Ant Scot Monograph 1), Edinburgh.
- Dark, K R 1994a *Discovery by Design*, (=Brit Arch Reps, Brit Ser 237), Oxford.
- Dark, K R 1994b *Civitas to Kingdom, British Political Continuity 300–800*, Leicester.
- Davidson, H E & Webster, L 1967 'The Anglo-Saxon Burial at Coombe, (Woodnesborough), Kent', *Medieval Archaeol*, XI, 1–41.
- Davies, W 1978, *An Early Welsh Microcosm*, London.
- Davies, W 1979, *The Llandaff Charters*, Aberystwyth.
- Davies, W 1982 *Wales in the Early Middle Ages*. Leicester.
- DeCaens, J 1971 'Un Nouveau cimetiere du Haut-Moyen Age en Normandie, Herouvillette (Calvados)', *Archeologie Medievale*, 1, 1–125.
- Dickinson, T M 1982 'Fowler's Type G Penannular Brooches Reconsidered', *Medieval Archaeol*, XXVI, 41–68.
- Dodwell, C R 1982 *Anglo-Saxon Art: A New Perspective*, Manchester.
- Driesch, A von den, 1976 *A guide to the measurement of animal bones from archaeological sites*. Harvard.
- Dumville, D. 1988. Early Welsh poetry: problems of Historicity in Roberts, B F (ed) *Early Welsh Poetry: Studies in the book of Aneirin*, 1–16, Aberystwyth.
- Dumville, D 1993 The origins of Northumbria: some aspects of the British Background, in Dumville, D (ed), *Britons and Anglo-Saxons in the Early Middle Ages*, III, 1–14. Oxford.
- Duncan, A A M 1975 *Scotland: the Making of the Kingdom*, Edinburgh.
- Dunraven, Earl 1869 On an ancient chalice and brooches recently found at Ardagh in the County of Limerick, *Trans. Royal Irish Academy* 24 (1867–74, 433–454
- Eagles, B 1979 *The Anglo-Saxon Settlement of Humberside*, (= BAR 68), Oxford.
- Eddius Stephanus: Life of Wilfrid, in (trans.) Webb, J F and Farmer, D H (eds) (1988) *The Age of Bede*, Harmondsworth.
- Edwards, K J , Ansell, M & Carter, B A 1983 New mesolithic sites in South-west Scotland and their importance as indicators of inland penetration, *Trans. Dumfriesshire Galloway Natur Hist Antiq Soc*, 58, 9–15.
- Edwards, N 1990 *The Archaeology of Early Medieval Ireland*, London.
- Ellis, H (ed) 1838 *Registrum Vulgariter Nuncupatum 'The Record of Caernarvon'*, (=Record Commission), London.
- Evans, S S 1997 *The Lords of Battle. Image and reality of the Comitatus in Dark Age Britain*, Woodbridge.
- Evison, V I 1982 'Bichrome glass vessels of the seventh and eighth centuries', *Studien zur Sachsensforschung* 3, 7–21.
- Evison, V. 2000 'Glass vessels in England AD 400–1100', in Price, J. (ed.), 47–104.
- Ewart, G 1985 *Cruggleton Castle, Report of Excavations 1978–81*, Dumfries.
- Fairhurst, H 1938–9 'The galleried dun at Kildonan Bay, Kintyre', *Proc Soc Antiq Scot*, LXXIII, 185–228.
- Faith, R 1997 *The English Peasantry and the growth of Lordship*, Leicester.
- Feachem, R W 1977 *Guide to Prehistoric Scotland*, 2nd rev. ed., London .
- Fellows-Jensen, G 1990 'Place-names as a reflection of cultural interaction', *Anglo-Saxon England*, 19, 13–21.
- Fock, J 1966. *Metrische Untersuchungen an Metapodien einiger europaischer Rinderassen*. Inaugural dissertation, University of Munich.
- Forsyth, K 1997 'Some Thoughts on Pictish Symbols as a Formal Writing System', in Henry, D (ed) *The Worm, the Germ and the Thorn*, 85–98, Balgavies.
- Foster, J 1980 *The Iron Age Moulds from Gussage All Saints*, (= Brit Mus Occasional Paper 12), London
- Foster, J 1995 'Metalworking in the British Iron Age: The Evidence from Weelsby Avenue, Grimsby', in Raftery, B (ed) *Sites and Sights of the Iron Age. Essays on Fieldwork and Museum research presented to Ian Mathieson Stead*, (= Oxbow Monograph 56), Oxford.
- Foster, S M 1997 'The Picts: Quite the Darkest of the Peoples of Dark Age Britain?', in Henry, D (ed) *The Worm, the Germ and the Thorn, Pictish and Related Studies presented to Isabel Henderson*, 5–17, Balgavies.
- Fowler, E 1960 'The origins and development of the Penannular Brooch in Europe', *Proc Prehist Soc*, XXVI, 149–177.

- Fowler, E 1963 'Celtic Metalwork of the Fifth and Sixth Centuries AD', *Archaeol J*, CXX, 98–160.
- Frere, S S 1972 'A mould for a bronze statuette from Gestingthorpe', *Britannia*, 1, 266–7.
- Fulford, M G 1989 'Byzantium and Britain: a Mediterranean perspective on post-Roman Mediterranean imports in western Britain and Ireland', *Medieval Archaeol*, 33, 1–6.
- Gaskell-Brown, C & Harper, A E T 1984 'Excavations on Cathedral Hill, Armagh, 1968', *Ulster J Archaeol*, 47, 109–61.
- Gelling, M 1987 'Anglo-Saxon Eagles', in Turville-Petre T and Gelling, M (eds), *Leeds Studies in English, New Series xviii*, 173–179, Leeds.
- Gelling, P S 1969 'A Metalworking site at Kiondroghad, Isle of Man', *Medieval Archaeol*, 13, 67–83.
- Gillies, W 1981 'The Craftsman in Early Celtic Literature', *Scottish Archaeological Forum*, 11, 70–85.
- Jimour, S. 2000 'First Millennium settlement Development in the Atlantic West', in Henderson, J (ed) *The Prehistory and Early History of Atlantic Europe*, 155–70, Edinburgh.
- Graham-Campbell, J 1991 'Dinas Powys Metalwork and the Dating of Enamelled Zoomorphic Penannular Brooches', *Bull Board Celtic Studies*, XXXVIII, 220–233.
- Graham-Campbell J, Close-Brooks, J & Laing, L 1976 'The Mote of Mark and Celtic Interlace', *Antiquity*, 50, 48–53.
- Grant, A 1975 The use of tooth wear as a guide to the ageing of domestic animals, in Cunliffe, B (ed), *Excavations at Portchester Castle, Volume I: Roman* (Soc Ant Res Rep), 437 – 450, London.
- Green, B, Rogerson, A & White, S 1987 *The Anglo-Saxon Cemetery at Morning Thorpe, Norfolk*, (=East Anglian Arch Rep. 36), Dereham.
- Green, H S 1980 *The Flint Arrowheads of the British Isles*, (= Brit Arch Reps, Brit Ser 75), Oxford.
- Guido, M 1978 *Glass Beads of the Prehistoric and Roman Periods in Britain and Ireland*, (=Soc Ant Res Rep 35), London.
- Guido, M 1999 *The Glass Beads of Anglo-Saxon England, c. AD 400–700: a preliminary visual classification* (= Soc Ant Res Rep 58), London.
- Hachmann, R 1971 *The Germanic Peoples*, Geneva.
- Harden, D B 1956 'Glass vessels in Britain and Ireland', in Harden, D B (ed), *Dark Age Britain: Studies presented to E T Leeds*, London, 132–167
- Harper, A E T 1974 'Excavation of a Rath in Crossnacreevy Townland, Co Down', *Ulster J Archaeol*, 36–37, 32–41.
- Haseloff, G 1981 *Die germanische Tierornamentik der Volkerwanderungszeit, Studien zu Salin's Stil I*, Berlin.
- Hawkes, S C 1974 'Some recent finds of late Roman buckles,' *Britannia*, 5, 386–93.
- Hawkes, S C & Dunning, G C 1961 'Soldiers and Settlers in Britain, fourth to fifth century', *Medieval Archaeol*, V, 1–70.
- Hawkes, S C, Merrick, J M & Metcalf, D M 1966 'X-ray fluorescent analysis of some Dark Age coins and jewellery', *Archaeometry*, IX, 98–138.
- Hawkes, S C, Speake, G & Northover, P 1979 'A Seventh-century Bronze Metalworker's Die from Rochester, Kent', *Frumitteralterliche Studien*, 13, 382–92.
- HB: *Historia Brittonum*, in J. Morris (ed & trans), *Nennius: British History and the Welsh Annals*, (1980), 50–84. Chichester.
- HE: *Historia Ecclesiastica Gentis Anglorum*, in *Bede: Ecclesiastical History of the English People*. B Colgrave and R A B Mynors, (ed & trans), 1969, Oxford.
- Healey, F, 1980 *The Neolithic in Norfolk*. Unpub PhD thesis, University of London.
- Hencken, H O'N 1939 *Cahercommaun: A Stone Fort in County Clare*, Dublin.
- Hencken, H O'N 1942 'Ballinderry 2 Crannog', *Proc Royal Irish Acad*, 47C, 1–75
- Hencken, H O'N 1950 'Lagore Crannog: an Irish royal residence of the 7th to 10th centuries', *Proc. Roy Ir Acad*. 53C, 1–247.
- Henig, M 1995 *The Art of Roman Britain*, London.
- Higham, N 1986 *The Northern Counties to AD 1000*, London.
- Higham, N 1993 *The Kingdom of Northumbria*, Stroud.
- Higham, N & Jones, B 1985 *The Carvetii*, Gloucester.
- Higham, N. J. 1995 *An English Empire: Bede and the Anglo-Saxon Kings*, Manchester.
- Hill, P et al. 1997 *Whithorn and St Ninian, The Excavation of a Monastic Town, 1984–91*, Stroud.
- Hills, C 1981 *The Anglo-Saxon Cemetery at Spong Hill, North Elmham, Part II* (East Anglian Archaeol Rep 11), Norwich.
- Hines, J 1992 'The Scandinavian character of Anglian England: an Update', in Carver, M (ed), *The Age of Sutton Hoo*, 315–30, Woodbridge.
- Hinton, D 1993 'A smith's hoard from Tattershall Thorpe, Lincolnshire', *Anglo-Saxon England*, 22, 147–66.
- Hinton, D 1998 *Anglo-Saxon Smiths and Myths*, (= Toller Memorial Lecture), Manchester.
- Hodges, R 1989 *The Anglo-Saxon Achievement*, London.
- Hodgson, G W I 1977 *The animal remains from excavations at Vindolanda 1970 – 77*. Hexham: Vindolanda Trust.
- Hope-Taylor, B 1977 *Yeavinger, an Anglo-British Centre of Early Northumbria*, London.
- Huggett, J W 1988 'Imported grave-goods and the early Anglo-Saxon economy', *Medieval Archaeol*. 32, 63–96.
- Hughes, M J, Cowell, M R, Oddy, W A & Werner, A E A, 1978 'Report on the Analysis of the Sutton Hoo Jewellery and some Comparative Material' in Bruce-Mitford, R (ed) *The Sutton Hoc Ship-Burial*, vol. 2, 618–625, London.
- Hunter-Blair, P 1954 'The Bernicians and their Northern Frontier', in Chadwick, N K (ed), *Studies in Early British History*, 137–72, Cambridge.
- Hutton, M & Ogilvie, R M 1970, *Tacitus: Agricola* (trans.). Cambridge, Mass.
- Ivens, R. 1984 'Movilla Abbey, Newtownards, County Down: Excavations 1981', *Ulster J Archaeol* 3 ser 47, 71–108.
- Jackson, K H 1953 *Language and History in Early Britain*, Edinburgh.
- Jackson, K H 1955 'The Britons of Southern Scotland', *Antiquity*, 29, 77–88.
- Jackson, K H 1969 *The Gododdin: The Oldest Scottish Poem*, Edinburgh.
- James, E 1977 *The Merovingian Archaeology of South-West Gaul*, (=BAR Int Ser 25), Oxford.
- James, E 1982 *The Origins of France: from Clovis to the Capetians, 500–1000*, London.
- James, E 1992 'Royal burials among the Franks', in Carver, M (ed), 243–54.
- Jarman, A O H 1982 'Mythology, Literature, Religion and Art', in O'Driscoll, R (ed) *The Celtic Consciousness*, Edinburgh.

- Jarman, A O H 1988 *Aneirin: Y Gododdin, Britain's Oldest Heroic Poem*. Llandysul.
- Jenkins, D 1986 *The Law of Hywel Dda*, Llandysul.
- Jessup, R 1950 *Anglo-Saxon Jewellery*, London.
- Johns, C & Potter, T 1983 *The Thetford Treasure. Roman jewellery and silver*, London.
- Jones, G & Jones, T 1974 *The Mabiniogion*. London.
- Jones, G J R 1996 'The Gwely as a Tenurial Institution', *Studia Celtica*, 30, 167–188.
- Jones, M U 1975 'A clay piece-mould of the Migration Period from Mucking, Essex', *Antiquaries J*, 55, 407–8.
- Kelly, F 1988 *A Guide to Early Irish Law*, (= Inst of Advanced Studies monograph). Dublin.
- Kirby, D P 1962 'Strathclyde and Cumbria: a Survey of historical development to 1092', *Trans Cumberland & Westmorland A A S*, LXII, 77–94.
- Koch, J T 1988 'The Cynfeirdd Poetry and the language of the sixth century' in Roberts, B (ed) *Early Welsh Poetry, Studies in the Book of Aneirin*, 17–41.
- Kruger, B (ed) 1983 *Die Germanen*, Berlin.
- Lacaille, A.D 1954. *The Stone Age in Scotland*. Oxford.
- Laing, L 1975 *The Archaeology of Late Celtic Britain and Ireland, c. 400–1200 AD*, London.
- Laing, L 1972–4 'Picts, Saxons and Celtic Metalwork', *Proc Soc Antiq Scot*, 105, 189–99.
- Laing, L 1975a 'People and pins in Dark Age Scotland', *Trans Dumfriesshire Galloway Natur Hist Soc*, L, 53–71.
- Laing, L 1975b *Settlement Types in Post-Roman Scotland*, (=Brit Arch Reps Brit Ser 13), Oxford.
- Laing, L 1975c 'The Angles in Scotland and the Mote of Mark', *Trans Dumfriesshire & Galloway Natur Hist Antiq Soc*, 50, 37–52.
- Laing, L 1993 *A Catalogue of Celtic Ornamental Metalwork in the British Isles, c. AD 400–1200*, (= BAR 229), Oxford/Nottingham.
- Laing, L 1995 'Dal Riada and the Golden Age of Celtic Art', *Pictish Arts Soc J*, 6, 9–18.
- Laing, L, 2000 'The Pictish Symbols at Trusty's Hill, Anwoth, Kirkcudbright', *Pictish Arts Society J*, 14 (for 1999), 10–12.
- Laing, L & J 1988 'The Early Christian Period Settlement at Ronaldsway, Isle of Man: a Reappraisal', *Proc Isle of Man Natur Hist and Ant Soc*, IX, no 3, 389–415.
- Laing, L & J 1990 *Celtic Britain and Ireland, c. AD 200–800, the Myth of the Dark Ages*, Dublin.
- Lane, A 1994 'Trade, Gifts and Cultural exchange in Dark-Age Western Scotland', in Crawford, B (ed) *Scotland in Dark Age Europe*, 103–115, St Andrews.
- Lane, A & Campbell, E 2000 *Dunadd: an early Dalriadic Capital*. Oxford.
- Lawlor, H C 1925 *The Monastery of St Mochaoi at Nendrum*, Belfast.
- Leake, R C, Bland, D J, Styles, M T & Cameron, D G 1991, 'Internal structure of Au-Pd-Pt grains from south Devon, England, in relation to low-temperature transport and deposition', *Trans. Instn. Min. Metall. (Sect. B: Appl. earth sci.)* 100 (September–December 1991), B159–B178.
- Leake, R C, Bland, J & Cooper, C 1993, 'Source characterization of alluvial gold from mineral inclusions and internal compositional variation', *Trans Instn Min Metall (Sect. B: Appl. earth sci.)* 102 (May–August 1993), B65–B82.
- Leake, R C, Chapman, R J, Bland, D J, Condliffe & Styles, M T 1997 'Microchemical characterization of alluvial gold from Scotland', *Trans. Instn. Min. Metall. (Sect B: Appl. earth sci.)* 106 (May–August 1997), B85–B98.
- Leake, R C, Chapman, R J, Bland, D J, Stone, P, Cameron, D G, & Styles, M T 1998 'The origin of alluvial gold in the Leadhills area of Scotland: evidence from interpretation of internal chemical characteristics', *J. Geochem. Explor.* 63, 7–36.
- Legge, A J 1981 'The agricultural economy' in Mercer, R J (ed.) *Grimes Graves, Norfolk: Excavations 1971–2 Volume 1*, 79–103. London. (=Department of the Environment: Archaeological Report 11)
- Liversage, D. 1983 'An Unpublished Irish Grave Group from Norway', *Acta Archaeologica* 54, 147–51.
- Lombard, M 1969 'La chasse et les produits de la chasse dans le monde musulman (VIIIe–XIe siècle)', *Annales: economies, societes, civilisations*, 24, 627–92.
- Longley, D 1997 'The Royal Courts of the Welsh Princes of Gwynedd' AD 400–1283', in Edwards, N (ed.) *Landscape and Settlement in Medieval Wales*. (= Oxbow Monograph 81).
- McCarthy, M 2002 'Rheged: an Early Historic Kingdom near the Solway', *Proc Soc Antiq Scot*, 132, 357–381.
- McCormick, F 1983 'Dairying and beef production in Early Christian Ireland, the faunal evidence', in Reeves-Smyth, T and Hammond, F (eds.), *Landscape Archaeology in Ireland*, (=Brit Arch Reps Brit Ser 116), 253–267.
- MacGregor, A 1975 'Two antler crossbow nuts and some notes on the early development of the crossbow', *Proc Soc Antiq Scot*, 107, 317–21.
- MacGregor, A 1985 *Bone, Antler, Ivory and Horn*, London
- Maclean, D 1992 'The date of the Ruthwell Cross', in Cassidy, B (ed) *The Ruthwell Cross*, 71–94, Princeton.
- Magnus, B 1984 'The interlace motif on the bucket-shaped pottery of the Migration Period', *Universitets Oldsaksamlings Skrifter*, nr. 5 (Oslo), 139–157.
- Marshall, D N 1964 'Report on the Excavations at Little Dunagoil', *Trans Bute Natur Hist Soc*, 16, 1–69.
- May, T 1904 *Warrington's Roman Remains*, Warrington.
- Miles, D 1987. 'A white-tailed Eagle from an early Anglo-Saxon settlement in the Thames valley', Appendix in Gelling, 1987.
- Moller, J 1987 *Katalog der Grabfunde aus Volkerwanderungs- und Merowingerzeit im sudmainischen Hessen (Starkenburgerland)*, Wiesbaden.
- Morrison, A 1980 'The coastal Mesolithic in south-west Scotland', in *The Mesolithic in Europe*, 2nd International Conference, Potsdam, 441–50.
- Mortimer, C 1994 'Lead alloy models for three early Anglo-Saxon brooches', *Anglo-Saxon Studies in Archaeology & History*, 7, 27–33.
- Munro, R 1882 *Ancient Scottish Lake-Dwellings or Crannogs*, Edinburgh.
- Murray, H 1979 'Documentary evidence for domestic buildings in Ireland c.400–1200 in the light of archaeology', *Medieval Archaeol*, 23, 81–97
- Mytum, H 1992 *The Origins of Early Christian Ireland*, London.
- Nash-Williams, V E 1950 *Early Christian Monuments of Wales*, Cardiff.
- Nicolaisen, W 1976 *Scottish Place-names*, London

- Nicholson, A 1997 'The Iron' in Hill, P (ed) *Whithorn and St Ninian*, 404–433, Stroud.
- Nieke, M R & Duncan, H 1988 'Dalriada: the establishment and maintenance of an early historic kingdom in northern Britain', in Driscoll, S T & Nieke, M R (eds) *Power and Politics in Early Medieval Britain and Ireland*, Edinburgh, 6–21.
- Nieke, M R 1993 'Penannular and Related Brooches: Secular Ornament or Symbol in Action?', in Spearman, M & Higgitt, J (eds) 128–34.
- Oliver, T, Howard-Davis, C & Newman, R 1993 'A Post-Roman Settlement at Fremington near Brougham', in Lambert, J (ed) *A Transect Through Time: the archaeological landscape of the Shell North-West Ethylene Pipeline*, 127–69, Lancaster.
- Ó Ríordáin, S P 1942 'The excavation of a large earthen ring-fort at Garranes, Co Cork', *Proc Roy Ir Acad*, 47C, 77–150.
- Ó Ríordáin, S P 1949 'Lough Gur Excavations: Carraig Aille and the "Spectacles"', *Proc Roy Ir Acad*, LIIC, 39–111.
- Ó Ríordáin, S. P. 1947 'Roman Material in Ireland', *Proc. Roy Ir Acad*, 51C, 35–82.
- Oddy, W A. & Meyer, V E G 1986 The Analysis of the Gold Finds from Helgo and their Relationship to other Medieval Gold' in B Hoven *et al*, *Excavations at Helgo X: Coins, Iron and Gold*, 153–73. Stockholm.
- Ogden, J. 1982 *Jewellery of the Ancient World*, London.
- O'Kelly, M J 1962 'Two Ring-forts at Garryduff, Co Kerry', *Proc Roy Ir Acad*, 63C, 17–125.
- O'Rahilly, J (trans) 1976 *Tain Bo Cuailnge*, Dublin.
- O'Sullivan, D 1990 'Two medieval mounts in the Crosthwaite Museum,' *Medieval Archaeol*, XXXIV, 145–7.
- O'Sullivan, D 1993 'Sub-Roman and Anglo-Saxon finds from Cumbria', *Trans Cumberland & Westmorland Antiq Arch Soc*, 93, 25–42.
- Ottaway, P (ed) 1992 *Anglo-Scandinavian Ironwork from 16–22 Coppergate*, (= The Archaeology of York, 17/6), London.
- Owen, O & Welander, R 1995 'A traveller's end? – an associated group of Early Historic artefacts from Carronbridge, Dumfries and Galloway', *Proc Soc Antiq Scot*, 125, 753–770.
- Palk, N A 1984 *Iron Age Bridle-Bits from Britain*, (=Univ. of Edinburgh Dept of Arch. Occasional paper 10), Edinburgh.
- Peers, C & Radford, C A R 1943 'The Saxon Monastery of Whitby', *Arch LXXXIX*, 27–88.
- Penman, A 1998 'Botel Bailey', *Current Archaeology* 156, 473–5.
- Philpott, F 1990 *A Silver Saga. Viking Treasure from the north west*, Liverpool.
- Potter, T & Johns, C 1973 *The Thetford Treasure*. London.
- Price, J. (ed.) 2000 *Glass in Britain and Ireland, AD 350–1100*, (= British Museum Occasional Paper 127), London.
- Proudfoot, E & Aliaga-Kelly, C 1996 'Towards an Interpretation of Anomalous Finds and Place-Names of Anglo-Saxon Origin in Scotland', *Anglo-Saxon Studies in Archaeology and History*, 9, 1–13.
- Radford, C A R 1956 'Imported pottery found at Tintagel, Cornwall', in Harden, D B (ed), *Dark Age Britain: Studies presented to E T Leeds*, 59–70, London.
- Rahtz, P 1974 'Pottery in Somerset, AD 400–1066', in Evison, V, Hodges, H & Hurst, J G (eds) *Medieval Pottery from Excavations*, 95–126.
- Rahtz, P, Woodward, A, *et al* 1992 *Cadbury Congrsbury 1968–73: A late/post Roman hilltop settlement in Somerset*, (= Brit Arch Reps Brit Ser 223), Oxford.
- Ralston, I 1987 'Portnockie: promontory forts and Pictish settlement in the North-east', in Small, A (ed) *The Picts: a New Look at old Problems*, Dundee, 15–26.
- Ralston, I 1997 'Pictish homes', in Henry, D (ed) *The Worm, the Germ and the Thorn*, Balgavies, 17–34.
- RCAHMS 1997 *Eastern Dumfriesshire, an archaeological landscape*, Edinburgh.
- Richards, J D 1987 *The Significance of Form and Decoration of Anglo-Saxon Cremation Urns*, (=Brit Arch Reps Brit Ser 166), Oxford.
- Riddell, R 1790 'Account of Antient Modes of Fortification in Scotland...in a letter to R Gough, Esq, Director', *Archaeologia*, X, 99–104.
- Rigoir, J, Rigoir, Y & Meffre, J-F 1973 'Les dérivées paléochrétiennes du groupe atlantique', *Gallia* 31, 364–409.
- Ritchie, A 1976–7 'Excavation of Pictish and Viking-age farmsteads at Buckquoy, Orkney', *Proc Soc Antiq Scot*, 108, 174–227.
- Ritchie, A 1987 'The Picto-Scottish interface in material culture', in Small, A (ed.) *The Picts. A New Look at Old Problems*, Dundee, 59–67.
- Rivet, A L F & Smith, C 1979 *The Place-Names of Roman Britain*, London.
- Roberts, B R 1992 'Tales and Romances' in Jarman A O H and Hughes G R (eds.) *A guide to Welsh Literature* Vol. 1, 203–243.
- Roth, H 1986 'Zweifel an Arnegunde', *Marburger Studien zur Vor- und Frugeschichte*, 7, 267–76.
- Roth, H & Wamers, E (eds) 1984 *Hessen in Frumittelalter Archaologie und Kunst*, Sigmaringen.
- Rynne, E 1965 'A bronze ring-brooch from Luce Sands, Wigtowns, its affinities and significance', *Trans Dumfries Galloway Natur Hist Soc*, XLII, 99–113.
- Rynne, E 1968 'A further Ring Brooch from Luce Sands', *Trans Dumfries Galloway Natur Hist Soc* XLV, 241–2.
- Salter, C J, 1997. Bloomery Steel – an overlooked material. In Crew, P. and Crew, S. (eds) *Early Ironworking in Europe, Archaeology and Experiment*, 102–103. Maentwrog (= Plas Tan y Bwlch Occasional Paper No. 3).
- Saville, A, 1981. The Flint Assemblage. In Mercer, I 1981. *Grimes Graves, Norfolk, Excavations 1971–72, Vol. 2*. London.
- Schmidt, B 1983 'Die Thuringer', in Kruger, B (ed), 502–544.
- Scott, B G 1985 'The status of the blacksmith in early Ireland', in Scott, B G & Cleere, H (eds) *The crafts of the blacksmith*, Belfast, 153–6.
- Scull, C 1985 'Further evidence from East Anglia for Enamelling on Early Anglo-Saxon Metalwork', *Anglo-Saxon Studies in Archaeology & History*, 4, 117–124, Oxford.
- Scull, C 1990 'Scales and weights in Early Anglo-Saxon England', *Archaeol J*, 147, 182–215.
- Smith, I M 1983 'Brito-Roman and Anglo-Saxon: the unification of the Borders', in Clack, P & Ivy J (eds) *The Borders*, 9–48. Durham.
- Smith, I M 1991 'Sprouston, Roxburghshire: an early Anglian centre in the eastern Tweed Basin', *Proc Soc Antiq Scot* 121, 261–94.
- Smith, I M 1996 'The origins and development of Christianity in North Britain and Southern Pictland', in Blair, J & Pyrah,

- C (eds) *Church Archaeology, Research directions for the future*, (= CBA Res Rep 104), 19–37. London.
- Smith, I, 1965. *Windmill Hill and Avebury*. Oxford.
- Smith, J 1919 'Excavation of the hillforts of Castlehill, Aitnock and Coalhill, Ayrshire', *Proc Soc Antiq Scot*, 53, 123–129.
- Smith, R A 1923 *British Museum Guide to Anglo-Saxon and Foreign Teutonic Antiquities*, London.
- Smyth, A P 1984 *Warlords and Holy Men, Scotland AD 80 – 1000*, London.
- Speake, G 1980 *Anglo-Saxon Animal Art*, Oxford.
- Speake, G. 1989. *A Saxon bed burial on Swallowcliffe Down* (= English Heritage Archaeol. Report 10), London.
- Spearman, R M & Higgitt, J (eds) 1993 *The Age of Migrating Ideas. Early medieval Art in Northern Britain and Ireland*, Edinburgh
- Stell, G 1990 *Exploring Scotland's Heritage: Dumfries and Galloway*, 2nd rev. ed. Edinburgh.
- Stevenson, R B K 1949 'The nuclear fort of Dalmahoy, Midlothian, and other Dark Age capitals', *Proc Soc Ant Scot*, 83, (1948–9), 186–98.
- Stevenson, R B K 1955 'Pins and the Chronology of Brochs', *Proc Prehist Soc*, 21, 282–94.
- Stevenson, R B K 1974 'The Hunterston Brooch and its Significance', *Medieval Archaeol* 18, 16–42.
- Stevenson, R B K 1985 'The Pictish brooch from Aldclune, Blair Atholl, Perthshire', *Proc Soc Antiq Scot*, 115, 233–9.
- Stevenson, R B K 1989 'The Celtic brooch from Westness, Orkney, and hinged-pins', *Proc Soc Antiq Scot*, 119, 239–69.
- Stokes, M. 1911 *Early Christian Art in Ireland*. Revised by u.N, Count Plunkett, FISIA. Dublin.
- Stuart, J 1856 *Sculptured Stones of Scotland*, vol 1, Aberdeen.
- Swindells, N & Laing, L 1978 'Metalworking at the Mote of Mark, Kirkcudbright, in the 6th–7th centuries AD', in Oddy, W A (Ed) *Aspects of Early Metallurgy*, 121–8, London.
- Taylor, J J 1980 *Bronze Age Goldwork of the British Isles*. Cambridge.
- Teichert, M 1984. Size variation in cattle from Germania Romana and Germania libera, in Grigson, C & Clutton-Brock, J (eds), *Animals and Archaeology 4 – Husbandry in Europe*, (=BAR International series S227), 93–103.
- Thomas, C 1959 'Imported pottery in Dark-Age Western Britain', *Medieval Archaeol*, 3, 89–111.
- Thomas, C 1961 'Excavations at Trusty's Hill, Anwoth, 1960', *Trans Dumfriesshire Galloway Natur Hist Soc*, XXVIII, 58–70.
- Thomas, C 1967 'An Early Christian cemetery and chapel at Ardwall Isle, Kirkcudbright', *Medieval Archaeol*, 11, 127–188.
- Thomas, C 1971 *The Early Christian Archaeology of North Britain*. Oxford.
- Thomas, C 1981 *A Provisional List of Imported Pottery in Post-Roman Western Britain and Ireland*, Redruth.
- Thomas, C 1988 'The context of Tintagel: a new model for the diffusion of post-Roman Mediterranean imports', *Cornish Archaeology*, 27, 7–25.
- Thomas, C 1990 'Gallici Nautae de Galliarum Provincia – a Sixth/seventh century Trade with Gaul, reconsidered', *Medieval Archaeol*, 34, 1–26.
- Truckell, A E 1963. The Mesolithic in Dumfries and Galloway: recent developments, *Trans. Dumfriesshire Galloway Natural Hist Antiq Soc*, 40, 43–7.
- Tylecote, R F 1986 *The Prehistory of Metallurgy in the British Isles*. London.
- von Welck, K (ed) 1996 *Die Franken*, 2 vols, Mannheim.
- VSW, *Vita S. Wilfridi* trans. Webb, J F as 'Eddius Stephanus: Life of Wilfrid' in Farmer, D H (ed.), 1983, *The Age of Bede*. Harmondsworth.
- Wainwright, F T 1955 'The Picts and the Problem', in Wainwright, F T (ed) *The Problem of the Picts*, 1–53, Edinburgh.
- Warner, R B 1986 'The date of the start of Lagore', *Journal of Irish Archaeology*, III (1985–6), 75–7.
- Warner, R B 1988 'The archaeology of Early Historic Irish kingship', in Driscoll, S T & Nieke, M R (eds) *Power and politics in early medieval Britain and Ireland*, 47–68, Edinburgh.
- Watson, W J 1926 *The History of the Celtic Placenames of Scotland*, Edinburgh.
- Webster, L 1992 'Death's Diplomacy: Sutton Hoo in the light of other male princely burials', in Farrell, R T & Newman de Vegvar, C (eds) *Sutton Hoo Twenty-Five Years After*, 75–81, Miami.
- Webster, L & Backhouse, J (eds) 1991 *The Making of England. Anglo-Saxon Culture AD 600–900*, London.
- Welch, M 1992 *Anglo-Saxon England*, London.
- Wheeler, R E M & Wheeler, T V 1932 *Report on the Excavation of the Prehistoric, Roman and post-Roman site of Lydney Park, Gloucestershire*, (=Soc Ant Res Rep IX), London.
- Whitelock, D 1952 *Anglo-Saxon Society*, Harmondsworth.
- Whitfield, N 1987 'Motifs and techniques of Celtic filigree: are they original?' in Ryan, M (ed) *Ireland and Insular Art*, 75–84, Dublin.
- Whitfield, N 1990 Round Wire in the Early Middle Ages, *Jewellery Studies* 4, 13–28.
- Whitfield, N 1993a 'The filigree of the Hunterston and 'Tara' Brooches', in Spearman, M & Higgitt, J (eds) *The Age of Migrating Ideas*, 118–127, Stroud.
- Whitfield, N 1993b 'Some new research on gold and gold filigree from Early medieval Ireland and Scotland', in Eluere, C (ed) *Outils et ateliers d'orfèvres des temps anciens*, 125–136, Paris.
- Wickham-Jones, C R 1984 in Stevenson, J B, 'The excavation of a hut circle at Cu a' Bhaile, Jura,' *Proc Soc Antiq Scot*, 114, 127–60.
- Wickham-Jones, C R 1986 The procurement and use of stone for flaked tools in prehistoric Scotland. *Proc Soc Antiq Scot*. 116, 1–10.
- Wickham-Jones, C R & Collins G 1978 'The sources of flint and chert in Northern Britain', *Proc Soc Antiq Scot*, 109, 7–21.
- Williams, I 1935 *Canu Llywarch Hen*. Cardiff.
- Williams, I 1938 *Canu Aneirin*. Cardiff.
- Williams, I 1980 'The Poems of Llywarch Hen' in Bromwich R (ed.), *The Beginnings of Welsh Poetry, Studies by Sir Ifor Williams*, 122–154. Cardiff.
- Williams, I 1935. *Canu Llywarch Hen*, Cardiff.
- Williams, I 1960. *Canu Taliesin*, Cardiff.
- Williams, J 1971 'Tynron Doon, Dumfriesshire: a History of the Site with notes on the finds, 1924–67', *Trans Dumfriesshire Galloway Natur Hist Soc*, XLVIII, 106–20.
- Williams, J E C 1968 (new edn. 1987) *The poems of Taliesin*. Dublin.
- Willmott, T 2000 'The late Roman transition at Birdoswald

- and on Hadrian's Wall, in Wilmott, T & Wilson, P. (eds) *The Late Roman Transition in the North: Papers from the Roman Archaeology Conference, Durham, 1999*, Oxford (= Brit Arch Repts Brit Ser 299), 13–23.
- Wilson, D M 1973 'The Treasure' in Wilson, D, Small, A & Thomas, A C (eds) *St Ninian's Isle and its Treasure*, 45–148, Aberdeen.
- Wilson, G V 1921 *The Lead, Zinc, Copper and Nickel Ores of Scotland*, (= *Mem Geological Survey Scotland*, XVIII).
- Wilson, P R *et al* 1996 'Early Anglian Catterick and Catraeth', *Medieval Archaeol.*, XL, 1–61.
- Wood, I N 1994 'Frankish Hegemony in England', in Carver, M (ed) *The Age of Sutton Hoo*, 235–242, Woodbridge.
- Wright, T 1872 *Uriconium*, London
- Youngs, S (ed) 1989 *The Work of Angels: Masterpieces of Celtic Art 7th–9th Centuries*, London.
- Youngs, S 1995 'Medium and Motif: Polychrome enamelling and early Manuscript decoration in Insular art', in Bourke, C (ed) *From the Isles of the North: Early Medieval Art in Ireland and Britain*, 37–48, Belfast.

Index

- agriculture, 174–5
- Anglo-Saxons, in SW Scotland, 166–7
 - at the Mote of Mark, 167–8
 - style II ornament used by, 148, 151
- artefacts
 - as status indicators, 172
 - distribution of, 75–85
 - integrity of deposits of, 75–6
- Birsay, Orkney, 145
- bones, animal, 6, 133–41
 - condition of, 134
 - distribution of, 133
 - pathology of, 141
 - birds, 139–40
 - cattle, 134–4
 - deer, 138
 - fish, absence of, 140
 - horse, absence of, 134
 - sheep, 135–6
 - pigs, 136
 - rabbit, 138
- brooches, penannular, 141–4
 - Class G, 141
 - Class H, 143
 - Class J, 144
- buckles, 144–5
- Caenby, Lincs., 148, 150
- Carvetii, 160
- Castle O'er, Eskdale, 165
- Castlehaven, Dumfries & Galloway, 165
- Catraeth, 163
- Crith Gabhlach*, the, 172–3
- Clatchard Craig, Fife, 144
- Coombe, Kent, 153
- context groups, 6
- copper alloy objects
 - billet, 85
 - finished artefacts, 86
 - waste and scrap, 85, 113
- Croy, Inverness, 144
- crucibles, 26–32, 41–49
- crucible stand, 32
- Crugleton, Dumfries & Galloway, 165, 171
- Curle, Alexander, excavations of, 3
- dairying, significance of 176
- dates, radiocarbon, 22
- decoration, on moulds, 151–5
 - 'Celtic', 154
 - filigree and granular work, 153
 - interlace, 151–2
 - pellets, 154
 - zoomorphs, 154
- Dunragit, significance of placename, 163
- Dunadd, Argyll, 144, 145, 168, 170
- Dinas Powys, Glamorgan, 168
- Eagle, sea, 140
- Edwin, k. of Bernicia, 167
- Faversham, Kent, 145, 150
 - flint, worked, 97–101, 118
- filigree, use in Scotland, 153
- food renders, 175
- Galloway, Roman advance into, 157, 164
 - secular settlements in, 164–6
 - territorial divisions in, 158–9
- glass,
 - beads, 101, 120
 - pinhead, 101
 - plaque, 121, 102
 - tessera, possible, 102, 121
 - vessel, 104–9, 121–5
- Gododdin*, Y, 172
- gold, 39–41
- granular work, 153
- halls, 171
- Historia Brittonum*, the, 160–1, 166–7
- interlace, characteristics of, 151
 - Anglo-Saxon, 151
 - Lombard, 153
 - Roman, 151
 - Scandinavian, 153
- Ipswich, Suffolk, 153
- iron objects,
 - bulk, 38–9
 - bars, rods, spikes, nails, 89, 115
 - fittings, 90, 116
 - knives, 89, 114
 - metalworking tools, 86
 - nails and studs, 116
 - socketed tools, 86, 114
 - tweezers, 89, 115
- jet, 102
 - bangles, 104, 119
 - beads, 120

- jet (*continued*)
 pin head, 104, 120
- Keswick, Cumbria, 150,151
 Kirkconnel, Dumfries & Galloway, 165
 Lagore, Co.Meath, 146
 Lakenheath, Suffolk, 148
 lead, 90, 116
 Maelgwn, k. of Gwynedd, 160
 metalworking, 25–6
 residues and processes, 36–9
 models, 32–3
 Mote of Mark,
 abandonment of, 24, 76
 defences of, 171, *see also* ramparts
 early work on, 1–3
 economy of, 174–77
 excavations 1973–9, rationale of, 3
 location of, 170–1
 material culture of, 172–3
 pre-rampart activity on, 6–7, 23, 76
 significance of, 171
 status of, 173–4
 workshop at, 174
 moulds, 32–35, 50–74
 buckles and strap fitments, 63–66
 circular bosses, 50–51
 decorated curvilinear panels with interlace, 51–53
 decorated curvilinear panels, without interlace, 53–55
 decorated recilinear panels, 56–8
 ingot, 114
 miscellaneous, 70–74
 penannular brooches, 59–60
 pin heads, 60–63
 rectilinear panels, undecorated, 58–9
 studs, 66–70
 uncertain studded fitments, 70
 undecorated curvilinear panels, 55–6
- ores, 38
- pins, 145
 Roman, 145
- Pool, Orkney, 172
- pottery,
 imported, 7, 109–113, 125–32
- Roman, 125; slags, 36
- Rheged, 160–3
 Irish in, 164
 Picts in, 164
 settlement patterns in, 158–9
- ramparts, 23, 76
 construction of, 7
 destruction of, 22
 north, 8–11
 south, 11–13
- rivets, 146
- Senchus fer nAlban*, 159
- smiths, status of, 169
- society, structure of, 169
- stone
 inscribed, 96–7, 117
 playing pieces, 93–6, 117
 quartz, 96, 118–9
 rubbers, 104, 120
 whetstones, 118
 whorls, 118
 studs, rivets, 146
 see also flint, jet
- structures, 14
 building, 3-sided, 18–19
 building, possible, 19–20, 171–2
 ‘clay floor’, 14–17
 sand piles, 17–18
 stone kerbs and platform, 21
 Sutton Hoo, Suffolk, 144,148,150
 Swallowcliffe Down, Wilts., 148
- Taliesin, Book of*, 160–1, 163
- Tattershall Thorpe, Lincs., 173
- trade, overseas, 172, 177–8
 inland, 178–9
- Tref*, the 159–60
- Trusty’s Hill, Dumfries & Galloway, 165
- Tynron Doon, Dumfries & Galloway, 167
- tuyères, 39
- Urien, k. of Rheged, 166–7
- Whitby, Yorks, 146



Plate 1. Mote of Mark, general view from the N.



Plate 2. Mote of Mark, general view from the S, showing the tumbled rampart stonework.



Plate 3. North rampart, from the S showing make up.



Plate 4. South rampart, viewed from the S, showing burnt core.



Plate 5. The three-sided structure excavated by Curle, from the W (p.18).



Plate 6. Roundel mould 1103.



Plate 7. Roundel mould 2273.



Plate 8. Axe blade mount mould 1104.



Plate 9. Interlace-decorated mould 1094.



Plate 10. Small fragment of decorated interlace mould 1105.



Plate 11. Dragon-headed pin mould 1154.



Plate 12. Buckle loop mould 1122.



Plate 13. Buckle loop mould 1212.



Plate 14. Decorative plate mould 1114.

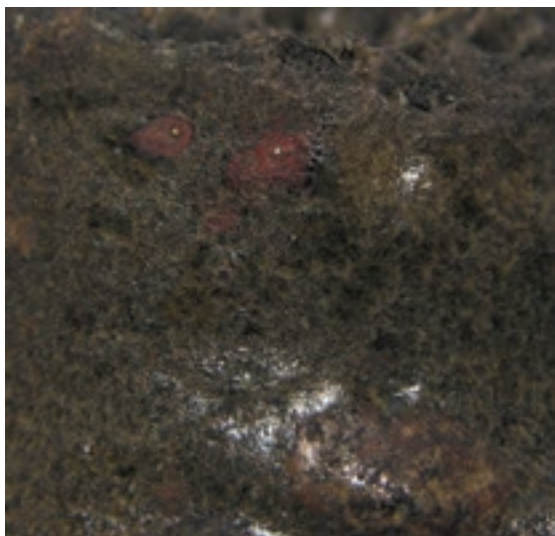


Plate 15. Enlarged view of crucible 3122 showing spots of gold on the crucible surface.



Plate 16. Crucible showing outer coating 2021.



Plate 17. Bone with runic inscription 2252.



Plate 18. Penannular brooch mould 1130.



Plate 19. Penannular brooch mould 1128.

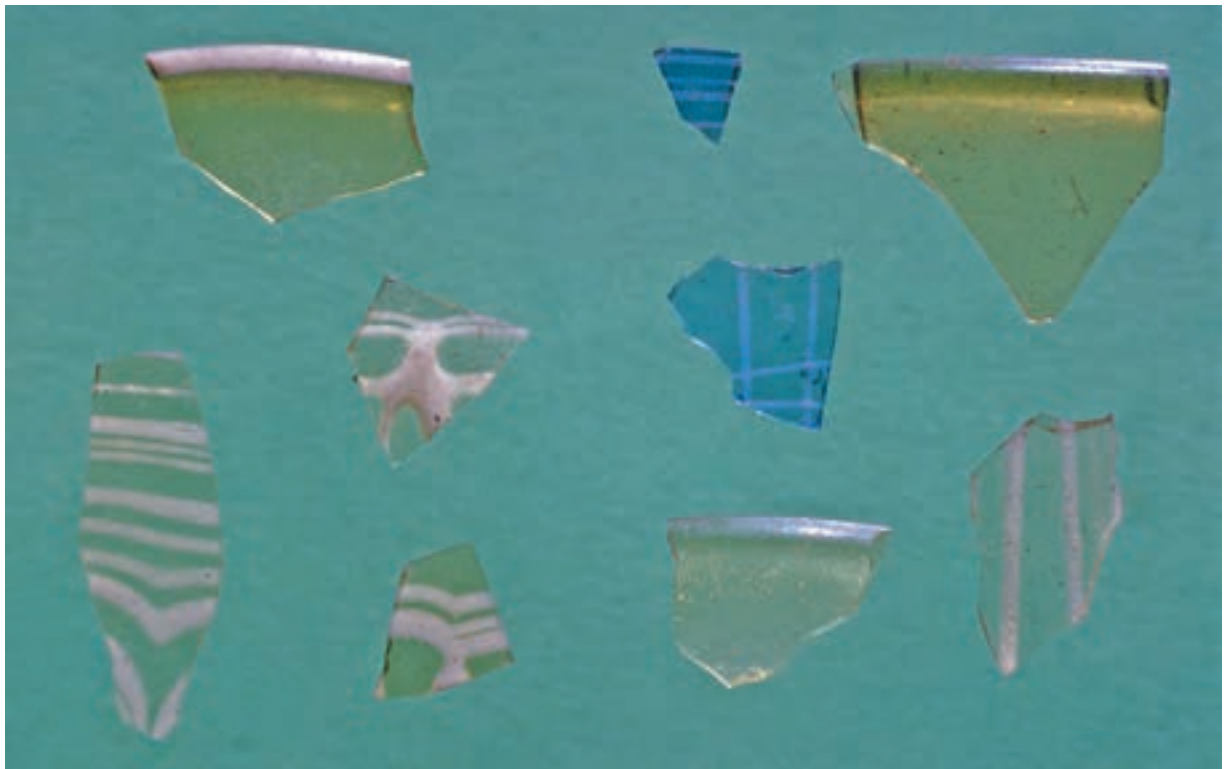


Plate 20. Fragments of imported glass with decoration; from left to right, top row: 2045, 3117, 3180; middle row: 2408, 2155; bottom row: 3177, 3022, 3121, 2106.