

COLCHESTER
ARCHAEOLOGICAL
REPORT 8:

Roman vessel glass from
excavations in Colchester, 1971-85



H E M COOL AND
JENNIFER PRICE

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**Roman vessel glass from
excavations in Colchester, 1971-85**

Colchester Archaeological Reports

General Editor: Philip Crummy
Published by the Colchester Archaeological Trust
Ltd

Report 1: *Aspects of Anglo-Saxon and Norman Colchester*

by Philip Crummy (CBA Research Report **39**), 1981
ISBN 0 906780 06 3

Published jointly by the Colchester Archaeological Trust and the Council for British Archaeology, 112 Kennington Road, London SE11 6RE

Report 2: *The Roman small finds from excavations in Colchester, 1971-9*

by Nina Crummy, 1983
ISBN 0 9503727 3 0

Report 3: *Excavations at Lion Walk, Balkerne Lane, and Middleborough, Colchester, Essex*

by Philip Crummy, 1984
ISBN 0 9503727 4 9

Report 4: *The coins from excavations in Colchester, 1971-9*

by Nina Crummy (ed), 1987
ISBN 0 9503727 6 5

Report 5: *The post-Roman small finds from excavations in Colchester, 1971-85*

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ISBN 0 9503727 7 3

Report 6: *Excavations at Culver Street, the Gilbert School, and other sites in Colchester, 1971-85*

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ISBN 0 9503727 9 X

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by Nina Crummy, Philip Crummy, and Carl Crossan, 1993

ISBN 0 897719 01 9

Report 12: *Animal bones from excavations in Colchester, 1971-85*

by Rosemary Luff, 1993
ISBN 0 897719 00 0

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Roman vessel glass from
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by
HEM COOL & JENNIFER PRICE

Principal illustrator:
David Fricker

Contributions from:
M J Baxter, Philip Crummy, M P Heyworth

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Published 1994 by
Colchester Archaeological Trust Ltd,
12 Lexden Road,
Colchester,
Essex C03 3NF.

British Library Cataloguing in Publication Data
A catalogue record for this book is available from the
British Library

ISBN 1 897719 02 7

Printed by Witley Press, Hunstanton, Norfolk

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The Colchester Archaeological Trust
acknowledges with gratitude the grants towards
the publication of this volume from **English
Heritage**, the **Pilgrim Trust**, and the
Colchester Borough Council.

To the memory of

DONALD HARDEN

1901-1994

*in recognition
of our debt
to his scholarship*

Acknowledgements

A volume of this nature inevitably owes a great deal to many individuals and organisations, and we are very happy to acknowledge our indebtedness to everyone who has provided assistance. The preparation of the material for publication was one of the main tasks of the Romano-British Glass Project while it was based in the Department of Adult Continued Education at the University of Leeds between 1983 and 1990. We are very grateful to the Historic Buildings and Monuments Commission (England) for funding the project throughout this period, and in particular to Pam Irving who provided support and advice in the early years of the project's existence. We would like to thank Philip Crummy, for providing the information necessary for us to set the Colchester glass in its chronological and cultural context, and for all his help.

All of the drawings of the vessels from the 1971-85 excavations are the work of David Fricker. The

material in the Colchester Museums was studied by permission of the then Curator of the museum David T-D Clarke, and made available to us by Mark Davies and Paul Sealey. Brenda Dickinson has provided the revised dating of the samian stamps present in many burial groups which were used as *comparanda*. We also benefited from discussions with Robin Symonds and Sue Wade who were working on the Colchester pottery. Pam Shute of the Inter-Library Loans Desk of the Brotherton Library, Leeds has located and acquired for us many books and articles not available in Leeds. Gillian Adams edited the text and prepared the book for publication. A very large debt of gratitude is owed to all of these individuals, and to colleagues and friends who have made available to us information about other groups of glass in advance of publication.

Hilary Cool and Jennifer Price
December 1994

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CHAPTER 1: Introduction

Background

Colchester has long had an important place in the study of Roman glass. The report on the vessels found during the excavations at Sheepen between 1930 and 1939 (Harden 1947) was the first rigorous study of a large assemblage of glass from a Romano-British archaeological site to be published. This assemblage is of Empire-wide significance because the material can be closely dated to the period between AD 43 and AD 60/1. Since its publication this report has remained an essential reference tool for all glass historians working with early-to-mid 1st-century material and has been very influential for generations of students of Roman glass. Further excavations at Sheepen in 1970 produced more Claudio-Neronian glass which amplified and extended the range of forms identified in the earlier report (Charlesworth 1985a). Taken together, the published glass from Sheepen, a site which lies about half-a-mile outside the walled Roman town, is unrivalled in Britain for the range and richness of mid 1st-century vessels found there.

The other important group of Roman glass from Colchester is less accessible. It consists of the many glass vessels which have been recovered from the Roman cemeteries around the town during the last hundred years or so. These finds are primarily of 1st- and 2nd-century date and form one of the largest groups of glass grave goods from a Romano-British town. Most of these are now in the Colchester Museums and the others are in the British Museum. These vessels have been studied as part of an unpublished PhD thesis on glass in Roman Britain (Allen 1983), but have otherwise not been systematically examined. Brief details of many of the pieces in the Colchester Museums are available (May 1930), and references to individual vessels are found scattered throughout the archaeological literature.

Compared with this wealth of material from Sheepen and the cemeteries, little Roman vessel glass from domestic contexts in the town had been found prior to the excavations that began in 1971. The glass recovered during the excavations since 1971 has greatly increased the range of vessels known to have been used at Colchester, especially with regard to the late Roman material. With the addition of this material to that from Sheepen and from earlier excavations and chance discoveries in Colchester, the majority of forms common throughout Roman Britain are represented in Colchester and its environs.

The structure of the report

Works of synthesis on glass vessels in use in Roman Britain are rare. Most of the literature is to be found in specialist appendices to excavation reports, as a glance at the bibliography of this volume will show. A specialist report on a single assemblage is by its very nature limited and can rarely take an overview. As a result, information about the type of glass vessels expected to be available at different times is not easily accessible to the non-specialist. This is regrettable as the large excavations of the past twenty years have produced a wealth of material from dated contexts, which has revolutionised our understanding of the date, distribution and, to a lesser extent, the origins of the glass vessels from Roman Britain.

The main aim of this volume is to publish the glass found during the excavations of 1971-85 in Colchester and to compare the assemblages from the different sites. The opportunity has also been taken to give a broad overview of the glass in use in the town and the surrounding area as a whole. Naturally the glass found in Colchester is influenced by the history and status of the town; as already noted, no other Romano-British town has such a rich and varied mid 1st-century assemblage. From the later 1st century onwards, however, the vessel assemblage contains most of the forms found on other Romano-British sites and is broadly comparable with these. This volume has been planned to provide a synthesis against which assemblages from other sites can be viewed. To this end, the evidence for the date and distribution of each form will be discussed in detail. Not all of the forms found in Roman Britain will be included, but sufficient will be studied for the volume to provide an easily-accessible summary of the current state of knowledge about the use of glass vessels in Roman Britain.

The volume will be organised as follows. This chapter deals with introductory matters concerning the sites and the glass. The next eleven chapters discuss all the vessel forms in detail. Chapter 13 summarises this information by providing an overview of all the forms in use in Roman Colchester on a period by period basis, and then discusses the likely function of the different forms. The evidence for their places of manufacture is then assessed in Chapter 14. The final chapter is a consideration of the individual assemblages from each site. The monograph concludes with four appendices, the most important of which is a report on the chemical analysis of four groups of colourless glass fragments from Colchester, carried out in conjunction with Dr M Heyworth then of the

Ancient Monuments Laboratory and Dr M J Baxter of Nottingham Trent University (Appendix 1, microfiche pp 261-306).

The complete catalogue of the Colchester glass is contained in the microfiche of this volume (Appendix 3, pp 309-436); the relevant entries are reproduced in the printed text to accompany the illustrated pieces. For abbreviations used, see key at end of this chapter.

This chapter will briefly describe the sites excavated in Colchester between 1971 and 1985 which have produced Roman vessel glass; it will then consider the nature of the dating evidence this provided and the factors that influence the way in which glass enters the archaeological record. This is followed by sections on the terminology used to describe colour and finish, and on the principles employed in defining types and quantifying the assemblage. The chapter will conclude with a preliminary overview of the total assemblage.

The sites 1971-85

[Fig 1.1]

by Philip Crummy

During the 1970s and early-to-mid 1980s, Colchester saw town-centre redevelopment on an unprecedented scale. Six major sites were excavated by the Trust, four with multi-period levels and structures from Roman through to post-medieval, and two almost solely of Roman date. In addition, thirty small sites ranging in date from Bronze Age to post-medieval were examined in the town (Fig 1.1) and the surrounding suburbs.

The structural reports for these sites are to be found in *CAR 3*, *CAR 6*, and *CAR 9*. Most of the loose finds are being published according to type of find. Thus there are monographs devoted to the following topics: Roman small finds (*CAR 2*), coins (*CAR 4*), post-Roman small finds (*CAR 5*), post-Roman pottery (*CAR 7*), Roman pottery (*CAR 10*), and animal bone (*CAR 12*). Small finds and coins from 1971-9 are published in *CAR 2* and *CAR A* respectively. Plans are yet to be finalised for publication of the post-Roman glass; Rachel Tyson has examined the medieval glass assemblage and provided an archive interim report. Finds such as mosaics, wall-plaster and votive pots, which are closely linked to excavated structures and features, are also included in the relevant structural report in *CAR 3*, *CAR 6*, or *CAR 9*.

A series of computerised databases has been compiled in which the following categories of find are classified and quantified: Roman pottery, post-Roman pottery, small finds, Roman glass, animal bone, and coins. Another has been created for the site contexts. These databases are particularly important, not just for the data they contain on the finds, but because they provide the principal statement of the dating evidence on which all the interpretations in the *CAR* volumes are dependent. Since the amount of information involved makes orthodox publication of this material unrealistic, it is hoped to make available a printed index to the databases so that they can be consulted in the Colchester Museums in their computerised forms.

A more integrated approach to the study, interpretation, and publication of the finds and the structures would have been preferred, but the scale of the task has meant that there had to be some sacrifice of objectives so that a publication programme could be devised which was achievable with the resources available.

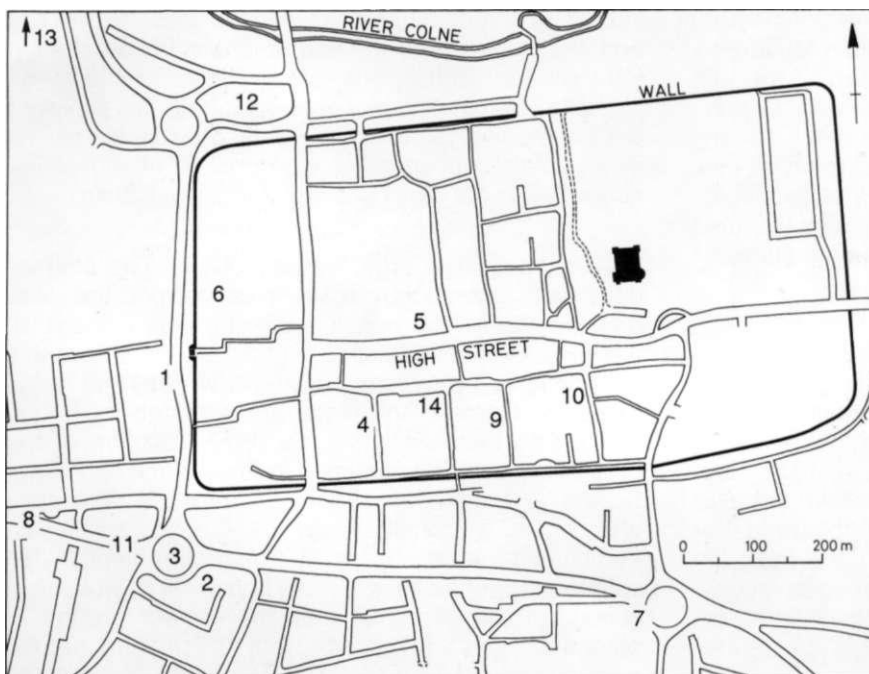


Fig 1.1 The sites excavated in Colchester 1971-85 which have produced the glass forming the basis of this report. [Pages 2-5]

Key:

- 1: Balcerne Lane;
- 2: Butt Road;
- 3: Crouch Street;
- 4: Culver Street;
- 5: the Cups Hotel;
- 6: the Gilbert School;
- 7: Inner Relief Road B (St John's Abbey Grounds);
- 8: Inner Relief Road C;
- 9: Lion Walk;
- 10: Long Wyre Street;
- 11: Maldon Road;
- 12: Middleborough;
- 13: St Helena's School;
- 14: Trinity Street.

The recording system for all the sites apart from the second phase of Culver Street is as follows.

Each site has a three-letter site code (for example, Balkerne Lane is represented by BKC). The larger sites were dug as a series of sub-sites. Each of these is referred to by a single letter code (eg Culver Street Site A) and recorded as if it were a site in its own right.

For each site, or area within a large site, there are three series of consecutive numbers, namely find, feature (or grave), and (since 1973) layer numbers. All groups of finds are given a find number. This is in effect a context number so that all finds from the same context share the same number. Features and layers in which there were finds have at least one find number assigned to each of them.

The following example serves to illustrate the reference numbers given in the catalogues in this book and on microfiche:

BKC N311 F97	
BKC	three-letter site code
N311	site find number prefixed by a letter code in the case of the larger excavations, to denote Site N in this case
F97	feature number: layer number if prefix is L; grave number if prefix is G; absent if the context is not a feature or layer

Culver Street Phases 1 and 2 are referred to by the Colchester Museums accession number '1.81' (as well as 'CUL'). For the second phase of Culver Street, the recording method was changed to a single-context system to help computerisation of the records. This involved having just one series of numbers in which each entry serves as a feature, layer or find number.

The period systems for the sites in this report are summarised below.

Balkerne Lane 1973-6 (BKC; CAR 3, 93-154)

The following are the areas at Balkerne Lane: A, B, C, D, E, G, H, J, K, M, N, P, R, S, T, U, V. They share the following phases:

Period 1a	c 43 - c 49	military defences, street & <i>icanabae</i> associated with metal working
1b	c 49 - c 50/5	street, pits & ? <i>canabae</i> or colonial buildings associated with metal working
2	c 50/5? - 60/1	houses & street
3a & b?	60/1 - c 75/80	houses & street
4a	c 75/80 - c 80/5	houses & street
4b	C80/5	houses & street
4c	C80/5 - c100	houses, street & ?aqueduct
4d	c 100 - c125	houses, street, temple(s) & aqueduct
5a	c 100/125 - c 150+	houses, town defences, street & temple(s)
5b 1 & 2	c 150 - c250	houses, town defences, street & temple(s)

5c	c 250 - c 300	houses, town defences, street, temple(s) & allotment(s)
6	c 300 - 400+	pits, street & defences
Post-Roman	c 17th century & later	pits

(Also 'late Period 6 &/or Anglo-Saxon' refers to the topsoil which accumulated in the town ditch for many centuries, beginning in the late Roman period or immediately afterwards. With one Anglo-Saxon exception (CAR 1, 17, fig 21), all the finds in this context appear to be Roman.

Butt Road 1976-9 (BUC; CAR 9, 4-191)

Period 1	2nd century AD - c 320	cemetery (north-south graves), pits & ?well
2	c 320 - c 450 (at latest)	cemetery (east-west graves) ?church & oven
Post-Roman	modern	pits & trenches

Crouch Street 1971 (CSC; CAR 6, mf 785)

Period 1	15th/16th centuries	pits
2	16th century & later	pits

Culver Street 1981-2 & 1984-5 (CUL or 1.81; CAR 6, 21-126)

Site A

Pre-Period 1	c 44	military ovens or furnaces
Period 1	c 44 - c 49	military building & street
2	c 49 - 60/1	military building & street reused for colony
3	60/1 - c 7100/150	house
4	c 7100/150 - c 300	house
5	c 300 - c 350+	open area
early medieval		robber trenches
medieval & later		pits & trenches

Sites B, C, & J

Period 1	c 44 - c 49	military buildings & street
2	c 49 - 60/1	reused military buildings & street
early 3	60/1 - c 65/75	vacant prior to rebuilding
3	c 65/75 - c 100/125	houses & street
4a	c 100/125 - c 200	houses & street
4b	c 200 - c 250/275	houses & street
4c	c 250/275 - c 275/325	houses & street
4	c 100/125 - c 275/325	houses & street
early 4	2nd century AD	houses & street
late 4	3rd century AD	
5	c 275/325 - c 350+	houses & street
Anglo-Saxon		hut
Post-Roman	post-Roman	pits & trenches
(or 6)		
Medieval	c 1050 - c1500	pits & trenches
Post-medieval	c 1500 - c 1850	pits & trenches
Modern	c 1850 - 1985	pits & trenches

Sites D & M

Period 1	c 44 - c 49(/55)	military building
2	c 49(/55) - 60/1	house
3	60/1 - c 150/200	house
4	c 150/200 - c 275/325	large house
5	c 275/325 - c 400+	cultivated area
6	early medieval	robber trenches
7	medieval & later	pits & trenches

The sites 1971-85: Culver Street, Site E

Site E

Period 1	c 44 - c 49/(55)	military buildings & streets
2	c 49/(55) - 60/1	houses & street
3a	60/1 - c 90/100	houses & street
3b	c 90/100 - c 150/200	houses & street
4	c 150/200 - c 275/325	houses & street
5	c 275/325 - c 400+	large aisled building
6	Anglo-Saxon/early medieval	hut
7	early medieval	robber trenches
8	medieval & later	pits & trenches
9	modern	pits & other features

Sites G & H

Period 1	c 44 - c 49	military buildings
2	c 49 - 60/1	military buildings reused for the colony
3a-b	60/1 - c 65/80	open area — pre-town wall
3c	c 65/80	open area: town wall
3d	c 65/80 - c 150	cultivated area
3e	C150	cultivated areas: town rampart
3	60/1 - c 225	open area & small buildings
4	c 150 - c 225	houses
5	c 225 - c 275/325	houses
6	post-Roman	pits & other features

Site K

Period 1	c 44 - c 49	military building
2	c 49 - 60/1	building
3	60/1 - c 400+	open/cultivated area
3a	60/1 - c 150	open/cultivated area
3b	c 150	open/cultivated area: town rampart
3c	c 150 - c 400+	open/cultivated area
4	Anglo-Saxon	?occupation
5	medieval & later	pits & trenches

Site W (watching brief over whole site)

(Roman building & medieval rubble cellar by Head Street)

Period 1	c 44 - c 49	military buildings
2	c 49 - 60/1	military buildings reused for the colony
3'	60/1 - c 150/225	buildings
4	c 150/225 - c 275/325	includes large house
5	c 275/325 - c 400+	?occupation
6	early medieval	includes medieval rubble cellar
7	medieval & later	

The Cups Hotel 1973-4 (CPS; CAR 6, 328-38)

Period 1	c 44 - c 49	street, house
2	c 49 - 60/1	house
3	60/1 - c 225	house
4	c 225 - c 400+	houses, pits & trenches
5	Anglo-Saxon - c 13th century	pits & robber trenches
6	c 13th - 15th centuries	houses
7	c 15th - ?18th centuries	houses
8	?18th century - 1972	houses

The Gilbert School 1984-5 (GBS; CAR 6, 127-39)

Sites A&B

Period 1	c 44 c 49	military buildings & streets
2	c 49 60/1	houses, streets, & reused military building
3a	60/1 - c 100/125	house & open area
3b	c 100/125 - c 250/275	house & open area

3	60/1 - c 250/275	house & open area
4	c 250/275 - c 350+	house & open area
Post-Roman	post-Roman	
Medieval	c 1050 - c 1500	pits, lime kiln, & casting pit
Post-medieval	c 1500 - c 1850	pits
Modern	c 1850 - 1985	pits

Lion Walk 1971-4 (LWC; CAR 3, 31-92)

Sites A & R

Period 1	c 44 - c 49/55	military defences & metal working
	c 49/55 - 60/1	demolition of defences & construction of first street
	60/1 - c 275	no substantial structures of this period excavated, mainly metallated surfaces of street
4a, b, & c	c 275 - c 400+	houses (three phases)
Post-Roman	medieval & later	pits, early medieval lime pits

Sites B&S

Period 1	c 44 - c 49/55	military defences & <i>via sagularis</i>
2	c 49/55 - 60/1	houses
3	60/1 - c 80/90	houses
4	c 80/90 - c 100	pits & dump
5	c 100 - c 350	houses & pits
Post-Roman	medieval & later	pits & trenches

Sites C & Q

Period 1	c 44 - c 49/55	military buildings & street
2	c 49/55 - 60/1	military buildings reused for colony, also garden
3a	60/1 - c 80?	houses & garden
3b	c 80? - c 100(150)	houses
4	c 150 - c 400+	house (Building 19)
Post-Roman	early medieval & later	pits & trenches

Site D

Roman	c 3rd century AD or later	destruction debris of house
Post-Roman	early medieval & later	pits, houses & trenches

Site E

Roman	Flavian at earliest	street
Post-Roman	medieval & later	pits, houses & trenches

Site G

Roman	c 3rd century AD or later	street & destruction debris of house
Period 1	c 1100 - c 1150	pits & robber trenches
2	c 1150 - c 1500	'stone house' Phase 1
3	c 1500 - c 1650/1725	'stone house' Phase 2
	c 1650/1725 - 1972	'stone house' Phase 3

Sites K&T

Period 1	c 44 - c 49/55	military buildings
2	c 49/55 - 60/1	military buildings reused for colony
3	60/1 - c 100	house
4a & b	c 150 - c 400+	house (Building 19) (two major structural phases)
Post-Roman	Anglo-Saxon	hut
Post-Roman	early medieval & later	pits & trenches

Sites J, H, & P

Period 1	c 44 - c 49/55	military building(s)
2	c 49/55 - 60/1	house & street
3	60/c 75 - c 100/150	house & street
4a	c 150 - 7200	house & street
4b	7200 - c 275/300	
5	c 300 - c 400+	nature of activity/occupation unclear
Post-Roman	Anglo-Saxon	hut
Post-Roman	early medieval & later	lime pit, pits & trenches

Site L

Period 1	c 44 - c 49/55	military buildings & street
2	c 49/55 - c 85	garden
3a	c 85 - c 90	building
3b	c 90 - c 100(150)	
4a	c 150 - 330/5+	two phases within Room 1 of house (Building 19)
4b	c 330/5+ - c 400+	
4(1)	c 150 - c 200	three phases with Room 2 of house
4(2)	c 200 - c 250	
4(3)	c 250 - C400+	
5	early to late medieval	pits & trenches
6	late medieval	lime kilns
7	late medieval to 716th century	pits
8 & 9	716th century - 1972	almshouses

Site M (section across rampart behind town wall)

Street 1	c 65/80
Street 2	c 65/80
Street 3	c 65/80 - c 150
Rampart 1a-e	c 150
Rampart 2	c 250/300

Site N

Defensive ditches of the fortress & the Roman & medieval town

Site U

Roman	house
Post-Roman	pits & trenches

Site V

Watching brief

Long Wyre Street 1978-9 (COC; CAR 6, 355-61)

Period 1	c 44 - c 49/55	defences of annexe of fortress
2	c 49/55 - c 75	streets, drain & water-main
3	c 75 - c 100	streets & house
4	c 100 - c 150	streets & house
5	c 150 - c 275/300	streets & houses
6	c 275/300 - 7400+	streets & houses
7-10	early medieval & later	houses, robber trenches & pits

Middleborough 1978 (MID; CAR 3, 155-209)**Sites A, B, G**

Period 1	late 1st - early 2nd century AD	house & street
2	early-to-mid 2nd century AD	house & street
3	mid 2nd century - c 300	houses & street
Post-Roman	12th century +-	robber trenches, pits & kilns

Site C

Phase 1	14th century	house
	15th century	house

3	16th century	house
4	17th century - 1862	house
5	c 1862 - 1978	open livestock market

Site E

Phase 1	14th century	house
2	c 1350/1450 - c 1450/1500	house
3	c 1450/1500 - c 1600	house
4	c 1600 - c 1650	house
5 & 6	c 1650 - c 1862	house
7	c 1862 - 1978	house (New Market Tavern)

St Helena's School 1975 (HEC; CAR 6, 345-6)

Period 1	Pre- c 150/225	open
2	c 150/225 - ?c 4th century AD	building
3a & b	Post-Roman	cultivated area

Trinity Street 1977 (TSC; CAR 6, 347-54 & mf 828-33)

Period 0	Nos 1 to 3 Trinity Street (still standing)	
	Roman	
	medieval	pits & trenches
	post-medieval	H-plan house, Phases 1-3
	18th - early 20th centuries	H-plan house, Phases 4-5
	modern	part demolition & conversion of H-plan house

The dates of the contexts from the following sites (all small) are given in the microfiche catalogue under the appropriate entries:

Castle Gardens 1978 (CGC; CAR 6, mf 860-61)
Roman town defences

Inner Relief Road Site B 1972 (IRB; CAR 9, 203-18)
Roman & medieval cemeteries & ?late Anglo-Saxon church

Inner Relief Road Site C 1973 (IRC; CAR 6, mf 789)
Roman town defensive ditches

Maldon Road 1971 (MRC; CAR 9, 236-44)
Roman cemetery & Roman building

The dating evidence from the sites

[Fig 2.1; Table 1.1]

Many individual types of glass vessels found during these excavations are represented by relatively large numbers of examples. The dates of the contexts in which they are found can help to refine the knowledge of when the form was current. It is necessary, however, to understand the nature of the dating evidence, so that its strengths and weaknesses can be appreciated. As will be apparent from the previous section, the date ranges of the periods vary from site to site and, in the case of the larger sites, between different areas within a site.

Examination of the periods which are assigned calendar dates reveal that it is possible to identify eighteen groups of periods sharing the same terminal date. These terminal dates are closest together in the 1st and early 2nd centuries. Before c AD 125 the

The dating evidence from the sites

average interval between the ends of the periods is approximately eight years, whereas after that date it is 28 years. The majority of the individual periods is also concentrated in this early period, with nearly fifty per cent of the individual periods identified ending on or before c AD 125. The length of the periods also increases with time. As a simple example, the average lengths of the periods which have terminal dates of AD 100, 200, 300 and 400 can be compared. They are 28 years, 91 years, 108 years and 164 years respectively. From all of this it will be apparent that it is during the 1st century of occupation that the dating evidence from Colchester has the most to offer. For common vessel-types in use during the mid-to-late 1st century and the early 2nd century, this very close dating helps to establish the period at which they regularly start to enter the archaeological record. It is not possible to do this with such accuracy for types which were in use later.

When types discussed in Chapters 2-11 are represented by sufficient fragments from Roman contexts to justify a diagrammatic summary of the dating evidence from Colchester, histograms have been prepared which make use of the varying precision in dating. The Roman period between AD 43 and 400 is divided into one unit of eight years (AD 43-50), five units of ten years (AD 51-100), and twelve periods of 25 years (AD 101-400). Fragments are divided proportionately between these units according to the dates of their contexts. The amount in each unit is

then converted to a percentage of the total in all units. This percentage is then divided by the number of years the unit represents (8, 10 or 25). This allows a histogram to be plotted with the x axis being scaled according to years AD, with the area of each bar representing the proportion of the fragments found in each unit of time. The number (N) of fragments on which the histogram is based is given on each graph. The advantage of summarising the dates of the contexts from which the fragments come in this way is that it allows rapid comparison between different types. This can be helpful for establishing the period of use of less well understood types, as the histogram can be compared to those of types whose dating is more securely established from evidence at other sites.

As is to be expected on any urban site occupied over centuries, these histograms are distorted by fragments found in residual contexts. An indication of the degree of residuality present in the material from the 1971-85 excavations can be seen in Figure 2.1 (p 17). This is the dating histogram for the pillar-moulded bowl fragments found in the various sites. Pillar-moulded bowls (**1-184**) are a very common 1st-century form which would not have been in use after the early 2nd century at the very latest. As the histogram shows, however, a small but significant proportion of fragments continues to be found in contexts dating to the 2nd, 3rd and 4th centuries (see Table 1.4, column 1, on p 11).

Table 1.1 Period groups for all sites. [Pages 5-6]

A	B	C	D	E	F
1	49	8	7.1	7.1	5
2	55	10	8.9	16.0	10
3	61	15	13.4	29.4	12
4	75	2	1.8	31.2	20
5	80	5	4.5	35.7	17
6	85	3	2.7	38.4	17
7	90	2	1.8	40.2	17
8	100	5	4.5	44.7	28
9	125	3	2.7	47.4	50
10	150	12	10.7	58.1	56
11	200	6	5.4	63.5	91
12	225	4	3.6	67.1	142
13	250	2	1.8	68.9	75
14	275	4	3.6	72.5	169
15	300	6	5.4	77.9	108
16	325	6	5.4	83.8	158
17	350	4	3.6	86.9	119
18	400	14	12.5	99.4	164

Key:

- A....Period group
- B....Period end date
- C....Number of phases
- D....Percentage of total
- E....Cumulative percentage
- F.... Average length of period included in period group.

Factors influencing the disposal of glass

Special factors influence the way in which glass enters the archaeological record, and these may have major consequences for the interpretation of assemblages. A comparison of the pottery vessels and the glass vessels from an archaeological site, for example, will not accurately reflect the ratio of pottery to glass vessels that were in use on the site. When a pottery vessel is broken there is little that can be done with the fragments and they will be discarded as rubbish. By contrast, when a glass vessel breaks, it is possible to recycle the glass to produce new vessels. Indeed, it is advantageous to collect broken fragments (cullet) for several reasons. When glass is being made from raw materials, the addition of cullet has the effect of lowering the melting temperature (Vose 1980, 67), and it is also comparatively free of the impurities found in the raw materials (Price 1976a, 116).

Roman literary sources indicate that cullet was deliberately collected during the early Imperial period (Leon 1941), and the evidence from the glass-blowing and working site at Mancetter, Warwickshire (unpublished) suggests that cullet may have been the main source of material at that site and elsewhere. There is an increasing body of evidence to show that glass-vessel manufacture was fairly common in Roman Britain and that the industry was established here by the late Neronian or early Flavian period

(Shepherd 1986a, 142; see also Chapter 14). It is, therefore, almost certain that the collection of cullet was common on sites in normal circumstances.

The collection factor has great influence on the nature of the glass assemblages recovered from Roman sites. It is rare to have more than one or two, often quite small, fragments from any one vessel, and this may be explained if the rest of the fragments have been collected for recycling. There are, however, some exceptions to this rule. On some sites occupation is either too early or too short-lived for the broken glass to be incorporated into any cycle of re-use. Early military sites are one example of this type of site, and on these the assemblage often includes a higher proportion of reconstructable vessels. There are also some isolated deposits where it appears that special circumstances led to the disposal of glass rather than to its recycling. Examples of such deposits include Antonine pits at Park Street, Towcester and Felmongers, Harlow (Price 1980a & 1987a), both of which contained large numbers of virtually complete vessels, a most unusual phenomenon in a Romano-British settlement.

Disasters can also lead to a breakdown in the normal disposal of glass. This accounts for the fact that 8.5 per cent of the total assemblage of fragments found in Roman contexts during these excavations came from contexts belonging to Period Group 3 which represents all of the periods terminated by the Boudican rising (see Table 1.4, p 11). The destruction must have caused far more glass to be broken than would have occurred in normal use, and also resulted in little being collected for recycling (even if such collections were already being made as early as AD 60/1).

The fact that vessels are normally identified from relatively small fragments and may often only be represented by one piece has several consequences. It is frequently not possible to identify the type of vessel precisely, which makes it difficult to date the piece. It may not even be possible to identify whether a fragment comes from one form of vessel rather than another, as for example a neck might come from a jug or a flask, and a rim fragment might come from a cup, beaker, bowl or jar. This hampers identification of the function of the vessel and has consequences for attempts to assess the composition of the vessel assemblage from a particular context.

Certain vessel types may also be difficult to identify from small fragments (see for example the discussion of hemispherical cups with fire-rounded rims in Chapter 5, and of funnel-mouthed and spouted jugs in Chapter 8). This is likely to lead to the form being identified less frequently than it should be, and may result in an unbalanced picture of the assemblage of any one period. It also has important implications for the quantification of the assemblage, an issue discussed further in a later section of this chapter.

Terminology

In this section definitions and descriptions of certain words used in this volume will be given. This is necessary for two reasons. Some terms will be unfamiliar to readers not acquainted with the literature on glass, and others vary in the way they are used depending on the author concerned.

Colour

Many different colours of glass were deliberately produced during the Roman period. The variation was caused by differences in the raw materials and in the furnace conditions (see for example Vose 1980, 26ff; Biek & Bayley 1979, 14; Henderson 1985). There is, unfortunately, no universally accepted way of defining the colour of glass when this is done by visual examination. In some studies it is done by reference to a colour chart. In his study of the glass from Vindonissa, Berger uses a chart originally intended to describe the colours of pencils (1960, 96). Other reference charts have included those used to define Letraset (Rutti 1988, 13), or to describe colours for stamp collectors (Follmann-Schulz 1988, 2).

In our view this is not the best way to approach the problem. The charts are designed to describe opaque colours and most Roman glass is translucent. This being so, the thicker the piece of glass, the deeper its colour will appear. Other factors have an effect on the perceived shade of colour of the fragments, including the light in which it is viewed and the micro-environment in which it was deposited. Roman glass is very stable chemically, but the context in which fragments are deposited can have a considerable effect on their surfaces. This may result in two joining fragments deposited in different environments being of markedly different shades.

For all of these reasons we do not feel that it is useful to attempt to define colours narrowly, and we have chosen instead to use broad descriptive terms. The majority of the glass described in this volume is translucent. We use the term 'opaque' to mean that when held up to the light, no light is transmitted through even the thinnest part of the fragment. When a fragment is described by reference to two colours, for example 'yellow/green', the last colour predominates.

The translucent glass may be divided into four broad categories; strongly-coloured, lightly-tinted, colourless, and blue/green glass.

Strongly-coloured glasses are the very deep shades of blue, emerald green, dark yellow/brown and a slightly lighter shade described as amber, purple, and a deep green/blue shade described as peacock.

Lightly-tinted glasses are mainly various shades of pale green but also include very light yellow and yellow/browns. It is often difficult to distinguish between the different shades of pale green as they

run in a continuum from an almost colourless glass to a well-defined yellow/green. In this volume they are divided into three categories; pale green, light green, and yellow/green. In these categories, pale green is the shade closest to colourless, and light green and yellow/green are the more pronounced shades.

The term 'colourless' is here used to describe glass that has been successfully decolourised. If slight traces of green are visible in the section, the fragment is described as green-tinged colourless.

Blue/green glass is the type of glass that results when no deliberate attempt is made to decolourise or colour the glass. The colour arises from the iron occurring naturally in the sand, and the precise shade is often the result of the furnace conditions. For these reasons it is often referred to in the literature as 'natural green' glass. No distinction is made here between glasses that appear to be slightly greener or slightly more blue as this is often a very subjective judgement.

Manufacturing methods

An extended discussion of the methods of manufacture and decoration used in the Roman period can be found in Price 1976a; but it is important to appreciate at the outset the significance these have for identifying particular vessel types. The precise ways in which rims are finished, handles are attached etc, are often diagnostic of specific forms. The meanings of many of the terms used to describe these processes are self-explanatory. Some of the less familiar terms are given below.

Cast. The general term given to a variety of ways of forming vessels which do not use any of the techniques of blowing glass. These are discussed in more detail in Chapter 2 (p 13).

Cold-finished, Fire-rounded, Heat-finished, Cracked-off, and Knocked-off rims, see Rim finish.

Marvered decoration. A marver is a flat block of stone or metal in a glass-house on which the gather of molten glass, taken from the crucible on the end of the blowing-iron, is rolled backwards and forwards to shape it and make it regular before it is blown and while it is being blown. Trails or blobs of a contrasting colour may be applied to the gather after this first marvering or when the gather is partially inflated, and then it is rolled again. As the vessel is blown the decorative elements expand with the rest of the glass and merge with the surface of the vessel. Such decoration is described as marvered.

Mould-blown glass. The process by which a gather of glass is blown inside a decorated mould, generally made in two or more parts, to produce a decorated vessel. Further discussion of this process will be found in Chapter 3 (p 42).

Optic-blown decoration. The process by which a gather of glass is first blown into a mould with a pattern in it and then free-blown. The pattern on the

gather expands as the vessel is free-blown and as it does so the design is produced in relief. The most common pattern encountered on Roman vessels is one of shallow close-set ribs.

Pontil-iron and pontil scar. A vessel that is to have a heat-finished rim often has a pontil-iron applied to the base so that the blowing-iron can be detached and the rim finished. When this has been done, the removal of the pontil-iron often leaves a scar which in the Roman period was rarely removed.

Rim finish. The major division between rim finishes is whether they are heat-finished or cold-finished. The two main methods of heat-finishing a rim are either by folding it or by manipulating the vessel, via a pontil-iron in the furnace. This results in the edge of the rim becoming rounded, and the vessel is described as having a fire-rounded or fire-thickened rim. Cold-finished rims are ones that are produced after the vessel has cooled down. The vessel is scored at the desired position of the rim and the waste above this point can then be removed. This is described as a cracked-off or knocked-off rim.

Grozing. A descriptive term that relates to secondary reuse rather than primary manufacture is grazed. This is used to describe the process by which pieces of glass have been removed to make the fragment suitable for some secondary purpose. Technically it describes the snapping-off of pieces of glass using a grozing-iron. Here it is also used to describe a very common form of reuse where the fragment has been knapped as if it were a flint.

Definition of types

The standard work on the typology of Roman glass is *Roman glass from dated finds* by Clasina Isings (1957). The types defined there are primarily based on shape and to a lesser degree on method of manufacture. This sometimes leads to the conflation of two or more distinct types which, though they may share the same shape, can be distinguished from each other by additional criteria. In this volume, therefore, the Isings typology has not been used as the basis for defining the types, though reference to it is made where appropriate.

The various features that may be used to classify glass vessels are method of manufacture, shape, colour, and decoration, and all four criteria have been used to define the types identified at Colchester. The classification is hierarchical.

The first division is based on method of manufacture and allocates each vessel to one of three categories depending on whether it has been cast, mould-blown, or free-blown.

The second division is based on shape, and six categories are defined. The first consists of drinking-

vessels. These are open vessels which are either short (here called cups) or tall (here called beakers). Bowls are defined as low open vessels whose size and/or rim formation make it less likely that they would have been used as drinking-vessels. Jars are closed vessels with short constricted necks. Jugs are closed vessels with longer constricted necks and handles, and some but not all are provided with pouring spouts. Bottles are closed vessels with short necks and handles.

Within each of these broad divisions many different forms can be defined based on the combination of precise shape, manufacturing details such as rim finish, base formation etc, and colour and decoration.

The first and second parts of this hierarchy provided the basis for the ordering of the chapters discussing the individual types. Chapters 2 and 3 discuss the cast and mould-blown glass, and the polychrome blown glass is considered in Chapter 4. The free-blown monochrome glass is discussed in Chapters 5-11, with one chapter devoted to each of the shape categories. Within each of these chapters the individual types are arranged in chronological order.

Methods of quantification

It is important to quantify assemblages so that different types of comparisons can be made. These may include comparing assemblages from different sites, comparing quantities of a particular vessel type from a number of different sites, or comparing the quantities of vessels serving a similar purpose at different periods. In order to make meaningful comparisons it is necessary that the material is always quantified following the same principles.

There is a well-developed literature on the different methods of quantifying pottery (see Orton 1989 for references), but little comparable work has been done on glass vessels (Fletcher & Heyworth 1987). The special properties of glass mean that many of the methods used for pottery quantification are not appropriate for this material. In common with pottery, quantification by simple fragment totals is unsatisfactory for this material. Thin vessels are far more likely than thicker ones to fragment into a large number of small pieces when broken; and, after the initial breakage and disposal, further fragmentation depends on the history of the context in which the glass is deposited. This problem is especially acute with thin-walled glass tablewares.

The weight of glass fragments is also of limited value in quantification. It is only valuable if comparisons are being made between the quantities of a particular type found in different contexts or sites, and only then if it is clear that examples of the type are all of the same size. The blue/green prismatic and cylindrical bottles discussed in Chapter 11 vary the most in size and weight, although this is a problem which affects many

other vessel varieties as well. It is very unusual for such conditions to be fulfilled, and therefore weight is of minimal use for general quantification purposes.

Quantification based on 'estimated vessel equivalents' (EVEs) promises to be a very fruitful method in pottery studies (Orton & Tyers 1990), but its potential for use with glass vessels has yet to be explored. There are difficulties in applying this methodology to glass vessels associated with recycling, and with the tendency for the most diagnostic fragments of some vessels to be handle or body fragments rather than the rim or base fragments from which EVEs are normally calculated. For this reason the method has not been used in this volume, though if the approach could be extended to glass, it would be a valuable quantification method.

The policy adopted in this volume is to estimate the minimum number of vessels in an assemblage (EMN). Here, an assemblage has been defined as all the vessel glass from a particular site. Any subdivisions in a site have been ignored. Thus all of the glass from Lion Walk is considered to be one assemblage.

The method considers all the fragments of one colour identified as coming from a particular type, and then makes a conservative estimate of the minimum number of different vessels that they might have come from. Two examples will help to illustrate how these are calculated. In the first example colourless cylindrical cups with fire-rounded rims (**465-540**) are considered. This vessel type has a very distinctive rim and base form. If an assemblage has three rim fragments from three different vessels, a minimum of 3 vessels can be estimated. If, in addition, there are also three base fragments with base diameters appropriate to the rim diameters of the cups already identified, the estimated minimum number of this type remains at 3. If, by contrast, the diameters of these base fragments are either too large or too small to have come from the same vessels as the rim fragments, it is clear that they must have come from other vessels and thus the estimated minimum number rises to 6.

In the case of vessels with handles the situation can become more complex. For the second example fragments of blue/green conical jugs will be considered (**871-954**). In this case, if an assemblage produced one rim, one base and one handle fragment of the jug type, the minimum estimate would be 1. This is because for these vessels there is a less obvious relationship between rim and base diameters and handle size. If the assemblage produced an additional handle fragment, the estimate would rise to 2 as it is exceptional for a jug of this type to have two handles.

An obvious disadvantage of this method is that the rate of increase in the minimum vessel estimate declines as the size of the assemblage increases. This is apparent if two assemblages of undiagnostic body fragments are considered. The first consists of

Methods of quantification

ten fragments each of a different colour. It is obvious that each fragment comes from a different vessel and the minimum number they represent is 10. The second assemblage consists of 100 fragments in the same ten colours. Although the fragment total has increased, the estimated minimum number of vessels remains 10, because in this case colour is the only basis on which the calculation can be made. This is a simple and artificial example but a similar effect is always seen as the assemblage size increases. This is why some other qualifying measure of size must be given when the minimum number of vessels in an assemblage is stated, for example an assemblage *b* contains *x* fragments representing a minimum of *y* vessels.

This method of quantification has been devised to allow simple comparisons to be made of the type outlined at the beginning of this section. For this purpose it is adequate, but it cannot be used as the basis for any inferential statistical analysis.

The glass found during the Colchester excavations of 1971-85

[Tables 1.2-1.4]

During these excavations 6,321 fragments of vessel glass were found in domestic contexts and a further 17 vessels were recovered from graves in which they had been deliberately deposited. The distribution of this material by site and colour is shown in Tables 1.2 and 1.3. As will be seen from Table 1.2, over sixty per cent of the fragments were found at Balcerne Lane and Culver Street. (For window glass, see Appendix 4, microfiche pp 446-60 & CAR 6, 117-18.)

The colour of glass vessels can be diagnostic of date. Colourless glass, for example, is very rare until the late Neronian period and thereafter becomes the preferred medium for good-quality tablewares (Harden & Price 1971, 330). Before this, strongly-coloured glass had been used for tablewares but such colours, both polychrome and monochrome, largely disappear

Table 1.2 Total numbers of vessel-glass fragments from the excavations (excluding grave goods). [Pages 10-12]

type	1.81/ CUL	BKC	LWC	GBS	BUC	MID	CPS	COC	TSC	MRC	CGC	IRB	IRC	HEC	Totals
1	6	3	2	1	-	-	-	-	-	-	-	-	-	1	13
2	4	8	4	3	-	1	-	-	-	-	-	-	-	-	20
3	67	50	38	20	3	1	5	1	-	5	-	-	-	-	190
4	19	1	-	-	-	-	-	-	-	-	-	-	-	-	20
5	4	3	10	3	1	-	-	-	-	-	-	-	-	-	21
6	9	17	11	4	-	-	-	-	-	-	-	-	-	-	41
7	11	10	12	5	-	-	-	-	-	-	-	-	-	-	38
8	4	13	3	12	1	-	1	-	-	-	-	-	-	-	34
9	23	24	13	10	-	-	1	-	-	-	-	-	-	-	71
10	-	1	-	5	-	-	-	-	-	-	-	-	-	-	6
11	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1
12	3	17	5	9	-	-	1	-	-	-	-	-	-	-	35
13	43	59	44	20	5	2	2	-	-	1	-	-	-	-	176
14	26	23	7	9	5	-	-	-	-	-	-	-	-	-	70
15	61	62	44	20	-	4	-	1	-	-	-	-	-	-	192
16	230	243	179	16	6*	41	65	1	-	-	4	-	-	-	785
17	935	934	462	297	59	56	44	8	2	14	1	1	-	-	2813
18	450	433	269	105	85	68	40	24	1	5	1	1	-	-	1483
19	36	80	55	-	64	1	76	-	-	-	-	-	2	-	312
Totals	1431	1982	1158	539	229	174	235	35	3	25	6	2	2	1	6321

* includes approx 50 small splinters counted as 1 fragment

For an explanation of the site codes, see pp 3-5.

Key to glass types:

- | | | | |
|-------------------------------------|-----------------------------|---------------------------|--|
| 1 — polychrome pillar-moulded bowls | 6 — colourless cast vessels | 11 — green/blue (peacock) | 16 — colourless |
| 2 — monochrome pillar-moulded bowls | 7 — mould-blown vessels | 12 — emerald green | 17 — blue/green (non bottle) |
| 3 — blue/green pillar-moulded bowls | 8 — polychrome | 13 — yellow/brown | 18 — blue/green (bottle) |
| 4 — polychrome cast vessels | 9 — deep blue | 14 — yellow/green | 19 — greenish colourless with many bubbles |
| 5 — monochrome cast vessels | 10 — purple | 15 — light or pale green | |

Table 1.3 Vessels found as grave goods.
[Pages 10-12]

Glass colour	BUC	MRC	IRB	Totals
1	5	1		6
2	1	-	-	1
3	5	1	1	7
Totals	11	2	1	14

Key to glass colour:

1 — colourless

2 — blue/green

3 — greenish colourless with many bubbles

during the mid to late 1st century. Blue/green glass was used to make vessels throughout the first three centuries, but becomes much less common in the 4th century, when the commonest vessel types are most frequently made in a range of greenish/yellowish/colourless shades of glass which is frequently full of small bubbles. Two-thirds of the fragments from these excavations were found stratified in Roman contexts, and these are shown in Table 1.4.

The problems of residual finds at Colchester outlined above mean that the decline in the use of brightly-coloured glass in the 1st century and of blue/green glass in the 4th century is masked in Table 1.4. It does, however, show the introduction of colourless glass and of the greenish colourless bubbly glass typical of the 4th century.

It is clear that fragments of colourless glass (column 12) are very rare in phases associated with the Boudican destruction, which underlines the evidence from the sites that it was not until the late Neronian period that such glass started to circulate with any regularity. It will also be noted that colourless fragments do not regularly occur in the archaeological record until the end of the 1st century.

The evidence provided by the Colchester material for the introduction of the late greenish colourless bubbly glass is particularly valuable. Visually this material is very distinct from the types of glass in common use in the 1st to 3rd centuries, but very similar to the types used to make vessels in the 5th to 6th centuries in the north-western provinces. The reasons for this change are not known at present, but it is obviously of some interest to identify when this glass appeared. Column 15 shows the occurrence of this type of glass in

Table 1.4 Fragments of vessel glass from dated Roman contexts. [Pages 10-12]

Terminal dates	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Totals
AD 49	4	0	0	1	0	0	0	0	1	0	1	0	21	2	0	30
AD 55	17	1	0	2	1	0	0	2	2	0	3	0	55	4	0	87
AD 61	38	18	0	5	3	2	0	9	4	8	11	7	242	44	0	391
AD 75	8	2	0	0	0	0	0	1	3	0	4	1	43	2	0	64
AD 80	8	1	4	1	2	0	0	4	3	3	9	17	59	18	0	129
AD 85	2	0	0	0	3	0	0	1	0	2	2	0	17	2	0	29
AD 90	0	0	12	0	2	0	0	0	1	0	1	0	6	2	0	24
AD 100	7	0	0	0	3	0	0	2	1	3	4	5	44	25	0	94
AD 125	20	6	6	9	11	1	0	1	18	4	20	48	163	79	0	386
AD 150	11	5	3	0	8	0	0	3	16	5	23	55	175	61	0	386
AD 200	15	8	0	0	0	0	0	0	6	0	4	14	80	30	1	158
AD 225	3	4	1	1	1	0	0	0	5	3	10	41	86	71	3	229
AD 250	0	12	1	0	1	0	1	0	18	1	8	49	182	67	0	340
AD 275	4	0	2	0	1	1	0	0	7	3	8	10	106	53	2	197
AD 300	12	6	0	5	3	0	0	1	19	5	19	40	257	208	11	586
AD 325	8	3	1	1	5	0	0	0	11	3	13	106	232	122	12	517
AD 350	1	1	1	0	0	0	0	0	3	1	4	23	54	46	2	136
AD 400	9	2	0	3	6	0	0	3	18	5	5	35	209	94	43	432
Totals	167	69	31	28	50	4	1	27	136	46	149	452	2031	950	74	4215

Key to glass types:

1 — pillar-moulded bowls

2 — cast

3 — mould-blown

4 — polychrome blown

5 — deep blue

6 — purple

7 — green/blue (peacock)

8 — emerald green

9 — yellow/brown

10 — yellow/green

11 — light/pale green

12 — colourless

13 — blue/green (vessel)

14 — blue/green (bottle)

15 — late greenish

colourless

The glass found during the Colchester excavations of 1971-85

stratified contexts. The presence of one fragment in a context with a *terminus ante quem* of AD 200 is exceptional and should be ignored as it may have been intrusive or mis-identified. The increasing presence of the material in 3rd-century contexts, albeit in small quantities, is more important as it shows that the change is likely to have started during that century.

All the glass from the Colchester excavations of 1971-85 is in the Colchester Museums.

Note on the *comparanda*

Where unpublished glass fragments are cited, the term 'unpublished' has been reserved for material that has been studied by one or both of us and which will eventually be published as specialist reports in excavation reports. Other unpublished material is cited either by Museum accession number or by the name of the person who made the information available to us.

Abbreviations

The abbreviations used in the catalogue are as follows:

Dim	dimensions
RD	rim diameter
WT	wall thickness
BD	base diameter
PH	present height
RT	rim thickness

All measurements are in mm.

The abbreviations used in relevant tables are as follows:

Frs	fragments
EMN	estimated minimum number of vessels
EVE	estimated vessel equivalent

CHAPTER 2: Cast objects and vessels

Introduction

Production methods

Information about Roman production processes can be gained both from the study of the vessels themselves and from modern experiments by glass-workers, though it is not always possible to be certain that the methods thus identified are those used by ancient glass-workers, since the same effect can often be achieved by more than one method.

In this chapter the term 'cast glass' is used to describe vessels and objects formed in a variety of ways. Few of the pieces are likely to have been cast in two-piece or 'lost wax' closed moulds, though the blanks for monochrome vessels with projecting handles and perhaps for the palettes may have been formed in this way. Many of the monochrome bowls and plates are likely to have been formed as disc blanks and then sagged either over, into or through a former in a furnace (Cummings 1980, 23-5). The monochrome pillar-moulded bowls were probably formed in a similar manner, first as disc blanks pressed with a slotted tool to form the ribs and then sagged over a convex former in a furnace (Cummings 1980, 26-9).

Polychrome mosaic vessels were constructed from pre-formed elements of two basic types, either sections or lengths of canes, and these were formed by several methods. Cane sections could be created by arranging cold glass rods of different colours in a pattern, attaching two pontil-irons to the bundle of rods and then heating and stretching it to produce a miniature version of the original design (see Cummings 1980, figs 64-5). Alternatively, canes with rings of contrasting colours could be built up by repeated gathers onto a rod which was then stretched (Cummings 1980, fig 66), and spirals could be formed by flattening a band of hot glass, rolling this round a glass cane, attaching pontil-irons to the ends of the roll and heating and stretching it (Gudenrath 1991, 219-20, figs 40-45). The cane lengths could be formed by twisting together two or more rods in contrasting colours to produce a cylindrical cane (Cummings 1980, 32, fig 28), while those with flat sections may have been made by stretching bands of two colours together, or by stretching one colour, adding a second colour and then folding the first one over it (Gudenrath 1991, 217, figs 23-7).

After the canes were formed, the sections or lengths were arranged as a circular blank and fused together, and the disc was then sagged over, into or through a former in a furnace (Cummings 1980, 30-32, fig 27).

After forming, the surfaces were usually ground and polished smooth, and it is often possible to see the fine grinding and polishing marks. The inside surfaces are invariably treated in this manner, as are the outside surfaces, except on pillar-moulded bowls. The monochrome and colourless cast vessels come from a range of cups, bowls, plates, dishes, trays and other vessels with sharply-defined profiles, and the decorative details, base rings and handles are formed by grinding them from the blanks. In many cases the vessels were turned on a lathe positioned at the centre of the blank, though it would not have been possible to use a lathe to work all the surfaces on either handled or rectangular vessels, so the use of other methods such as engraving and hand-polishing must also have been necessary. The grinding and polishing process removed inequalities from surfaces in contact with the moulds, and often transformed the shapes of the vessels, so few clues about the exact method of production are likely to survive, apart from the thickness of the sides and the alignment of bubbles.

Early production of cast vessel glass

The production of polychrome mosaic glass had a long history before the Roman Empire. Floral mosaic canes occur in inlays in the 8th and 7th centuries BC in western Asia (Grose 1989, 76, fig 40), though virtually no polychrome mosaic vessels were produced before the Hellenistic period. The two vessel forms concerned are large shallow plates with out-splayed rims and slightly convex bases made from patterned cane sections, and hemispherical bowls with vertical rims and convex bases made from lengths of twisted cane, are found among the glass vessels of the Canosa group dating from the 3rd century BC onwards (Grose 1989, 189-93). (NB: we are grateful to Professor D Grose for much discussion about early Roman cast glass and its antecedents, and for reading and commenting on an earlier draft of this chapter.) In the 2nd and early-to-mid 1st century BC, hemispherical bowls made from sections and lengths of cane continued in use, and small bowls and dishes, sometimes with applied base rings, were formed from sections of patterned cane and lengths of twisted cane. These are known from the Antikythera wreck (Weinberg 1965, 35-8 nos 4-10), and elsewhere.

Coloured monochrome and colourless cast vessels were also produced a long time before the Roman Empire. Hemispherical bowls and other forms occur in western Asia and occasionally in the Mediterranean region in the late 8th to 6th centuries BC, and a range

Introduction: early production of cast vessel glass

of 5th- to 4th-century shallow colourless bowls with elaborate wheel-cutting on the outside surfaces, imitating Achaemenid silver vessels, may have been produced in Persia (see Grose 1989, 74-6, 80-81, fig 48). In the Hellenistic period, plates with out-splayed sides, hemispherical bowls with convex bases or with bosses and relief decoration, and footed cups with carved wing handles (*scyphi*) are present in both the Canosa and Antikythera groups of vessels.

The distribution of all Hellenistic and earlier vessels is concentrated in the east and central Mediterranean regions, and is rarely found in the western provinces.

Roman cast glass

Polychrome mosaic glass vessels formed a very important part of the early Roman luxury-glass industry, and many varieties were produced during the late 1st century BC and early 1st century AD. They are closely related to the Hellenistic vessels discussed above. Some of the Roman forms, such as the hemispherical and shallow convex bowls, and some of the designs, such as the vessels formed from lengths of twisted cane and flat strips, are very similar, but other forms are quite different, and the cane patterns and the colours are also clearly distinguishable from the earlier material.

Cast vessels of the early Roman Empire have recently been divided into five main groups or families, four of which are polychrome mosaic glass (Grose 1989, 249-54, 256-61). Pillar-moulded bowls are discussed with their monochrome counterparts and monochrome linear-cut bowls as Family I; bowls and other vessel forms formed from lengths of twisted cane and flat strips, and generally with a rim formed from a length of twisted cane, are discussed as Family II; ceramic-form bowls, plates and vessels such as beakers and jars made from cane sections with floral or similar patterns are discussed as Family IV; and vessels formed from curved lengths of flat translucent and opaque strips, including some with gold leaf sandwiched between layers of colourless glass, are discussed as Family V.

The quantity and variety of polychrome mosaic vessel glass is much greater in the Roman Empire than in the preceding Hellenistic period, and the distribution contrasts markedly with that of Hellenistic vessels. Although pieces have been found throughout the Roman world, the concentration of finds occurs in the central and western Mediterranean region and the north-western provinces; there is little doubt that much early Roman polychrome mosaic glass was produced in the central Mediterranean region, probably in Italy.

The period of production of early Roman polychrome mosaic glass is confined to the late 1st century BC and first half of the 1st century AD. This glass is known in Augustan to Claudian-Neronian contexts, but becomes rare after the middle of the 1st century AD, and so is not very widespread in Britain, except on sites in southern Britain which were either receiving imported glassware before the Claudian

invasion or were established during the initial phases of the conquest.

The monochrome cast glass of the early Roman Empire has very little in common with Hellenistic traditions of production. The colours are brilliant and the vessel shapes are new and often similar to contemporary stone, metal and pottery vessels, some being known as 'ceramic-form' vessels. This kind of monochrome glass is found in the last years of the 1st century BC and most of the forms were in circulation in the first half of the 1st century AD. Grose (1989, 254-6) discusses many of these as his Family III. He points out that some of the translucent colours were also available in the Hellenistic period, whereas translucent dark green and peacock blue were new developments in the early Imperial period. These vessels were also produced in opaque glass, the principal colours being white, red, and various shades of blue and green, and it is noteworthy that opaque green also appears to be a Roman innovation, while the other colours occur in Hellenistic vessels.

A more unusual colour, apparently black, but in reality dense dark yellow/green or yellow/brown, or purple, also occurs in some of these vessel forms. It does not seem to have been very widely used, although it is relatively well-represented at Colchester (**185-188, 196, 201, & 206**). This is not strictly an opaque colour, but it is so dense that light passes only through very thin pieces. It has been suggested (Harden 1947, 298) that this is the *obsianum* or obsidian glass mentioned by Pliny (*Natural History*, xxxvi.198). Early Imperial obsidian vessels are very rare; apart from three *scyphi* and a fragment of a *patera* from Stabiae, near Pompeii, only a few fragments are recorded (Haevernick 1963). In Britain, the only known finds are two very small fragments possibly from a concave-sided cup from Stanwick, North Yorkshire (information from Dr C Haselgrove).

There is very little evidence for the production and use of colourless cast vessels in the Roman world from the late 1st century BC to the mid 1st century AD, apart from one or two ceramic-form vessels. The re-appearance of this glass occurs soon after cAD 60-65. For instance, no colourless cast glass was found at Sheepen, Colchester, a site with the main phase of occupation ending cAD 65, or at Kingsholm, Gloucester (Price & Cool 1985, 41), which was abandoned shortly after this date. The changes in the types of glass tablewares which occurred between AD 65 and 70 seem to have been both rapid and permanent, resulting in the almost complete replacement of brightly-coloured vessels by colourless vessels. These changes, and the rise of cast and blown colourless vessels, were discussed in connection with Fishbourne, where at least five cast vessels were in use by cAD 75 (Harden & Price 1971, 320-22, 330-34, 339-42).

The colourless cast vessel forms identifiable in the early Flavian period include examples also known in brightly-coloured monochrome glass, such as the

shallow convex dish with base ring and the two-handled drinking-cup or *scyphus*, both of which were found in a pit dated to c AD 80 at St Swithins House, Walbrook, London (Price 1991a, 159 nos 610-11). For the most part, however, the colourless cast vessels characteristic of this period are angular bowl and plate forms which are clearly distinguishable from the polychrome mosaic and monochrome forms of the early-to-mid 1st century.

These vessels occur throughout the Roman world in the late 1st and early 2nd century (Grose 1991, 12-18), though the recorded finds suggest that their distribution may have been rather uneven, and that they could have been comparatively rare in some regions. For instance, only two pieces from colourless cast vessels, both cups with handles, seem to be recorded at Vindonissa (Berger 1960, 83 no 214, Tafn 14, 22), although the site was occupied throughout the last quarter of the 1st century AD, and the very large deposit of glass found in the *canabae legionis* at Nijmegen, in pits dated to the end of the 1st century or early years of the 2nd century, does not appear to contain any colourless cast glass (Isings 1980). There is also very little of this glass among the 20,000 fragments found in 1st- and early 2nd-century contexts at Oberwinterthur (Rutti 1988, 22 no 69), and only small quantities have been recorded at sites such as Nida-Hedderheim (Welker 1974, 82 no 199, Taf 13; 1985, 55-6 nos 195 & 197, Taf 15) and Trier (Goethert-Polaschek 1977, 25-6 nos 55-6, 36-7 nos 96, 100-101 Abb 5, 10-11, Taf 24).

Colourless cast vessels had largely replaced polychrome mosaic and brightly-coloured cast glass by soon after AD 70, though it is likely that there was some overlap in their periods of production, because similar forms are found in all three types of glass. This is particularly noticeable of the range of shallow bowls and plates with out-splayed rims, some of which have overhanging edges, and ground base rings. It is therefore arguable that some polychrome mosaic and brightly-coloured monochrome cast vessels continued in production until at least the early Flavian period.

Pillar-moulded bowls (1-184)

[Figs 2.1-2.7; Table 2.1]

The commonest type of tableware found during the 1971-85 Colchester excavations, to judge from the minimum number of vessels which the fragments represent, is the pillar-moulded bowl (Isings Form 3). The term 'pillar-moulded bowl' has been used for these vessels by British glass historians since the 19th century. It was introduced by Charles Roach Smith and based on his understanding of a technique developed by Apsley Pellatt (Harden *et al* 1987, 19). It is now so well-established that it is retained here even though, as an indication of how the bowls were made, it is technically meaningless.

The form is a convex-sided bowl with a flat or slightly concave base and the shape ranges from almost

hemispherical to shallow. It has a vertical or slightly out-turned rim above an undecorated zone. Below this the exterior is decorated with vertical or occasionally diagonal ribs which are symmetrically spaced round the bowl and generally run onto the base, though on some shallower bowls they may only be present on part of the sides (Isings Form 3c). Some pillar-moulded bowls have wheel-cut narrow horizontal grooves on the interior, either near the rim or, more frequently, on the lower body and base. The grooves on the base can be both at the edge of the base and at the centre. One groove is normal near the rim but more may occur on the lower body and base. Sometimes the wheel-cut decoration on the lower body is replaced by an abraded band. These bowls are frequently divided into shallow and deep forms (Isings Forms 3a & 3b), but there is much more of a continuum within the range of shapes than this division might suggest.

Pillar-moulded bowls underwent an elaborate finishing process. The exterior of the bowl from the top of the ribs down was shiny, while the interior of the bowl, the exterior of the rim, and the undecorated area below it were ground and wheel-polished. On the interior the wheel-polishing is often most conspicuous near the rim. The methods of finishing obliterate virtually all traces of the process of manufacture, with the exception of tooling-marks which can often be seen on the upper edges of the ribs. As a result there has been much debate as to whether they were cast in closed moulds (Schuler 1959) or formed by other methods. As already noted (p 13), at present the most widely-accepted suggestion is that the blanks were cast flat, impressed with ribs and then sagged over a bowl-shaped former (Cummings 1980, 26). If this is correct, the outer shiny surface, often described as fire-polished, may have resulted naturally without any additional finishing techniques.

This very diagnostic combination of surface treatments permits the identification of a body fragment from a pillar-moulded bowl even if it is very small and without ribs. Harden (1947, 288) has pointed out that because the fragments are so diagnostic, one can be led to overestimate their importance in an assemblage. However, there can be no doubt that they were indeed the commonest type of glass tableware found during the 1971-85 Colchester excavations, as the estimates made for the minimum numbers of vessels present (see Table 2.1) are calculated from the rim fragments and so are comparable to estimates for all the other types of vessels.

The bowls were made in polychrome, strongly-coloured monochrome and blue/green glass. The polychrome bowls often have a marbled appearance, produced by one or more generally opaque colours in a contrasting translucent ground colour. The opaque elements can be either short lengths of rods not arranged in any particular pattern, or transverse slices from polychrome canes in the forms of spirals or eyes. If such slices have been used, they are usually best observed on the interior of the bowl, as may be seen

Table 2.1 Distribution of pillar-moulded bowls from all sites. [Pages 15, 17 & 18]

SITE	polychrome		strongly-coloured monochrome		blue/green	
	Frs	EMN	Frs	EMV	Frs	EMV
CUL	5	2	4	4	67	24
BKC	3	2	8	6	50	9
LWC	2	1	4	3	38	11
GBS	1	1	3	2	20	8
BUC	-	-	-	-	3	2
MID	-	-	1	1	1	1
CPS	-	-	-	-	5	2
COC	-	-	-	-	1	1
MRC	-	-	-	-	5	1
HEC	1	1	-	-	-	-
Totals	12	7	20	16	190	59

in the blue and white bowl from a Flavian cremation burial at Radnage where the white elements occur as spirals (Price 1976a, pi 4; Skilbeck 1923, 334, fig 1). The commonest strong colours used for the monochrome bowls are deep blue and the various shades of yellow/brown, but claret red, yellow/green and light or pale green bowls also occur. Virtually all the monochrome pillar-moulded bowls are translucent but opaque ones are known; for example, fragments of opaque white bowls were found in Claudio-Neronian contexts at Sheepen (Harden 1947, 298 nos 40 & 40a), and there is an opaque light blue fragment from Richborough (site museum). Examples from Augst (Ludin *et al* 1962, 82, Abb 29), Aquileia (Calvi 1968, 72 no 163, tav 9), Velsen (van Lith 1977, 17 no 15, Taf 1), and Oberwinterthur (Rutti 1988, 27, 161 no G325, Taf 30) have also been noted, but such opaque bowls are rare.

Before considering in detail the bowls found during the 1971-85 Colchester excavations, it will be appropriate to summarise briefly the dating evidence for the use of pillar-moulded bowls. Both deep and shallow forms first occur during the late Republic or early Augustan period (Isings 1957, 18; Grose 1977, 22, fig 6.2; Czurda-Ruth 1979, 26-34 nos 64, 90, 97, 106, 127, 139, 162, 171, 208-9, 275 & 311-12; Scatozza Horicht 1986, 27; Grose 1989, 244-7, 249), when they were made in both polychrome and monochrome glass. The polychrome examples were primarily in use during the first half of the 1st century (Berger 1960, 10). The strongly-coloured monochrome bowls continued in use after polychrome bowls had started to decline, but they too began to go out of use after the middle part of the century (Berger 1960, 19). In the second half of the 1st century, blue/green bowls,

which had occurred from the Augustan period onwards (Czurda-Ruth 1979, 31 no 162), were the only ones in common use and their production probably ceased in the Flavian period. Although this chronological pattern is correct in its broad outline, exceptions do occur because the polychrome bowls were occasionally treasured for a period after their production had ceased, and these can enter the archaeological record in contexts that considerably post-date the first half of the 1st century.

In Britain, the changing composition of the pillar-moulded bowl assemblage is well demonstrated by considering those found on sites where occupation started at successively later dates. Thus it can be seen that fragments from polychrome pillar-moulded bowls are only really numerous on sites where there was extensive occupation in the earliest post-conquest period, such as the Sheepen site at Colchester (Harden 1947, 294; Charlesworth 1985a, mf 3: F2). Sites which were first occupied during the Neronian period, for example Kingsholm, Gloucester (Price & Cool 1985, 42), and the forts at Usk and Mancetter (both unpublished), usually have some polychrome pillar-moulded bowls amongst the assemblage, but it is more likely to be divided between strongly-coloured monochrome and blue/green bowls.

On sites in areas such as Wales and northern Britain where Roman occupation did not start until the Flavian period, the proportion of polychrome and strongly-coloured monochrome bowls in the assemblage has declined noticeably. A few pieces may be found, but the overwhelming majority of pillar-moulded bowls on these sites is blue/green. This may

be seen, for example, at Caerleon (Boon 1969a, 93), and Chester, York and Carlisle (all unpublished). By early in the 2nd century, blue/green pillar-moulded bowls had clearly gone out of production and were not in common use, for, with the exception of a fragment from Benwell (Petch 1927, 175), they are not found on sites along Hadrian's Wall.

The dates of the contexts in which the fragments from the 1971-85 Colchester excavations were found are summarised in Figure 2.1. As can be seen there is a very strong pre-Boudican presence, a relatively sharp decline during the Flavian period, and a marked decline after the 1st century. Over half of the polychrome and strongly-coloured monochrome fragments were found in pre- or immediately post-Boudican contexts.

In addition to the broad chronological development associated with colour, Berger, in his work on the large number of pillar-moulded bowls from Vindonissa, saw a decline in their quality in the later part of their production with less careful working of the ribs and an overall loss of wheel-cut decoration (1960, 18). The bowls from Heddernheim, a site first occupied in cAD 75-85, illustrate this to some extent; in connection with these it was suggested that the

shallow form seemed to have disappeared after the middle of the century (Welker 1974, 20). Generally this seems to be the case in the north-western provinces. Some shallow forms did, however, continue in production as is shown by eight blue/green pillar-moulded bowls found in a shop on the *decumanus maximus* at Herculaneum which had not been unpacked for sale when the town was overwhelmed by the eruption of Vesuvius in AD 79 (de Franciscis 1963, fig 2; Scatozza Horicht 1986, 27 nos 3-10, tav 11 & 12 (bottom)). All of these bowls were reasonably shallow with a height-to-rim diameter ratio of 1:3.6, and all were decorated with wheel-cut grooves on their bases. In the latter part of the type's production, a deep form with thick ribs was produced and is often found in the north-western provinces in late Flavian contexts (Berger 1960, Form 29, Taf 18.35).

The 1971-85 Colchester excavations produced a total of 222 fragments of pillar-moulded bowls as is summarised in Table 2.1 (p 16). The polychrome fragments came from four translucent yellow/brown and opaque white bowls (**1-3 & 6a**), one translucent purple and opaque white bowl (**4**), and two translucent deep blue and opaque white bowls (**5 & 6b**). These are three of the commonest colour combinations found in Roman Britain. In **1-5** the opaque white elements occur as spirals, while in **6a-6b** they consist of short lengths of rod.

The blue and white bowl from Radnage has already been noted. Fragments from others have been found in a pre-Boudican context at Verulamium (Charlesworth 1984a, 145 no 6) and at Woodcuts (Pitt-Rivers 1887, 125, fig 3, pi 44); Wroxeter (Atkinson 1942, 233); Ditchley (Harden 1936a, 63); Shakenoak (Harden 1968a, 76 no 1, fig 26); Caerleon (Allen 1986a, 100 no 7a); Berkeley Street, Gloucester (unpublished); London (Museum of London, GM 16925); York (York Museum: St Mary's Abbey 1955); and previously at Colchester from an unrecorded site (CM, Rudsdale's '1935 Consignment').

Neither **5** nor **6b** is a very large fragment, so the possibility that the bowls they came from could also have contained the occasional spot of opaque yellow glass cannot be ruled out. If anything, blue and white bowls with opaque yellow patches are more numerous than plain blue and white ones. Several fragments have been recovered from Neronian contexts at Sheepen (Harden 1947, 294 nos 13 & 16; Charlesworth 1985a, fig 80/12, mf 3:F2/12-14). There are two from Richborough, one in a pre-Flavian context and the other in a context dated to before AD 85 (Bushe-Fox 1949, 159). Other examples have been noted at Newstead (Curie 1931-2, 272); Tealing, Angus (Thorpe 1939-40, 134); Hod Hill (Harden 1968b, 117 nos 4 & 5, fig 39); Silchester (Boon 1974, 230, pi 33b); Canterbury (Charlesworth & Price 1987, 220 no 1, fig 88); Caersws (Cool & Price 1989, 36 no 1); Chester (Grosvenor Museum); and Usk (unpublished).

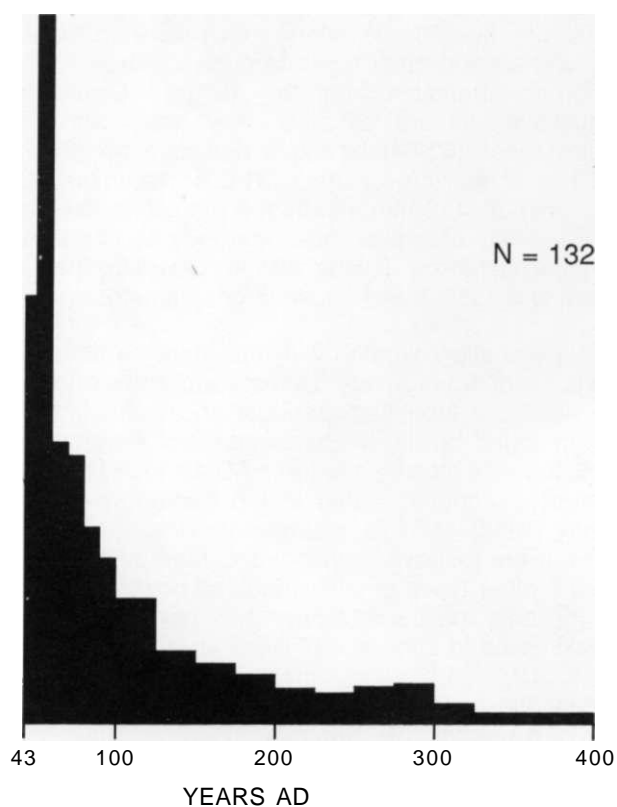


Fig 2.1 Histogram showing the dates of the fragments of pillar-moulded bowls found in Roman contexts (for the method of calculating the histogram, see pp 5-6).

Pillar-moulded bowls

One nearly complete brown and white pillar-moulded bowl with a Neronian cremation (Charlesworth 1985a, mf 1:A7, pi 10) and several fragmentary examples (Harden 1947, 294 nos 10 & 11; Charlesworth 1985a, mf 3:F2, fig 80.11) have been found at Sheepen, and there is also another fragment from an unrecorded site in Colchester (CM, Rudsdale's '1935 Consignment'). This colour combination has also been noted at Lincoln (Charlesworth 1960, 66 no 1); Waddon Hill, Dorset (Harden 1960a, 95); Southwark (Harden 1974, 107; Townend & Hinton 1978, 153); Wall, Staffordshire (Harden 1981-2, 55 no 21); London (Museum of London); and Wroxeter (unpublished).

The purple and white colour-combination seen on **4** was also found at Sheepen (Harden 1947, 294 no 18), and other examples from British sites have been noted in connection with an example found at the late Neronian site at Kingsholm (Price & Cool 1985, 42).

One polychrome fragment (**5**) has a narrow wheel-cut groove just below the interior of the rim edge, and an abraded band in a similar position can be seen on **4**. This appears to be the first time that such a feature has been noted on polychrome bowls from Britain, and they are also most unusual on monochrome bowls. Of the seven Romano-British examples, all with wheel-cut lines, five were found in earlier excavations at Colchester. At Sheepen two rim fragments of pale greenish glass (Harden 1947, 302 no 61; CM, no 1938-L7) and two of blue/green glass (*ibid*, 302 no 61a; CM, Potters' Field 6) were found, all coming from different bowls. There is also a pale blue/green complete bowl with ribs only on the sides, two wheel-cut grooves on the lower body and one below the rim (CM, not numbered). Other bowls with the same feature are a pale green bowl with a purple streak from the early Neronian fort at Mancetter (unpublished), and an unstratified deep blue fragment from Whitton, Glamorgan (Price 1981a, 152 no 3, fig 66).

Broad wheel-cutting below the rim was a feature of the early cast ribbed bowls of Grose Class C (Grose 1979), which was a Mediterranean type of the late 1st century BC and early 1st century AD, known in Britain only in the Hertford Heath Belgic burial (Holmes & Friend 1959, 9, pi 4). On pillar-moulded bowls, wheel-cut grooves in this position also appear to be an early feature. They are so rarely encountered on the pillar-moulded bowls found in Britain that it seems likely that this feature had ceased to be used before the Claudian conquest. In Roman Britain examples found in stratified contexts have for the most part been pre-Boudican (**4**, and the examples from Sheepen and Mancetter).

Strongly-coloured monochrome bowls in dark yellow/brown (**7-9 & 11-15**), light yellow/brown (**10 & 16-17**), deep blue (**18-19**), light blue (**20**), light green (**21**), and various greenish yellow shades (**22-24**), are represented in the Colchester assemblage. In Roman Britain as a whole, yellow/brown and deep blue bowls are the commonest monochrome examples found and other colours are much less common. Green bowls,

perhaps like **21**, have been reported at Sheepen (Charlesworth 1985a, mf 3.F7 no 47) and from the Neronian or very early Flavian fort at Nanstallon (Harden 1972, 106 no 38), and there is a yellowish green one from Skeleton Green (Charlesworth 1981a, 119 no 4, fig 64). The light blue bowl from which the body fragment **20** comes does not appear to be paralleled elsewhere in Roman Britain apart from one found in the Neronian fortress at Usk, Gwent (unpublished). Wheel-cut lines, where they occur (**12, 22 & 24**), were cut on the lower body. It is interesting to note that the bowl which shows the poorest standard of manufacture and finishing in the entire assemblage is dark yellow/brown (**7**). This is not likely to have been made much after the mid 1st century and is a good indication that poor-quality manufacture of pillar-moulded bowls also occurred before the Flavian period. The fragments numbered **7** do not provide an isolated example, as other bowls of the same colour which also show a low standard of wheel-polishing are not uncommon. In addition to **9**, there are examples from Kingsholm (Price & Cool 1985, 45 no 3 fig 17), Sea Mills (Cool & Price 1987a, 97 no 1, fig 44), and Castle Street, Carlisle (Cool & Price 1991, 169 no 622, fig 152).

As Table 2.1 (p 16) shows, the bulk of the pillar-moulded bowl fragments are blue/green. These fragments demonstrate almost the entire range of variation in shape known in pillar-moulded bowls. As already noted, the shape of the bowls varies from being hemispherical to shallow. They also have a very wide variation in their rim diameters, much more so than is generally seen in other types of cups and bowls. The blue/green fragments from the 1971-85 Colchester excavations demonstrate this very well, with the smallest ones (**63-64**) having a rim diameter of less than half of the largest ones (**31-32**) (maximum 230 mm, minimum 110 mm, mean 168 mm). The ribs also have a variety of appearances and may be in shallow or high relief, narrow or wide, closely- or widely-spaced, vertical or diagonal, and undercut or symmetrical.

The very shallow version with ribs only on its sides (Isings Form 3c) is a very distinct form and examples may easily be identified amongst an assemblage of pillar-moulded bowls. In Colchester it is represented by **25**, found in a context dated cAD 49-110. The form is found in contexts dated to the middle of the 1st century (Isings 1957, 21; Berger 1960, 19 Form 23), and is likely to have developed contemporaneously with the other types of pillar-moulded bowl where the ribs run onto the base, as one has been found in a context dated to between 37 BC and AD 10 at Rome (Grose 1977, 17). The only other examples from Roman Britain appear to be those found in pre-Boudican deposits at Sheepen (Harden 1947, 302 nos 61 and 61a-c, pi 88), at Wroxeter (unpublished), and at Gracechurch Street, London (London Museum). As the type does not appear to have been common (van Lith 1984, 229), its scarcity in Roman Britain may not be significant, but possibly this could indicate that the form was not in production by the time of the conquest.

Most of the blue/green fragments belong to the type of pillar-moulded bowl where the ribs run onto the base of the bowl (Isings Forms 3a and 3b). No complete profile can be reconstructed from the fragments but it is clear that, apart from **25** and a melted example (**77**), none of the rim fragments came from very shallow bowls. There are several rim fragments from the deep bowls with massive ribs which appear to be characteristic of the later 1st century (**31**, **33**, **35-36**, **39**, & **67**). All came from contexts that post-dated the period when pillar-moulded bowls were in use.

Horizontal wheel-cut grooves and to a lesser extent abraded bands are not uncommon on the interiors of the lower blue/green body fragments. Fragments **103-107** and **109** each had two wheel-cut grooves at the edge of the base (three in the case of **103**), and where the centre of the base was preserved on these fragments (**103-105**) it was combined with a small central circular groove. This combination of grooves at the edge and centre of the base also occurred on one deep yellow bowl (Harden 1947, 303 no 67, pi 87) and two blue/green bowls (CM, Glass 57 (TL6 2.9.38) & 6 (TK1 Pit 1 26.8.38)) from Sheepen. It is possible that these fragments came from bowls belonging to the shallower end of the depth range as this pattern of cutting was often used on shallower bowls. For example, it occurs on the shallow bowls found in the shop on the *decumanus maximus* at Herculaneum (de Franciscis 1963, fig 2; Scatozza Horicht 1986, 27 nos 3-10, taf 11 & 12 (bottom)). Wheel-cut grooves on the lower body (**108**, **110**, **128-130**, **134-137**, **139-142**, **144-145** & **147**) and abraded bands in a similar position (**111**, **131-133**, **138**, **143** & **146**) tend to be associated with deeper bowls (see, for example, Goethert-Polaschek 1977, 17 no 11 Taf 28/11; 18 no 15 Taf 29/15; Price & Cool 1985, 45 no 4 fig 17; height-to-rim diameter ratios 1:2.6, 1:2.1 and 1:2.2 respectively).

Some of the bowls show only light wheel-polishing on the rims, for example **50** and **54**, but it is noticeable that even when the exterior does not appear well finished, either because of the quality of the wheel-polishing or the prominent tooling-marks, the interior still shows good-quality wheel-polishing.

One blue/green fragment (**184**), from an unstratified context, is most unusual. It has been catalogued with the pillar-moulded bowls because it shares with them the very distinctive combination of wheel-polished interior and fire-polished exterior, but it does not have any ribs. It came from a fairly shallow convex-sided bowl. This type is very rare and only a few other examples are known to us. One of these came from Sheepen (CM, 1938.L7) and there was also one from a context dated to AD 43-75 at Fishbourne (Harden & Price 1971, 329 no 16, fig 137). They have also been noted in small numbers in the Mediterranean region in early 1st-century contexts. Four fragments came from the Pasaje Cobos deposit, Tarragona (Price 1981b, 82 TPC no 62, fig 7), two brightly-coloured pieces came from the Aiguières site, Frejus (Price 1988), and others are known from the Unexplored Mansion site at Knossos, Crete (unpublished).

Pillar-moulded bowls were very common and wide-spread throughout the Roman Empire. They have also been found at sites far beyond the boundaries of the Roman Empire in Denmark, Norway, Yemen, India and Afghanistan (Price 1985a, 304). The large numbers which have been found indicate how common they must have been. At Vindonissa, for example, 702 fragments were recovered (Berger 1960, 12 & 23), and in Britain they are present on the majority of sites occupied during the 1st century.

Pillar-moulded bowls

Except where otherwise stated, all following pillar-moulded bowls have fire-polished exteriors and wheel-polished interiors. Where the rim is present it is wheel-polished on both the interior and exterior.

Polychrome

- 1 BKC73-6 E1159 L362 & E1250 L358; Building 37; Period 1b. Two rim fragments. Dark yellow/brown with opaque white spirals and rods. Part of 3 narrow ribs. PH 50, RD 160, RT 3.5.
- 2 1.81 B1496 & B1597 L366; Building 78 destruction. B1658 L407; early Period 3. B1410 L329; Building 94?, Room 4b. Period 3/4. Two rim, 2 body and 1 base fragments. Dark yellow/brown ground with opaque white spirals. Parts of 5 narrow ribs on upper body with tooling-marks on top and approximately 11 ribs in very shallow relief running to centre of flat base. PH (rim fragment) 40, RD 100, RT 3.
- 3 1.81 K369 L358; Period 3. Rim fragment. Dark yellow/brown ground with opaque white spirals. PH 40, RT 3.5.
- 5 BKC74 E987 L289; Building 37; Period 1b. Rim fragment. Deep blue ground with opaque white spirals. Broken at top of rib. Wheel-cut groove below rim edge on interior. PH 13, RD 110, RT 2.5.

Strongly-coloured

- 7 BKC76 J403; modern. Two joining rim fragments, deep bowl with widely-spaced ribs. Dark yellow/brown. Part of 1 prominent rib with broad diagonal bulge on right side. Exterior of rim ground and then fire-polished; deep tooling-marks; interior of bowl only very lightly wheel-polished except in band below rim. PH 68, RD 200, RT 5.
- 8 MID A250; Period 2/3. Rim fragment. Dark yellow/brown. Part of 1 rib. Deep tooling-marks at top of fire-polished zone. PH 44, RD 190, RT 4.
- 9 LWC72 J989; Period 2 destruction/Period 3. Rim fragment, deep bowl. Dark yellow/brown. Parts of 2 ribs. Exterior of rim only very lightly polished. PH 48, RD 180, RT 6.
- 10 GBS85 A2595 L302; Period 1. Rim fragment. Light yellow/brown. Part of 1 rib. PH 28, RD 170, RT 3.5.
- 11 GBS85 B68 F12; Building 131, Room 10; Period 1 (or 2). One rim and 1 joining body fragment. Dark yellow/brown. Parts of 4 closely-set ribs. PH approx 46, RD 120-130, RT 4.5.
- 21 1.81 B2266 F282; Building 77, Room 5; Period 1/2. Rim fragment. Light green. Parts of 5 ribs with tooling-marks on upper edges. PH 48, RD 160, RT 5.

Blue/green

- 25 GBS84 A2106 L221; Period 2 or 3A. Rim fragment of shallow bowl. Parts of 8 shallow very close-set ribs on sides of bowl only. PH 30, RD 145, RT 3.5
- 26 1.81 B977 L218; Building 112, Room 3; Period 4a. Three joining rim fragments. Parts of 5 ribs with varying degrees of tooling on upper edges. One rib deformed in upper part. Two wheel-cut grooves on interior of lower body. PH 82, RD approx 220, RT 5.

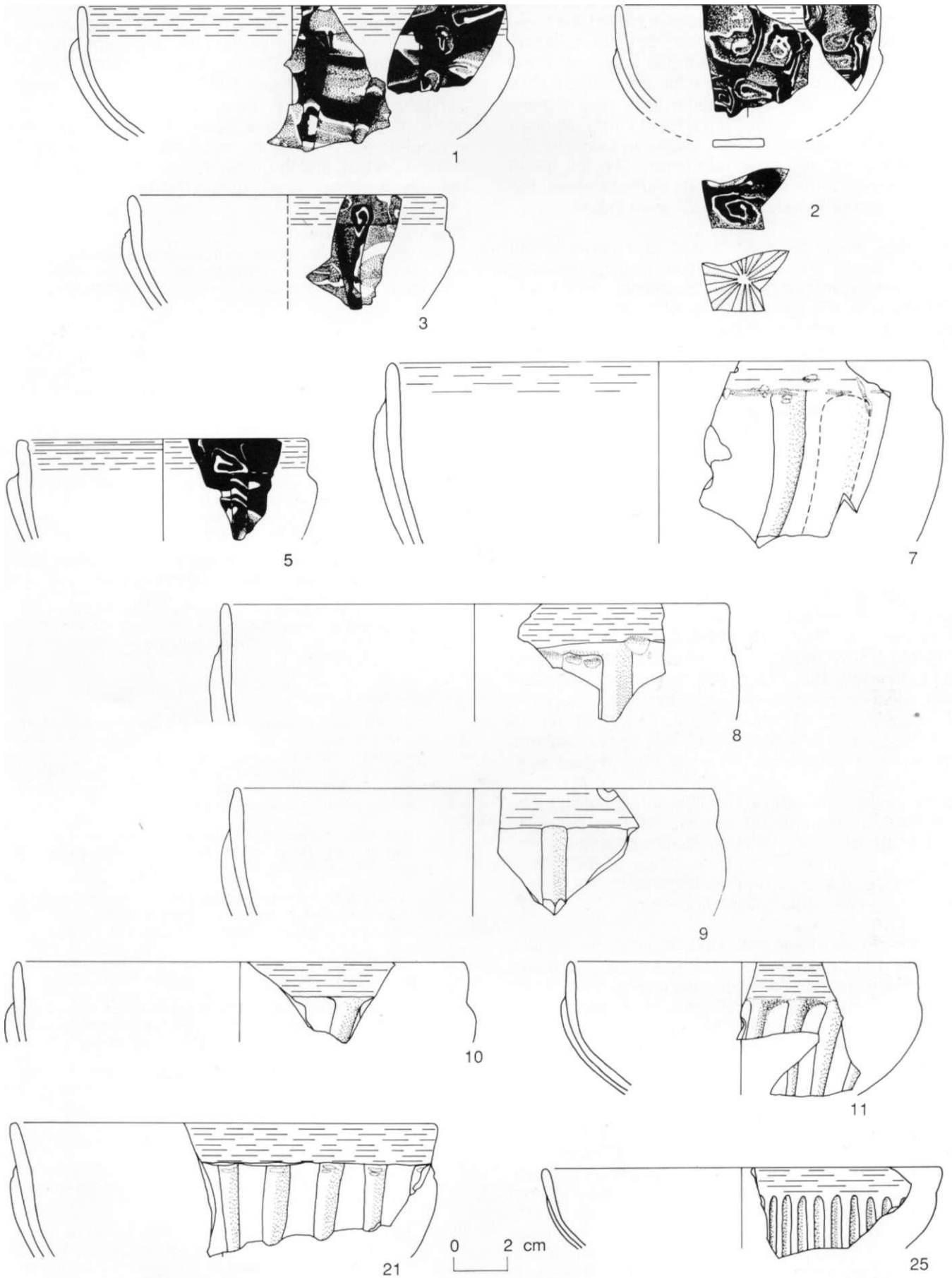


Fig 2.2 Pillar-moulded bowls. 1:2. [Pages 15-19]

Chapter 2: Cast objects and vessels

- 27 GBS84 A1846 L28; Roman? Rim fragment. Parts of 2 narrow ribs. Two wheel-cut grooves on interior of lower body. PH 67, RD approx 200, RT 4.
- 29 1.81 E1266 L185; Period 1. 1.81 E1329 L187; early Building 84 demolition; early Period 2. E776 F424; Period 3. Two rim and 2 body fragments. Parts of 10 ribs with tooling- marks on upper edges. Two wheel-cut lines on interior of lower body. PH approx 65, RD 130, RT 4.
- 31 BKC76 V71; unstratified. Rim fragment. Part of 1 wide rib with tooling-marks on top. PH 39, RD 230, RT 5.
- 33 LWC72 M110; Rampart 1 b; mid 2nd century. Rim fragment of deep bowl. Part of 1 thick rib. Deep wheel-polished area on exterior of rim. PH 48, RD 210-230, RT 6.
- 34 1.81 C287 L36; early Period 3. Rim fragment. Parts of 2 ribs. Prominent tooling-marks on exterior of rim and upper part of ribbed area. PH 50, RD approx 210, RT 4.
- 35 1.81 C11 F4; early medieval. Rim fragment. Part of 1 rib with tooling-marks on upper edge. PH 45, RD approx 210, RT 6.
- 36 LWC72 J388 F48; Period 4b. Rim fragment of deep bowl. Part of 1 thick rib. PH 58, RD approx 200, RT 6.
- 37 LWC73 R129; Period 2. Two rim fragments of thin-walled bowl. Parts of 4 narrow ribs with tooling-marks on upper edges. PH 44, RD approx 200, RT 2.5-3.5.
- 38 1.81 J244 F237; Period 3. Rim fragment. Dark blue/green. Part of 1 diagonal rib and edge of second. Exterior of rim deeply wheel-polished; tooling-marks on upper edge of rib and rib tooled down right side. PH 37, RD approx 200, RT 5.
- 39 BUC79 H911 G661; Period 2. Rim fragment. Top of 1 rib. PH 30, RD approx 200, RT 5.
- 41 BKC75 J499 F270; Building 45?, Period 2(?). Rim fragment. Blue/green with streaky purple impurity at rim. Parts of 2 ribs. PH 37, RD 190, RT 5.
- 42 LWC71 B420 F158; Period 1. Rim fragment of deep bowl. Parts of 2 diagonal ribs with tooling-marks on upper edges. PH 50, RD approx 180, RT 4.
- 43 1.81 E523 F389 +; unstratified. Rim fragment. Part of 1 rib with tooling-marks on upper edge. PH 36, RD 180, RT 4.
- 44 GBS84 A1868 L168; Period 1 or 2. A1849 L151; Building 131; Period 2. A1194; Roman. Two rim and 1 body fragments (joining). Part of 1 rib with tooling mark on upper edge and edge of second. Wheel-polishing on exterior starts below bevelled rim edge. PH 53, RD 170, RT 4.
- 45 1.81 E364 F1007; Period 8. Rim fragment. Parts of 3 ribs. Wheel-polishing on exterior starts below bevelled rim edge. PH 47, RD 170, RT 5.
- 46 GBS84 A291 L9; Period 3a. Rim fragment. Part of 1 rib with tooling-mark on upper edge. PH 47, RD approx 180, RT 5.
- 47 1.81 E96 F7; Period 8. Rim fragment. Parts of 2 ribs with upper edges sloping in shallowly; tooling-marks on rim exterior. PH 35, RD 170, RT 5.
- 48 GBS84 A818 F119; Building 134; Period 2 (or 3a). Rim fragment. Parts of 2 ribs with tooling-marks on upper edges. PH 40, RD 170, RT 5.
- 49 1.81 E1246 L180; Period 2. Rim fragment. Part of 1 rib with tooling-marks on upper edge and edges of 2 other ribs. PH 50, RD approx 160, RT 5.
- 50 GBS84 A401 F27; Period 3b. Rim fragment. Parts of 2 ribs. Exterior of rim only lightly wheel-polished. PH 45, RD 155, RT 5.
- 51 1.81 E1656 L149; Period 2. Rim fragment. Part of 1 slightly diagonal rib with tooling-marks on upper edge and indentation on upper body on either side. PH 58, RD approx 150, RT 4.
- 53 LWC71 A117 F14; post-Roman. Rim fragment. Part of 1 narrow rib. PH 33, RD approx 150, RT 3.5.
- 54 LWC71 B517 F184; Period 4. Rim fragment of shallow bowl. Parts of 3 ribs. Exterior of rim fire-polished with patches of wheel-polishing. PH 44, RD 140, RT 4.
- 55 1.81 E1235; unstratified (contaminated L107). Rim fragment. Parts of 2 close-set prominent ribs. PH 45, RD 140, RT3.5.
- 56 1.81 K4; unstratified. Rim fragment. Rim and side sloping in slightly. Part of 1 rib. PH 30, RD 140, RT 2.5.
- 60 1.81 M357 L248 & L249; Period 3 or 4. Rim fragment. Parts of 5 narrow ribs. Wheel-polishing on exterior starts below bevelled rim edge. PH 44, RD 120, RT 4.
- 61 BKC76 V339 F72; Period 4. One rim and 1 joining body fragment. Part of 1 narrow, slightly diagonal rib. PH 37, RD 120, RT 4.
- 62 1.81 E1022 F890; Buildings 86/87; Period 3. Rim fragment. Part of 1 rib with tooling-marks on upper edge. Irregular tooling-marks on upper part of fire-polished area. PH 33, RD 120, RT 4.
- 63 1.81 G83 F60; Period 6. Rim fragment. Parts of 2 ribs with tooling-marks on upper edges and deep tooling-mark on upper fire-polished area. Wheel-polishing on exterior starts below bevelled rim edge. PH 35, RD approx 110, RT 4.
- 73 BKC75 H12 L2; post-Roman. Rim fragment. Part of 1 prominent narrow rib and edge of second, ribs closely-spaced. One edge grazed. PH 34, RD approx 140, RT 4.5.
- 77 1.81 B2450 L407; Building 78? destruction; early Period 3. Rim fragment. Parts of 3 ribs. Heat-affected and distorted. Dim 58x32.
- 103 BKC75 S4; modern. Two joining lower body and base fragments. Parts of all ribs of bowl (20) present and extending onto slightly concave base and meeting off-centre. On interior 3 shallow wheel-cut lines (becoming 2) around edge of base and 1 small wheel-cut circle at centre. PH 18, BD approx 70.
- 104 LWC73 K551 F313; Period 1. Lower body and base fragment. Parts of 12 shallow ribs extending almost to centre of flat base. On interior 1 small wheel-cut circle at centre of base and 2 wheel-cut lines at base edge. PH 10, BD approx 55, WT 4.
- 105 1.81 A22 F12; medieval/post-medieval. Base fragment. Very slightly concave base with at least 12 ribs in very shallow relief running to centre. Two concentric circular grooves on interior of base with a small circular groove at centre. Dim 59x42, diameter of outer circle approx 50.
- 106 1.81 K200; unstratified. Lower body and base fragment. Parts of 5 ribs running onto base. Two wheel-cut circular grooves at edge of base on interior. PH 14, BD approx 50, diameter of outer circle approx 50-55.
- 107 BKC76 T519?; Periods 1 (or 2) and 5. Lower body and base fragment. Parts of 4 ribs dying out around edge of base. Two wheel-cut lines around edge of base on interior. PH approx 9, BD approx 60.
- 108 1.81 K200; unstratified. Lower body and edge of base fragment. Parts of 5 ribs running onto base. PH approx 20, BD approx 70.
- 111 MRC71 70; modern. Five lower body and base fragments joining in 2 pieces. Parts of 12 shallow ribs extending almost to centre of flat base but dying out before centre. Abraded band on interior of lower body. PH 30, BD approx 90.
- 112 1.81 J255 F253; Period 1 or 2. Lower body and base fragment. Dark blue/green. Parts of 4 ribs running towards centre of slightly concave base. PH 17, BD approx 90.

Pillar-moulded bowls

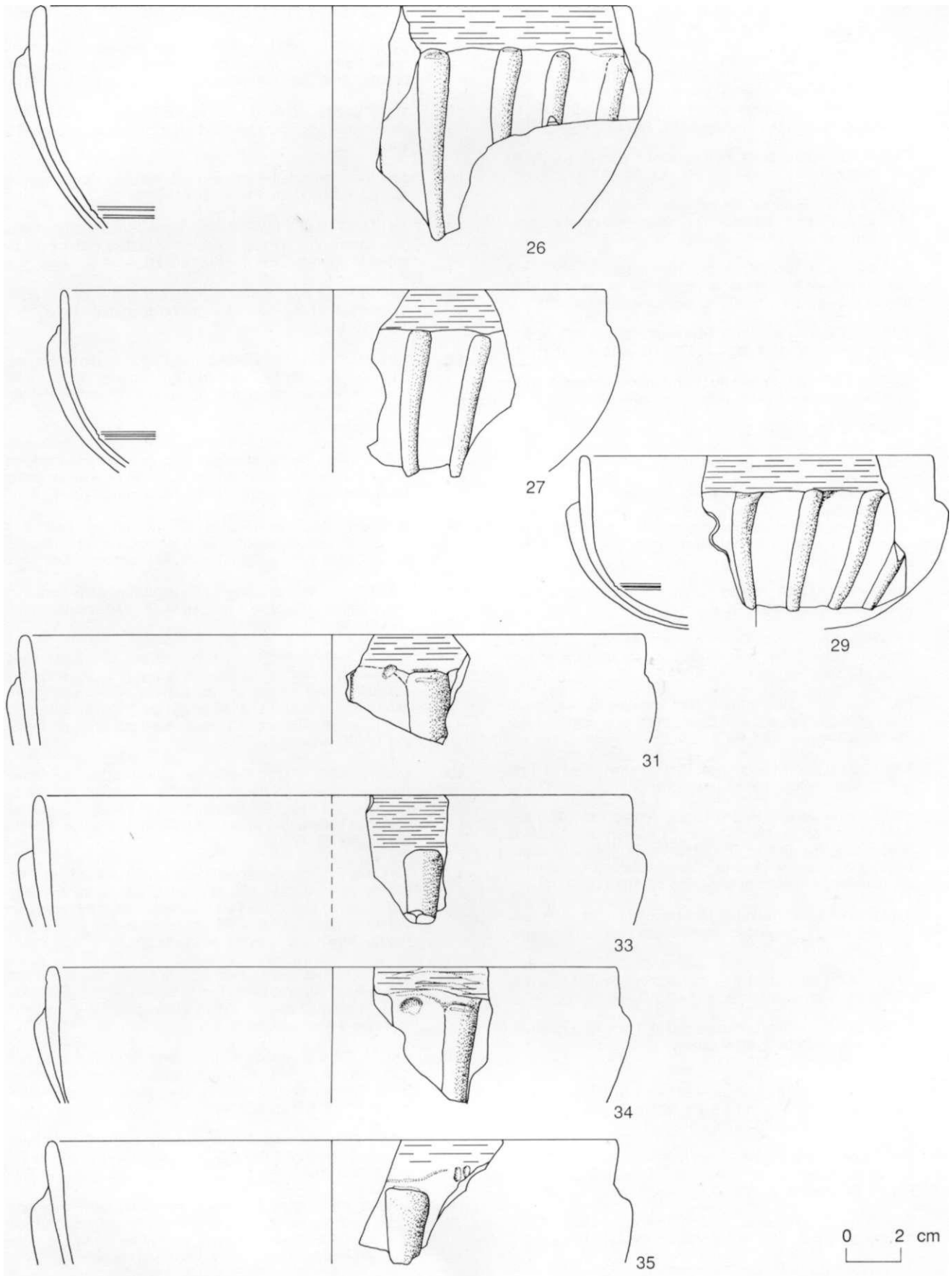


Fig 2.3 Pillar-moulded bowls. 1:2. [Pages 15-19 & 21]

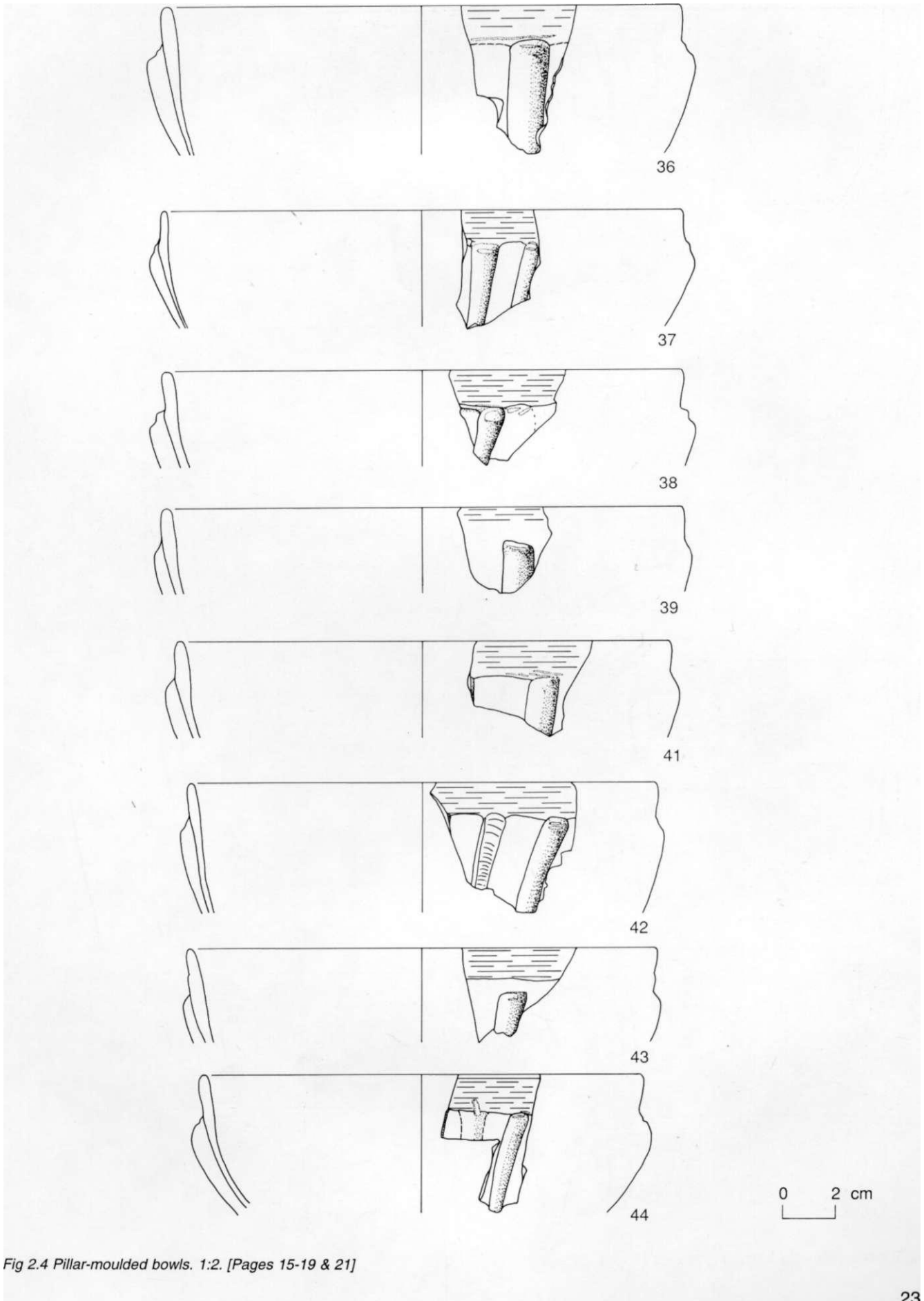


Fig 2.4 Pillar-moulded bowls. 1:2. [Pages 15-19 & 21]

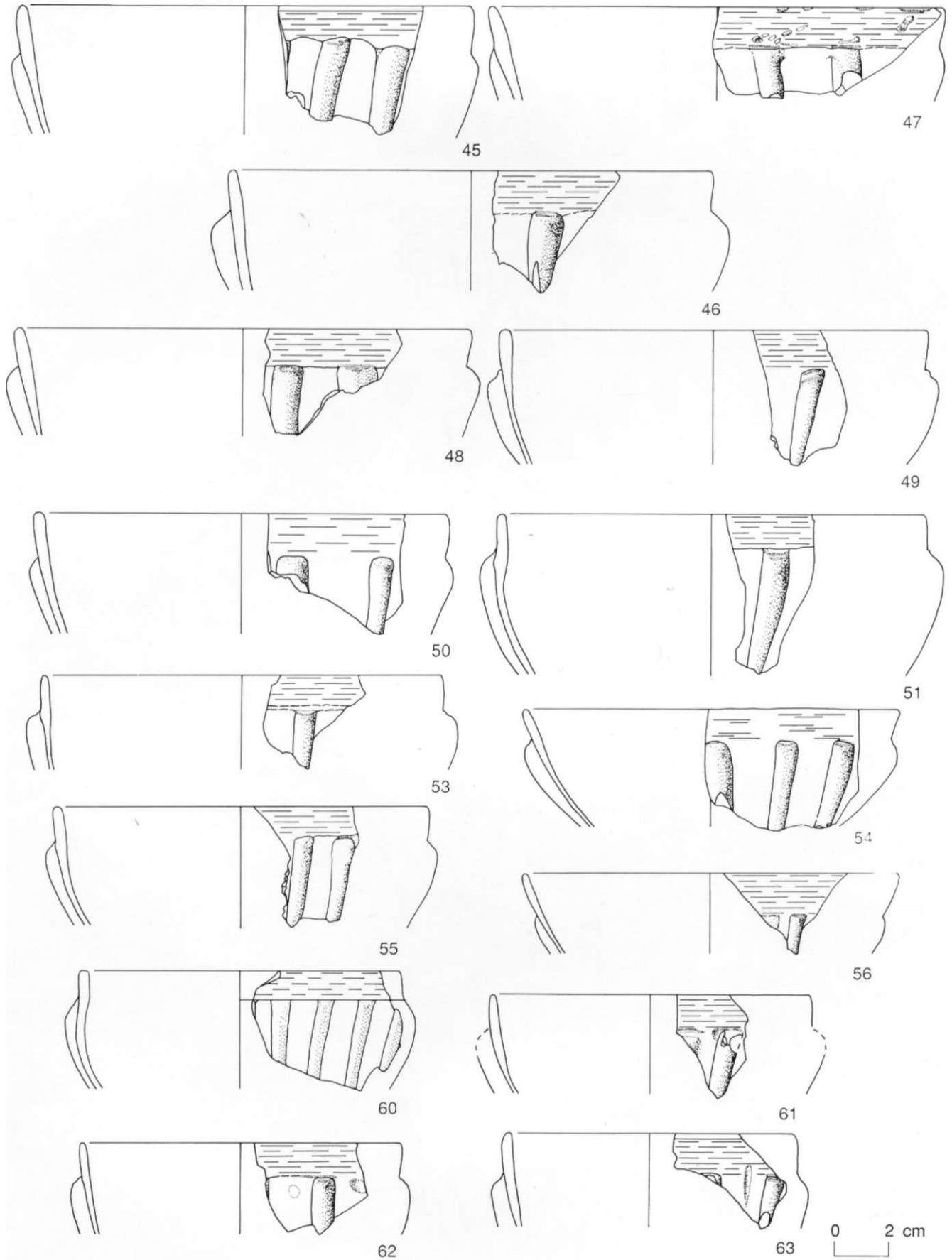


Fig 2.5 Pillar-moulded bowls. 1:2. [Pages 15-19 & 21]

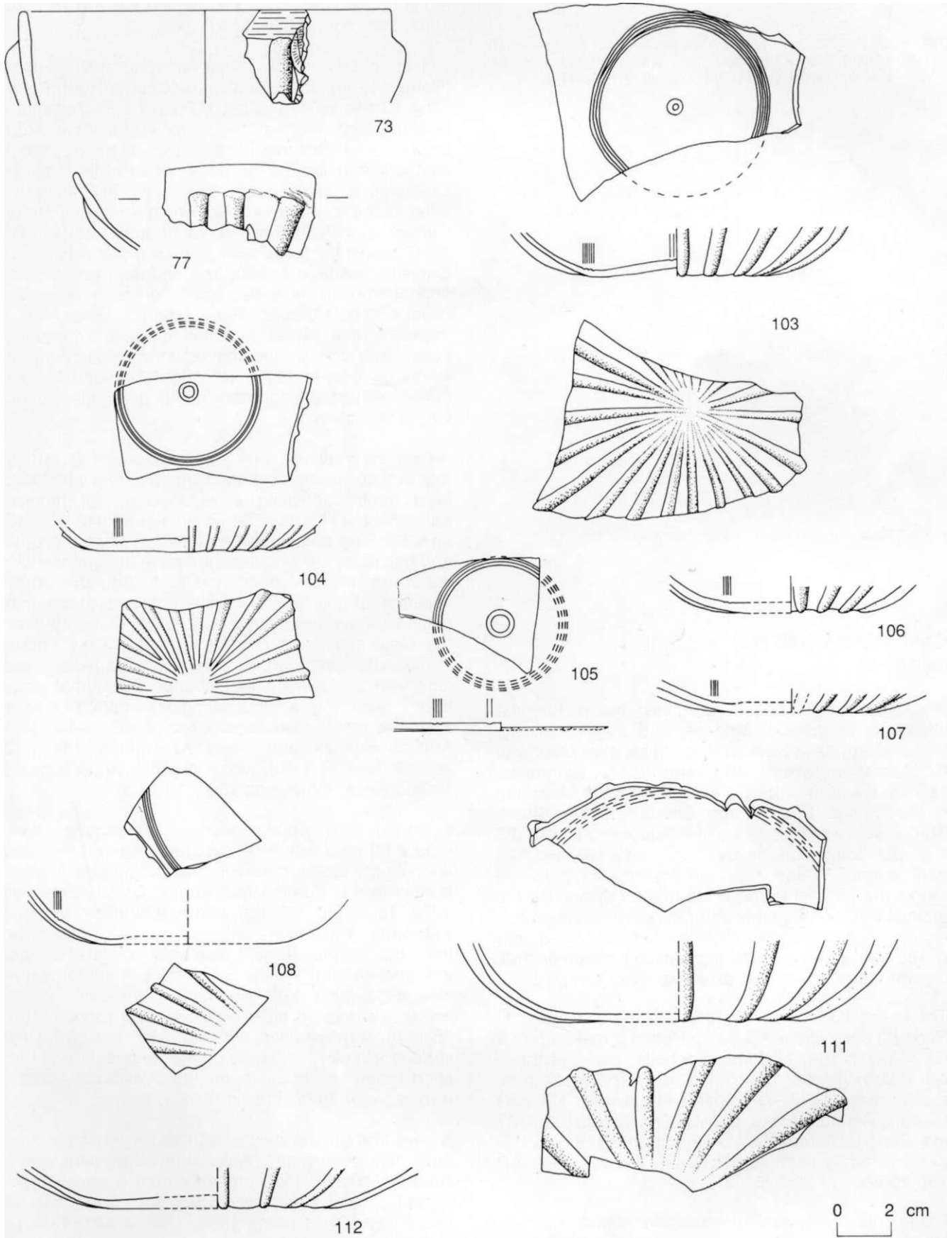


Fig 2.6 Pillar-moulded bowls. 1:2. [Pages 15-19 & 21]

- 113** BKC76 J299 L35; Periods 3/4/5A. Base fragment. Parts of 8 ribs extending towards centre of flat base. Dim 62x39, BD 70-80.
- 184** GBS B445; unstratified. Rim fragment of shallow bowl without ribs. Rounded rim; edge ground. Interior wheel-polished, exterior fire-polished. PH 25, WT 4.

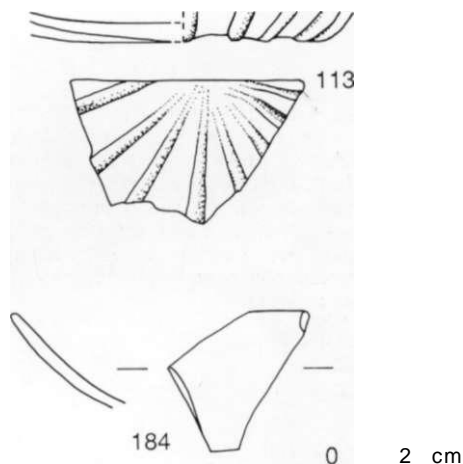


Fig 2.7 Pillar-moulded bowls. 1:2. [Pages 15-19 & 26]

Cast objects (185-188)

[Fig 2.8]

Fragments from at least four cast flat rectangular objects with ground surfaces and asymmetrically-bevelled edges were found in these excavations at Colchester between 1971 and 1985. Fragments **185-186** came from Site J at Lion Walk, **187** from the Gilbert School and **188** from Site G at Culver Street. The objects were made in glass appearing black, **185** and **187** being dark yellow/brown and **186** and **188** dark purple. Where they are visible, the polishing marks are parallel to the sides of the objects. Part of a small wedge-shaped knob or support occurs on two examples, **185** and **188**. This is sited near the corner of **185** and was presumably in a similar position on **188**, though the edges of that piece have not survived.

There are 23 pieces of **185**, which were found in Period 2 demolition (AD 60/1), Period 3 make-up (AD 60/c 75-100/150) and later contexts; many of these are visibly affected by intense heat. The other three are represented by only one or two pieces; **186** was found in Period 3 make-up (AD 60/c 75-100/150), **187** in a Period 2 context (c AD 49-110) and **188**, which is also melted by heat, in a Period 4 or 5 context (c AD 150-200/250 or 225-350/400+).

Fragments of very similar rectangular objects in brown glass appearing black are already known at Colchester. Excavations at Sheepen between 1930 and 1939 produced at least three, one from

Period III-IV occupation (AD c 43/4-60/1) and two or more from a Period VI pit (AD 60/1-c 65) (Harden 1947, 298, nos 39-39a, pi 87).

Objects of this kind were not recorded at Vindonissa (Berger 1960), Magdalensberg (Czurda-Ruth 1979), Cosa (Grose 1973-6), Frejus (Price 1988), Tarragona (Price 1987b), or other 1st-century sites in the western provinces which have large groups of monochrome cast vessel glass, so the presence of at least seven examples at Colchester is noteworthy. In Britain, two other 'black' examples are known, at Annetwell Street, Carlisle and Fishbourne (both unpublished), and a small triangular piece with one bevelled edge from Caersws, made in opaque red and dark green glass appearing black, may also come from a similar object (Cool & Price 1989, 31, 36 no 7, fig 20). Elsewhere, a fragment of a similar rectangular opaque turquoise object with one wedge-shaped knob is known from Carthage (Hayes 1978, 190, fig 1.10), and Harden (1947, 298) cited a fragment in dark green glass in the Greau collection.

An almost complete dark green specimen which has four broken square-sectioned knobs or feet was found in a tomb containing a wide variety of medical equipment at Merida in Spain (Floriano 1940-41, 420, fig 5.19). This measures 143 x 93 mm along the sides and has many details of manufacture in common with the fragments described above, though the cross-sections of the feet are different and these may originally have been longer and more elaborate than the Colchester and other fragments. They should perhaps be compared with the long square-sectioned legs with out-splayed feet shaped as animal paws which occur on another almost complete opaque turquoise rectangular object, from the Casa Dei Due Atri at Herculanium (Scatozza Horicht 1986, 72 no 258, tav 23 & 40), which is a little larger than the Merida piece, measuring 208 x 136 mm.

A very similar small colourless rectangular object (103 x 69 mm) with four elaborately-carved legs and animal-paw feet, formerly in the Sangiorgi collection, is now in the Corning Museum of Glass (Goldstein 1979, 152-3, no 326, fig), and a colourless fragment with parts of two sides and one leg with out-splayed foot has come from Leadenhall Court, London (information from Miss C E E Jones). Another colourless rectangular example made from rock crystal, which is similar in size to the Corning piece (115 x 66 mm), with a raised border on the top of the flat surface, circular facet-cuts on the underside and four short legs, is housed in the Vatican Museum (Fremersdorf 1975, 118 no 1063, pi 85).

A very few circular pieces with similar knobs or feet have also been noted. A colourless fragment with a square-sectioned foot, probably from a small three-legged circular object, is known from Baden-/4quae *Helveticae* (Funfschilling 1986, 144 no 397, Taf 21), and a fragment from a flat dark green circular disc, 80 mm in diameter and with one wedge-shaped projection, is known from Badalona in Spain. This may

be from another three-legged object though, alternatively, it may be part of a flat lid with a carved handle, perhaps similar to one on an opaque green jar found at Merida (Price 1973, 75-6 no 1, fig 2).

The function of these objects is not definitely established, and they may have been produced for a variety of purposes. Harden (1947, 298) thought that the Sheepen examples were most probably sliding lids for boxes, as he did not consider the knob to be near enough to the corner to be a foot, though he did accept the fragment in the Greau collection as a stand since the knobs or feet were quite close to the corners. However, it is noteworthy that the Merida, Herculaneum and Corning pieces all have feet sited at some distance from the corners.

The presence of a specimen in a tomb with medical instruments at Merida raises the possibility that some of these objects may have been used as palettes for mixing cosmetic or pharmaceutical preparations. Flat rectangular stone palettes with feet were widely used for similar purposes in the Roman world. They were frequently deposited in burials with medical equipment (eg Kunzl 1982, 68, 70, 75, 86, 88, 91, 93, 10-13, 105, 107, 111-12, 115, 121-2, figs 43, 49, 84, 85.12, 90.3) and they are also found in domestic contexts. Finds in Britain have come from deposits dating from the Flavian period to the mid 4th century, and range in size from 66 x 62.5 mm to 128 x 81 mm (Jarrett 1958, 121-3). The principal practical advantages of using a glass palette must have been that it was easy to remove the finished preparation, and as nothing could be absorbed into the surface it would be simple to clean. On the other hand, if such objects were subjected to pressure the danger of breakage must have been very real, so they would not have been practical for a wide range of processes.

The examples with elaborately-carved legs and feet resemble miniature tables. They may have been decorative in function, or were perhaps used as stands for small objects. Goldstein (1979, 153) has pointed out that similar small stands of silver were used to support *scyphi* and *canthari* at banquets, and it is reasonable to suppose that the glass versions were used for some similar purpose.

The use of the coloured rectangular pieces occurs within the Claudian, Neronian and early Flavian periods, though nothing is currently known about the dating of the colourless pieces. At Colchester, **185** and the examples from Sheepen came from Claudian and Neronian deposits, and some of these were in the city before the Boudican revolt in AD 60/1, while **186-187** came from Neronian/Flavian to late 1st-century or later contexts. The approximate date of deposit is also known for several other pieces. The fragments from Annetwell Street, Carlisle came from a context dated to AD 72-86 and the complete example at Herculaneum has a *terminus ante quem* of AD 79. In addition, the fragment from Carthage was found with much early 1st-century material sealed under a late 4th-century mosaic, and the complete example

from Merida came from a burial probably dating from the later 1st century. It is more difficult to identify the period of production as these objects do not occur in large numbers, and individual specimens, such as the Merida piece, may have survived in circulation for some time. Nonetheless, it is probable that they were part of the early-to-mid 1st-century production of cast monochrome glass discussed in connection with **193-208** below.

Cast object

185 LWC72 J993; Period 2 demolition. J887 J941 J951; Building 8. J1025; Building 16, Period 3 make-up. J978 J1037; Building 16, Period 3. J1008 J1010; Period 3 and 4a make-up. Twenty-three fragments of rectangular stand with feet. Dark yellow/green appearing opaque black; some fragments heat-affected. Stand flat with asymmetrically-bevelled edges. Two corner fragments, 1 retaining broken foot on underside. Minimum length 75, thickness 3 (close to edge) -5, total height 9.

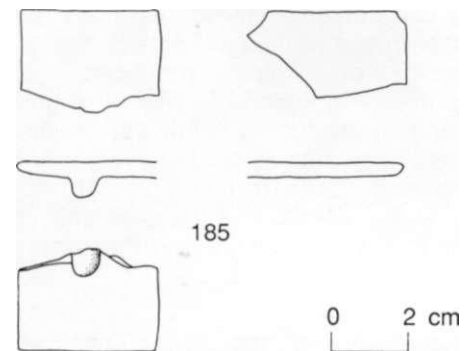


Fig 2.8 Cast object. 1:2. [Pages 26-27]

Polychrome mosaic vessels (189-192)

[Fig 2.9]

Fragments of four polychrome mosaic vessels, all probably bowls, were found. Three came from Sites B, C and G at Culver Street (**189-190 & 192**), and one from Balkerne Lane (**191**).

Pieces from at least eighteen polychrome mosaic vessels are already known from Colchester. Harden (1947, 292) divided the eleven examples found during the excavations at Sheepen between 1930 and 1939 into five groups. The lace- and strip-mosaic fragments, both from bowls, were formed from cane lengths, and the other three, floral and spiral (represented by five bowls and one beaker), marbled (one bowl, one dish), and dappled mosaic (one bowl), were formed from cane sections. Six more were found during the excavations at Sheepen in 1970 (Charlesworth 1985a, mf 3:F1-2 nos 1-10, fig 80), all from floral, spiral or dappled (flecked) mosaic formed from cane sections. Where the forms were recognisable, they were either shallow convex or carinated bowls. The last piece, a rim fragment from a floral mosaic bowl, was found at the Union, Colchester (CM, 1315.31).

Fragments **189** and **191** will be discussed together. Fragment **189** preserves a large part of the rim and body of a shallow convex bowl constructed from cane sections, with a floral design of opaque red spots surrounded by two or more rings of yellow rods in a translucent dark green ground. The rim edge is rounded but has not noticeably been shaped by grinding and polishing, and the outside surface below the rim is uneven, suggesting either that this was also not ground and polished, or that it has been damaged by heat since production. The bowl is covered by heavy weathering deposits and the colours are visible only in the sections of recently-broken fragments. Fragment **191** is a heavily-weathered small rim fragment from a bowl with a very similar rim form and surface finish, which was constructed from canes of the same colours and design, though the cane sections are larger than in **189**.

Some convex bowls made in polychrome floral and spiral, or dappled, mosaic glass are nearly hemispherical in shape (Isings Form 1), though shallower versions were also produced. Some are comparatively thin-walled, with a slightly concave base and wheel-cutting below the rim inside and on the lower body outside, and are very similar to monochrome cast bowls (Isings Form 18). Others have thicker walls, often with a flat or slightly convex base and without wheel-cutting, and these are sometimes very shallow.

At least eleven of the floral, spiral and dappled fragments already known from Colchester appear to have come from convex bowls, and additional pieces have been noted at other sites in Britain, though it is rarely possible to establish the precise form of the vessels. Rim fragments are known from Longthorpe (Charlesworth 1974a, 88 no 2, fig 48), Melandra Castle, Derbyshire (information from Mr P V Webster), and Welbeck Street, Castleford (unpublished). Body or base fragments have been found at Canterbury (Harden 1952, 130, 6 no 1); Chichester (Charlesworth 1981b, 293 no 1, fig 15.1 & unpublished); Fishbourne (Harden & Price 1971, 324-6 nos 1 & 5, fig 137, pi 25); Braughing (Price & Cool 1988, 81 nos 1-3, fig 35); and Whitton (Price 1981a, 151-2 no 1, fig 66).

Hemispherical and shallow bowls have been found elsewhere in the western provinces. For instance, a complete hemispherical example with green ground and purple, opaque white and red floral canes has come from Minusio, Ticino (Simonett 1941, 132 no 32, fig 116, Taf 9.1), and fragments have been noted at numerous other sites, including Magdalensberg (Czurda-Ruth 1979, 20 no 7), Asberg (van Lith 1984, 222 no 3, Taf 98.3), and Velsen (van Lith 1977, 11 nos 3-5, Taf 1). At Vindonissa, there is a shallow opaque grey bowl with opaque red and white floral canes, a slightly concave base and wheel-cutting below the rim inside and on the lower body outside (Berger 1960, 13 no 6, Taf 1), and numerous fragments have been noted at Magdalensberg (Czurda-Ruth 1979, 24 nos 25-46, Tafn 18-19).

The floral design of **189** and **191** is well known in pillar-moulded bowls, as well as in the convex bowls now under discussion and in other small dishes, including ones with base rings. Seven of the vessels already published from Colchester have closely-comparable designs in the same and other combinations of colours (Harden 1947, 294 nos 3-5, pi 87; Charlesworth 1985a, mf 3:F1 nos 1-7). Elsewhere in Britain, fragments are known from Guy's Hospital, London (Museum of London, GM 10.737); at Chichester, from Chapel Street (Charlesworth 1981b, 293 (295), fig 15.1.1) and from the Theological College (unpublished); Fishbourne (Harden & Price 1971, 323-6 no 5, fig 137); Verulamium (Charlesworth 1984a, 145 no 3); Wanborough (Monk 1980, 123-4 no 1); Leicester (Monk 1980, 124 footnote 16); and Whitton (Price 1981a, 151-2 no 1, fig 66).

Fragment **190** comes from a very small vessel with a truncated conical profile, with a ground rim and wheel-polished sides. It has been constructed from floral mosaic cane sections which have an emerald green ground and seven opaque red spots outlined in opaque yellow and arranged in a floral motif surrounded by a ring of opaque yellow rods. This has been interpreted as a small bowl or dish, which might perhaps have had a base ring similar to the piece from Guy's Hospital, London, though few other close parallels have been identified. Moreover, it is very small indeed and the possibility that it comes from the out-splayed base of a large bowl should be considered (for examples, see Grose 1989, nos 582, 589 & 594).

This floral design occurs in hemispherical bowls such as the one from Minusio mentioned in connection with **189** and **191** above, and on shallow convex bowls, dishes with constricted convex sides and numerous body fragments, as at Magdalensberg (for example Czurda-Ruth 1979, Taf 19 nos 25, 529, 1346, 1352). It also occurs in several forms of bowls and plates with base rings, such as the one from a Vandal grave at Sachrau (Kisa 1908, Abb 50).

The vessels already published from Colchester do not appear to contain canes of this type, but they have been noted in a variety of colour-combinations on other sites in Britain. Although in many cases the Romano-British fragments are too small for the vessels to be identified, the preponderance of bowls or plates with base rings often found in Flavian or later contexts is noteworthy. A fragment from a small bowl with out-splayed rim is known from Caersws (Cool & Price 1989, 36 no 7, fig 20), and fragments from bowls with out-splayed rims with overhanging edges are known from the Roman villa at Northchurch (Charlesworth 1974-6, 31, fig 29.1), from Site 433, Catterick and from Crook Street, Chester (both unpublished). These rim fragments have profiles very similar to colourless cast bowls and plates (see **212-219**). A body and rim fragment likely to come from a similar bowl was found at Caerleon (information from Mr G C Boon), and fragments from two wide bowls or plates with straight lower body, flat

base and base rings are known at Carlisle, from Blackfriars Street (Price 1990a, 165 mf 2/64 no 1, fig 159) and from Annetwell Street (unpublished). A body and base fragment from a small convex bowl with base ring has also been found at Llandovery (information from Professor M G Jarrett).

Opaque red is not very commonly used for both the centre and the petals of these floral canes, and no other examples are known in Britain. The Caerleon and Llandovery fragments mentioned above have red centres, and the colour also occurs in other mosaic canes. In addition, the ground colour of the Llandovery fragment is opaque red, a feature known in only a few other pieces, such as the fragmentary convex bowl from Altbachel, Trier (Goethert-Polaschek 1977, 22 no 39).

Although the last polychrome mosaic piece, **192**, is extremely tiny and the precise form of the vessel

represented is not known, it is a most interesting piece. The small out-splayed curving rim fragment from a vessel, probably a bowl, has been constructed from two lengths of purple and opaque white clockwise-twisted cane and two flat strips, one formed from two layers of translucent dark blue glass with a central opaque white layer, and the other, which appears to be green, from two layers of translucent light blue glass with a central opaque yellow layer. The surfaces have been wheel-polished and the rim edge ground to a point.

A few other fragments of strip-mosaic bowls have been found in Britain. The body fragments from Silchester (Boon 1969b, 34) and Skeleton Green, Hertfordshire (Charlesworth 1981a, 72 no 18, fig 33 & 119 no 3, fig 64) are similar in their design, though not in their colours, to **192**, but the rim fragments from the Sheepen site (Harden 1947, 293 no 2, pi 87) and the Union, Colchester (CM, 1315.31),

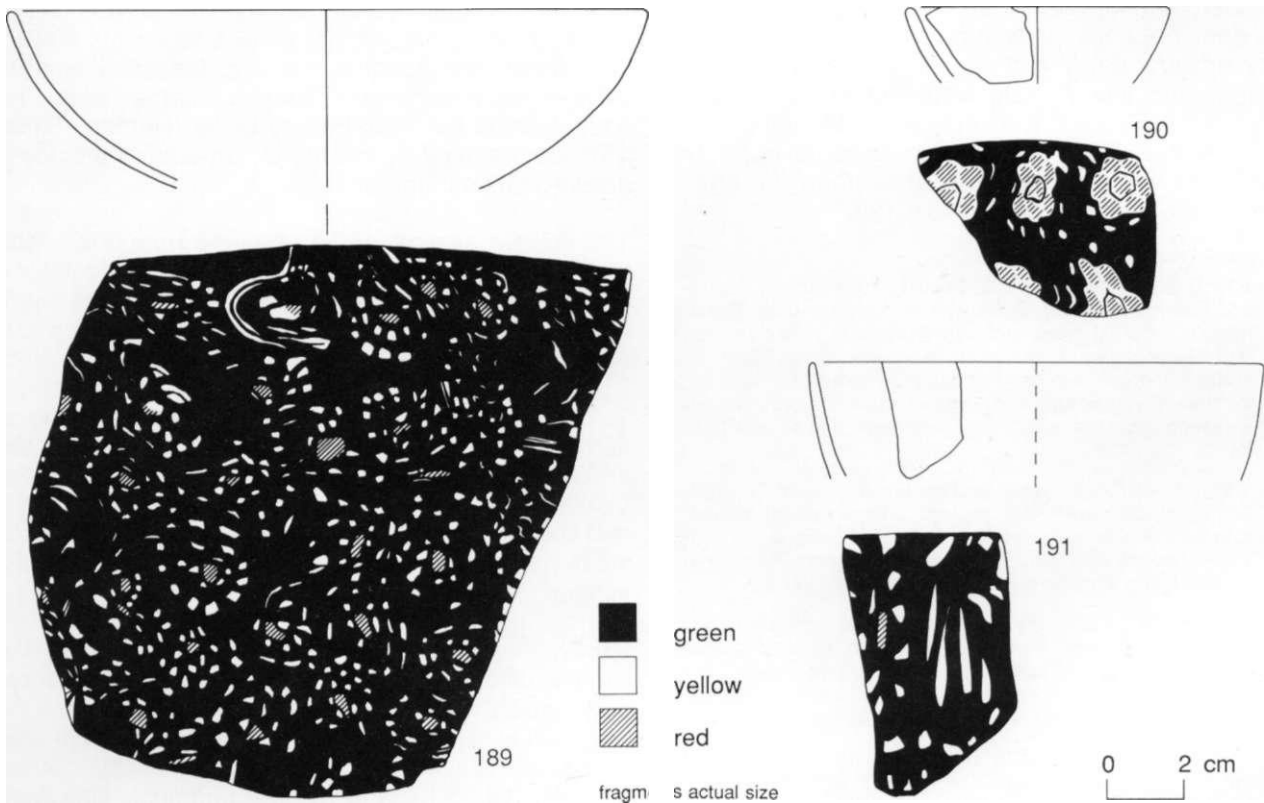
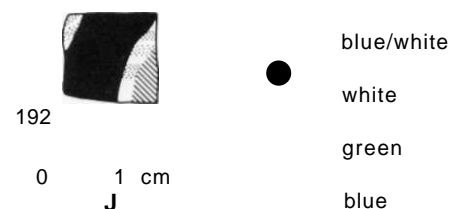


Fig 2.9 Polychrome mosaic vessels.

Note: in this figure the fragments are reproduced at 1:1 (actual size) and the vessel profiles are reproduced at 1:2 (half actual size), except for **192**, the section and fragment of which are both reproduced here at 1:1 (actual size). [Pages 27-30]



from Cirencester (Bristol City Museum, F1932), and perhaps from Canterbury (Canterbury City Museum, 2598), have vertical rims finished with a twisted cane and so are not directly comparable with **192**. These rim fragments come from convex bowls, though too little survives to establish whether these were hemispherical or shallow. Very few strip-mosaic vessels with plain out-splayed rims have been noted, apart from the small dish with a cylindrical body and a flat base in the Walters Art Gallery, Baltimore (Grose 1989, 250, fig 128), and a fragmentary vessel of similar form found at Luni di Ortonovo, Liguria (Roffia 1981-3a, 114 fig 1).

The dating of the two types of polychrome mosaic glass found in the 1971-85 Colchester excavations has been discussed on many occasions, and there is overwhelming evidence to indicate that they, and the other variants occurring in the early Roman industry, were in production during the first half of the 1st century AD. Strip-mosaic vessels (**192**) have often been assumed to predate the cane-mosaic vessels represented by **189-191**, but the evidence from Colchester, Vindonissa, Magdalensberg and elsewhere does not particularly support this as they occur in very similarly dated contexts. It is, however, likely that strip- and lace-mosaic went out of production before the other versions, as they are not found in the range of vessels which occur in Flavian contexts, such as the bowls with out-splayed and overhanging rims described above in connection with **190**.

Polychrome mosaic vessels

- 189** 1.81 C481 489 & 491 F138; Building 79, Room 2, Period 1/2. Five rim and 11 body fragments of shallow bowl. Floral mosaic; emerald green ground with opaque yellow specks and larger opaque red spots now appearing black at surface and yellow in section; each red spot surrounded by 2 rings of yellow specks. Surfaces originally ground and wheel-polished but now heavily weathered. PH 47, RD 170, WT 3.
- 190** 1.81 G1177 F982; Period 6. Two rim fragments of small hemispherical bowl. Floral mosaic; emerald green ground with opaque yellow specks and 6-petalled opaque red and yellow flowers with central red and yellow spots. Rim edge rounded; side convex-curved. PH 20, RD 70, WT 4.
- 191** BKC75 G413 TT6; Period 4 or 5. Rim fragment of hemispherical bowl. Floral mosaic; deep emerald green ground with opaque yellow spots and 1 opaque red spot. Vertical rim, convex-curved body. Surfaces heavily weathered. PH 30, RD approx 120, WT 4.
- 192** 1.81 B1902 L473; Building 77, Room 7. Period 1/2?. Rim fragment of bowl. Deep blue ground with translucent emerald green ring with opaque yellow strip in section and 1 strand each of purple and opaque white twisted into right-hand cable. Rim out-turned. Dim 12x9, WT 3.

Strongly-coloured monochrome vessels (193-208)

[Fig 2.10]

Fragments from a minimum of fourteen monochrome cast vessels, mainly bowls or plates, were found during the excavations at Lion Walk, Balkerne Lane,

Butt Road, Culver Street and the Gilberd School in Colchester between 1971 and 1985. Some of the forms represented, such as **193-197** and **199**, are quite unusual, while others are well known elsewhere in Britain or in the western provinces.

Both translucent and opaque glass were used to produce these vessels. At least seven are translucent emerald green, three are dark yellow/brown appearing black, two are dark blue, one is dark green/blue (peacock) and one is opaque mid-blue.

This group adds considerably to the range of wide shallow bowls and small cups already known from the earlier finds of at least 25 monochrome cast vessels at Colchester. Excavations at Sheepen have produced a minimum of 22 vessels. The 17 or more found between 1930 and 1939 were published by Harden (1947, 298-9 nos 38-38a, 41-5, 301 nos 53-60), of which ten were dark green, two were 'black', two or three were opaque light blue, and one each of dark blue, peacock blue and opaque white. Five further pieces, all dark green, were found at Sheepen in 1970 and published by Charlesworth (1985a, Burial Group 3 f-g, fig 15.5-6, nos 35-6 & 42-3, figs 80-81). Two more, one opaque blue and the other opaque orange with dark red streaks, came from the excavation of the 'First Pottery Shop' (Harden 1958a, 157 nos 3-4, fig 79), and the last one, from the Joslin collection, is dark green.

The first two pieces (**193-194**) come from bowls with handles, though too little now survives to establish certainly whether these had a single handle or a pair of handles, and whether the handles were horizontal or vertical.

Two fragments (**193**), from an emerald green hemispherical bowl with a wheel-cut groove on the inside surface below the rim, were found on Site J at Lion Walk in Period 1 (c AD 44-49/55) and Period 2 (AD c 49/55-60/1) contexts. The vessel retains a small part of a carved projection, probably a handle support, at the rim edge.

Excavations at Sheepen in 1970 also produced a slightly different form of dark green hemispherical bowl, which is larger than **193**, with raised ridges on the outside surface of the body and base. This was found in Burial Group 3 (Charlesworth 1985a, mf 1:A6, fig 15.6), and a base fragment, also from Sheepen (feature 102), may come from a similar vessel (*ibid* 1985a, mf 3:F5-6 no 36, fig 80).

A few other examples of dark green cast bowls with approximately hemispherical profiles are known in Britain, but none of them shows evidence of handles. A fragment with a wheel-cut groove on the inside surface below the rim was found in an Antonine context in Exeter (Charlesworth 1979a, 222-3 no 3, fig 70), and a similar piece with two wheel-cut grooves on the outside surface is known from Kingsholm, Gloucester (unpublished). In addition, a thick-walled fragment with wheel-cut grooves on the outside

surface from a Hadrianic-early Antonine context at Verulamium (Charlesworth 1972, 196 (i), fig 74,1) may come from a similar bowl, although it is illustrated as a shallower vessel.

Strongly-coloured monochrome cast two-handled cups (*scyphi*) were produced during the late 1st century BC and early 1st century AD, perhaps in Italy, though it is difficult to establish this as so few examples are known. Some have hemispherical or ovoid bodies and elaborately-carved stems and feet, as on a dark blue example now in the Corning Museum of Glass (Goldstein 1979, 140 no 290 pi 18), and others, often with more-nearly-cylindrical bodies, have a simple low base ring, as on a dark blue example from Adria (Fogolari & Scarff 1970, 81, tav 51.1). Most of the published specimens were made in translucent glass, though opaque glass was sometimes used, as an opaque pink/brown example is known in the Toledo Museum of Art (Grose 1989, 307 no 429). It is also possible that **193** comes from a bowl with one horizontal handle (*trulla*), though strongly-coloured monochrome cast examples of these vessels appear to be even less common than *scyphi*. The only other specimens noted are a fragmentary dark blue example with truncated conical upper body from Herculaneum (Scatozza Horicht 1986, 38 no 55, tav 27.75), and part of a dark green example with a shallow convex body from Alicante (Price 1981b, 178, 180).

A fragment from a peacock blue bowl with a truncated conical upper body (**194**) was found in an unstratified context on Site V at Balcerne Lane. This has a horizontal wheel-cut line on the outside surface of the upper body and a carved horizontal projection, probably a handle support, at the rim edge.

Truncated conical bodies are not common among cast vessels with handles. The dark blue fragmentary piece from Herculaneum already mentioned in connection with **193** above is the only *trulla* of this form to be noted, and few monochrome and colourless *scyphi* are also known. A pale blue/green *scyphus* with winged handles, said to come from France, was formerly in the Kofler-Truniger Collection (*Kofler-Truniger*, no 156), and colourless examples include one with high looped handles found at Pompeii (Eisen 1927, fig 128 top left, pi 62 top), and two fragments, probably from a vessel with similar handles, from Fishbourne (Harden & Price 1971, 352-4 no 29, fig 138).

No direct evidence for the precise vessel-form survives on **194**, though the presence of the horizontal wheel-cut groove on the outside surface of the upper body may perhaps indicate that this was a bowl with one horizontal handle rather than a bowl with two winged handles, as the presence of two vertical handles would make the groove very difficult to cut. A horizontal wheel-cut line occurs in a similar position on a small pale green bowl with two high looped handles and an engraved design of sea creatures and cupids on the body found in a tomb on Siphnos (Brock

& Mackworth Young 1949, 90-91, pis 33 & 34.1), though it is not clear from the illustration whether this line is continuous or whether there is a gap under each handle.

An unusual dark blue vessel with a wide funnel mouth and a straight-sided upper body tapering inwards (**195**), was found at Lion Walk. Of the three fragments, two of which join, one was found in a Site C Period 4 (c AD 150-400+) context, and the others were found in a Site J Period 3 and 4a make-up (c AD 65/75-200) context. The piece is difficult to interpret, and might also have come from a wide complex base, though the ornate carved moulding below the rim suggests that this surface was intended to be visible.

No very close parallels have been found for this vessel, which may be some form of cylindrical bowl or dish, perhaps similar to the turquoise blue example with an everted rim with wheel-cutting in the Oppenlander Collection (von Saldern *et al* 1974, 108 no 292). Alternatively, the piece may come from the rim and upper body of a small bowl with a constricted curvilinear side (Isings Form 2 = Dragendorff Form 27 in samian pottery). If this is so, it is an unusual variant of the form, as most examples have a small everted rim, and carved moulding on the inside surface below the rim is rarely found on these vessels.

Bowls of Isings Form 2 were frequently produced in polychrome as well as opaque and translucent monochrome glass. These vessels occur widely in the Roman world in the last years of the 1st century BC and the early 1st century AD. Only a few pieces have been found on sites in southern Britain. These include an opaque orange example with red streaks from Chichester (Price & Cool 1989, 132 CM1, fig 19.1.1); an opaque light blue one from Waddon Hill (Harden 1979a, 87-8 no 24); a dark blue one from Bagendon (Harden 1961, 200 no 11 (1)); and a floral mosaic one from the Alstone Cottage site, Caerleon (unpublished). In addition, two other pieces are known from Colchester; one is a fragment from a dark green bowl found at Sheepen between 1930 and 1939 (Harden 1947, 301 no 57, pi 88), and the second is a fragment from a floral mosaic bowl found at Sheepen in 1970 (Charlesworth 1985a, mf 3:F2 no 10, fig 80).

A most unusual 'black' vessel (**196**) was found on Site C at Lion Walk in a Period 4 (c AD 150-400+) context. The fragment has a vertical rim and expanding upper body, with a wheel-cut groove forming a step inside the rim and a carved moulding at the change of angle between the rim and body. This may perhaps come from a bowl or drinking-cup, though no close parallels have been found, or it may be from a jar, in which case the stepped groove inside the rim could function as the seating for a lid.

No other vessels of this kind have been identified in Britain, and only one or two examples with similar vertical rims, expanding convex-curved bodies and carved moulding between the rim and body are known elsewhere in the Roman world. One is a small opaque

Strongly-coloured monochrome vessels

sea-green example with a globular body from the Greek islands (Harden *et al* 1968, 44 no 50) which does not have a stepped groove inside the rim. The other is a larger opaque green jar found in a burial at Merida; this vessel has an ovoid body which has a stepped groove inside the rim and a flat lid with a carved handle (Price 1973, 75-6 no 1, fig 2.1).

Fragment **197**, which was found in an unstratified context at Culver Street, is from another rather unusual wide vessel, probably some form of plate. The dark blue fragment has a vertical rim, a short side and a small part of the side (or base) projecting inwards; the upper, lower and outside edges of the rim are decorated with wheel-cut grooves. The general form of the rim and side suggests that it may come from a shallow cylindrical dish or plate (Isings Form 22 = Dragendorff Form 23 in samian pottery). These vessels, which were produced in opaque and translucent monochrome glass, but not polychrome glass, generally have a small everted rim without wheel-cutting on the top surface, a short undecorated side, an out-splayed base edge and a flat base. They are well known in the Roman world, particularly in the western provinces, in the last years of the 1st century BC and the early 1st century AD. Examples have come from many sites, including Magdalensberg (Czurda-Ruth 1979, nos 576-8, 584-90, Tafn 3-4), Vindonissa (Berger 1960, no 37, Taf 17.7), and Tarragona (Price 1987d, fig 2.9). Few have been noted in Britain, though a dark green fragment was found at Kingsholm, Gloucester (unpublished), and two others, also dark green, are known from Colchester. One came from Burial Group 3 at Sheepen (Charlesworth 1985a, mf 1:A6 fig 15.5) and the other is without known provenance (CM, Joslin collection).

However, some features of **197**, such as the vertical rim, the wheel-cut grooves and the raised base, are very different from most examples of Isings Form 22. The fragment may come from a vessel broadly comparable with the opaque blue truncated conical bowls from Herculaneum, which have prominent vertical rims with a wheel-cut groove on the top edge (Scatozza Horicht 1986, 36-7, nos 47-50, tav 6).

The two rim fragments numbered **199**, which were found in an early Period 3 context on Site B at Culver Street, dating from AD 60/1 to c 75, come from an emerald green shallow rectangular tray with sloping sides and a flat base. This form is not otherwise known in Britain, and is not very common elsewhere in the Roman world, though some examples were produced in both polychrome and strongly-coloured monochrome glass in the early 1st century AD, and colourless specimens are found very occasionally in later 1st- and 2nd-century contexts. Fragments from two similar vessels, one opaque pale green and the other 'black', are known from Tarragona (Price 1987d, 67-8, fig 2.7), and others in translucent and opaque colours have been found at Cordoba (Garcia y Bellido 1970, 59, fig 59.2), Frejus (unpublished), Cosa, Luni, Rome and elsewhere in Italy (Grose 1991, 10-11, pi 3c).

Some trays have horizontal carved handles on the two short sides, but it is not certain whether all of them were produced with handles as few complete trays survive. For the same reason, little is known about the range of sizes produced, though some were quite large. The dark blue specimen from Beas, Jaen, which has a fish carved on the inside surface of the base, measures 300 x 115 mm (Gudiol Ricart & de Artinano 1935, no 98), and the peacock blue example in a private collection measures 235 x 115 mm (Grose 1991, pi 3c).

Fragment **201**, which was found in a 4th-century context at Butt Road, comes from a 'black' bowl with a wide horizontal rim and straight side tapering in. The rim is ground flat on the upper surface with mouldings at the rim edge and at the junction with the body.

Although this rim form is rather different from the ones previously considered in this section, there is little doubt that this piece belongs to the same tradition of early Imperial manufacture as the other monochrome cast vessels at Colchester. It is comparable with the rims of a blue/green saucer in the British Museum (Harden *et al* 1968, 43 no 48), a blue/green truncated conical bowl from Luxemburger Strasse, Koln (Fremersdorf 1967, 57, Taf 13) and the dark green bowls or plates found at Vitodurum (Rutti 1988, 20 no 39, Taf 2) and Magdalensberg (Czurda-Ruth 1979, 72 no 566, Taf 3). A generally similar though plainer rim also occurs on a shallow carinated bowl at Frejus (Price 1988, 27-8 fig 14).

Wide horizontal rims occur on a series of polychrome mosaic and colourless as well as monochrome bowls and plates with flat bases and base rings. The vessels sometimes have simple horizontal rims, as in **201**, and sometimes have an overhanging edge to the rim. The colourless versions of these vessels were distributed throughout the Roman world in the later 1st century AD (see **212-219**, below), and the polychrome and brightly-coloured monochrome specimens may have been in circulation at the same time, though they were probably also produced in the middle of the 1st century or earlier. In general the glass of these vessels is thicker than that of **201**.

In Britain, polychrome bowls with simple horizontal or diagonal rims have been found at Robin Hood's Stride, Bakewell, Derbyshire (Price 1985b, 468-70), Fishbourne (Harden & Price 1971, 323-6 nos 2 & 4, fig 137), Caerleon (Nash-Williams 1932, 87 nos 51-51a, fig 35), and Caersws (Cool & Price 1989, 36 no 7, fig 20). Examples with similar rims in brightly-coloured monochrome glass include complete or reconstructable small dark green plates from Kirkby Thore (Charlesworth 1959a, 38 & 40, fig 3.3) and Winterton (Charlesworth 1976a, 247 no 8, fig 133), and fragments from Canterbury (Charlesworth & Price 1987, 220 no 3, fig 88) and elsewhere, but none of these is very closely dated.

These bowls and plates were not often produced in 'black' glass. Apart from **201**, the only recorded

example is a shallow plate with an overhanging edge to the rim found in King William Street, London (Wheeler 1930, 122, fig 42.4), made in dark yellow/brown which appears black (not dark blue as described by Wheeler).

Fragments 198 and 200-208 come from the rims, bases and bodies of bowls and plates. Although it is often not possible to identify their precise forms, they come from early-to-mid 1st-century monochrome cast vessel-forms commonly found in the western and north-west provinces (see Grose T989, fig 135 for some of the profiles). They are all emerald green vessels, except for 206 and 207 which are 'black' and opaque blue respectively.

Fragment 198, which was found in a Period 3 (AD 60/1-c 225) context on Site G at Culver Street, and 200, which was found in a Period 2 or 3 (AD c 49-60/1 or 60/1 -c 250/275) context at the Gilberd School, both come from vessels with small everted rims and convex upper bodies.

Enough of 200 survives to suggest that it comes from a wide shallow bowl (Isings Form 5), similar to an example from Vindonissa in a Flavian cremation burial (Berger 1960, 27 no 32, Taf 3.32). A similar bowl fragment was found in a Claudian pit at Sheepen between 1930 and 1939 (Harden 1947, 301 no 60, pi 88).

Fragment 198 is too small for the vessel form to be established with certainty. It may come from a bowl similar to 200, though it could be a bowl with a constricted curvilinear side. Two versions of this are known. The smaller, approximately hemispherical version (Isings Form 2 = Dragendorff Form 27 in samian pottery) has already been discussed in connection with 195 above, and the other is a wider shallow version comparable with Dragendorff Form 16 or Ritterling Form 3 in samian pottery. Two fragments from Dragendorff Form 16 bowls (one dark green, one dark yellow/green) were found in Claudian-early Flavian contexts at Fishbourne (Harden & Price 1971, 328 nos 11 & 15, fig 137), and a polychrome mosaic fragment is recorded from Silchester (Boon 1974, 230-32, fig 36.2).

Fragment 202, from a Period 5 context (c AD 100/25-300) on Site V at Balkerne Lane, may also belong to a wide shallow bowl with a constricted curvilinear side of the kind described above. The fragment has a wide flat base and a low base ring smaller in diameter than the change of angle from the lower body to the base, a feature usually associated with these vessels. This piece is very similar to a dark green example found at Sheepen (Harden 1947, 301 no 53, pi 88), and another from a pre- to early Flavian, or Flavian, context at Southwark (Townend & Hinton 1978, 153 no 26). Complete or reconstructable specimens have been found on many sites in the western and north-west provinces, as at Magdalensberg (Czurda-Ruth 1979, 71-2 nos 550-65, Taf 3), Vindonissa (Berger 1960, 26-7 nos 30-31, Taf 3), and Tarragona (Price 1987b, 69, fig 2.11).

Fragments 203-206 come from small bowls with base rings. These, and 208 which will be discussed with them, came from Site J in Balkerne Lane. Fragments 203-204 are joining fragments from a small emerald green bowl with a convex lower body, slightly out-splayed base ring and convex base, one having been found in a Period 2 context, dating from AD c 49/55-60/1, and the other in a slightly later (Period 4a) context. The broken edges of the lower body on 204 have been neatly grazed, but part of the lower body of 203 survives. Fragment 208, a small convex emerald green fragment with a strong change of angle, which may be part of a rim or a constricted body, was found in Period 3 make-up dated to AD 60/c 75-100/150. It is not certain that this fragment comes from the same vessel as 203-204, though the pieces appear very similar. Fragment 205, which was also found in Period 3 make-up, comes from a vessel with an out-splayed base ring of small diameter, though little further information can be gleaned from the surviving fragment which is tiny and in very shattered condition. Fragment 206, was found in a post-Roman context, and comes from a dense yellow/brown bowl appearing black with a convex body, small flat base and high base ring.

Several small bowl forms with bases comparable to 203-206 were produced in the early and mid 1st century AD, some with vertical rims and hemispherical bodies, and others with slightly out-splayed rims and constricted curvilinear, convex or truncated conical bodies (see Grose 1989, fig 135 top row). Many examples have been found on sites in the western and north-west provinces, such as Magdalensberg (Czurda-Ruth 1979, 70ff, nos 544-8, 591-3, 595, 598-602 1270, Tafn 3, 4, 11) and Vindonissa (Berger 1960, 28-9 nos 38, 43-4, 47, Tafn 3, 17), but very few base fragments of this kind are known from other sites in Britain.

Fragment 207, which was found on Site V at Balkerne Lane in a Period 4, 5 or 6 context, a deposit dating from around c AD 75/80 to 400+ or later, is the only piece of truly opaque cast glass found in these excavations at Colchester between 1971 and 1985, as the dark yellow brown and dark purple fragments appear to be black because of their intense colour, not because of their opacity. This is a small opaque blue body fragment from a wide convex bowl or plate, but no diagnostic features have survived so it is not possible to establish the form of the vessel. Cast vessels were produced in various shades of opaque blue in the early Imperial period, and some are already known at Colchester. Two or three pale blue pieces were found at Sheepen (Harden 1947, 298-9 nos 43 & 45-45a), and a turquoise blue shallow bowl came from the 'First Pottery Shop' in Insula 19 (Harden 1958a, 157 no 3, fig 79).

Elsewhere in Britain, fragments from one or more sky blue carinated bowls of Dragendorff Form 27 are known from Waddon Hill (Harden 1960a, 95 no 4), and there are small pieces of opaque turquoise hemispherical bowls and other cast vessels from

Strongly-coloured monochrome vessels

Longthorpe (Charlesworth 1974a, 88, fig 48.1); Verulamium (Charlesworth 1984a, 147 & 149 no 13); Caersws (Cool & Price 1989, 32, 36 nos 9-10, fig 20); and Castleford, Blake Street, York and Fishbourne (all unpublished).

Among the minimum of 39 monochrome cast vessels now known from Colchester, translucent dark green is the dominant colour, accounting for nearly 59 per cent of the finds. Of the other colours present, 'black' accounts for 12.8 per cent, opaque blue for 10.3 per cent, translucent dark blue for 7.7 per cent, translucent peacock for 5.1 per cent, and opaque white and opaque orange with dark red streaks for 2.6 per cent each. This group is without parallel in Britain, but it is closely comparable with similar-sized and larger groups of material from military and civil settlements occupied during the first fifty or sixty years of the 1st century AD in the western provinces, such as Magdalensberg, Vindonissa, Cosa, Frejus, Tarragona, Vitudurum, Koln, Trier and elsewhere. The evidence from these sites indicates that most of the translucent and opaque colours were in circulation at the same time and were used to make the same vessel forms, though some translucent colours, particularly dark green, may have continued in production after others had disappeared. Brightly-

coloured monochrome cast vessels were in use from the Augustan-Tiberian to Claudian-early Neronian period, and most of them disappear rapidly after this time.

Fragments of monochrome cast glass have not been noted in pre-conquest deposits at Sheepen, and it is likely that all the vessels at Colchester arrived after AD 43. The assemblage is therefore most important for studying the later phases of production of this glass. The quantity and variety of the surviving pieces indicate that a representative selection of the good-quality monochrome cast tablewares current in the western provinces was reaching the pre-Boudican military and urban settlement.

Strongly-coloured monochrome vessels

- 193 LWC73 J1698 F495; Period 1. LWC72 J951; Building 8, Period 2 destruction. Two rim fragments of hemispherical bowl. Deep emerald green. Vertical rim with rounded edge; external thickening at rim by 1 broken edge, perhaps part of handle. Convex-curved body. Wide shallow wheel-cut groove on interior below rim. PH 52, RD 130, WT 3.5.
- 194 BKC75 V81; unstratified. Rim fragment of handled bowl. Green/blue (peacock). Rim has small horizontal projection from side of missing handle; straight side sloping in. Wheel-cut groove on upper body. PH 22, WT 2.

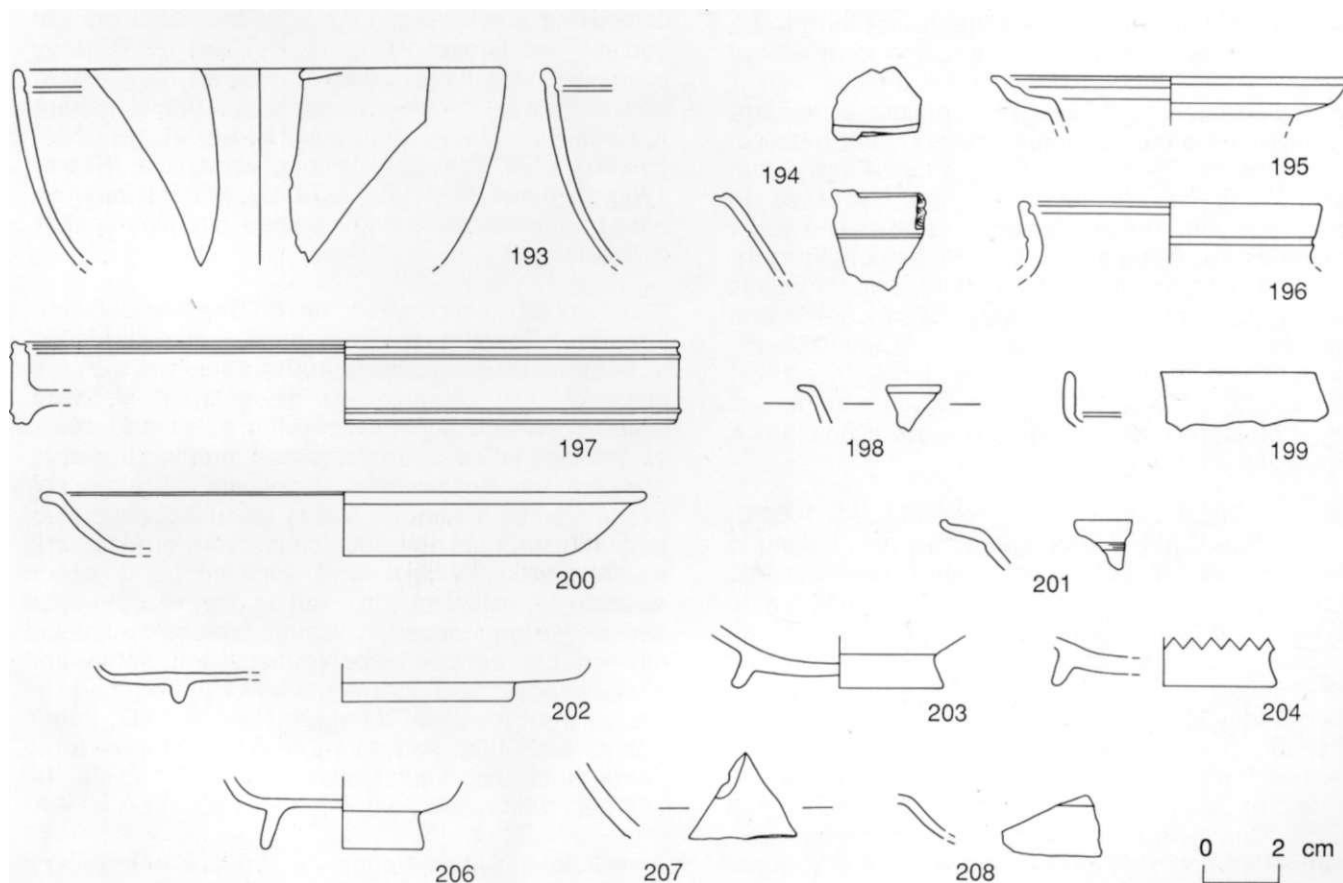


Fig 2.10 Strongly-coloured monochrome vessels. 1:2. [Pages 30-35]

- 195 LWC71 C322; Building 19 make up; Period 4. LWC73 J1009 make up; Period 3 and 4a. One rim and 2 small body fragments (2 joining) of bowl(?). Deep blue. Slightly everted rim with rounded edge; wide flange; sharp change of angle to body sloping inwards. Surfaces ground and wheel-polished to leave external moulding at rim edge and slight cordon on interior at rim/flange junction. PH 17, RD 95, WT 3.
- 196 LWC71 C322; Building 19 make up; Period 4. Rim fragment of bowl appearing black. Very slightly everted rim with rounded edge; body sloping out. One deep wheel-cut channel on interior of rim and raised moulding at rim/body junction on exterior. PH approx 20, RD approx 80, WT 4.
- 197 1.81 M276 L1; unstratified. Rim fragment of plate. Deep blue. Vertical rim, body missing. Broad vertical rim with wheel-cut groove on top and bottom edges; exterior ground to leave horizontal ribs at top and bottom of rim; wheel-cut groove below rim edge on interior. PH 22, RD 175, RT 5.
- 198 1.81 G3627 L3596; Period 3. Rim fragment of plate or bowl, perhaps rectangular. Emerald green. Part of out-turned rim and side tapering in. Dim 15x13, thickness 2.5.
- 199 1.81 B1764 L389; Building 77 destruction; early Period 3. Two rim fragments of ?rectangular plate. Emerald green. Vertical rim with rounded edge; short side tapering in to base angle; base missing. Dim 43x15 and 42x15, thickness 3.
- 200 GBS85 B56 F1; Period 2 and 3a. Two rim and 1 body fragments (all joining) of shallow bowl. Emerald green. Narrow out-splayed rim; slightly convex-curved side sloping in steeply and beginning to curve in to base. PH 17, RD 160, WT 2.
- 201 BUC77 C1211 G380; Period 2. Rim fragment of plate or bowl. Dark yellow/brown, weathered surfaces appearing black. Wide everted rim; straight-sided body sloping in. Top surface of rim ground flat to leave raised ridge at rim edge and at rim/body junction; rim/body junction undercut on exterior. PH 13, WT 2.5.
- 202 BKC76 V410 F53; Period 5? Base fragment of bowl. Dark emerald green. Edge of side curving in sharply to wide lower body and flat base with low base ring. PH 9, BD approx 90, WT 2.5.
- 203 LWC72 J944; Building 20, Phase 1, Room 4, Period 4a make-up. Base fragment of small bowl or plate. Deep emerald green. Wide lower body sloping into flat base; slightly out-splayed base ring with flat lower edge. PH 14, BD 56, BT 4.
- 204 LWC J1464 F184; Period 4. Base fragment of bowl. Emerald green. Slightly out-splayed foot ring; slightly convex-curved base. External grinding has left slight horizontal ridge above outer lower edge of foot ring. Side grazed. BD approx 55.
- 206 LWC72 J90 F44; post-Roman. Base fragment of small bowl. Yellow/green appearing black. Broken at change of angle to wide lower body; flat base; high out-splayed base ring. PH 18, BD 43, WT 3.
- 207 BKC76 V1094; Period 4, 5 or 6. Body fragment. Opaque light blue. Convex-curved body. Dim 26x23, WT 4.
- 208 LWC72 J941; Period 3 make-up. Body fragment. Dark emerald green. Convex-curved side with change of angle. Dim 25x15, WT 2.

Colourless vessels (209-231)

[Figs 2.11-2.12]

At least 17 vessels are represented by the 23 fragments of cast colourless glass which were found in

the excavations at Balkerne Lane, Culver Street, the Gilberd School and Lion Walk between 1971 and 1985.

It is noteworthy that this is the first group of cast colourless glass to be published from Colchester. Excavations in 1930-39 and 1970 at Sheepen, an area largely abandoned around AD 65, do not appear to have produced any cast vessels made in colourless glass. Harden (1947, 288) listed eleven colourless fragments, but it is not now possible to establish whether any of these were cast. Some were certainly from blown vessels, and it has since been pointed out (Harden & Price 1971, 321 footnote 2) that some of the pieces may in fact have been pale greenish or yellowish, rather than truly colourless. Charlesworth (1985a, mf 3:F4 no 31) noted only one piece, a blown fragment with colourless ground and an opaque blue trail. A fragmentary cast colourless bowl with overhanging rim (see **212-216, 218**) has been found in the town, though the precise provenance is not known (CM, 2398.11).

In all cases where identification is feasible, the fragments come from various types of bowls, dishes or plates, and with the exception of **210** and **226**, they probably come from shallow vessels with convex-curved or straight sides, base rings and flat bases.

Decorated and saucepan-handled bowls (**209-211 & 228**)

Fragments **209** and **211** are discussed together, as the analytical programme of colourless glass fragments from Colchester has shown that they have very distinctive and similar compositions (see *AMJ* Report 53/90, discussion paragraph 4, Appendix 1, pp 261-306), and both were found in Period 3d contexts (c AD 65/80-150) on Site G, Culver Street. There is however, some doubt about their coming from the same vessel.

Fragment **209** comes from a bowl with a horizontal everted rim with rounded edge, part of which expands out and up to a handle (now missing). The shallow upper body is convex-curved with a horizontal band of large diagonal oval facet-cuts on the outside surface and a sharply-defined ridge in raised relief inside. The broken edge of the expanded handle support has been shaped by flaking and retouching (grazing) and may either have been reworked during the life of the vessel to give a smooth finish to a newly damaged and projecting surface, or it may have been reshaped for some secondary purpose after the fragment had become detached from the vessel.

The three fragments numbered **211** come from the lower part of a large wide-bodied bowl with base ring decorated with at least one vertical row of small closely-set oval facet-cuts above a line of large horizontal facet-cuts on the body, and with a concentric ring of closely-set small oval facet-cuts on the surviving part of the base. The profile of the body is different and the cutting is not as carefully executed as on **209**.

Colourless vessels: decorated and saucepan-handled bowls

Several details of the shape and finish of **209** are quite unusual, such as the narrow flat undecorated rim with rounded edge and the shallow convex upper body with the interior ridge, but the form is generally similar to a series of bowls or plates with two projecting, horizontal carved handles. An early dated example was found in the Casa Dei Due Atri at Herculaneum (Scatozza Horicht 1986, 32 no 18, tav 5.2, 25). This is a fragment of a large shallow plate with two concentric wheel-cut rings on the underside of the flat base, and a broad handle with curved outline, a single perforation at the centre and carved supports in the shape of dolphins. Other vessels with horizontal handles generally have base rings and are often decorated with facet-cutting. One with circular facets and short lines on the rim and base is known from Crain, Yonne (Bonneau 1977, 128, fig 11.78), and others which also have facet-cutting on the body have been found at Adria (Fogolari & Scarfi 1970, 83, tav 61) and Trier (Goethert-Polaschek 1977, 25 no 55, Taf 30, Abb 5).

A few similar bowls with carved handles have been found elsewhere in Britain. The example from Wroxeter with facet-cutting on the overhanging rim, body and base (Charlesworth 1975a), has since been shown to have carved handles, and two smaller vessels without facet-cutting are also known. One came from Dr Kathleen Kenyon's excavations at Wroxeter (Rowley House Museum, TrX1B WpF 2-16), and the other was found on the Minster site in York (unpublished).

Fragment **209** differs from most other handled circular bowls as the handle appears to have been set slightly above the level of the rim. Apart from a fragment from a very small bowl with oval facet-cutting on the underside of the rim found at Els Munts, near Tarragona (Price 1987b, 78, fig 5.12), no other examples with this feature have come to our attention.

Cast colourless bowls and plates with facet-cut decoration have been found in many parts of the Roman world. Like the examples with handles discussed above, some are decorated only on the rim, or on the rim and base, while others are also decorated on the body. Perhaps the best-known example is the large intact specimen with overhanging rim and low base ring set close to the carination which has egg-and-dart-cutting on the rim overhang, a ring of circular facets and short lines on the underside of the rim and base, and a small raised disc at the centre of the top surface of the base, found in a closely-dated Hadrianic context in the Cave of the Letters, Judean Desert (Yadin 1963, 106-9, pi 29, fig 40).

Fragments with decoration generally similar to the Cave of the Letters bowl are known in Britain, at Richborough (Yadin 1963, 109, fig 40a), Fishbourne (Harden & Price 1971, 334-6 no 33, fig 138, pi 26), and the Minster site, York and Castleford (both unpublished). Elsewhere in the Roman world, similar pieces have been found at Conimbriga (Alarcao 1965,

59-61 nos 71, 73-4, est 3), and Chatillon-sur-Seine (Joffroy & Paris 1950-51, 7, pi 7.1).

The surviving parts of **211** indicate that the body and base of the bowl were decorated, but as the rim does not survive it is not possible to establish with certainty whether this had an overhanging edge. However, it is probably safe to assume the existence of an overhanging rim edge, as bowls with simple everted rims very rarely have facet-cut body and base decoration.

It is likely, therefore, that **211** comes from a bowl with an overhanging edge to the rim, and it is also possible that the vessel had horizontal handles projecting from the rim edge (*cf* **209** above). The handled bowl from Wroxeter mentioned in connection with **209** (Charlesworth 1975a), has small vertical facets above a horizontal ring of larger facets on the lower body and a ring of closely-set oval facets inside the base ring on the underside of the base, an arrangement very similar to that of **211**.

Other fragments from large bowls also have closely comparable facet-cut designs on the lower body and base but nothing is known about their rims. These include a piece from Lancia, in the province of Leon in Spain (Price 1987b, 75, fig 4.2) and another from Baden-/4o;uae *Helveticae* in Switzerland (Funfschilling 1986, 144 no 398a, Taf 21) with two horizontal rings of facets on the lower body. Similar arrangements of facet-cutting also occur on very small bowls such as one from Badalona, north-east Spain (Price 1987b, 78, fig 5.11), and on a very small dish with a vertical rim and low convex-curved side from Baden (Funfschilling 1986, 144 no 398, Taf 21).

In view of the very similar and distinctive compositions of **209** and **211**, and their presence on the same site, it might be reasonable to expect that they come from the same vessel. However, if this is the case, the vessel is not likely to be one of the shallow convex bowl or plate forms discussed above. The combined body appears to be a constricted curvilinear shape with an internal ridge at the constriction. The form of such a vessel might be compared with the wide shallow monochrome cast bowls discussed in connection with **198**, though these are not known with horizontal handles, and the form has not been recognised in colourless glass. Moreover, the combination of diagonal, vertical and horizontal facets on the body is difficult to parallel and there appears to be a difference in the quality of the facet-cutting between the two pieces, the diagonal ovals on **209** being more carefully produced than the small vertical and large horizontal ovals on **211**. It is difficult to reconcile these similarities and differences without considering the possibility that two glass blanks of similar composition have been shaped and decorated as different vessel forms, perhaps as part of the same set of tableware. Interestingly, another instance of nearly identical vessels from the same contexts occurs with the two dark blue Hofheim cups with opaque marvered trails from the Gilberd School site (**258 & 259**).

Very few facet-cut bowl fragments have been found in closely-dated contexts, though the Wroxeter vessel has a *terminus ante quem* of around AD 125. The contexts of **209** and **211** are in accordance with this date range but do not provide greater precision, as they both came from deposits dating from c AD 65/80 to 150. Fragment **228** was found in a deposit dated from the mid 2nd to the early 4th century and so is clearly residual.

The small fragment of narrow tapering strap handle from Balkerne Lane (**210**) is all that remains of a bowl with one horizontal saucepan handle (*trulla*), a form not very commonly found in cast glass. Brightly-coloured monochrome examples, which have already been mentioned in connection with **193**, and polychrome mosaic examples, such as the fragmentary one in gold band glass from Herculaneum (Scatozza Horicht 1986, 38 no 54, tav 10.27) and the floral mosaic fragments from Silchester (Boon 1974, 230 fig 36.1), are very rare, but colourless cast specimens have been recorded a little more frequently.

Two types of handles are known on cast *trullae*: the flat, rectangular-sectioned, tapering strap handle of **210**, and a solid rod handle, often with a polygonal cross-section, such as the one on the cameo-cut *trulla* from Pompeii (Whitehouse 1991, fig 5). Fragments of colourless cast *trullae* with strap handles have been recognised in various parts of the Roman world. Most of the examples with an identifiable body are shallow bowls with convex sides and flat bases, though the example from Begram, Afghanistan is hemispherical (Hamelin 1953, pi 6a).

Some of the bowls are decorated with wheel-cutting. The example from Begram has a raised band with closely-set curved arcading, and three *trullae* at Merida and Valeria (Cuenca) in Spain have relief-cut laurel wreaths on the bodies (Price 1973, 76-8 no 3, fig 2). Another example, from Nijmegen, is decorated with three lines of vertical oval facet-cutting in quincunx (Isings 1964, 175-6 no 3, fig 3). The bases usually have wheel-cut rings or raised ridges with a central disc on the underside.

The handle supports are often very simple, as on the Begram and Merida vessels, while the Nijmegen handle has carved mouldings at the junction with the body. The terminal of the handle is generally simple and often slightly curved, though the terminal on the Nijmegen vessel is nearly circular with carved mouldings, and a handle fragment from Binchester, County Durham (information from Dr R Jones) has an expanded ring terminal with central perforation which is very reminiscent of the terminals of bronze *trullae*. The handle is sometimes undecorated, as appears to be the case with **210**, or it may have wheel-cut lines parallel to the sides, or facet-cutting as on the Nijmegen piece, or both, as on the Binchester fragment.

A few other pieces have been found in Britain. An undecorated handle fragment is known from

Caerwent or elsewhere in south Wales (Boon 1972-3, 123 no 51, fig 5), and fragments from one or two *trullae* have come from Dorchester, Dorset. Two pieces, a handle fragment with wheel-cut lines parallel to the sides and a central design of short wheel-cuts and a base fragment with concentric ridges on the underside, were found on the Greyhound Yard/Old Methodist Chapel site (Cool & Price 1993, 158 nos 7-8, fig 84), and a very similar base fragment has come from the Trinity Street site (unpublished).

Very few *trullae* have come from closely-dated deposits, so the context of **210** (AD 60/1 -c 75/80) is important as it provides an early fixed point for the use of these vessels. The programme of analyses (see AML Report 53/90, discussion paragraph 4, Appendix 1, pp 261-306) has shown that the composition of this piece is distinctively different both from **209** and **211** and from the other pieces of colourless cast glass, but the significance of this difference may not be fully understood until more *trullae* are analysed.

Undecorated bowls with base rings (212-225)

[Fig 2.12]

The main type of undecorated cast colourless vessel found in Britain is a bowl with a wide everted rim and a base ring. This occurs in two main variants and both are represented in the assemblage from the 1971-85 Colchester excavations. Each variant has a wide rim sloping out at a shallow angle, and a straight side sloping in to a rounded carination with a flat base. They are distinguishable from each other because one has an overhang at the edge of the rim and on the other this is absent. On the bowls with an overhang the base ring is normally set back from the carination and tends to be higher than that on the bowls without an overhang. The base ring on the latter is generally sited at the carination and is in relatively low relief. Typical examples of the two forms are provided by **212** which has an overhang, and by a bowl from Gorhambury which does not (Neal *et al* 1990, 201 no 4, fig 163). On the variant with the overhang, the upper surface of the rim is often ground flat, though it sometimes has a slightly convex finish, and there are generally raised ridges at the junction with the overhang and body. On the variant without the overhang, the upper surface is also flat but the ridges are rarer, and there are often one or two wheel-cut lines on the upper surface. Hybrid forms which include features of both variants are also known; for instance a small bowl with an overhang to the rim and a low base ring sited at the carination came from a pit fill of the early 2nd century at St Thomas Street, Southwark (Townend & Hinton 1978, 389 no 101, fig 176).

Although the proportions of these bowls vary, the same basic features are found on wide, shallow, almost plate-like forms such as those from Richborough (Bushe-Fox 1928, 52 no 77, pi 25) and Verulamium (Charlesworth 1984a, 149 no 14, fig 61.8), on wide deep bowls such as **212**, a bowl from Ditchley, Oxfordshire (Harden 1936a, 62 no 1, fig 12) and a bowl from the New Market Hall site,

Colourless vessels: undecorated bowls with base rings

Gloucester (Charlesworth 1974b, 75 no 4, fig 29), and smaller deep bowls such as that from Southwark noted above and from Lullingstone (Cool & Price 1987b, 125 no 325, fig 53). Unfortunately, examples retaining sufficient of the profile for the shape of the bowl to be deduced are relatively rare, so it is difficult to judge if any shape variant was more common than the others.

Both rim variants were made in polychrome and strongly-coloured monochrome as well as colourless glass, though only the last mentioned was ever facet-cut (see previous section). In Britain polychrome bowls with overhangs to the rim include those from Northchurch, Hertfordshire (Charlesworth 1974-6, 31 no 1, fig 19), the Tower of London (Shepherd 1985, 68 no 1, fig 39), and Catterick (Site 433, unpublished). These, however, appear to have been rarer than polychrome bowls without overhanging rims such as those from Fishbourne (Harden & Price 1971, 324 nos 1-2, fig 137); Bakewell (Price 1985b, 469 fig 9); Caersws (Cool & Price 1989, 31, 36 no 7, fig 20); Gorhambury (Neal *et al*/1990, 201 no 2, fig 163); and Crook Street, Chester (unpublished). In strongly-coloured monochrome glass, however, the position is reversed and bowls with overhanging rims such as those from King William Street, London (Wheeler 1930, 122 no 4, fig 42), Ditchley, Oxfordshire (Harden 1936a, 63 no 3 fig 12), The Lunt (Charlesworth 1975b, 38 no 1), and Pentre Farm, Flint (Price 1989a, 80 no 1, fig 29) are commoner than those without, such as the examples from Kirkby Thore, Cumbria (Charlesworth 1959a, 38 & 40, fig 3.3), Birrens (Robertson 1975, 137, fig 48.3) Canterbury (Charlesworth & Price 1987, 220 no 3, fig 88), and Berkeley Street, Gloucester and Castleford, West Yorkshire (both unpublished).

At Colchester, except for **201**, bowls with wide rims and base rings have only been identified with certainty in colourless glass. From these 1971-85 excavations, judged by rim fragments, there are at least six examples with an overhanging rim. Three were found at Balkerne Lane (**212-214**), two at Lion Walk (**215-216**) and one at the Gilbert School (**218**). There were also two examples of bowls without overhanging rims. One, a shallow example (**217**), came from Balkerne Lane and the other (**219**) from Lion Walk. The base fragments suggest the presence of at least three other bowls, two from Culver Street (**221 & 223**), and one from the Gilbert School (**225**). Another shallow bowl with an overhanging rim is also known from earlier discoveries at Colchester (CM, 2398.11).

This predominance of bowls with overhanging rims is not surprising as this is the commoner rim form. In addition to that from Gorhambury noted above, bowls without overhanging rims have been recorded at Wroxeter (Bushe-Fox 1914, 20, fig 12); Caerhun (Baillie Reynolds 1936, 228 no 4, fig 54); Corbridge (Charlesworth 1959a, 40, fig 3.4); York (Harden 1962, 136, fig 88 HG 218); Leicester (Charlesworth 1973a, 52 no 1, fig 22); Chilgrove (Down 1979, 163 no 8, fig 57); Inveresk (Thomas 1988, mf 2:B7, fig 3.59); Castle Street, Carlisle (Cool & Price 1991, 169

no 625, fig 152); and from currently unpublished excavations at York Minster, Catterick (Site 433) and Wroxeter (Dr G Webster's excavations). Bowls with overhanging rims in addition to the ones noted above include examples from Aldborough (Charlesworth 1959a, 40, fig 3.2), Fishbourne (Harden & Price 1971, 332 no 26), Cramond (Maxwell 1974, 198 nos 6 & 7, fig 16), Maryport, Cumbria (Price 1976b, 49 no 1, fig 9), Gloucester (Price 1980b, 111 no 1, fig 17), Tower Hill, London (Shepherd 1981, 63 no 3), Ilchester (Price 1982a, fig 112.1), Verulamium (Charlesworth 1984a, 149 nos 17-25, fig 16.11), Blackfriars Street, Carlisle (Price 1990a, 168, fig 159.5), Greyhound Yard, Dorchester (Cool & Price 1993, 158 no 6, fig 84), and Caistor by Norwich (Norwich Castle Museum). Other unpublished examples have been found at Castleford, Leicester (Blue Boar Lane), Wroxeter (Dr G Webster's excavations), and York (Blossom Street).

The date of the introduction of these forms has been discussed earlier in this chapter in connection with the introduction of cast colourless vessels generally. The colourless forms were clearly in use by the early Flavian period, and the occurrence of both colourless variants in Antonine contexts in Scotland at Cramond and Inveresk indicates that they remained in use until the middle of the 2nd century. The strongly-coloured polychrome and monochrome examples had a shorter life. Their presence on several sites not occupied until the Flavian period such as Carlisle (Price 1990a, 165, fig 159.1), Caersws and Catterick suggest that they were in use contemporaneously with the colourless bowls at that time. They are thus likely to have been the last early Imperial strongly-coloured polychrome and monochrome cast vessels to have been made.

Nearly all of the examples from Colchester were found in contexts where they are likely to have been residual. Only **214** and **218** from Flavian to early 2nd-century contexts (Balkerne Lane Period 4 and the Gilbert School Period 3a), and **219** from the first rampart at Lion Walk, could have been deposited whilst the form was still in use.

Bowls with linear-cut base fragments (226-228)

[Fig 2.13]

The lower body and base fragment (**226**) which was found on Lion Walk Site J in a context dated c AD 150-275/300, comes from a rather different vessel from the bowls with base rings discussed above. The base is wide and slightly concave and without a base ring, and the underside of the base is decorated with two shallow wheel-cut concentric grooves.

The form of the vessel is not identifiable from the surviving fragment. It may have come from a large bowl or plate, perhaps similar to a bowl from Silchester (Boon 1974, 230-31, fig 36.3) or to base fragments found at Shakenoak (Harden 1971, 101 (92), fig 43.41), though both of these have shallow concentric rings in relief on the base rather than grooves. Alternatively, it may be compared with a

small base fragment from Chichester with wheel-cut grooves on both basal surfaces (Rule & Down 1971, 296, fig 18.22, 16).

Fragment **227**, from Balkerne Lane, is likely to have come from the centre of the base of a bowl with base ring (cr"212 above), though the fragment is too small for certain identification. Both decorated and undecorated bowls sometimes have concentric rings cut into the central base, as for example at Fishbourne (Harden & Price 1971, no 33, fig 335) and at the Cave of the Letters, Israel (Yadin 1963, nos 10-12, figs 29-40).

One other piece (**228**) is decorated with facet-cutting. This is a flat fragment, too small to be identified with certainty, though it may also come from the base of a bowl similar to the examples described in connection with **211**. A few examples were decorated with a combination of linear- and facet-cutting, rather than with regular facet-cut decoration, and this occurs on both the rims and the bases. For instance, the rim fragment from Jaen, central Spain is decorated with a design resembling a wreath of leaves and berries created by a combination of small oval facets, short linking wheel-cut lines and small circular facets (Price 1987b, 77, fig 5.8), and another fragment comes from Salona, Yugoslavia (Auth 1975, 155-6, no 39, pi 29). A rather similar design is known in Britain, on the rim of a bowl from Ivy Chimneys, Essex (information from Dr D Allen), and a combination of small circular facets and a wavy cut line occurs on a rim fragment found at Leicester (Clay & Mellor 1985, 70 no 26, fig 40).

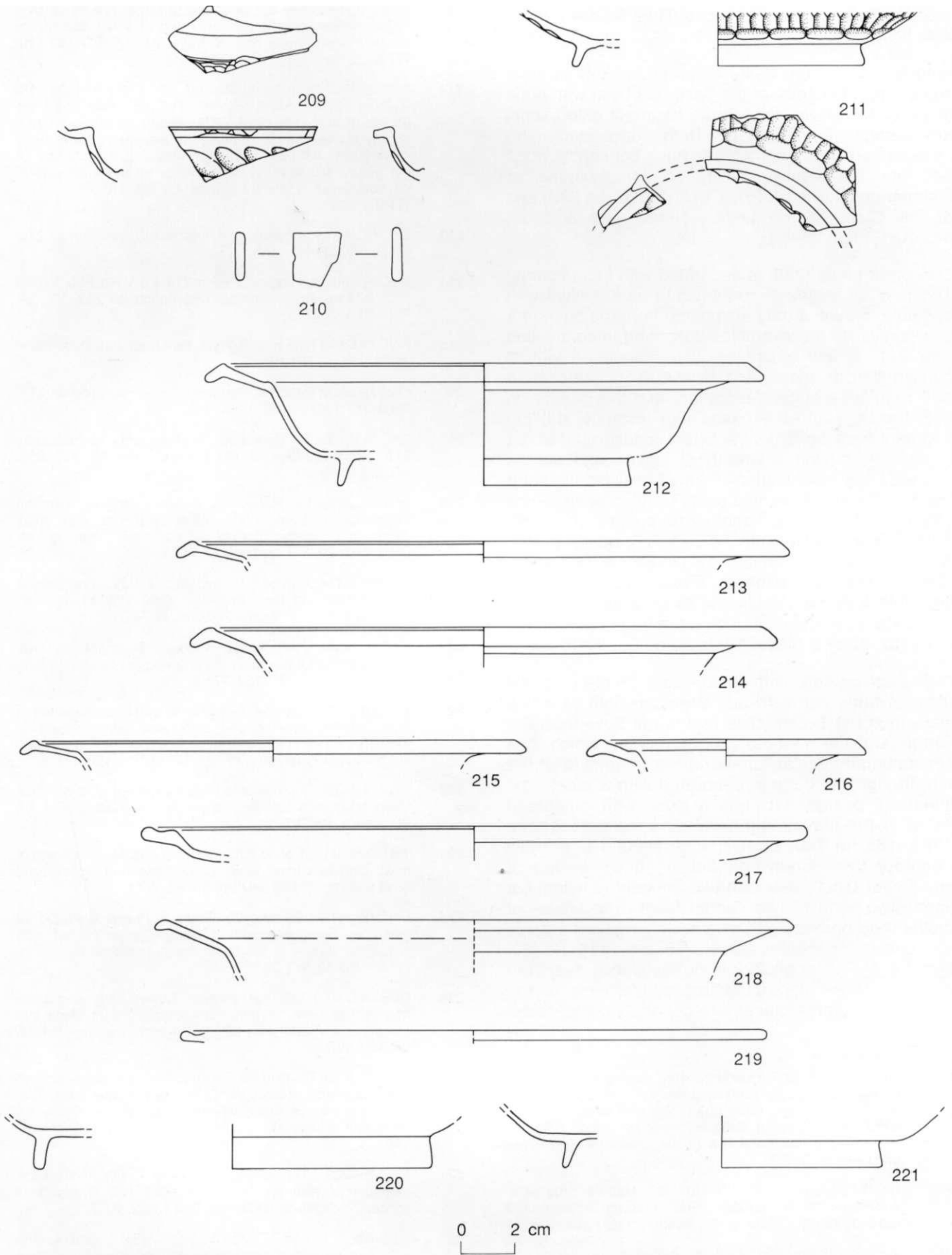
Only two vessels with linear- and facet-cut basal designs have come to our attention, both of which were found in Britain. The first is the bowl from the Girton College cemetery, Cambridge, which has conventional circular facets on the underside of the rim, though the base is decorated with a facet- and linear-cut design depicting a duck with outspread wings above leaves and flowers on stems (Toynbee 1962, 185 no 140, pi 160). The second is a small fragment from Caerwent, which shows a ring of small oval facets between two concentric wheel-cut lines, and parts of two curved facet- and linear-cut motifs (one perhaps part of a swimming fish) outside the concentric circles (Boon 1972-3, 116 no 20, figs 2 & 5). Although **228** is not similar in design to either of these decorated bases, elements of the cutting on all three pieces are generally comparable.

Colourless vessels

- 209 1.81 G2906 L2904; Period 3d. Rim fragment of bowl with handle. Out-splayed horizontal rim with flat upper surface and rounded edge; ridge at junction with missing handle; convex-curved upper body with angular raised ridge on interior. One horizontal row of diagonal facets on upper body. PH 14, WT 3.
- 210 BKC74 E440 L116; Period 3b. Handle fragment. Green-tinged colourless. Flat rectangular-sectioned tapering handle. Dim 20x17, section (max) 20x4.
- 211 1.81 G3139 and G3158 F2695; Period 3. Three body and base fragments (2 joining) of bowl. Wide convex-curved lower body; base ring sloping out; flat base mostly missing.

Exterior of bowl facet-cut: row of vertical irregular touching facets immediately above a ring of larger horizontal oval facets on lower body; part of a ring of small oval facets concentric with base ring on base. PH 15, BD 100-110, WT 3.

- 212 BKC75 J247 F54; Period 5b, and J129 L17 and J132 L18; Building 60, Periods 3/4/5A/5B. Ten rim, body and base fragments of shallow bowl. Wide everted rim with overhang; slightly convex-curved upper body sloping in; lower body curving in to flat base with high base ring. Top surface of rim ground flat to leave raised ridge by overhang and at rim/body junction. Height approx 45, RD 210, BD 110-20, WT 2.5.
- 213 BKC75 J42 L1; modern. Rim fragment. Description as 212. PH 8, RD 230.
- 214 BKC76 V88; Building 46, Period 3 or 4 & V161 F50; Period 5 or 6. Two rim fragments. Description as 212. PH 14, RD 220, WT 2.5.
- 215 LWC71 C159 F92; post-Roman. Rim fragment. Description as 212. PH 9, RD 190.
- 216 LWC72 J514; Period 4. Rim fragment. Description as 212. PH 8, RD 105.
- 217 BKC75 H276 L12; Period 5b. Rim fragment. Description as 212. Upper surface of rim concave. PH 10, RD 250, WT 2.5.
- 218 GBS84 A295 L9; Period 3a; & A464; Roman. Two rim fragments of bowl. Wide out-splayed rim with small overhang; slightly convex-curved body sloping in. PH approx 20, RD approx 240, WT 2.
- 219 LWC72 M114; Rampart 1a, mid 2nd century. Three joining rim fragments of bowl or plate. Wide everted rim with rounded edge. RD approx 200-210, RT 3.
- 220 BKC76 V146 F40; Period 4. Base fragment of bowl. Convex-curved lower body curving into flat base with high base ring. PH 17, BD 150, WT 2.
- 221 1.81 D71 F71; Period 4. Lower body and base fragment of bowl. Slightly green-tinged colourless. Side sloping in through carination to wide lower body; base ring sloping; flat base mostly missing. PH 24, BD approx 120, WT 2.
- 222 GBS84 A522 F85; medieval. Base fragment of bowl. Wide lower body with foot ring; base mostly missing. PH 10, BD approx 100, WT 3.
- 223 1.81 G2755 L1; Period 6. Lower body and base fragment of bowl. Convex-curved lower body; base ring sloping out; base missing. PH 28, BD approx 80, WT 3.
- 224 LWC72 J1474; Building 20, Room 2, Phase 1, Period 4a make-up. Base fragment of bowl. Convex-curved side sloping in steeply to flat base; low out-splayed base ring. PH 23, BD 80, WT 25.
- 225 GBS A1740 F223; post-Roman. Lower body and base fragment of bowl. Slightly convex-curved side sloping in steeply to low foot ring; flat base mostly missing. PH 22, BD 150, WT 2.
- 226 LWC72 J859; Building 20, Room 2, Period 4 make-up. Two base fragments of large plate. Slightly concave base. Two wide shallow concentric wheel-cut grooves at centre on underside of base. Dim 75x63 and 44x44, BT 2, BD at least 145.
- 227 BKC75 J232 L17; Building 60, Phase 3, Period 5b. Base fragment of plate or bowl. Rat base with 2 wheel-cut concentric circles on underside. Dim 42x22, BT 2.
- 228 1.81 D968; Period 4. Base fragment. Flat fragment. One side has part of a large facet and an irregular circular wheel-cut groove cut by a straight groove. Dim 25x23, WT 5.



2.11 Colourless cast vessels. [Pages 35-9]

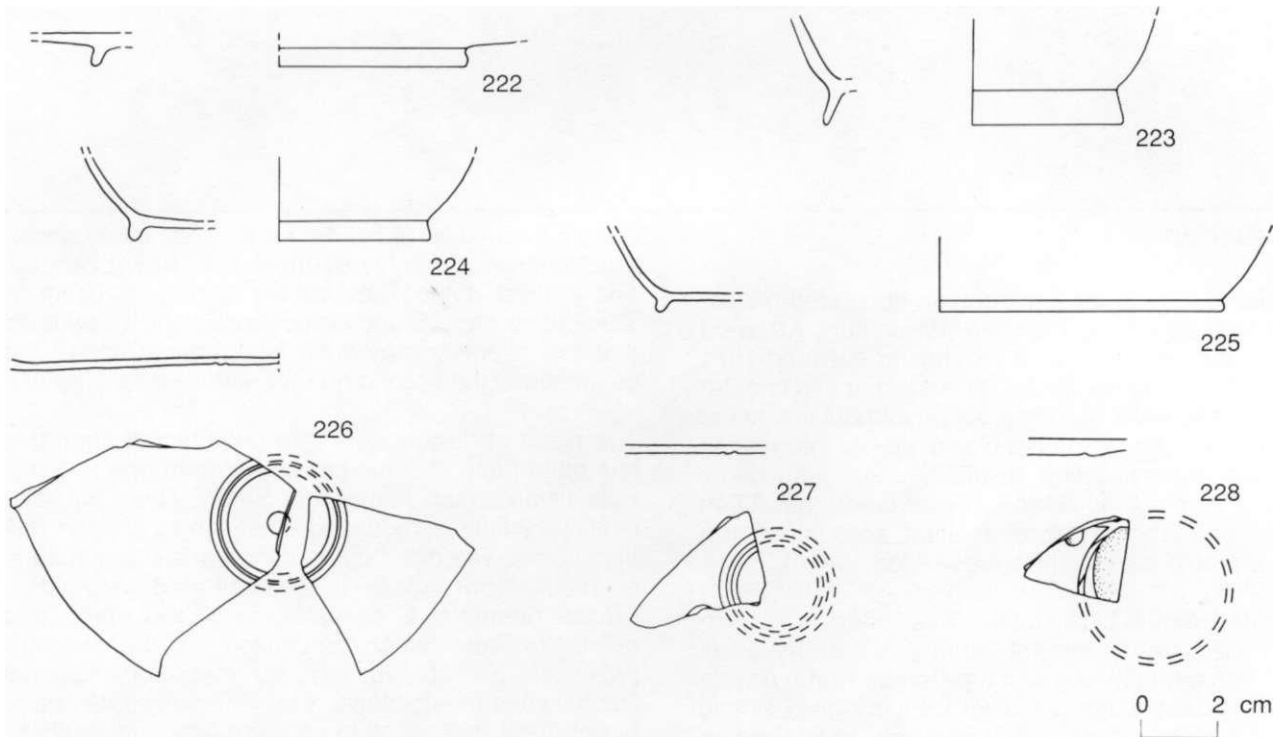


Fig 2.12 Colourless cast vessels. [Pages 35-9]

The origins of the colourless cast glass from Colchester

The sources of supply of the colourless cast glass found at Colchester are not known. This glass has in the past often been assumed to be of east Mediterranean, or more specifically Alexandrian, manufacture (eg, Harden 1936b, 50), though it is now apparent that many forms, and particularly bowls with overhanging out-splayed rims and base rings, are found throughout the Roman world. Very similar vessels are to be found in Egypt, at Karanis (Harden 1936b, 49-51, pi 11, 73-7, 65-7, pi 12, 166-72) and at Quseir al-Qadim on the Red Sea coast (Meyer 1982, pi 55c-e, pi 56b-c,n,r,dd,ee), as in Britain (see also Grose 1991, 12-18).

Considerable concentrations of similar colourless cast bowls and plates have now been recognised in Italy, Spain and Portugal and elsewhere in the western and north-western provinces, as well as in Britain, and

production centres may well have existed in the western provinces, perhaps in Italy or southern France. This, and the possibility of a trade in blanks to be finished and decorated close to intended markets, have been mentioned previously (Price 1987b, 79-80), and it has also been suggested that peripatetic glass-makers may have made glass of this class wherever they set up shop (Grose 1991, 16). An important step towards refining information about likely production centres and distribution patterns may exist in establishing whether any of the visually comparable vessels in fact have similar chemical compositions, and with this in mind, a series of analyses of the cast colourless glass fragments found at Colchester was undertaken (see Appendix 1, pp 261 -306). From this analysis it is clear that some of the fragments have very distinctive compositions, but whether these can be related to provenance will only emerge when analysis of comparable fragments from other sites has been undertaken.

CHAPTER 3: Mould-blown vessels

Introduction

Fragments from at least seventeen decorated mould-blown vessels dating from the 1st century AD were found in the excavations at Colchester between 1971 and 1985, and these will be discussed in this chapter under six separate headings. As an introduction to the examination of this mould-blown glass, information about technology, dating, distribution and production, which is common to all the vessel types, has been summarised from a more detailed account of 1st-century mould-blown tablewares (Price 1991b).

Decorated mould-blown glass was made in considerable quantities in the 1st century AD, and vessels have been found throughout the Roman world. A wide variety of decoration is known, ranging from simple ribbing, bosses or geometric patterns, to stylised or naturalistic floral and foliage patterns and figured scenes. This decoration generally reflects the trends in contemporary craftsmanship also found in other materials, such as relief-decorated metalwork, carved stone, and ceramics.

Decorated mould-blown vessels were quite different from glass vessels formed by other methods, as the process of mould-blowing produced multiple copies which were exactly similar in shape and design. They are also distinguishable from other glass vessels with decoration in relief, because the general outline of the external decoration is usually also discernible on the inside surface, except when the vessel is extremely thick-walled.

Very few of the moulds have survived, so most of the information about the methods of production is derived from the examination of the vessels themselves. The positioning of the vertical mould-seams on the vessels shows that the bodies were formed in moulds of two, three or four parts, often with a separate base piece. Similarly, small inclusions in the outside surface of some vessels, and the varying degrees of sharpness in the design details, suggest that the moulds were made in several materials such as fired clay, metal and stone. Some of these must have been produced individually, though the clay moulds may have been taken as copies from decorated archetypes in another material, in which case numerous identical moulds could have been made.

The date and the place of the discovery of mould-blowing have been the subject of much discussion. The precise date has not yet been determined, though it certainly post-dates the introduction of blown glass

around the middle of the 1st century BC by a considerable period, probably by more than half a century. The earliest dated finds known at present occur in Tiberian to early Claudian contexts, which suggests that the invention may have taken place around the beginning of the second quarter of the 1st century AD.

The place of discovery is also uncertain, though this has often been assumed to be a centre on the Syro-Palestinian coast, perhaps at Sidon. There is, however, very little early dating evidence to support this hypothesis. The distribution of the earliest dated finds of mould-blown glass is concentrated in Austria, France, Germany, Greece, Italy and Switzerland, and points towards early production in the western provinces, probably in Italy. An important additional link between mould-blown glass and early 1st-century blown-glass production in northern Italy and southern Switzerland is to be found in the occasional use of polychrome glass with marvered splashes (see also **263-272** below) to make mould-blown vessels, as at Aquileia (Calvi 1968, 105 no **247**, tav 16.5).

Three main phases of production of early Imperial mould-blown tablewares have been identified. The earliest, dating from the Tiberian to early Claudian period, consists of brightly-coloured and blue/green vessels and includes some types of cylindrical Ennion cups, motto beakers and ribbed bowls (cf **243-245**). The second, dating from the Claudian to Neronian period, also consists of brightly-coloured and blue/green vessels, and includes sports cups (cf **232-239**) and other vessels with a variety of vegetal designs and geometrical motifs such as round-ended arcading, gadroons and lattice (cf **246-247**).

The last period, dating from the late Neronian to the Flavian period, also retains a few brightly-coloured specimens, though many more vessels are either pale blue/green or greenish colourless, and some are completely colourless. Truncated conical beakers with decoration in relief, negro-head beakers with decoration in the round, and colourless beakers with indented decoration (cf **249-250**) occur at this time. Some of the mould-blown vessel forms, notably the ribbed bowls (**243-245**), are found in all three periods, while most of the others appear to have more limited periods of production.

The distribution patterns of different mould-blown forms vary greatly. Some vessels, such as hemispherical ribbed bowls and truncated conical beakers with oval or almond-shaped bosses (sometimes known as 'almond-knobbed' beakers), are found in many regions of the Roman Empire, while others

occur in more limited areas. For instance, truncated conical beakers with mythological scenes and many drinking-cups with inscriptions in Greek characters are characteristic of the eastern provinces, though a few are known in the west, while cylindrical circus cups and truncated conical beakers with meanders, shells, rosettes, ovals and other motifs, and foliage designs, are generally found in the western provinces.

Although none of the manufacturing centres for mould-blown glass have been recognised, it has often been assumed that this glass was distributed widely from comparatively few production centres. It is, however, possible to suggest an alternative model of production to account for the distribution patterns observed in some mould-blown glass, which would not require the vessels to have been traded for long distances. This would involve itinerant glass-blowers, with clay moulds for making mould-blown vessels as part of their equipment, travelling to different centres of population and producing mould-blown vessels in small numbers in each place to supply local or regional demand. If this model is adopted, the production of vessels blown into identical moulds in different regions of the Empire at the same time becomes feasible.

Mould-blown glass vessels never represented more than a small part of the total amount of glass in use, although they were available in many parts of the Roman world in the second and third quarters of the 1st century. After this time, however, they disappeared very rapidly. The latest dated deposits with a large number of mould-blown fragments are pits 1/59, 1/66-68 and 1/85 in the *canabae legionis* at Nijmegen which were filled in at an uncertain date in the late 1st or beginning of the 2nd century (Isings 1980).

The decorated mould-blown glass found in Britain is comparable with that from elsewhere in the north-western provinces. Most of the types are common in the western provinces, though a few pieces are more exotic, such as a cup fragment with an inscription in Greek characters from Binchester, County Durham (Price 1991b, 72; *RIB* II, 2, 96 no 2419.38). Very few vessels are complete or nearly complete, except for a cylindrical chariot-race cup from the West Cemetery at Colchester (discussed below with **232-239**; an ovoid beaker-bodied amphorisk with oval or almond-shaped bosses enclosed in lattice also from Colchester, formerly in the Pollexfen Collection and now in the Department of Prehistoric and Romano-British Antiquities, British Museum (BM, 70. 4-2. 5); and two hemispherical ribbed bowls or cups, one from a burial at Hallaton, Leicestershire and the other from a rubbish pit at Usk, Gwent (discussed below with **243-245**).

Mould-blown glass has not been recorded in either the pre-conquest or the earliest Claudian glass assemblages in Britain, but fragments occur in later Claudian/early Neronian contexts, and these vessels were certainly in circulation in the province before the

Boudican rebellion, as fragments have been found both at Colchester and at Verulamium. Various forms occur on sites with late Neronian occupation, and on some of the sites in northern Britain not established until the early Flavian conquest of that region, but they virtually disappear soon after c AD 75-80.

At least 27 mould-blown vessels have now been noted from Colchester. In addition to the minimum of seventeen found during these excavations, six have been published from Sheepen (Harden 1947; Charlesworth 1985a), two are known from the Pollexfen Collection now in the British Museum, and two others are in the Colchester Museums.

Most of the vessels represented are either cylindrical circus cups (thirteen examples) or hemispherical cups with vertical ribbing (four examples). These and the three small fragments with round-ended arcading, gadroons or lattice most probably belong to the second production phase of mould-blown glass in the Claudian to Neronian period, while the pieces from large convex vessels with vegetal designs and the colourless beakers with deep indents are likely to belong to the last, essentially early Flavian, phase.

It is interesting that no examples of truncated conical beakers (Isings Form 31) have been noted at Colchester, though a small piece from a straight-sided vessel with circular bosses was found at Sheepen (Charlesworth 1985a, mf 3:F10 no 90, fig 83). Truncated conical beakers do not appear in the first two production phases of mould-blown glass, but they are very common in many parts of the Roman world in late Neronian and early Flavian contexts. Fragments from beakers decorated with oval or almond-shaped bosses and sometimes also with diamond lattice have been found on many sites of this period in Britain, and others with scroll, foliage, meander, disc, rosette and other designs are also frequent finds, so their absence from Colchester is remarkable. The date of production of the ovoid-bodied amphorisk in the British Museum is uncertain. Although the decoration of lattice and oval bosses is linked quite closely with the common truncated conical beakers mentioned above, the ovoid form of the body suggests that the vessel may belong to an earlier phase of production.

Cylindrical cups depicting scenes from the circus and arena (232-239)

[Fig 3.1]

Although mould-blown cups with circus and arena scenes were produced in both ovoid and cylindrical forms, only cylindrical examples have been noted in Colchester. Ten rim and body fragments from seven cylindrical cups decorated with scenes of chariot-racing or gladiatorial combat were found in the excavations carried out between 1971 and 1985 (**232-238**). A concave base fragment with two concentric circles and a central pellet (**239**) is also likely to come from a cup of this kind, though whether it

Cylindrical cups depicting scenes from the circus and arena

represents an eighth cup or belongs to the same vessel as **237** is not known.

Cylindrical circus cups were decorated either with scenes of chariot racing, in one or two friezes, or with scenes of gladiatorial combat or athletic contests. The two arrangements of chariot-race cups and the gladiator cups occur much more frequently than the athletics cups, and several variants have been recognised within the principal groups of designs known on chariot and gladiator cups, whereas little is yet known about athletics cups.

Circus cups were sometimes produced in bright colours, such as pale or dark blue, dark green, and various shades of yellow/brown or yellow/green, though most are blue/green. The cups range in height from 60 to 79 mm, and in rim diameter from 75 to 82 mm, and have vertical or small curved rims with cracked-off and ground edges, straight sides divided into two or three friezes by horizontal cordons, and flat or slightly concave bases with one or more raised concentric circles. The narrow frieze below the rim contains the names of the competitors, and the main decoration frieze or friezes below contain four scenes of sporting events, namely chariots racing, gladiators fighting or athletes competing. On chariot cups with one decorative frieze the scenes are divided by four architectural features from the circus, while on chariot cups with two decorative friezes a wide range of architectural features from the circus is displayed in the upper frieze above the four chariot-racing scenes in the lower frieze. Additionally, one-frieze chariot-racing and athletics cups have a short convex lower body which tapers in to the base edge, a feature which does not occur on either the two-frieze chariot-racing or the gladiator cups (Price 1978, fig 55 shows the layouts of some of the principal groups of circus cups).

Cylindrical circus cups were blown into three-piece moulds consisting of a decorated two-part body mould with a separate base piece. The two vertical mould-seams are always visible on the main decorative frieze, where they are often incorporated into the design, and they are also occasionally visible on the lower body, but not on the base. More usually, however, the lower body and base were formed in an additional mould piece which is presumed to have joined the two-part cylindrical body mould on the line of the horizontal cordon below the decorative frieze, although this junction is not visible.

These cups were in widespread use in the western and north-western provinces in the third quarter of the 1st century AD, but they do not occur in other parts of the Roman world. About 300 pieces are known, and these are concentrated in Switzerland (Rutti *et al* 1988) and elsewhere in the upper Rhineland, in the lower Rhineland, as at Koln (Fremersdorf 1961, 52-5, Taf 103) and Nijmegen (Isings 1980, 324-7), and in France and Britain. In addition, some have been found in the upper Danube region, and in Italy, Spain and Portugal, and a few outliers have been noted in north

Africa and Yugoslavia (for the general pattern of distribution see Price 1978, 73-4, fig 54, though many more examples are now known).

The production sites have not been located, but there is little reason to doubt that these lie within the western and north-western provinces. The Rhone valley, at Lyons or Marseilles, and the upper Rhineland, perhaps in the vicinity of the legionary fortress at Vindonissa, have been canvassed as likely centres, and other possibilities have sometimes been considered (for example, Harden 1940; Berger 1978; Rutti *et al* 1988). If, however, multiple copies of moulds were produced from archetypes (as discussed on p 42), another explanation for the observed distribution patterns may be that itinerant glass makers made the vessels in small numbers in many different places to supply local markets, as in the urban centres of the western provinces and the larger military sites of the Rhine frontier and Britain.

Most specimens survive as very small fragments, though some are complete or almost complete. Complete cups comparable to the pieces from Colchester have come from Chavagnes (Harden *et al* 1987, 169, no 90); Colchester itself (Harden *et al* 1987, 168, no 89); Couvin (Schuermans 1893), Heidelberg-Neuenheim (Heukemes 1972, 17, Abb 13; produced as a small cylindrical jug with one handle); Montagnole (Lenormant 1865), Trier (Goethert-Polaschek 1977, 43, no 129, Tafn 12.136, 35); and Trouville-en-Caux (Sennequier 1985, 44-7, no 12).

Fragments **232-239** were found at Balkerne Lane (**232 & 234-235**); Culver Street, Sites E, G, and M (**236-239**); and the Gilberd School (**233**). These represent seven or eight vessels, with six design variants. Fragments **232-235** are from three versions of one-frieze chariot cups, **236** is a two-frieze chariot cup, and **237-238** are from two versions of gladiator cups. All the fragments come from blue/green vessels except for **232**, which is pale yellow/green.

At least six further cylindrical circus cups have been found in earlier excavations at Colchester. Two come from chariot cups; one, a small blue/green body fragment found in 1934 on the General Post Office site, Head Street (CM, 2.38) is from a one-frieze chariot cup similar to **233-234**, and the second is the well-known complete pale yellow/green two-frieze chariot cup (Harden *et al* 1987, 168, no 89) from a cremation burial in the West Cemetery, which is comparable with but not identical to **236**. The remaining four are certainly or probably gladiator cups. Three were found at Sheepen (Harden 1947, 300, nos 50-52, pi 86). Fragments 50-51 are similar to **237**, while 52 is from a different mould. The last fragment, which is very melted but not from the same vessel as Sheepen 52, is without provenance (CM, not numbered).

A minimum of 13 circus cups decorated with nine different designs are therefore represented at Colchester: 5 from three groups of one-frieze chariot cups, 2 from two groups of two-frieze chariot cups,

and 6 from four groups of gladiator cups. These groups will be considered in the next section.

One-frieze chariot-race cups (232-235)

The four joining fragments of 232, found at Balkerne Lane in a Period 3 deposit of dumped material dating to the immediate post-Boudican phase (AD 60/1-c 75/80), are already well-known. The scene on the main decorative zone has been used for many years as the logo on the stationery and publications of the Colchester Archaeological Trust (see title page of this volume), and the piece was briefly described soon after it was found (*Britannia* 8 (1977), 437 no 51 & 9 (1978), 484.5 *corrigendum* d). More recently, it has also been included and illustrated in *RIB* II, 2 (90 no 2419.13).

The piece has a small curved rim, the letters OLYMPE VA in the inscription zone, and an obelisk and *quadriga* facing right in the main decoration zone. The charioteer is standing in his chariot and leaning forward, with a palm frond extending behind his left shoulder. He holds a wreath in front of his head in his right hand and the reins of his team of four horses in his left hand. The team is either standing or walking slowly, as each horse has three legs on the ground and a bent and raised left foreleg. The superstructure of the chariot, which is cut away at the back, appears to be woven and is perhaps wickerwork, and the top of a four-spoked wheel is outlined against the chariot. The lower body zone is bounded at the top and bottom by a horizontal band of small pellets, and between these are the hind leg and tail of an animal running left, a tree with extended branches and fruits, and a lion facing right and attacking an animal, probably a deer. The inscription and design are clearly and carefully modelled.

At least 24 pieces belonging to this group of chariot-racing cups have been found in northern Switzerland, elsewhere in the upper Rhineland, central and northern France, the lower Rhineland and Britain. This is often known as the 'Couvin group' as the most complete example, from a burial at Couvin, Belgium (Schuermans 1893), preserves all the details of the inscription and principal decorative zones. These include the names of four charioteers (Pyramus, Eutycus, Lerax, and Olympus) in the vocative case with VA as two letters (usually accepted as an abbreviation of *vale*) as a suffix to each name. The mould-seams occur after EVTYCVS and OLYMPVS and a horizontal garland separates the two names in each half of the mould. The main decorative zone shows charioteers driving *quadrigae* (four-horse chariots) in the circus, the two vertical mould-seams being incorporated into the triple *metae* (turning-posts), which with two other circus ornaments, ie an *ovarium* (lap counter) and an obelisk, separate the four teams. Olympus is clearly the victorious charioteer in the contest, as he is shown holding both a victor's wreath and a palm frond. The Couvin cup has no decoration at all on the lower body, which demonstrates that the lower body and base of these

cups were formed in an additional mould piece, as other examples with identical designs on the inscription and decoration friezes have lower bodies decorated with horizontal bands of small pellets framing a running file of seven animals and trees.

Fragments from five further cups with this design are known in Britain. A blue/green piece from York shows the forelegs of the Pyramus team, the *ovarium* and the hinder parts of the Eutycus team, and on the lower body a row of small pellets and part of the tail of a hound facing right (Harden 1962, 136, fig 88a); the other cups have been found in London and Southwark (information from Mr F Grew and Miss C E E Jones, Museum of London; see also *RIB* II, 2, 90 no 2419.14-15).

Outside Britain, fragments of several cups apart from the Couvin cup retain some part of the Olympus team or the tree and animals seen on 232. Three have been found at Vindonissa (Berger 1960, nos 144, 146, 150-53; Rutti *et al* 1988, nos 1-2, 5), and others are known from Nijmegen (Isings 1980, 325-6, no 2, fig 32) and Tongres (Raymond Chambon collection, unpublished), and there is a piece without provenance, known from a plaster cast, in the Musée des Antiquités Nationales, St Germain-en-Laye (information from Miss H Chew; Inv no 50309).

Fragments 233-234 belong to one-frieze chariot cups generally similar in layout and decoration to the Couvin group, though their inscriptions and designs are less carefully modelled and some of the competitors have different names. Fragment 233, which was found in a Period 3 context at the Gilbert School, dating from AD 60/1-c 275 or later, comes from the main decoration zone and shows the upper parts of one of the triple *metae*, three conical pillars surmounted by circular balls, the central pillar of which includes a vertical mould-seam, and the helmeted head, upper torso and raised right arm of a charioteer facing right. Fragment 234, which was found at Balkerne Lane in a Period 5b context dating from c AD 150 to 250, comes from the convex lower body, and shows the hinder parts of a running animal with curving erect tail facing left and part of the curved trunk and outspread branch of a tree.

Both pieces, and the small fragment from the General Post Office site, Head Street, come from cups with the names Eutychus, Mussculosus, Olympus, and Poenix in the vocative case, each with VA ligatured as the suffix, except after MVSSCVLOSVS where there is no room for a suffix. The two names in each half of the mould are separated by a stylised diagonal palm frond, which points right between Eutychus and Mussculosus and left between Olympus and Poenix. The general arrangement of the four chariot-racing scenes and the architectural features are closely comparable with those of the Couvin group considered above, though the details are quite distinct, and Poenix, the charioteer with wreath and palm branch, drives a chariot with a three-spoked wheel.

Cylindrical cups depicting scenes from the circus and arena: one-frieze chariot-race cups

These chariot cups have been discussed in detail in connection with fragments of four found at Canterbury (Price forthcoming), where they have been termed the 'Canterbury-London group'. Apart from the seven cups known from Colchester and Canterbury, at least five fragments have been found elsewhere in Britain, at Richborough (Bushe-Fox 1932, 86, no 64, pi 17), London (Roach Smith 1859, 120-21), Verulamium (Price 1977a), and Chester and Lincoln (both unpublished).

At least 30 examples of Canterbury-London cups are now known, from findspots in northern Switzerland, the upper and lower Rhineland, and central and western France as well as Britain. Until recently the group has been recognised only from small fragments, but a new find at Krefeld-Gellep (information from Dr R Pirling) shows that the decoration on the lower body consists of a running file of eight animals and three trees and bushes, but without the bordering pellets characteristic of the Couvin group. Fragment 234 is from a position below the obelisk separating the Olympus and Poenix groups.

Fragment 235, which was found at Balkerne Lane in a Period 6 or later context, dating from c AD 300-400+ onwards, comes from a lower body and has a flatter convex profile than 234. The hinder parts of an animal facing left are visible and there also appears to be a tree or shrub to the right of the animal, though the mould impression is very indistinct and much of the detail is unclear. The fragment appears to come from the group of cups identified from three intact or nearly complete examples found at Trouville-en-Caux, near Lillebonne (Sennequier 1985, 44-7, no 12); Jakobsknopp bei Schonecken, near Trier (Goethert-Polaschek 1977, 43 no 129); and Heidelberg-Neuenheim (Heukemes 1972, 17, Abb 13); as well as a substantial fragment said to come from Mainz (Loeschke 1911, 27 no 295, Taf 22).

All these cups have indistinct mould impressions and some of the names in the inscription zone are difficult to decipher. EVTYCHVS and OLYMPVS followed by VA in two letters occur in one mould piece, and FARI VA and PERIX VIC have been accepted for the other (for example, Goethert-Polaschek 1977, 43 no 129), though Sennequier (1985, 46) has argued that the last three letters in the second name are RAX, which may suggest that the full name was Ierax. The four chariot-racing scenes and the architectural features are generally comparable with those of the Couvin and Canterbury-London groups, though the suffix VIC does not occur in any of the other groups, and the proportions of the horses are crude and many of the design details carelessly executed. For instance, only two conical pillars of the turning-post between Ierax/Perix and Eutyclus have been included, instead of the usual three. The lower body shows a running file of nine animals and four trees or shrubs. Only two of the animals face left; these are a hare confronting a hound, and a hound between two trees. Fragment 235 is part of the hound between two trees, which was sited below the obelisk separating Fari and Ierax/

Perix. This group of cups differs slightly from the ones already discussed in its combination of body and base moulds, as the vertical mould-seams continue onto the lower body, indicating that the body and base moulds joined at the edge of the base, rather than below the main decorative zone.

The catalogue entries for the illustrated fragments in the above section are given with the illustrations on pages 48-50.

Two-frieze chariot-race cups (236)

Fragment 236, a lower body fragment from an unstratified context on Site M at Culver Street, comes from the middle of one side of a two-frieze chariot cup. It shows five forelegs and the heads of two horses from one team, and the charioteer with bent right arm close to his body, a four-spoked wheel and other indications of the chariot, five hind legs and the tail and haunch of one horse from the second team. This is not, unfortunately, sufficient to establish the identity of the piece. Numerous design variants occur among two-frieze chariot cups, and many of the most diagnostic features are found close to the mould-seams, or in the inscription zone and upper decoration frieze where the architectural features of the circus are shown. Small fragments with generally similar representations of charioteers, four-spoked chariot wheels and horses are known from Köln (Fremersdorf 1961, 52, Taf 103 top left) and on a piece of unknown provenance, probably from Gaul (*Kofler-Truniger*, no 116), but it is not certain whether these belong to precisely the same group of cups.

The complete pale yellow/green two-frieze chariot cup from the West Cemetery at Colchester comes from a quite different group. This has a small curved rim, with HIERAX VA, OLYMPAE VA, ANTILOCE VA and CRESCES AV in the inscription frieze, fourteen architectural features in the upper decorative frieze, four teams of charioteers and *quadrigae* in the lower, and two turning-posts (each of three conical pillars on a plinth) extending through both decorative friezes. No other complete example is known, but some smaller fragments from the same group of cups have been recognised, as at Alise-St-Reine (Grosjean 1983), Vindonissa, and perhaps Bern (Rutti *et al* 1988, 42-3, 88 nos 26-7, Taf 4).

Many groups of two-frieze chariot cups have been recognised, though in most cases the names of the competitors and the complete designs have not yet been identified as they are represented only by small fragments. At least four other examples are known from Britain; a small rim fragment from Kingsholm, Gloucester (Price & Cool 1985, 46, fig 17.15); a small body fragment from Ham Hill, Somerset (Harden 1946); and two others, now missing, from Fishbourne, Sussex (Harden & Price 1971, 337-9, no 36; see also *RIB* II, 2, 87 no 2419.2) and Verulamium (Charlesworth 1984a, 150 no 28, fig 61.14). Further pieces have been found in the same areas as the one-frieze chariot cups, namely Switzerland, the Rhineland and France, but they also occur in Spain, Italy, north Africa and Yugoslavia, whereas one-frieze

chariot cups have not yet been recorded south of the Alps.

The catalogue entries for the illustrated fragments in the above section are given with the illustrations on pages 48-50.

Gladiator cups (237-238)

Fragment 237, a small upper body fragment with ..ESPRV.. in the inscription zone and part of the helmeted head of a gladiator in the decorative frieze below, was found on Site E at Culver Street, in a medieval or later context. It comes from a gladiator cup of the same group as two examples found at Sheepen in Pit D2, a Period IV deposit dating from AD c 49-60/1 (Harden 1947, 300 nos 50-51, pi 86). Sheepen 51 is a small rim fragment (now see *RIB* II, 2, 92, no 2419.22), but several fragments of the rim and body of Sheepen 50 survive and all or part of the names and figures of the eight competitors are preserved. The complete specimen, from Chavagnes-en-Paillers, western France (Harden *et al* 1987, 169 no 90), provides information about the complete design of these cups.

The cups have a small curved rim, a cylindrical body divided into inscription and decorative friezes by horizontal cordons, a narrow, undecorated lower body with a ring at the edge of the concave base, and one concentric ring and a central pellet on the base. The inscription zone is quite deep, and the names of the competitors (ie Spiculus, Columbus, Calamus, Holes, Petraites, Prudes, Proculus, and Cocumbus) are produced in small letters. The vertical mould-seams occur after Holes and Cocumbus. There is, in fact, some uncertainty about the precise form of the name generally given as Holes, as the L is curiously-formed and another letter, apparently I, occurs between the L and the E. This competitor may therefore be named Hories, an alternative already suggested by Hawkes (1931, 277; now see *RIB* II, 2, 95, no 2419.32 for a discussion of this name).

Four pairs of helmeted gladiators appear in the decorative frieze, taking part in four separate scenes. The Spiculus-Columbus scene shows Spiculus pressing forward to the right, a long rectangular shield on his left arm, and Columbus lying on the ground covered by his shield. The Calamus-Holes/Hories scene shows a fight in progress, Calamus being protected by a long rectangular shield on his left arm and Holes/Hories by a smaller shield. The Petraites-Prudes scene shows Petraites, a long rectangular shield held in front of him on his left arm, and Prudes, having dropped his smaller shield, raising his left arm in the air. The Proculus-Cocumbus scene shows Proculus, his shield under his right arm, holding a palm branch in his left hand, and Cocumbus with his left arm in the air and his shield on the ground beside him. Fragment 237 shows part of the names of Petraites and Prudes and part of the helmeted head of Prudes.

This group of gladiator cups is very common. Elsewhere in Britain at least twelve pieces have been noted: at Leicester (Haverfield 1918, 25, pi 4);

Wroxeter (Atkinson 1942, 195); Southwark (Harden 1978); Kingsholm, Gloucester (Price & Cool 1985, 42-3, 45 nos 10-13, fig 17, 11-14); Greyhound Yard, Dorchester (Cool & Price 1993, 158 no 9, fig 84); Usk, and London (information from Mr F Grew and Miss C E E Jones; see also *RIB* II, 2, 94-5 no 2419.28 & 34). The cups are also common finds in Switzerland, the Rhineland and France, and a few have been recorded in Spain and Italy.

Two other groups of gladiator cups appear to be represented by fragments found at Colchester. The excavation of F15, a Period VI pit dating from AD 60/1 -c 65 found at Sheepen in 1930, produced material collected and buried in the final clear-up of the site including 'pieces of a gladiator cup' (Hawkes & Hull 1947, 60). Harden (1947, 300 no 52) catalogued this as '.. fragments, deep bowl, bluish green, fused in fire; gladiators fighting with names above; shape and design similar to [Sheepen] nos 50-51, but not from same mould; the letters, of which only ..I(?)ORV.. decipherable, are larger and the design seems different..'

Seven distorted and partly-melted fragments now survive, and they seem to come from two cups. Six of the fragments show an inscription zone and a decoration frieze in which parts of several letters and six gladiators are discernible. The only legible part of the inscription appears to show the letters ..RVD.., and the gladiators are similar to the Petraites-Prudes pair, the Proculus-Cocumbus pair and the Spiculus-Columbus pair described above, though several figures are too melted for certain identification to be possible. As Harden recognised, these fragments do not belong to the same group of gladiator cups as the other pieces from Sheepen; the letters in the inscription zone are larger and the scenes shown are different in detail. They may perhaps come from a cup similar to examples from Carmona, southern Spain (Price 1973, 70 no 2, fig 1) or Heimersheim in the middle Rhineland (Behrens 1925-6, 64, fig 4) but their melted condition prevents them being assigned to these or other broadly comparable groups.

The seventh piece is a melted body fragment which retains a small part of the decoration frieze with three or four moulded details immediately above the horizontal cordon on the lower body. These are very difficult to interpret, but they do not seem to come from one of the usual gladiator-cup designs. They may perhaps represent the end of a foot, a bent limb almost parallel to the cordon, a diagonal arm and another foot, in which case it is possible that they come from a gladiator cup similar to those found at Sabadell (Price 1973, 74-5, fig 1.8) and Vindonissa (Rutti *et al* 1988, 90 no 41), but this identification is very tentative.

The last fragment, **238**, which was found on Site G at Culver Street in a Period 3d context dating from c AD 75/125-150, comes from the lower body of a gladiator cup of rather different type. The vessel appears to be cylindrical, though it is rather distorted,

Cylindrical cups depicting scenes from the circus and arena: gladiator cups

and the wall of the body is very thick. Parts of two gladiators survive above the horizontal cordon at the base of the body. One, lacking the head, is shown with bent left leg, upper right leg extended diagonally away from the body, and left arm extended in front of the body and protected by a long rectangular shield, and the other is represented only by a foot and lower leg. The letters ..TAR., occur at shoulder height to the right of the more complete figure. Although the inscription is clearly produced, the surviving gladiator is much larger than is usual on gladiator cups, and the modelling of the figure is cruder and in higher relief.

Very few instances have been recorded of the names of combatants being displayed at the side of the figures on cylindrical gladiator cups, rather than in the inscription zone below the rim. A small fragment with a gladiator and ..ERM.. is known from Petinesca-Studen, Switzerland (Rutti *et al* 1988, 90 no 42, Taf 6), and a complete cup with four pairs of gladiators found at Montagnole, near Chambéry, has the names Gamus, Calamus, Tetrates, and Spiculus in the inscription zone and the names Merops, Hermes, Prudes, and Columbus at the side of four of the gladiators (Lenormant 1865). Fragment 238 is not very similar to either of these, and the surviving inscription does not come from the name of a gladiator recorded on other mould-blown cups.

It is interesting that some of the broken edges of this fragment appear to have been reworked to fit it for some secondary purpose. Reworking has been noted on other circus-cup fragments, such as a piece from a chariot-racing cup at Brickett Wood, near Verulamium (Price 1977a), indicating that some pieces may have survived, perhaps as keepsakes, after the vessels had gone out of production.

As has already been mentioned, cylindrical circus cups showing chariot-racing and gladiatorial scenes occur widely in the west and north-west provinces in the third quarter of the 1st century AD. Most of the groups are likely to have been produced for only a short time during this period, probably during the reign of Nero, though some may have been made at a slightly later date. Some of the earliest dated finds have come from pre-Boudican deposits in Britain, at Colchester (Harden 1947, 300, nos 50-51; pieces of two gladiator cups similar to 237) and Verulamium (Charlesworth 1984a, 150 no 28; a two-frieze chariot cup from a very worn mould).

Many others have been found in Claudio-Neronian or early Flavian contexts. At Colchester, the gladiator cup or cups found in Pit F15 were deposited AD 60/1-c 65 (Harden 1947, 300 no 52), and elsewhere in Britain, the fragments from Kingsholm, Gloucester (Price & Cool 1985, 42-3, nos 10-14) and Usk (unpublished) come from late Neronian contexts, while 232, together with pieces from Fishbourne (Harden & Price 1971, 339 no 36) and London (information from Mr F Grew and Miss C E E Jones) come from deposits dated before c AD 75-80. Similarly close dating evidence is available from Switzerland, where

four cylindrical cups have been found in contexts dated before AD 70, and a further seven come from contexts dated before AD 75/80 (Rutti *et al* 1988, 60-62 nos 21, 33, 40, 48; & nos 12, 19, 22, 25, 28, 43, 56), and in the lower Rhineland, at Xanten, where several fragments from a gladiator cup came from the Claudio-Neronian fortress (Hagen 1917, 166-7, fig 2).

Evidence for the use of circus cups in Britain during the later Flavian period has sometimes been recorded. For instance, several fragments from a one-frieze chariot cup were found in contexts dated to c AD 83-105 at Annetwell Street, Carlisle (*RIB* II, 2, 88 no 2419.6). In the absence of further pieces from late contexts, it is not possible to determine whether this is an instance of the long survival of an individual vessel, or of whether a few circus cups may have been produced and circulated after the main period of production in the third quarter of the 1st century AD.

Fragments 232-239 were found in a variety of dated contexts. Many of them come from late Roman and residual findspots, and only 232, which is listed above, and perhaps also 233 and 238, are likely have been deposited during the period when circus cups were in production and circulation.

Catalogue of the illustrated fragments of cylindrical cups with scenes from the circus and arena

One-frieze chariot-race cups

- 232 BKC76 T198; Building 47, Period 3. Four joining rim and body fragments of cylindrical cup. Pale yellow/green. Small curved rim, edge cracked-off; vertical side curving into rounded base edge and divided by horizontal cordons into 3 friezes with decoration in relief. The inscription frieze has the letters ..OLYMPE VA... The main decorated frieze has an obelisk to the left of a charioteer with 4 horses reined to a halt. The charioteer is holding a wreath in his right hand; his left hand controls the reins of the team and there is a palm frond to the left of his shoulder. The bottom frieze has a row of small pellets below the cordon with the hinder parts of an animal facing left, a tree, and a lion(?) facing right which is attacking another animal. PH 67, RD 82, WT 0.75-2.0.
- 233 GBS B204 L8; Period 3. Body fragment of cylindrical cup. Blue/green. Straight side. Part of horizontal cordon above upper parts of triple *meta*; with head, shoulders and part of extended right arm of charioteer facing right. Vertical mould-seam runs through centre of *meta*. Dim 33x17, WT 3.5.
- 234 BKC75 J188 F34; Period 5b (end of 4?). Lower body fragment of cylindrical cup. Pale bluish green. Part of side curving into base. Hinder parts of animal facing left and parts of a tree. Dim 19x17, WT 1.5-2.5.
- 235 BKC75 N36 F13; Period 6 or later. Lower body and base fragment of cylindrical cup. Pale bluish green. Part of side curving into base. Hinder parts of an animal facing left(?); horizontal cordon above and rounded ridge at base edge. PH 15, BD approx 60, WT 1.5-3.0.

Two-frieze chariot-race cup

- 236 1.81 M277 L224; unstratified. Body fragment of cylindrical cup. Blue/green. Straight side divided into 2 zones by horizontal cordon. Faint edge of circus feature in upper zone; parts of 2 racing *quadrigae* in lower zone; on left foreparts of 3 horses, on right charioteer driving chariot with 4-spoked wheel and hinder parts of 3 horses. PH 28, WT 2-4.

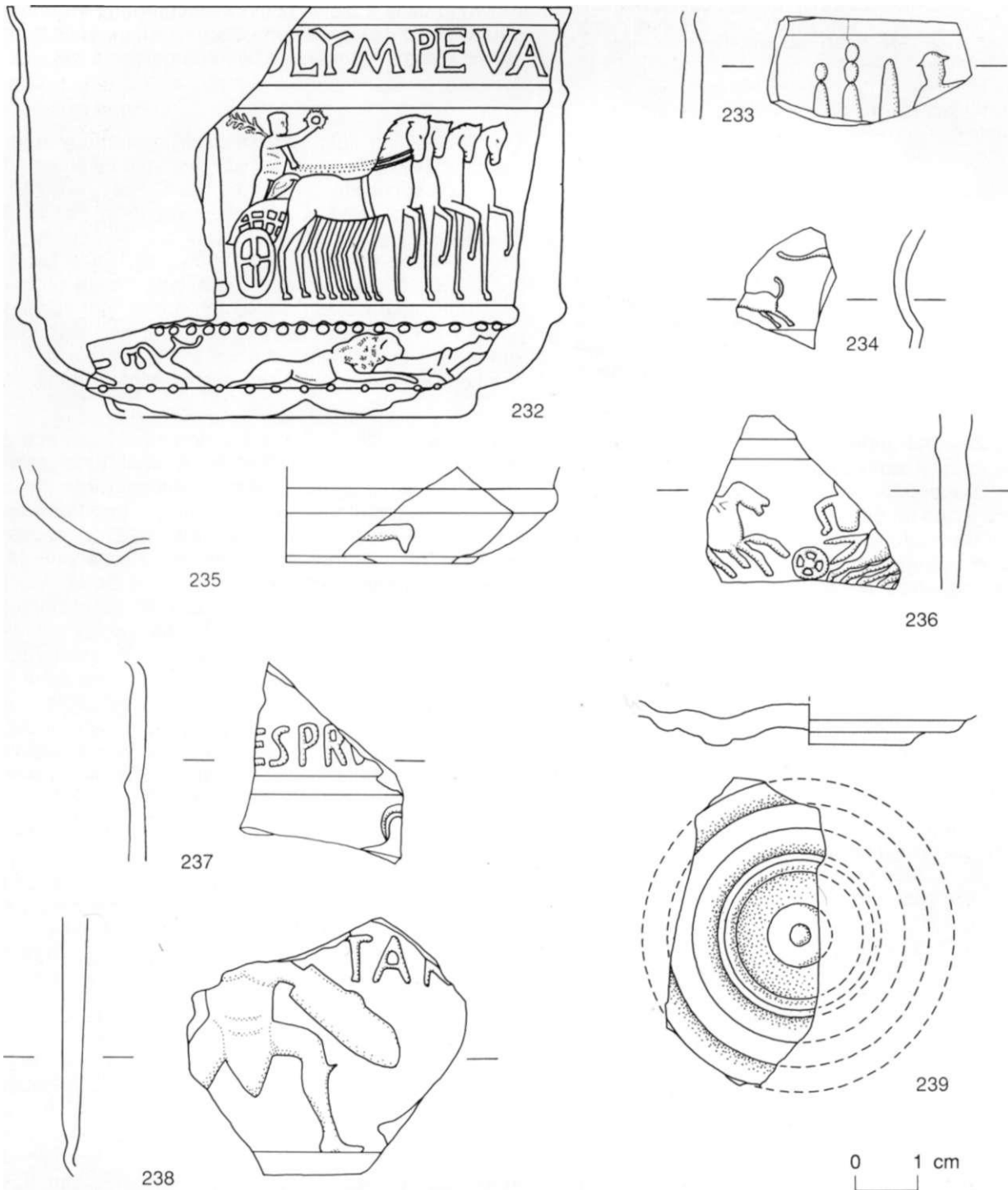


Fig 3.1 Cylindrical sports cups. 1:1. [Pages 43-50]

Gladiator cups

237 1.81 G3110 L2966; Period 3d. Rim and body fragment of cylindrical cup. Blue/green. Curved rim, edge missing; straight side divided into 2 zones by horizontal cordon. Above cordon, inscription zone contains letters ..ESPRV... Below, the back of the head and the shoulder of a gladiator wearing a crested helmet and facing right. PH 32, WT 3.

238 1.81 G3102 L296; Period 3d. Body fragment of cylindrical cup? Blue/green. Straight side. Lower edge bounded by horizontal cordon. Part of torso, extended left arm, extended right leg and bent left leg of gladiator wearing loin cloth and (?)shin guard on left leg. Long shield on left arm. To right of gladiator inscription at shoulder height including letters ..TAR... Part of ?foot of second figure on broken edge above cordon. Broken edge of cordon may have been reworked. PH approx 40, WT 1-3.5.

239 1.81 E100 F12; Period 7/8. Base fragment of cup. Blue/green. Wide lower body with horizontal cordon sloping in to small concave base with raised base ring and central circular pellet. PH 7, BD 28. Max body diameter 54, WT approx 2.

Vessels with vegetal designs (240-242)

[Fig 3.2]

Two large, open, convex-bodied vessels decorated with curving foliage motifs are represented by **240-241**, and **242** is from a similar vessel with a stylised wreath motif. Very little is yet known about the forms of the vessels, though they may have been bowls, flasks or jugs.

Fragments **240-241** appear to belong to rather similar vessels, with thick walls and prominent raised decoration. Two fragments from the lower body and base of **240** were found on Site B at Culver Street, in Period 3 contexts dating to c AD 65/75-100/125. This is a yellow/green vessel with a layer of internal bubbles apparently trapped between two gathers of glass. The raised design consists of two strands of spiral stems enclosing a bud or fruit, and a curved tendril and part of another pointed motif, above a curving nearly horizontal cordon. At the base edge there is a prominent half-round moulding with a ring of wear, and the base is concave with small circular impressions on the underside. Fragment **241**, a light green lower body fragment, came from Balkerne Lane, in a Period 3/4/5a context dating from AD 60/1 -c 150. The very prominent raised design consists of a curving tree trunk or branch with a hanging bunch of grapes, and a stylised plant resembling a *fleur-de-lys* above a moulding at the base edge.

A few similar fragments have been noted in recent years on Romano-British sites, but none are yet published in detail. A piece from the lower body of a yellow/brown vessel decorated with a curved stem and fruit or bud above a horizontal cordon and moulding at the edge of the base was found in excavations at West Tenter Street, London in 1984 (Jones 1986, 86 no 13), and another pale green fragment with two curved stems with tendrils above a horizontal cordon and a moulding at the edge of the base found at Bell Yard, Fenchurch Street, London in 1933 is now in the Department of Prehistoric and Romano-British Antiquities, British Museum (BM, no P 1973. 7-2. 470).

Smaller yellow/brown and yellow/green fragments with comparable decoration are known from the Roman villa at Whitton in South Glamorgan; Park Street, Gloucester; Wroxeter; and Abbey Green, Chester (all unpublished), but these pieces do not always have a wide convex body. The Whitton fragment, although distorted by heat, appears to be fairly flat, and the Gloucester and Chester pieces preserve angular carinations.

Outside Britain, the only approximately similar piece known to us is a bluish convex-curved body fragment with a raised design of curved stems and leaves from Malain (*Mediolanum*) near Dijon (Grosjean 1988, 126 no 412).

The two joining light yellow/brown lower body fragments of **242** have been partially distorted by heat and do not preserve any part of the base. They, like **240**, were found on Site B at Culver Street, in Period 3 contexts dating to c AD 65/75-100/125. The surviving decoration on the fragments shows part of a horizontal stylised olive wreath, represented by a prominent horizontal cordon above three diagonal curving pointed leaves with central veins and two diagonal stems with fruits. Below the wreath there is a horizontal cordon in low relief and part of another motif.

A few pieces with similar decoration have been noted from other Romano-British sites. A small blue/green fragment with a central cordon branching into three and an elongated curving leaf or stem came from the *vicus* at Caersws (Cool & Price 1989, 33, 38 no 18, fig 20). Three further examples are also known. A small light green fragment with a rather similar motif has come from Greyhound Yard, Dorchester in Dorset (Cool & Price 1993, 158 no 11, fig 84), and a yellow/green one from the military levels at Wroxeter (unpublished), while a substantial body fragment from a pale green globular vessel with a raised design of leaves, stems and fruit projecting diagonally above and below a central horizontal cordon was found in 1987 on the British Telecom site at Caerleon (unpublished; information from Dr D Allen).

Very little is yet known about the details of manufacture of these vessels. Of the pieces described above, only the Caerleon body fragment preserves a vertical mould-seam, though insufficient survives to establish whether the body was blown into a two-part or multi-part mould. Similarly **240**, the only base fragment so far recognised, provides no information about the form of the base mould.

None of the pieces have come from a closely-dated context so the precise date of production of these vessels has not yet been established, though a general indication of the date range may be gained from finds at Colchester and elsewhere in Britain. It is noteworthy that **240** and **242** came from deposits dated to the last quarter of the 1st century AD, and the fragment from Caersws, which was found in a clay levelling deposit dated to around AD 100, presumably also belongs to this period. Furthermore, the presence of two fragments at Caerleon and Chester may also support the presumption of currency in the Flavian period, as these sites were not established until after AD 70, so the vessels are unlikely to have been circulating for very long before this time. On the evidence presently available it seems likely that the vessels represented by these fragments belong to the late Neronian or Flavian periods.

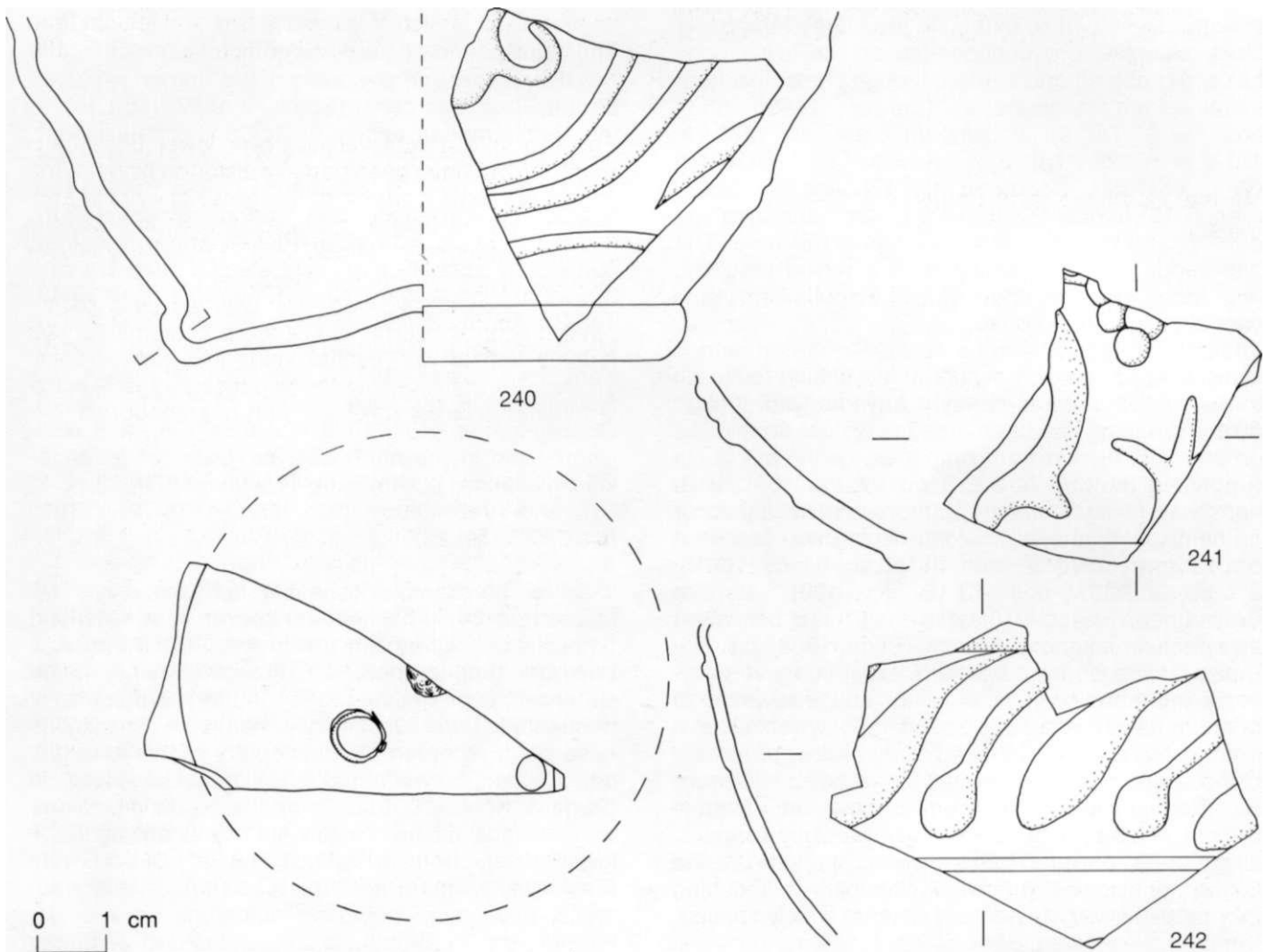


Fig 3.2 Vessels with vegetal designs. 1:1. [Pages 50-51]

Vessels with vegetal designs

- 240 1.81 B1468 L357 & B1469 F421; Building 94, Room 5a; Period 3. One lower body and 1 base fragment of bowl or flask? Yellow/green. Wide convex-curved lower body; shallow circular moulding forming base ring; convex base with central kick. Raised curving foliage design on side including an oval flower or fruit head with curving tendril above horizontal cordon. Two small circular scars on base —not from pontil-iron. Dim (body) 50x43, (base) 57x27, BD approx 60, WT 2.5.
- 241 BKC75 J253 L33; Period 3/4/5a. Lower body fragment of bowl. Light green. Convex-curved side sloping in. On left curving tree trunk with part of branch and pendant bunch of grapes to right on broken edge; on right two-thirds of a *fleur-de-lys*. Below horizontal moulding perhaps edge of base. PH 27, WT 2-4.
- 242 1.81 B1377 F387 & B1378 L327; Period 3. Two joining body fragments. Light yellow/brown. Prominent horizontal cordon above foliage design consisting of a curved feature, 3 leaves and 2 stemmed fruits — probably part of a laurel wreath design; narrow horizontal cordon on lower body. Dim 59x42, WT 2.

Ribbed cups (243-245)

[Fig 3.3]

Mould-blown ribbed cups have been recognised only comparatively recently in archaeological contexts. A single fragment from a yellow bowl was found at Sheepen in 1930 (Harden 1947, 299-300 no 48, pi 86), and the vessels were not included by Isings in her survey of dated finds (1957). They were first examined in detail by Berger (1960, 55-6), and they have since been recorded on sites in many parts of the Roman world (Price 1991b, 67, 70, 72).

Three main body forms are known, a hemispherical cup, a shallow cup and a taller convex beaker. These all have a more or less vertical rim, which is sometimes slightly curved, the edge being cracked-off and ground smooth; below the rim, the undecorated and slightly concave shoulder expands out, the body is convex and the base is concave. The body is

Ribbed cups

decorated with ribs in low relief. These often terminate above a pair of horizontal cordons on the lower body, though they may also extend to the edge of the base. Most examples are undecorated on the lower body below the ribbing and cordon, though some, like fragments from Vindonissa (Berger 1960, 55-6, nos 141-2, Taf 9), Valkenburg (van Lith 1978-79, 101-2 no 325, Taf 22), Nicholas Lane, London (Wheeler 1930, 122 no 6, fig 42), and Castleford (trench 15; unpublished), have bosses and arcing or a stylised branch and leaf design in this area. The base edge is usually outlined by a raised moulding and there are concentric rings, sometimes with a central pellet, on the base.

Considerable variation occurs in the ribbing found on these vessels. This is nearly always vertical, though diagonal ribbing has been noted very occasionally, as on an ovoid beaker from Ampurias, north-east Spain (Price 1981b, 286-7, 302-3 no 27, fig 109). Both narrow and broad versions of the vertical ribbing occur on hemispherical bowls. Broad ribbing was found on pieces from several sites in Spain (Price 1981b, 284-5, 300-301 nos 13-19, fig 109), and at Conimbriga, Portugal (Alarco 1976, 176 nos 47-8) and Frejus, southern France (Price 1988, fig 26). Broad ribbing is rare elsewhere, except on a very few small one-handed jugs in Milan and elsewhere in northern Italy (Roffia 1981-3b, 55 fig 2), which all have a hemispherical bowl-shaped body and were formed in the same manner as mould-blown bowls, but were not then cracked-off to form a bowl rim. Narrow vertical ribbing is found on all three body forms in other parts of the Roman world, though on the hemispherical and tall ovoid examples this ribbing may be either very closely set or more widely spaced.

The vessels were blown in two-part body moulds. The vertical mould-seams can usually be distinguished on the undecorated shoulder, though they are often more difficult to see in the ribbing on the body. Hemispherical bowls appear to have been produced in moulds with separate base pieces, while some of the taller ovoid beakers have a mould-seam across the centre of the base, indicating that they were blown into two mould parts which included the base. Most examples were made in blue/green glass, though brightly-coloured examples, in colours such as dark blue, deep green/blue (peacock), light green, and shades of yellow/brown, are also known.

The three forms of ribbed cups have rather different patterns of distribution. The shallow and ovoid versions do not appear to be very common; the recorded shallow examples occur mainly in the Mediterranean region, as in Cyprus (Harden 1955, pi 5c), Cyrenaica (Price 1985d, fig 24.4. 43-4), northern Italy (Calvi 1968, 105 no 249, Tav 16,1) and southern France (Price 1988, fig 24), though one is known from Oberstimm, on the upper Danube frontier (Garbsch 1978, 280 no E21, Taf 108). Ovoid examples have been noted both in the Mediterranean region, in north Africa and northern Italy, and at several sites in the provinces north of the Alps, as at

Baden-Aquae Helveticae (Funfschilling 1986, Taf 12, 127) and Koln (Fremersdorf 1961, Taf 66).

The hemispherical bowl is the commonest form, and it has been found in many areas of the Roman world: as on the Black Sea coast (Sorokina 1967, fig 2.15); in the Mediterranean region, as in Crete (unpublished); north Africa (Price 1985d, fig 24.3 nos 45-6; Price 1985c, fig 6.1 no 3); southern France (Price 1988, figs 25-6); and Spain and Portugal (Price 1981b, figs 48.19, 109.14-16, 20). Pieces are known from numerous sites in the upper Rhine and Danube region: at Vindonissa (Berger 1960, 55-6 nos 139-40, Taf 9); Aislingen (Ulbert 1959, 92 no 23, Taf 13); Magdalensberg (Czurda-Ruth 1979, Taf 2.318); Kempten (Fasold 1985, Abb 7.6); *Baden-Aquae Helveticae* (Funfschilling 1986, Taf 11. 124-6); Oberwinterthur (Rutti 1988, Taf 8.647-56); and elsewhere, and in the north-west provinces at Elvangeles-Hovelange, Luxembourg (Wilhelm 1979, 12 no 8, fig) and Valkenburg (van Lith 1978-79, 101-3, nos 323-6, Taf 22).

In Britain, no examples of shallow cups and only a few pieces from ovoid beakers are known, as at Caerleon (unpublished; information from Mr G C Boon) and Wroxeter (unpublished). On the other hand, hemispherical cups have been found comparatively frequently. Two substantially complete specimens have been recorded, a fragmentary green example, now missing, from a burial at Hallaton, Leicestershire (Page & Keate 1907, 212) and a yellow/green one with a vertical rim and closely-set ribs extending to the lower body, from a rubbish pit at Usk, Gwent (Taylor 1979, fig 1; Price 1991b, pi 16d). Smaller fragments have been noted on numerous sites in different parts of Britain, such as: London (Wheeler 1930, 122 nos 5-6, fig 42); Verulamium (Charlesworth 1972, 196 nos 2-3, fig 74 & 1984, 150 no 32, fig 61.18); Dorchester, Dorset (Cool & Price 1993 158 no 10, fig 84); Gloucester (Price 1983a, 168 no 1, fig 98); Hales, Staffordshire (Goodyear 1974 18 fig 6D); Brandon Camp, Herefordshire (Price 1987c, 73-4 no 3); Caersws (Cool & Price 1989 32, 36-8 nos 12-14, fig 20); Derby (Allen 1985, 133 no 1, fig 52); Chesterholm (Price 1985e, no 1) and Blackfriars Street, Carlisle (Price 1990a, 166 fig 159.6); and York, Castleford, Binchester and Wroxeter (all unpublished), as well as Colchester.

Pieces from at least four bowls have come from Colchester, namely the one already mentioned found at Sheepen in 1930 (Harden 1947, 300 no 48, pi 86), and 243-245 which were found in the excavations at the Gilbert School (243); Site B, Culver Street (244); and Balkerne Lane (245).

Fragments 243-245 come from two slightly different versions of hemispherical cups. Fragment 243 is a rather thick-walled piece with a sharply-defined angle between the shoulder and body, and ribbing which is closely set near the shoulder, becoming more widely spaced further down the body. Some of the ribs are linked together by a flaw in the mould. Details of 243,

such as the thickness of the walls, the shape of the rim and body and the form of the ribbing, are closely comparable with a pale green fragment of a bowl from the Hales Roman villa, Staffordshire (Goodyear 1974, 18, fig 6D). Further examples of this kind have not been noted in Roman Britain, but the piece is quite similar in shape and flawed ribbing to the Elvange-les-Hovelange (Wilhelm 1979, 12 no 8, fig) and Baden-Aquae *Helveticae* (Funfschilling 1986, 89-90, 118 no 124, Taf 11) bowls, and perhaps also to one of the fragments from Oberwinterthur (Rutti 1988, Taf 8.647).

Fragments 244-245 come from vessels with thinner walls. Part of the shoulder of 244 survives, showing that the change of angle between it and the body is less pronounced than on 243, and that the ribs are parallel to each other, widely spaced and short, terminating some distance above the horizontal cordons, which do not survive. Fragment 245, which is a small body fragment, retains parts of three parallel widely-spaced ribs similar to 244. It is also likely that the Sheepen fragment comes from a bowl of this kind.

Pieces similar to 244-245 have been found in London (Wheeler 1930, 122 no 5, fig 42), Verulamium (Charlesworth 1972, 196 no 2, fig 74), Wroxeter, Carlisle and elsewhere. Most of them are blue/green, though a fragmentary dark blue bowl from Blackfriars Street, Carlisle is of this form (Price 1990a, 166 no 6, fig 159), and other small dark blue body fragments are known from Verulamium (Charlesworth 1972, 196 no 3) and Caersws (Cool & Price 1989, 38 no 14).

Mould-blown ribbed bowls are some of the earliest mould-blown forms recognised to date. The earliest examples have been found in Tiberian/early Claudian contexts at Vindonissa (Berger 1960, 55), Magdalensberg (Czurda-Ruth 1979, 34 no 318, Taf 2), and Frejus (Price 1988, 30, figs 24-6). More are known from Claudian-mid Neronian contexts, as at Knossos (unpublished), Vindonissa (Berger 1960, 55), Oberwinterthur (Rutti 1988, 35), Koln (Fremersdorf 1961, 42), and Valkenburg (van Lith 1978-79, 100-101 nos 323-4), and they continue to occur in considerable numbers in late Neronian-early Flavian contexts at Vindonissa, Oberwinterthur and elsewhere.

These vessels are first noted in Britain in Claudio-Neronian contexts, as on the Sheepen site at Colchester and at Brandon Camp, Herefordshire, and they continued in circulation until the Flavian period. The complete bowl at Usk was found in a late Neronian deposit, and others are known in Neronian/early Flavian deposits in London and Verulamium. It is noteworthy that several fragments have been found on military sites in northern Britain which were not established until after AD 70, including York, Castleford, Binchester, Carlisle and Chesterholm.

Unfortunately, the pieces under discussion from Colchester do not add to current knowledge of the chronology of these vessels, as they were either not found in closely-dated deposits (244) or came from residual contexts (243 & 245).

Ribbed cups

- 243 GBS A424 L1; post-Roman. Rim and body fragment of ribbed bowl. Light green. Curved rim, edge cracked-off and ground; concave-curved upper body with pronounced carination above convex-curved lower body with vertical ribs, parts of 7 remaining. PH 34, RD 115, WT 2.
- 244 1.81 B2548; clearance, mainly Periods 3-5. Body fragment of ribbed bowl. Pale green. Concave-curved upper body with pronounced carination above convex-curved lower body with vertical ribs, parts of 6 remaining. Dim 39x35, WT 2.5.
- 245 BKC75 J37 L1; modern. Lower body fragment of ribbed bowl. Deep blue. Convex-curved body. Lower parts of 3 narrow vertical ribs with rounded ends. Dim 21x19, WT 1.5-3.0.

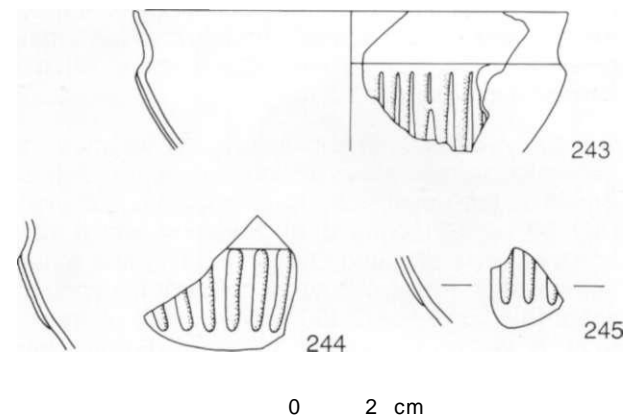


Fig 3.3 Ribbed cups. 1:2. [Pages 51-3]

Miscellaneous mould-blown vessels (246-248)

[Fig 3.4]

Five small fragments, from three vessels which have not been studied in the other groups of mould-blown glass in this report, will be examined briefly in this section.

Two of these (246-247) have generally comparable design elements and will be considered together. Two joining fragments from a blue/green vessel with a slightly convex lower body (246), were found on the Balkerne Lane site in a Period 4 context (c AD 75-125). They are decorated with two zones of design separated by a pair of horizontal cordons. Very little of the upper zone survives, though the ends of two or three diagonal lines which might be the edge of a lattice pattern are discernible, and the lower zone retains two of a row of vertical oval rings, arcading or gadroons. Fragment 247 is a very small body fragment from a deep green/blue (peacock) vessel found on Site G at Culver Street in a Period 5 context (c AD 225-275/325). Nothing of the design survives except for part of four rows of small lozenges in a lattice pattern. Peacock blue glass is not very common in mould-blown vessels, though it has also been noted among ribbed cups (see 243-245, above).

Miscellaneous mould-blown vessels

Although it has not been possible to identify either the forms or the complete designs of these vessels, some features may be related to other mould-blown pieces found in Britain and elsewhere in Claudian and Neronian contexts. For instance, four fragments from a tall narrow cylindrical beaker found in a Neronian deposit at Kingsholm, Gloucester (Price & Cool 1985, 43, 46 no 16, fig 18), included zones of both lozenge-shaped lattice and vertical oval rings which appear to be quite similar to those on 246, though the shape of the body is different. Another very small piece with a slightly convex section, from an undated context at Verulamium (Charlesworth 1984a, 150 no 30, fig 61.16), also shows some of the same design elements, such as a horizontal cordon and the tops of two vertical oval features with raised edges. It may be from a very similar vessel, though it is too small to provide any additional information about either the form or decoration.

The only other mould-blown body fragment with generally comparable design elements noted in Britain is the small body fragment from a Period VI (AD 60/1-c 65) context at Sheepen which has a horizontal row of round-ended arcading and a pair of horizontal cordons below a stylised horizontal ivy wreath (Harden 1947, 300 no 49, pi 86). A fragment from a yellow/green cup found at Folliat House, Chester (unpublished), also has a zone of diamond lattice above the base, but this is not closely comparable with 246-247 because of the strongly-curved profile of the vessel, and the large size of the design elements.

Similar design elements occur on several mould-blown vessel forms in the Roman world. For instance, fragments of small globular bowls with round-ended arcading and lattice separated by horizontal cordons are known in Claudian and Neronian contexts in France and Italy (Price 1991b, 68-9) as well as in private collections such as the Oppenlander Collection (von Saldern *et al.* 1974, 160 no 448, pi). In addition, an ovoid beaker from Idalion, Cyprus has zones of diamond lattice and gadroons separated by two horizontal cordons (Fitzwilliam 1978, 32 no 52b), and another, possibly from Italy, has diamond lattice similar to 247 all over the body (J Glass Stud, 12 (1970), 172 no 7).

The last two fragments (248) found on the Gilbert School site in a post-Roman context come from a very different vessel which does not have mould-blown decoration in raised relief on the body. These pieces may be part of the the base of a large unguent bottle which had a design impressed into it, similar to ones found in a pit of Antonine date at Harlow, Essex (Price 1987a, 196-7, 205 nos 28-9, fig 4), though too little of the basal design survives for this to be identified (see also 1243-1250).

Miscellaneous mould-blown vessels

- 246** BKC76 V585 L63; Period 4. Two body fragments. Blue/green. Convex-curved body. Larger fragment has parts of 2 oval rings below 2 horizontal ridges; smaller fragment has part of another motif above 2 horizontal ridges. Dim 20x16 & 13x9, WT 2-3.

- 247** 1.81 G3184 L3183; Period 5?. Body fragment. Strong green/blue (peacock). Three straight mouldings forming part of a diamond-shaped lattice. Dim 10x6, WT 2.

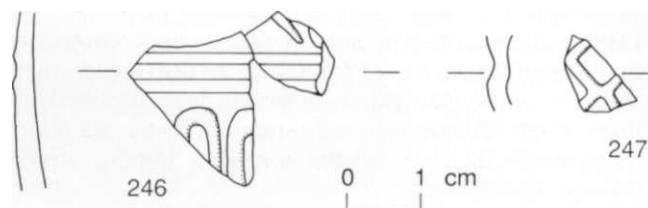


Fig 3.4 Miscellaneous mould-blown vessels. 1:1. [Pages 53-4]

Colourless mould-blown vessels (249-252)

[Fig 3.5]

These fragments are different both in their colour and in their decoration from the groups of mould-blown vessels considered above. As has been shown, most mould-blown forms were made either in brightly-coloured or in blue/green glass, although a few truncated conical beakers (Isings Form 31) found in Flavian contexts were produced in colourless or near-colourless glass, especially the series decorated with scrolls, shells and other motifs (Price 1991b, 70-71 & 73-4, pis 18.b & 19.c-d). All these groups of mould-blown glass have decoration in relief, whereas the colourless vessels now under discussion have mould-blown bodies with deeply indented decoration, and outside surfaces which have been ground, wheel-polished and sometimes decorated with facet-cutting. These mould-blown colourless vessels are very closely related to facet-cut beakers (see 395-410) in the appearance of their outside surfaces, though they were often made from comparatively thin-walled blown blanks.

Fragments **249-250** belong to this group of mould-blown indented and ground colourless vessels. Fragment **249**, which comes from a Period 3 context (AD 60/1-c 250/275) on the Gilbert School site, is a rim fragment from a cylindrical or conical drinking-vessel with part of one large indent on the upper body. The outside surface below the rim has been ground away to produce an undecorated zone between a raised moulding at the rim and a slightly raised decoration zone incorporating the indent and one small oval facet-cut on the upper body. Fragment **250**, which was found in a Period 3 context (AD 60/1-c 250+) at Lion Walk Site B, comes from the lower body and base of a conical drinking-cup. Two long narrow oval indents outlined with ridges are seen in the raised decoration zone, below which the lower body has been ground away to produce an undecorated zone and an out-splayed base ring. A third example of this group of vessels may be represented by the rim fragment **408**, but this does not now retain any evidence that it was mould-blown.

Only a very few similar mould-blown pieces have been noted from other sites in Britain. A rim fragment of a beaker with a ground zone below the rim and part of a mould-blown oval indent outlined by a ridge was found at Wroxeter (unpublished), and body fragments of similar indented cups which also have shallow facet-cutting on the outside surfaces are known from London (Museum of London, 23122) and from Verulamium (information from Mr C Saunders). A hemispherical bowl with similar indents was found in a mid-Flavian pit at St Swithin's House, London (Price 1991a, 159, 163 no 612, fig 113).

Elsewhere in the Roman world, tall colourless conical beakers with long vertical mould-blown indents outlined by ridges do not appear to be at all common. Examples have been noted at Ampurias and Sanlucar de Barrameda (Cadiz) in Spain (Price 1981b, 290-91, 306-7 nos 40-43, fig 110), and a rim and body fragment from a comparable indented cup with much of the surface ground away was found at Sidi Khrebish, Benghazi (unpublished).

Only **250** has come from a closely-dated context (Lion Walk Site B, Period 3, AD 60/1-c 90), confirming the Flavian date suggested by the combination of colourless glass and mould-blown decoration. These colourless mould-blown drinking-vessels appear to represent the latest phase of early Imperial mould-blown tablewares, as their decoration is indented, rather than in relief. Their comparative rarity suggests that they were probably in production for a comparatively brief period of time in the Flavian period.

Colourless mould-blown vessels

- 249 GBS B148 F25; Period 3. Rim fragment of beaker. Vertical rim, edge cracked-off and ground; straight side. Exterior ground and wheel-polished to produce a small rib at rim edge above a wide ground-out horizontal band; below the upper part of a mould-blown circular or oval facet and a vertical wheel-cut facet. PH 26, RD 70, WT 2.
- 250 LWC71 B497; Building 17, Period 3. Eleven lower body and 1 base fragment of thick-walled (?)truncated conical beaker. Body fragment has 2 long narrow oval indentations. Surface ground to produce raised ridges around indentations and convex-curved ribs between them. Lower body ground away and tapering in to small out-splayed base ring. Dim (largest fragment) 47x32, WT 5-6.
- 251 1.81 B41 F21; medieval. Body fragment. Convex-curved side. Parts of 7 vertical ribs in shallow relief above a horizontal one. Dim 36x22, WT 3-7.

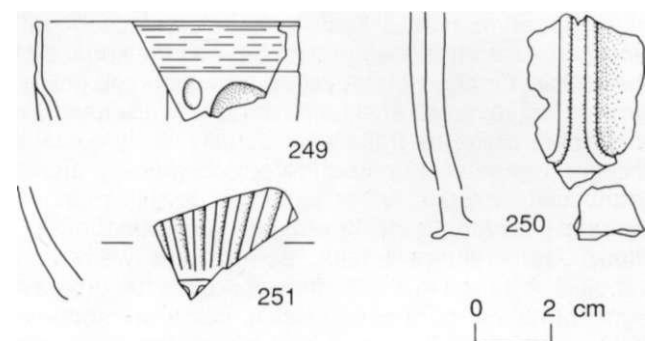


Fig 3.5 Colourless mould-blown vessels. 1:2. [Pages 54-5]

CHAPTER 4: Polychrome blown vessels

Early Roman vessels (253-275; see also 764)

[Fig 4.1]

In the early-to-mid 1st century AD, brightly-coloured translucent glass was used to produce a wide range of blown vessel forms, and many of these were decorated by applying one or more contrasting colours to the outside surface of the body, and sometimes to the rim and base as well. Blobs and trails were the commonest types of applied decoration, and these were either marvered flush with the surface or left unmarvered so that they project beyond the surface of the vessel. Opaque white, yellow, red, blue and green, as well as several translucent colours, were used for the blobs, while the trails were usually opaque white, though opaque blue was also occasionally used. Many vessel forms were decorated in this manner, including drinking-cups, bowls, jars, jugs, amphorisks, flasks and unguent bottles. Some forms were very widely distributed in the Roman world, but the greatest concentrations of these vessels occur in northern Italy, southern Switzerland and the northern Adriatic region, and it has long been accepted that this was the principal area of production of most, and perhaps all, polychrome and bichrome blown vessels with applied decoration (Fremersdorf 1938).

A small group of polychrome drinking-cups and amphorisks were decorated with painted scenes on the body and base. Several examples have designs with birds among ivy and vine leaves, or fishes and other sea-creatures, and motifs such as pygmies, cranes, ducks, partridges, cockerels, gazelles, baskets and garlands are also known (Rutti 1991). These vessels are also found in many parts of the Roman world, with the greatest concentrations in the region of southern France, northern Italy and Switzerland (Rutti 1991, fig 27). Very few fragments from painted cups have been noted in Britain. Fragments from a yellow/green example were found during earlier excavations at Colchester, at Sheepen; a body fragment was published in the original report (Harden 1947, 297 no 33, pi 87), and the base was identified later (Allen 1983, no 150). In addition, painted body fragments have been found in London (information from Miss C E E Jones), and another, perhaps from a similar cup, is known at Blackfriars Street, Carlisle (Price 1990a, 166 no 8).

Some polychrome blown vessels were cased or flashed. These have no applied surface decoration but their bodies are formed from two gathers of different colours either blown one inside the other or gathered on top of each other and blown together. On the 1st-century vessels with cameo-cut decoration, such as

cups, jugs, amphorisks and unguent bottles, the opaque white gather is always the outside layer and this is cut away to reveal the translucent dark blue, purple or other colours on the inside (see Harden *et al* 1987, 58-65, 75-84, nos 29, 33-6). This colour sequence is reversed on a series of small hemispherical cups often decorated with horizontal wheel-cut or abraded lines (for example, Berger 1960, 45 no 104, Taf 7), and on some larger drinking-vessels with stems and feet (van Lith 1991, 106-8). On these vessels, the outside layer is translucent dark blue, purple, yellow/brown, dark green or yellow/green, and the inside is always opaque white.

Pieces from at least 24 1st-century polychrome blown vessels were found during these excavations, and these add several new forms to the range of cups, bowls, jugs, flasks and unguent bottles represented among the 38 or more finds known from earlier excavations in Colchester. With the exception of those with painted decoration, all the types of polychrome blown glass recorded by Harden (1947) and Charlesworth (1985a) from earlier excavations in Colchester are present in this assemblage.

Most of the vessels are represented by only one fragment, and while some are easily recognisable because of their distinctive decoration, in many cases it is not possible to identify the forms represented. Sufficient survives of one of the hemispherical cups for most of the profile to be reconstructed (**258**), and there are also several pieces from a second cup (**259**).

Fragment **253**, from a blue/green vessel with out-splayed stepped rim and tapering upper body, and two substantial lumps of opaque blue glass in high relief on the body, was found in a pre-Boudican context at Balkerne Lane. Similar rims and bodies occur on several early-to-mid 1st-century vessels, such as the handle-less chalice (Isings Form 36; this form is described as a goblet in van Lith 1991), the one-handled measuring-cup or *modiolus* (Isings Form 37), and the two-handled drinking-cup or *cantharus* (Isings Form 38; also discussed in van Lith 1991). The fragment **253** might come from any of these, though it is perhaps most likely to be from a goblet or a *cantharus*.

Unmarvered blobbed decoration in contrasting colours is one of the characteristic features of north Italian glass-production centres in the early-to-mid 1st century AD, and it is found in several forms. Small opaque white and polychrome grains, often called 'speckled' decoration, were applied to the bodies of some drinking-cups, drinking-horns or *rhyta*, jars, jugs

and unguent bottles. These have been found, sometimes in Tiberian or Claudian contexts, in Italy, north Africa, Spain and Portugal, the Rhone valley, the upper Danube region, the Rhineland and elsewhere in the north-western provinces (Stern 1976; Price 1981b, 545-8). Two small fragments decorated in this manner were found in the excavations at Sheepen (Harden 1947, 296-7 nos 31-2), and another is known from Usk (Boon 1961-4, 30, fig 3).

Decoration consisting of large lumps is less common, though it sometimes occurs on globular jugs, as on a dark blue example from NTmes (Sternini 1990, cover illustration), and *canthari* (Isings Form 38a; van Lith 1991, 99-102, fig 21a, pis 25, 26a & b), which are found in the west and north-western provinces, particularly in the Rhone valley and the Rhineland. Generally, these lumps were opaque white and they were applied to brightly-coloured or blue/green vessels. Examples are known from: Koln (Harden era/1987, 109 no 42); Vechten, Xanten and Hofheim (Isings 1957, 53-4); Valkenburg (van Lith 1978-79, 65-6 no 209); and Neuss (van Lith 1991, 102). In Britain, a fragment of a pale blue/green *cantharus* with white lumps was found in excavations at the Toppings' and Sun Wharves, Southwark (Schwab 1974, 103, no 4, fig 50).

Opaque blue decoration is more unusual. Coloured jugs with trails and other applied details are known from Italy and elsewhere (Harden *et al* 1987, 118, 121, nos 50, 53), and fragments of blue/green cups, bowls and jars with trails or lumps have come from Frejus (Price 1988, 32, fig 31), Magdalensberg (Czurda-Ruth 1979, no 470), and Knossos, Crete (unpublished). In the north-western provinces, a blue/green *cantharus* fragment at Valkenburg has an opaque grey/blue trail at the rim (van Lith 1978-79, 64-5 no 207), and another with a vertical rim was found at Hofheim (Ritterling 1913, 369, form 6, Taf 38). Elsewhere in Britain, a melted blue/green unguent bottle in Grave 25 at the King Harry Lane cemetery, Verulamium has an opaque blue spiral trail round the body (Price 1989b, 47, 109 no 3), and a blue/green rim fragment very similar to **253** with an opaque blue lump on the body was found at Sheepen (Charlesworth 1985a, mf 3:F4 no 27, fig 80).

Fragment **253** came from a pre-Boudican context (Period 1 b or 2; AD c 49/55-60/1, Balkerne Lane), and the fragment from Sheepen mentioned above came from a similarly-dated (Period IVb) feature. Several of the other fragments of blue/green vessels with opaque blue decoration have also been found in early-to-mid 1st-century contexts, indicating that this colour variant is broadly contemporary with other forms of polychrome glass. The pieces from Frejus came from deposits dating from the first and second quarters of the 1st century, the Valkenburg rim was from a Period 1 deposit, dated to AD 40-47 (van Lith 1978-79, 5, 64-5), and the melted unguent bottle from Verulamium was in a Period 3 grave, dated to c AD 40-60.

Fragments **254-256** are from three small ribbed bowls, two blue/green and one yellow/green, and they were found in the Culver Street, Lion Walk and Balkerne Lane excavations, adding to the seven pieces recorded from earlier excavations. These vessels, often known as *zarte Rippenschalen*, were very probably drinking-cups. They were made in bright colours, such as blue, purple, yellow, yellow/brown and light green, as well as in blue/green glass, and were frequently, as is the case here, decorated with marvered opaque white trails. A few examples made in opaque white glass were decorated with blue or purple marvered trails but these have not been noted at Colchester. The cups have a vertical or slightly everted rim with a cracked-off and smoothed edge, a short straight or slightly concave shoulder, a hemispherical or squat convex-curved body and a flat base. The spiral trail is usually wound from the centre base (as in **256**), where it is quite broad and diffuse, to the shoulder, where it is horizontal, closely set, and very fine. The trails appear to have been applied before the short vertical ribs were pinched up.

Zarte Rippenschalen have been studied on many occasions (for example, Harden 1947, 294-5; Isings 1957, Form 17; von Pfeffer & Haevernick 1958; Berger 1960, 30-33; Haevernick 1967; van Lith 1977, 29-38; Czurda-Ruth 1979, 43-7; van Lith 1984, 238-9; Chew 1988, 44-6). The greatest concentration of these cups occurs in northern Italy, Yugoslavia and Switzerland, and it is very likely that they were produced in this region and traded widely from there. Finds have been recorded in north Africa, at Sidi Khrebish, Benghazi and Cyrene (both unpublished), in Crete, at Knossos (unpublished), in Greece and the Aegean, in the Black Sea region (Haevernick 1967), and elsewhere in the east Mediterranean provinces.

In the western Mediterranean they are found in southern France, as at Frejus (Price 1988, 31, fig 29), Saintes (Chew 1988, 44-6 no 29), and at Ampurias, Tarragona, Carmona and elsewhere in the Iberian peninsula (Price 1981b, 408-413). They also occur in considerable numbers in the north-western provinces, as at Vindonissa, where 63 fragments were found (Berger 1960, 30-33), and at Velsen, where 54 fragments were found (van Lith 1977, 29-38).

In addition to the ten fragments known at Colchester, pieces have been found at several other sites in southern Britain, including: Nanstallon, Cornwall (Harden 1972, 107); Longthorpe (Charlesworth 1974a, 89, fig 48.6); Chichester (Charlesworth 1978a, 267, fig 10.22.13; Charlesworth 1981b, 293, fig 15.1.8); Waddon Hill (Harden 1979a, 87-8); Cirencester (Charlesworth 1982d, 106-7, fig 34.87); Dorchester, Dorset (Cool & Price 1993, 158 no 13, fig 84); London (Museum of London, GM 2450, 2452, 2454; information from Mr F Grew and Miss C E E Jones); and Lake Farm, Wimborne, Ham Hill, Somerset, and Mancetter (all unpublished).

These small ribbed bowls were produced in the early 1st century AD, and went out of use around or soon

Early Roman vessels

after the middle of the century. Most of them occur in Tiberian and Claudian to Neronian contexts (van Lith 1977, 33-5), though a few have been noted in Augustan deposits, including one from Magdalensberg (Czurda-Ruth 1979, 46-7 no 465), and others from Cosa and Morgantina (Grose 1983, 45).

Fragments **254-256** came from residual or insecurely-dated contexts, but most of the earlier finds at Colchester were found in Claudian to early Neronian deposits (Harden 1947, 295 nos 20-21; Charlesworth 1985a, mf 3:F3 no 20). It is noteworthy that the distribution of finds in Britain is confined to southern Britain, and that the finds occur principally on sites with evidence of early military occupation, which may indicate that these cups were in circulation for only a short time after the Claudian conquest.

One very small fragment comes from the vertical rim of a dark blue bowl with a broad opaque white trail marvered flush with the outside edge (**257**). This fragment is too small for the identification of the vessel form to be certain, though it may perhaps come from a *modiolus* or *cantharus* similar to the examples already discussed in connection with **253** above, or from a cylindrical cup.

Vessels with a marvered opaque white trail on the outside edge of the rim have been recorded from the west Mediterranean region and the north-western provinces. A dark blue *modiolus* with a stepped rim is known from Bonner Strasse, Koln (Fremersdorf 1958a, 34, Taf 43), and a dark blue *cantharus* is known from Pompeii (van Lith 1991, 106). A few fragments of stepped rims probably from goblets or *canthari* are also known. Two, in dark blue and light yellow/green, were found in the Pasaje Cobos deposit at Tarragona (Price 1981b, fig 8.76-7); a dark blue fragment is displayed in the Archaeological Museum at Chatillon-sur-Seine; and another has come from Neuss (van Lith 1991, 106). A vertical rim fragment with a figure-of-eight fold, also from a *cantharus*, was found at Vindonissa (Berger 1960, 82 no 210).

Other vessels with an opaque white marvered trail on a vertical rim include the dark blue two-handled cylindrical cups or *scyphi* from NTmes (Musee Calvet, 906-46-9) and the Pasaje Cobos deposit, Tarragona (Price 1981b, fig 8, 78), and a handle-less footed cup with a spiral trail on the body from Vindonissa (Berger 1960, 38-9 no 82, Taf 5).

The Colchester fragment was found in a residual context, but there is no doubt that it comes from an early-to-mid 1st-century vessel. The Pasaje Cobos deposit appears to date from the second quarter of the 1st century AD, the fragments from Magdalensberg are unlikely to post-date the early Claudian period, and a small fragment from Vindonissa was found in a Claudian (or Claudio-Neronian) context (Berger 1960, 82-3).

Two small dark blue drinking-cups, with opaque white trails manipulated to form feathered swags or zig-zags

and marvered flush with the surface, were found on the Gilberd School site (**258-259**). Fragment **261**, from Culver Street Site E, has very similar decoration and may be from a third cup, though too little survives for this identification to be certain. These vessels (Isings Form 12), often known as Hofheim cups, are discussed in detail below in connection with the monochrome examples in the assemblage (**279-331**).

Enough of **258** survives for the profile to be reconstructed. It has an in-turned rim, the edge being cracked-off and ground with an internal bevel, a convex body and a concave base, and it is decorated with at least eight rows of swags or zig-zags on the body. The cup **259**, which is much more fragmentary, has a similar rim but a more cylindrical body, and seven rows of swags or zig-zags survive. Although some of the fragments from each cup were found in the same contexts, there is little doubt that two vessels are represented. Their bodies are slightly different in shape, the ground colour of **258** is a little darker than that of **259**, and there is a faint band of abrasion below the rim of **259** which is not present on **258**.

Although Hofheim cups were in common use in many parts of the Roman world in the early and mid 1st century AD, examples with applied polychrome decoration are not found very frequently. A few brightly-coloured cups with marvered blobbed decoration have been noted from the north coast of the Black Sea (Sorokina 1967, Abb 3,6), and others are known in southern France, at Frejus (Price 1988, 32, fig 32) and NTmes (Musee Calvet), and in the Rhineland (examples have been noted in the Rheinisches Landesmuseum, Bonn and the Central Museum, Metz). A few blue/green cups with opaque white and purple marvered blobs are also known. There is a complete example from Asseria (Benkovac) in Dalmatia (von Saldern 1964, 44, fig 6), and similarly-decorated fragments have been found at several sites, including Magdalensberg (Czurda-Ruth 1979, 42 nos 324-8, Taf 20), Vindonissa (Berger 1960, 35 no 72, Taf 4), Eastgate Street, Gloucester (unpublished), and in earlier excavations at Colchester (Harden 1947, 296 no 29, pi 87), though it is not always possible to establish whether they come from these cups or another vessel form.

Marvered trails in swags or zig-zags were not very common on blown glass in the 1st century, though some jugs and drinking-cups were decorated in this manner. Two yellow/brown *canthari* came from a burial at Vervoz (Philippe 1962, 1243-4), and a very similar fragmentary vessel was found in the earlier excavations in Colchester, at Sheepen (Charlesworth 1985a, mf 3:F2-3 nos 16-17, fig 80). Two similar rim fragments are known in Britain, one from the same excavations at Sheepen (Charlesworth 1985a, mf 3:F3-4 nos 24-5, fig 80), and the other from Wroxeter (Rowley House Museum, Shrewsbury, no F64), and additional pieces have been noted at Frejus (Price 1988, 31-2, fig 30), Vitodurum (Rutti 1988, nos 925-9, Tafn 13,31), and Asberg and Neuss (van Lith 1991, 102-4, fig 21, pi 26c). There are,

however, very few examples of Hofheim cups with this form of decoration. Two body fragments are known from the earlier excavations at Sheepen; one is dark blue (CM, 1443.31) and the other is purple with opaque white swags (Charlesworth 1985a, mf 3:F3 no 19); the only pieces we have noted which are likely to come from such cups are four dark blue fragments and five purple fragments without known findspots in the Department of Prehistoric and Romano-British Antiquities of the British Museum.

Some of the fragments of **258** and **259** were found in pre-Boudican (Periods 1-2) contexts, which is likely to be contemporary with their period of production and use. Fragment **261** was residual in an early medieval deposit.

The small fragments **260** and **262-271** are from dark blue vessels with opaque white marvered decoration, most of which cannot be assigned to a particular form. The fragments numbered **260** and **262** have fine trailed decoration and both pieces appear to have come from the necks of jugs, amphorisks or flasks. Very similar trails can be seen in the neck of a dark blue jug from Adria in north-east Italy, in a burial dated to the beginning of the 1st century AD (Fogolari & Scarfi 1970, 83, pi 60, 1).

The rest of these dark blue fragments have blobbed decoration. The only ribbed fragment is **263**, which comes from a large convex-bodied vessel, perhaps a jug or jar, though the form cannot be established from the surviving piece. Polychrome vessels with blobbed decoration and ribs are not very common, and only a few other fragments have been noted in Britain. Dark blue and dark yellow/brown body pieces came from the bath-house at Castleford (unpublished), two dark yellow/brown fragments came from the East Gate site at Gloucester (Price 1983a, 168, no 1), and single dark blue body fragments are known from The Lunt, Baginton (Charlesworth 1971-3, 78, no 1) and from Verulamium (Charlesworth 1984a, 165 no 230).

Fragment **264** is a body fragment from a small, strongly convex and thick-walled vessel with a trace of a neck, which is decorated with small distinct marvered speckles. It is very similar in appearance to the dark blue bath flask found near Richborough, probably with a samian cup dated to AD 80-90 (Harden *et al* 1968, 58 no 70), and may also come from a bath flask. Fragment **265** is a lower body fragment with a constriction probably above an open pushed-in base ring. Several polychrome vessel forms have bases of this kind; for instance, an ovoid-bodied yellow/brown jug from one of the Aegean islands has a very similar base (Harden *et al* 1968, 58 no 71), and comparable lower body and base fragments have been found on the East Gate site, Gloucester (Price 1983a, 168, no 1), and in the earlier excavations at Sheepen (Harden 1947, 296 no 24, pi 87). The other fragments (**266-271**) are not sufficiently diagnostic for any identification of their form to be possible, though they all come from wide-bodied vessels. Fragments **266-267** probably belong

to the same vessel, and **268-269** are likely to come from another vessel.

Body fragments from vessels with opaque white blobbed decoration have been found at many sites in Britain. The commonest ground colour is dark blue, as is the case at Colchester, followed by dark yellow/brown, which was not found during these excavations, though it is represented in the earlier excavations at Sheepen. Other ground colours have been recorded less frequently.

There are two small pieces from a dark green vessel with marvered blobs (**272**). These fragments are thin-walled and appear to come from a comparatively small vessel, perhaps a flask or unguent bottle. This ground colour has not often been noted among polychrome blown vessels. One fragment has previously been found at Colchester (Harden 1947, 296, no 25), and no examples are known from other Romano-British sites. The only blue/green fragment with marvered blobs from the 1971-85 excavations (**764**), which comes from a jar, is discussed in Chapter 7 (p 107).

Several of the fragments with blobbed decoration (**262, 265-266 & 272**) were found in Claudian or Claudian to early Neronian contexts. This dating is compatible with the earlier finds from Colchester, and with the finds from many other sites in Britain. For the most part, polychrome blown glass with marvered blobs has been found at sites established in the Claudian and Neronian periods, but some fragments have come from northern Britain, from sites such as Castleford, York and Carlisle which were not founded before the early Flavian period. These are likely to be vessels which arrived at the northern sites as personal possessions rather than current items of trade.

Two pieces of dark blue and opaque white cased vessels were found (**273-274**). Both are body fragments, **273** being cylindrical and of smaller diameter than **274**, which comes from a vessel with a slightly concave side expanding out. Too little survives for either piece to be identified with certainty, but it is possible that **273** comes from a Hofheim cup and **274** from a goblet or *cantharus*.

At least two complete cased Hofheim cups are known. One from Vindonissa has a dark blue exterior surface (Berger 1960, 45, no 104, Taf 7), and another, from Bonner Strasse, Köln, has a purple exterior surface (Fremersdorf 1958a, 22, Taf 6). Smaller fragments have been recorded on numerous sites in the western and north-western provinces, as at Frejus (Price 1988, 32, fig 35), Hofheim (Ritterling 1913, 364, 3), Xanten (Charlesworth 1984b, 285), Valkenburg (van Lith 1978-79, 48 nos 142, 147, 152), and Velsen (van Lith 1977, 27-9, nos 74-83). Cased goblets or *canthari* have also been found quite frequently; the recent study by van Lith (1991, 106-8) lists examples distributed widely within the western provinces, from Pompeii (dark blue), Vindonissa (yellow/brown and dark blue), Neuss (dark blue, dark green and purple),

Early Roman vessels

Asberg (light blue), Xanten (yellow/brown), and Velsen (purple). In addition, a dark blue piece is known at Frejus (Price 1988, 32, fig 36).

Cased fragments have been noted at several sites in Britain, though it is not always possible to determine the vessel forms. Pieces from four or five cased vessels are known from earlier excavations at Colchester. Three or four, in blue and yellow/brown, came from the excavations at Sheepen between 1930 and 1939 (Harden 1947, 297-8 nos 34-7, pi 82), of which two or three appear to come from drinking-cups with handles or out-splayed rims, and the strong green/blue (peacock) rim fragment found at Sheepen in 1970 comes from a Hofheim cup (Charlesworth 1985a, mf 3:F4-5 no 32).

Other fragments are known from London (Museum of London, GM 16926; dark blue *cantharus*); Chichester (Charlesworth 1981b, fig 15.1.6; dark blue); Langton Maltravers, Dorset (*Proc Dorset Archaeol and Nat Hist Soc*, 81 (1959), 122; dark blue); Hod Hill (Harden 1968b, 117,1, pi 39; yellow/brown); Exeter (Charlesworth 1979a, 223; dark blue); Bagendon (Harden 1961, 199, pi 55,2; dark blue); and Usk and Cottesford Place, Lincoln (both unpublished and both dark blue).

Fragment 273 came from a pre-Boudican context at Lion Walk, and the earlier finds from Sheepen support this date, as they were found in either Period IV or VI contexts, although 274 was found in a later context. Many of the pieces found elsewhere in Britain also come from Claudian or Neronian contexts.

The last piece of early Imperial polychrome blown glass was found at Butt Road (275). It is a small convex yellow/brown body fragment with parts of three rows of an unmarvered spiral opaque white trail, which is likely to come from a spherical unguent bottle. Brightly-coloured small unguent bottles with unmarvered opaque white trails are commonly found in early-to-mid 1st-century contexts in northern Italy, as at Aquileia (Calvi 1968, tav 4,5), southern Switzerland (Biaggio Simona 1991, 120-25, tav 13, 14), and the Rhineland. There are several examples at Koln (Fremersdorf 1958a, Tafn 12-16) and Trier (Goethert-Polaschek 1977, 253-6 nos 1489, 1490, 1494, 1498, 1500-1502, 1505-1509, 1511-15, 1517-18, 1520-24, Tafn 2, 79).

Very few similar pieces have been noted elsewhere in Britain, and it may be that this glass did not often reach the province, though a small thin-walled yellow body fragment with an unmarvered opaque white spiral trail was found at Bagendon, Gloucestershire (Harden 1961, 199, pi 55,1).

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253 BKC74 E906 L250 & L361; Period 1 b or 2. Rim fragment of *cantharus*. Blue/green with 2 applied opaque blue blobs (1 rod-shaped) on body. Stepped rim with fire-rounded edge; straight side sloping in. PH 36, RD 90, WT 2.5.

- 254 1.81 K368 L358; Period 3. Rim fragment of ribbed bowl. Blue/green with opaque white trails. Vertical rim, edge cracked-off and ground; convex-curved side. At least 8 close-set opaque white spiral trails on upper body marvered smooth. PH 22, RD 6, WT 0.5-1.0.
- 255 LWC72 J1484 F497; Building 20, Phase 1, Room 3, Period 4. Body fragment of ribbed bowl. Blue/green with opaque white marvered trails. Part of neck curving out to (missing) rim; convex-curved body with top of 1 pinched-up rib. Opaque white marvered horizontal trails across body and rib. Dim 25x21, WT 3.
- 256 BKC76 V746 F170; Building 61, Period 4 or earlier. Base fragment of ribbed bowl. Yellow/green with opaque white marvered patch and spiral trail. Side curving into flat base with internal central thickening. Dim 37x24, BD approx 40.

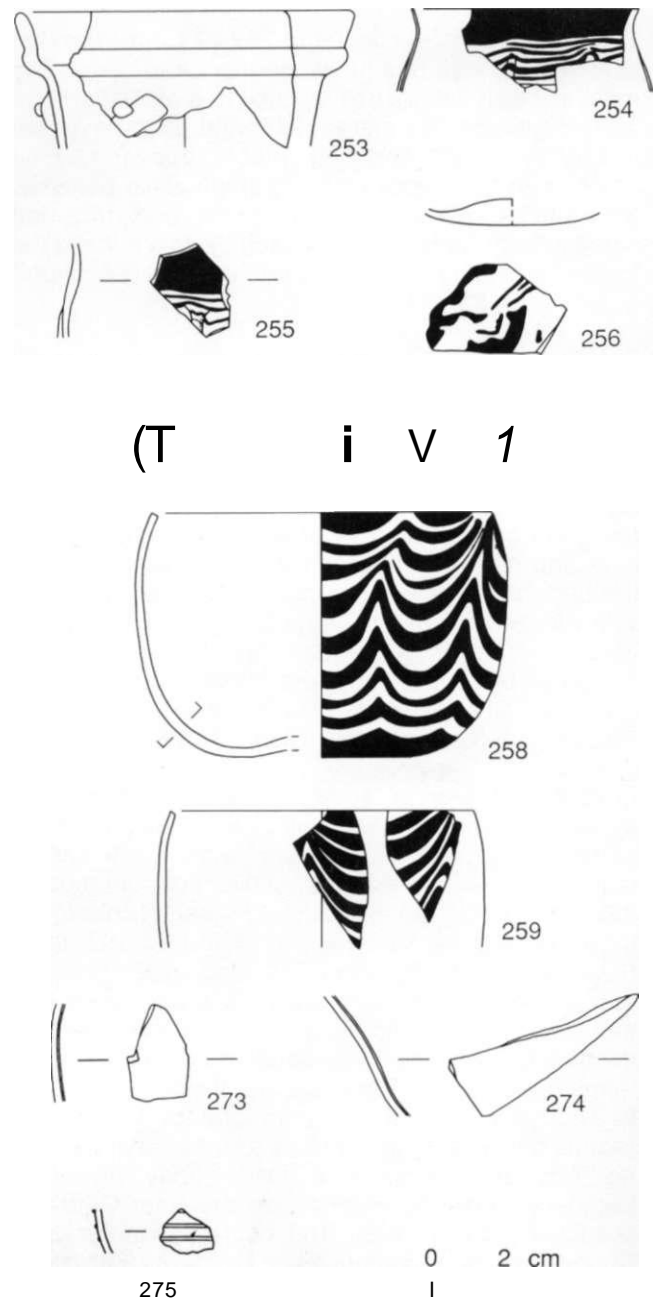


Fig 4.1 Early Roman blown polychrome vessels. 1:2. [Pages 56-61]

- 257 BKC74 E515 F166; Period 5. Rim fragment of bowl. Deep blue with opaque white marvered horizontal trail at rim edge. Vertical rim, edge fire-rounded. PH approx 10, RD approx 90-100.
- 258 GBS84 A2321 2331 L89; Period (1 or) 2. A1175 L67; Building 136 destruction; Period 2 or 3a. A1348 1383 L66; Period 3a. B78 F10; medieval. Two rim, 4 body and 1 base fragments (3 joining) of cylindrical cup. Deep blue ground and opaque white trails. In-curved rim, edge cracked-off and ground; slightly convex-curved body curving into shallow concave base. At least 8 horizontal trails applied to side, drawn up at intervals to form a feathered zig-zag pattern and marvered smooth. PH (2 joining rim and body fragments) 54 and (base) 21, RD 90, BD approx 30-35, WT 2.
- 259 GBS84 A1340 L81; Period 3a. A1348 L66; Period 3a. A1252 L49; Period 3. Two rim and 2 body fragments of cylindrical cup. Description as 258, with at least 7 trails. Probably from a different vessel than 258 as the ground colour is a less intense blue and the trails are narrower and thinner. PH 34, RD 80-90, WT 2.
- 273 LWC71 A290; Period 1 destruction (?Period 2). Body fragment. Thick deep blue outside layer cased with thin opaque white inside layer. Convex-curved body. Dim 26x16, WT 2.
- 274 1.81 G2351 L1746; Period 3. Body fragment. Cased; description as 273. Dim 53x19, WT 2.
- 275 BUC77 C1711 G444; Period 2. Body fragment. Brown with 3 opaque white parallel trails. Convex-curved side. Dim 13x12, WT 2.

Snake-thread glass (276)

[Fig 4.2]

Throughout the Roman period vessels were often decorated by applying a trail of glass to the surface of the glass after it had been inflated. These trails remain in relief and, unlike the marvered trails discussed in the previous section, do not merge with the surface. In the 2nd century a particular form of curving trailed decoration emerges that is commonly called 'snake-thread' decoration, a term translated from the German word *Schlangenfaden*. In this the trails, which are frequently of different colours from the vessel itself, form discontinuous patterns over the surface of the vessel and are almost always slashed or impressed. This general term has been applied to a variety of vessel forms both in the east and the west of the Empire. These vessels have long attracted scholarly attention and there is an extensive literature relating to the eastern or western origin of snake-thread decoration (for summary see Harden *et al* 1987, 106-8). This debate is unlikely to be resolved until more glass is recorded in closely-dated contexts. Only the type of snake-thread glass typically found in the north-western provinces will be discussed in this section.

The snake-thread decoration most often found in the Rhineland, Gaul and Britain is brightly-coloured and frequently opaque, and applied to colourless vessels. Less common are colourless vessels with self-coloured trails, and rarest of all are strongly-coloured vessels with opaque white snake-thread decoration. Many snake-thread vessels are types more frequently

found either undecorated or decorated with plain trails, such as cylindrical cups with fire-rounded rims and double base rings (**465-540**) and stemmed beakers and flasks (**541-542**). A distinctive variant of spouted jug relatively common in the Rhineland is also decorated in this manner (see p 131). Some snake-thread vessels, however, are most unusual and uncommon. These include dropper-flasks fashioned to look like helmeted heads (Fremersdorf 1959, 59 Tafn 74-5; Harden *et al* 1987, 134-5 nos 63-4), and flasks made in the shape of sandals resembling the modern 'flip-flop' (Harden *et al* 1987, 137 no 66). A good idea of the range of vessels with snake-thread decoration is provided by Fremersdorf (1959, Tafn 9-33 & 35-65). In Britain nearly all the snake-thread vessels known are represented by undiagnostic body fragments, and the only form of vessel identified with certainty from British sites is a stemmed beaker or flask (see **541-542** for details).

The trails on these vessels are normally applied in abstract serpentiform patterns which are then slashed to produce a diagonally-ridged appearance. The part of the body decorated in this way is frequently bounded at the top and bottom by a horizontal coloured trail that is not slashed. Figurative patterns are very rare. One of the helmet dropper-flasks has a bird depicted on each side (Fremersdorf 1959, 59, Taf 74), and a stemmed beaker from Munster has a pattern of dolphins and possibly water-lilies (Harden *et al* 1987, 139 no 67), but these are exceptional. In a rare variety of snake-thread decoration the trails are thin and not diagonally slashed, and these sometimes form more recognisable patterns such as the swastikas on a pair of emerald green stemmed beakers from Weyerstrasse, Koln (Fremersdorf 1959, 55, Tafn 66-7; Harden *et al* 1987, 123 no 55), and the leaves on the so-called 'Masterpiece' flask from Luxemburger Strasse, Koln (Fremersdorf 1959, 56, Tafn 70-71; Harden *et al* 1987, 125 no 56). A characteristic of the vessels with this style of snake-thread decoration is that some of the trails are gilded.

A small number of colourless snake-thread fragments found in the western Empire have colourless trails impressed with a tool to produce a waffle-iron or honeycomb pattern, rather than the normal diagonal slashing. Waffle-iron impressions occur on some snake-thread vessels decorated with bird and flower patterns which are thought to have been made in the eastern Empire, and it has been suggested that those with this impressed pattern may have been the product of one workshop (Barag 1969, 64). The western examples are recorded at Carnuntum (Barag 1967, 60 no 3), Conimbriga (Alarcao 1976, 191 no 183, pi 41), Italica (Price 1981b, fig 75.21a), Piercebridge and The Park, Lincoln (both unpublished), and possibly Rome (Barag 1969, 60 no 4, fig 2), but it is unknown whether these are imported from the east or are an independent western variant.

The only fragment with snake-thread decoration from these excavations at Colchester is **276**, which was found in a Period 5 (c AD 225-275/325) context at

Snake-thread glass

Culver Street on Site G. It has opaque yellow decoration on a colourless ground. An earlier find is a colourless fragment with opaque white and blue trails in the Colchester Museums. As with the majority of snake-thread fragments found in Britain, it is impossible to identify the types of vessels these fragments came from.

Snake-thread decoration of the type found in the north-western provinces was in use during the later 2nd and 3rd centuries. This is evident both from the types of vessels it is applied to and from the dates of the contexts in which examples are found. Many of the examples noted by Fremersdorf (1959, Tafn 9-33 & 35-65), for example, come from graves dated within this period and examples of spouted jugs from late 2nd or early 3rd-century contexts are given on page 131. Other snake-thread vessels found in graves include a group of flasks and cups in a very rich cremation at Esch, North Brabant most probably dating from the second quarter of the 3rd century (van den Hurk 1977, 100-103, figs 12.4 & 16.17); a cylindrical cup in a grave dated to the end of the 2nd or first half of the 3rd century at Lixe, Luik (Marien 1984, 65 no 5, fig 1); a beaker in a grave of the same date at Masseik, Limburg (Marien 1984, 71 no 15); and a drinking-horn from a cremation of the second half of the 3rd century at Berzdorf, Kreis Koln (Haberey 1959b, 386, Abb 28.11).

Examples of snake-thread vessels from British sites have rarely been found in closely-dated contexts. The lower body and base of a beaker with self-coloured snake-thread decoration was found in a pit dated to the 3rd century at Chichester (Charlesworth 1978a, 269 no 26, fig 10.22), and body fragments have been recovered from a drain deposit dated to AD 130-230 at Caerleon, in the mid 3rd-century hypocaust fill of the villa at Whitton, Glamorgan and in a 3rd-century rubbish deposit at Blossom Street, York (Price 1981a, 155). The fragment with the unusual waffle-iron pattern from The Park at Lincoln came from a mid 4th-century construction trench containing rubbish derived from the late 2nd/early 3rd-century rampart.

Some years ago, when one of us reviewed the evidence for snake-thread vessels in Britain (Price 1978, 74-5 & 1981a, 154-5), they appeared to be relatively rare, and the suggestion was made that the total number of vessels represented by the fragments found up to that time probably did not exceed twenty. This situation has now changed; it is not uncommon to find this glass in the assemblages from late 2nd- and 3rd-century sites, though it is unusual to find more than one or two fragments from any one site, and no examples have yet been recorded from burials in Britain. Many other examples can now be cited in addition to those noted in Price 1981a. One of the most prolific sites is Piercebridge (unpublished) which has produced a minimum of six vessels including body fragments of polychrome and self-coloured snake-thread as well as a piece with a purple body decorated with an opaque white trail. A similar purple and white fragment is also known from Site 343 at

Catterick (unpublished). Some of the further examples have been noted in connection with the pieces found at Blackfriars Street, Carlisle (Price 1990a, 169-70), and to these should be added the body fragments with polychrome snake-thread decoration known from Mansfield Woodhouse, Nottinghamshire (Oswald 1949, 13), Cirencester (Charlesworth 1982a, mf D12 no 284, fig 68), Dalton Parlours, West Yorkshire (Price 1990b, 100), and Greyhound Yard, Dorchester (Cool & Price 1993, 158 no 16, fig 84), and Victoria Road, Winchester (unpublished).

Snake-thread glass

- 276** 1.81 G583 L207; Period 5. Body fragment. Snake-thread; green-tinged colourless with opaque white trails. Two trails with transverse slashing. Dim 26x22, WT 0.5.

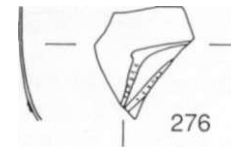


Fig 4.2 Snake-thread glass. 1.2. [Pages 61-2]

Painted glass (277)

[Fig 4.3]

Glass vessels are sometimes decorated by the application of pigments to their exterior surfaces. This process takes place when the vessel is cold. If the vessel is subsequently fired at a low temperature to fuse the decoration to the surface of the glass, the result is described as enamelled glass. This decorative technique was employed only occasionally in the Roman world. In the western Empire, the main periods when painted vessels occurred were during the 1st century and also during the late 2nd and early 3rd century, though the number of painted vessels known in each period is very small.

Two principal groups of painted vessels are known in the 1st century. Most of the painted decoration of the early-to-mid 1st century occurs on Hofheim cups (see **279-331**), though an amphorisk form is also known to have been decorated in this manner (see p 56). The vessels themselves are frequently strongly coloured and the designs consist of scenes of foliage, animals, birds and occasionally pygmies fighting (Rutti 1991). In the later 1st century, colourless truncated conical beakers of a similar shape to facet-cut beakers (see **395-410**) were sometimes painted and a few pieces exhibit both facet-cut and painted decoration. The scenes on the vessels include fighting gladiators and a variety of Bacchic and mythological scenes accompanied by floral motifs. A large cache of truncated conical painted vessels is known from Begram, Afghanistan (Hamelin 1954, 102-5, figs 257-69 & 263

bis), and a few similar pieces have also been noted in other parts of the Roman world (Coarelli 1963; Fehr & Welker 1986).

During the later 2nd and 3rd century some of the colourless cylindrical cups with fire-rounded rims and double ring bases (see **476-523**) were painted with scenes of the arena and animals, and some include figures of humans or deities (Fremersdorf & Polonyi-Fremersdorf 1984, 123-7, Abb 4 & 6). Several complete or nearly complete examples have been recorded from Denmark (Price 1983b, 215, pi 19) and north Germany, though within the Roman Empire only from relatively small fragments. It is, therefore, frequently difficult to interpret the scenes represented.

Occasionally other vessel forms such as spherical flasks with cracked-off rims (see **1184-1187**) have painted decoration (Harden *et al* 1987, 275 no 151), but these are much rarer than the three groups outlined above.

A small number of examples from all three groups have been found on Romano-British sites. Painted Hofheim cups have been found at Sheepen (Harden 1947, 297 no 33, pi 87; also CM Area A T2/8 15.9.32 & no 888.31), London (Rutti 1991, fig 27; and information from Miss C E E Jones), and perhaps at Blackfriars Street, Carlisle (Price 1990a, 166 no 8). Fragments of painted truncated conical beakers of the late 1st century have been found at Silchester (Price 1985f, 23), York (the Minster) and Usk (both unpublished). Fragments of painted colourless cylindrical cups of the later 2nd and early 3rd centuries are more numerous. Examples have been identified from: Corbridge, Chesters and Housesteads (Charlesworth 1959a, 44, fig 5); Cramond (Maxwell 1974, 199 nos 8-9, fig 16 & unpublished); Traprain Law (Curie 1931-2, 293, fig 5.1); Clickhimin, Shetland (Hamilton 1968, 143 no 161, fig 62.1); Dunollie, near Oban (Alcock 1979, fig 2.12); Caerleon, Carlisle and Vindolanda (Allen 1986a, 109 no 61); Catterick (Price 1989-90); and from Piercebridge and Goss Street,

Chester (both unpublished). Two other painted body fragments, from Thorpe, Nottinghamshire (Harden 1965, 36 no 16) and Wroxeter (information from Dr K Pretty), may have come from spherical flasks with cracked-off rims.

Only one fragment of painted glass (**277**) was recovered from the Colchester excavations of 1971-85. This is a colourless body fragment with a predominantly blue design found in a late 3rd- and 4th-century context at Balkerne Lane (Period 5c-6). The vessel wall was straight-sided and made in thick good-quality glass. It is not possible to establish whether the piece comes from a truncated conical beaker of the late 1st century, or from a cylindrical cup of the later 2nd or earlier 3rd century. Fragment **277** is likely to come from a figured design, whereas the truncated conical beaker fragments known in Roman Britain have parts of floral and foliage patterns. Closer parallels may be suggested among the cylindrical cup fragments, such as the ones from Piercebridge which show parts of a substantial, perhaps figured design, or the piece from Catterick which shows a male figure, perhaps Bacchus, wearing a fawn-skin cloak and carrying a staff.

Painted glass

- 277 BKC75 J197 L25; Period 5c or 6. Body fragment. Colourless with painted decoration. Straight-sided. Opaque white ground with curved band; upper side outlined in dark blue, rest shaded with short strokes of a lighter blue, and with light blue line above. Dim 23x15, WT 2.5.

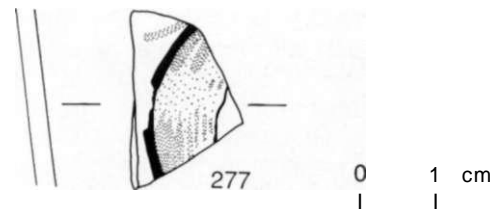


Fig 4.3 Painted glass. 1:1. [Pages 62-3]

CHAPTER 5: Cups and beakers

Hofheim cups (279-331)

[Figs 5.1-5.2; Table 5.1]

Fragments **279-331** are all pieces of small cups of Isings Form 12. This form is frequently referred to as a Hofheim cup because examples occurred in relatively large numbers at that site and were discussed in detail in the excavation report (Ritterling 1913, 365, Form 1). Hofheim cups have a variety of shapes; some are cylindrical, as in a blue/green cup from Richborough found in a context dated to the last quarter of the 1st century (Bushe-Fox 1949, 158 no 375, pi 69). Others are more hemispherical; the upper body curves out and there is a rounded carination to the lower body and base, as on a cup from Sheepen (Charlesworth 1985a, mf 3:F7 no 48, fig 81; blue/green and not emerald green as stated in the report). The bases are either small and flat or gently concave, as on the one from Sheepen, or they may have a sharp pointed kick at the centre of the base, as can be seen in a blue/green example from Richborough found in a well filling dated to the mid 1st century (Bushe-Fox 1926, 48 no 7, pi 19).

The cups all have knocked-off and ground rim edges and are decorated with horizontal abraded bands or wheel-cut grooves. Occasionally there may be an abraded band on the inside of the rim, as on three from Kingsholm, Gloucester (Price & Cool 1985, 46 no 21, 50 nos 43-4, figs 18-19), but this is uncommon and may be related to the finishing of the rim. These cups were very occasionally decorated with vertical ribs on the lower body as on one from a pit at Exeter dated to AD 50-80 (*J Rom Stud*, **43** (1953), 124, pi 23.5 & 6). The majority of these cups are

monochrome. Blue/green is the commonest colour but they were also made in deep blue, purple, claret red, yellow/brown, pale green and emerald green. These cups were never made in truly colourless glass but there are several pale green-tinged colourless examples, for example: at Sheepen in a Claudio-Neronian context (Harden 1947, 298 no 43); at Fishbourne, where two examples were found in contexts dated to between AD 55 and 75 (Harden & Price 1971, 345-6 nos 50-51, fig 139); at The Lunt which was occupied between AD 60/4 and 80 (Charlesworth 1971-3, 79 no 11); and possibly also at Exeter (Charlesworth 1979a, 223). Bichrome and polychrome cups of this type are much rarer but were made by several different techniques. The painted examples have been discussed on pages 56 and 62-3. Cased Hofheim cups are discussed on pages 59-60, and cups with marvered trails and blobs on page 58.

During the 1971-85 Colchester excavations, fragments from Hofheim cups were found at Balkerne Lane, Lion Walk, Culver Street and the Gilbert School (see Table 5.1). Two were deep blue decorated with opaque white zig-zag trails (**259 & 260**, see above pp 58-9). The others were monochrome, of which two were emerald green (**279 & 280**), one was yellow (**281**), at least five were light or pale green (**282-287**), two were green-tinged colourless (**288 & 289**) and at least twenty-one were blue/green (**290-331**). On four of the cups, carefully formed wheel-cut grooves are spread evenly down the sides of the vessels. Two of these are made of thin-walled green-tinged colourless glass (**288 & 289**), one is yellow (**281**), and the other is pale green (**282**). These four vessels may have belonged to the more expensive end of the price

Table 5.1 Distribution of Hofheim cups, abraded beakers, indented beakers and arcaded beakers.
[Pages 64-5]

SITE	Hofheim cups		abraded beakers		indented beakers		arcaded beakers	
	Frs	EMN	Frs	EMN	Frs	EMN	Frs	EMN
1.81	23	8	5	3	3	2	-	-
BKC	37	9	58	4	9	2	-	-
LWC	15	5	8	3	40	2	-	-
GBS	29	13	9	4	12	3	-	-
COC	-	-	-	-	-	-	1	1
Totals	104	35	80	14	64	9	1	1

range. It is much more common to find examples which have been decorated with less carefully-made wheel-cut lines or abraded bands below the rim and above the curve to the lower body, as is the case with the majority of the fragments from these excavations.

One of the green-tinged colourless cups with careful cutting (**288**) was much shallower than is usual in the north-western provinces. This combination of low form, green-tinged colourless glass and good-quality cutting has also been found at Sheepen, in a context dated to AD c 49-60/1 (Harden 1947, 303 no 73, pi 88) and at Valkenberg in a deposit dated to AD 40-47 (van Lith 1978-79, 40 no 146 Abb 14). One of the fragments from **288** was found in a context dated to AD c 50-60/1. This high-quality form of Hofheim cup was therefore in use during the Claudian/early Neronian period. It does not appear to have been very common in the north-western provinces, but it has frequently been found in the Mediterranean area.

In the few cases where sufficient of the lower body and base is preserved to be certain that they came from Hofheim cups (290 & 317-320), the bases are all flat or slightly concave. There are also fragments from four bases which have high central kicks (287 & 329-331), and which are very likely to have come from Hofheim cups. Such bases are generally considered to be typical of cups in use during the later part of the life span of this form (Berger 1960, 43), and here all the ones from dated contexts were post-Boudican.

Hofheim cups are recorded in late Augustan contexts at Magdalensberg (Czurda-Ruth 1979, 37 nos 324-418), but their main period of use was in the second and third quarters of the 1st century. At this time the form was very common. It was still in use in the late Neronian and early Flavian period because it is found quite frequently on sites first occupied at that time, such as The Lunt (Charlesworth 1971 -3, 79 no 11 and possibly no 7), Caerleon (Price 1985a, 305 footnote 258), and Chester (unpublished).

Berger believed, from the evidence at Vindonissa (1960, 43), that Hofheim cups continued in use to the end of the 1st century. They are occasionally found in late 1st-century deposits; for example several were recorded from the pits filled with broken glass at the *canabae legionis* at Nijmegen which are dated to the late 1st or very early 2nd centuries (Isings 1980, 281, Find 1/66 287 nos 7-15, fig 3.4 & 5; Find 1/67 297-8 nos 47-79, fig 9.5-21; Find 1/68 327 no 4, fig 36/4; Find 1/85 331 nos 8-16, fig 37.8-11). However, such late occurrences seem to be exceptional, and on the whole the form was not common after the early Flavian period. The geographical spread of the type in Roman Britain demonstrates this very well. It is mainly found on sites occupied in the pre-Flavian period and it is rare in the northern areas associated with the Flavian advance, though examples have been found in that area, at Inchtuthil (Price 1985a, 305, fig 93.2), at a native settlement at Hetha Burn, Hethpool, Northumberland (Burgess 1970, 24, fig 13.2 & 3), and at Castleford and Blake Street, York (both unpublished).

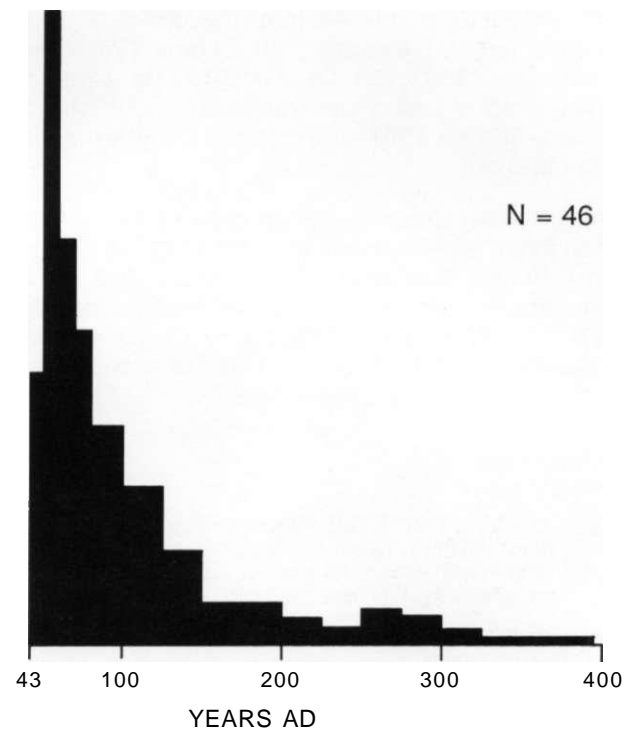


Fig 5.1 Histogram showing the dates of the fragments of Hofheim cups found in Roman contexts (for the method of calculating the histogram, see pp 5-6).

The dates of the Roman contexts in which Hofheim cups were found are shown in Figure 5.1. There is a very strong pre-Boudican presence. The high level of loss appears to continue into the first decade of the Flavian period, if allowance is made for the fluctuation often apparent in these histograms for the period immediately after the Boudican destruction. Thereafter the decline is sharp.

Hofheim cups were common in many parts of the Empire. In addition to the sites already mentioned, we may also note them in the north-western provinces at, for example: Velsen (van Lith 1977, 23-8, Abb 9-10); Xanten (Charlesworth 1984b, 288, Taf 101.9-11); Trier (Goethert-Polaschek 1977, 41 Form 30); Vervoz and Tongres (Vanderhoeven 1961, 18-21 nos 14-16, pi 3); Köln (Fremersdorf 1958b, Taf 49); Bonn (Follmann-Schulz 1988, 99 nos 358-75, Taf 42); Asberg (van Lith 1984, 231-4 nos 116-52); Strasbourg (Arveiller-Dulong & Arveiller 1985, 52 no 68); Oberwinterthur (Rutti 1988, 46 nos 694-777, Taf 10); and *Baden-Aquae Helveticae* (Funfschilling 1986, 125 nos 164-88, Taf 14). They are also found on the Danubian frontier as at Oberstimm (Garbsch 1978, 280 nos E17 & E18, Taf 108), in the Iberian peninsula at Conimbriga (Alarcao 1976, 163 nos 34-6, pi 35), and at many sites in Spain (Price 1981b, 420-23). Examples from Italy and the other west Mediterranean provinces include vessels from Minusio Cadra (Simonett 1941, 160 no 13, Abb 138), Aquileia (Calvi 1968, 67, 72-3 nos 169-72, tav C.5), and Frejus

Hofheim cups

(Price 1988, 32, figs 37-8). The form was also in frequent use in the eastern provinces. It is well represented, for example, on Cyprus (Vessberg & Westholm 1956, 139 fig 44/10-19), in Crete (the Unexplored Mansion site, Knossos; unpublished), at Masada (Barag 1991, 138), and at Benghazi in Libya (unpublished).

From Roman Britain, Hofheim cups of this sort have been found at: Nanstallon (Harden 1972, 107 no 133); Little Spittle, Somerset (Price 1982a, 228 no 10); Verulamium (Charlesworth 1984a, 154-5 nos 88-90, fig 63.41-3); and Mancetter fort, Claydon Pike in Gloucester, and Wroxeter (all unpublished), in addition to the sites already noted.

Hofheim cups *Emerald green*

279 LWC72 J1536 F506; Period 3. One rim and 1 body fragment of cylindrical cup. In-turned rim, edge cracked-off with inward bevel and ground; convex-curved side. Two abraded bands on upper body. PH 48, RD 80, WT 2.

Yellow/brown

281 BKC73 A118 L18; Period 1. Rim fragment of cylindrical cup. Light yellow. Slightly inbent rim, edge cracked-off and ground. Two wide wheel-cut grooves on upper body. PH 30, RD 75, WT 1.5.

Light/pale green

282 GBS84 A275 L9; Period 3a. Rim and body fragment of hemispherical cup. Pale green. Vertical rim, edge cracked-off and ground; straight side with lower body curving in. Four wide wheel-cut grooves spaced from rim to lower body with increasingly wide intervals between them. PH 51, RD 80, WT 1.5.

283 LWC73 K434; Period 4b. Rim fragment of hemispherical cup. Light green. Vertical rim, edge cracked-off and ground. Wide shallow wheel-cut groove below rim. PH 20, RD 80, WT 2.

285 GBS84 A317 L9; Period 3a. Lower body and base fragment of cylindrical cup. Pale green. Carination to convex-curved lower body sloping in to small base with pronounced central kick. PH 14, BD approx 25, max body diameter approx 80, WT 1.5.

286 1.81 W138 L137; Period 3 or 4. Lower body and base of cup? Light green. Convex-curved lower body curving in to concave base without pontil scar. PH 10, BD 35, WT 2.

Colourless (green-tinged)

288 BKC74 G221 L22; Building 41; Period 2. BKC 74 G205 F40; Building 55; ?Period 5c. BKC G98 F181; Period 5c or 6. Five joining rim and body fragments of thin-walled cylindrical cup. Slightly in-turned rim, edge cracked-off and ground; slightly convex-curved body curving into base. Three wide wheel-cut grooves. PH 37, RD 90, WT 0.5.

289 LWC72 J718 F220; Period 3? Rim fragment of thin-walled beaker or small cup. Vertical rim, edge cracked-off and ground; convex-curved body. Three wide wheel-cut grooves below rim and on upper body. PH 19, RD 85, WT 0.5.

Blue/green

290 BKC76 T216; demolition debris; Building 47; end of Period 3. Seven rim, body and base fragments of cylindrical cup. Slightly in-turned rim, edge cracked-off and ground; convex-curved body; flat base. One narrow abraded band below rim, 1 wider band on lower body. Height approx 55-60, RD 75, WT 2.

291 BKC75 J282, J299 & J312 L35; Periods 3/4/5a. Eleven rim and body fragments of cylindrical cup. Slightly in-turned rim, edge cracked-off and ground; convex-curved body. Wide shallow wheel-cut groove with abrasions either side below rim; 1 narrow abraded band on lower body. Parts distorted by heat. PH 62, RD approx 85, WT 2.

292 GBS84 A1010 L28; ?Roman. A2306; unstratified. One rim and 1 joining body fragment of cylindrical cup. Vertical rim, edge cracked-off and ground; straight side with lower body curving in to base. Abraded bands below rim edge and at carination to lower body; wide wheel-cut groove between. PH 50, RD 80, WT 3.

293 GBS84 A1541 L101; Period 2. Rim fragment of cylindrical cup. Slightly in-curved rim, edge cracked-off and ground; slightly convex-curved side beginning to curve in to lower body. Wide wheel-cut groove below rim; abraded band on lower body. PH 42, RD 80, WT 2.

294 GBS84 A1348 L66; Period 3a. Rim fragment of cylindrical cup. Description as 293. PH 40, RD 80, WT 1.5.

295 LWC72 J1634; Building 16; Period 3. Rim fragment of cylindrical cup. Slightly inbent rim, edge cracked-off unevenly and ground; convex-curved body. One narrow abraded band near rim; 2 similar bands on body; traces of abraded band on interior by rim. PH 43, RD 70, WT 2.

297 BKC74 E979 F276; Period 1b. Rim fragment of cylindrical cup. Slightly inbent rim, edge cracked-off and ground; convex-curved side. Wide wheel-cut groove and abraded band below rim. PH 26, RD 90, WT 2.

298 BKC74 E339 L69b; Period 3b or 4. Rim fragment of cylindrical cup. In-turned rim, edge cracked-off and ground; convex-curved side. Wide shallow wheel-cut groove and abraded line below rim. PH 41, RD 80, WT 1.5.

299 1.81 M729 F313; Period 3. Rim and 2 body fragments (all joining) of hemispherical cup. Vertical rim, edge cracked-off and ground; convex-curved side. Wide wheel-cut groove with narrow abraded band underneath below rim edge. PH 37, RD 80, WT 2.

300 GBS85 B219 L9; Period 3. Three joining rim fragments of cylindrical cup. Slightly in-curved rim, edge cracked-off and ground; straight side. One wide wheel-cut groove and abraded band below rim. PH 38, RD 80, WT 1.5.

301 GBS84 A151 L1; post-Roman. Rim fragment of cylindrical cup. Slightly in-curved rim, edge cracked-off and ground; straight side. Abraded band below rim; wide wheel-cut groove on body. PH 33, RD 75, WT 1.5.

302 GBS85 B373; unstratified. Rim fragment of cylindrical cup. In-curved rim, edge cracked-off and ground; straight side. Wide wheel-cut groove and abraded band below rim. PH 30, RD 75, WT 2.5.

304 1.81 K401 L358; unstratified. Rim fragment of cylindrical cup. Vertical rim, edge cracked-off and ground; straight side. Abraded band below rim. PH 27, RD 75, WT 2.5

317 LWC72 J1536 F506; Period 3. Four joining lower body and base fragments of cylindrical cup. Convex-curved body; concave base. Two narrow abraded lines on lower body. PH 28, BD approx 35, WT 2.

318 LWC71 A264 F89; Period 2. Four lower body and base fragments of cylindrical cup. Convex-curved body with rounded change of angle to wide lower body and and small convex-curved base. Narrow abraded band above change of angle. Heat-affected. PH 26, BD approx 30, WT 2.

319 1.81 J344 F343; Period 1 or 2. Two joining lower body and base fragments and 1 body fragment of cylindrical cup. Rounded carination to wide convex-curved lower body sloping in diagonally to small flat base. Wide wheel-cut groove on body fragment. PH 20, BD approx 35, WT 2.

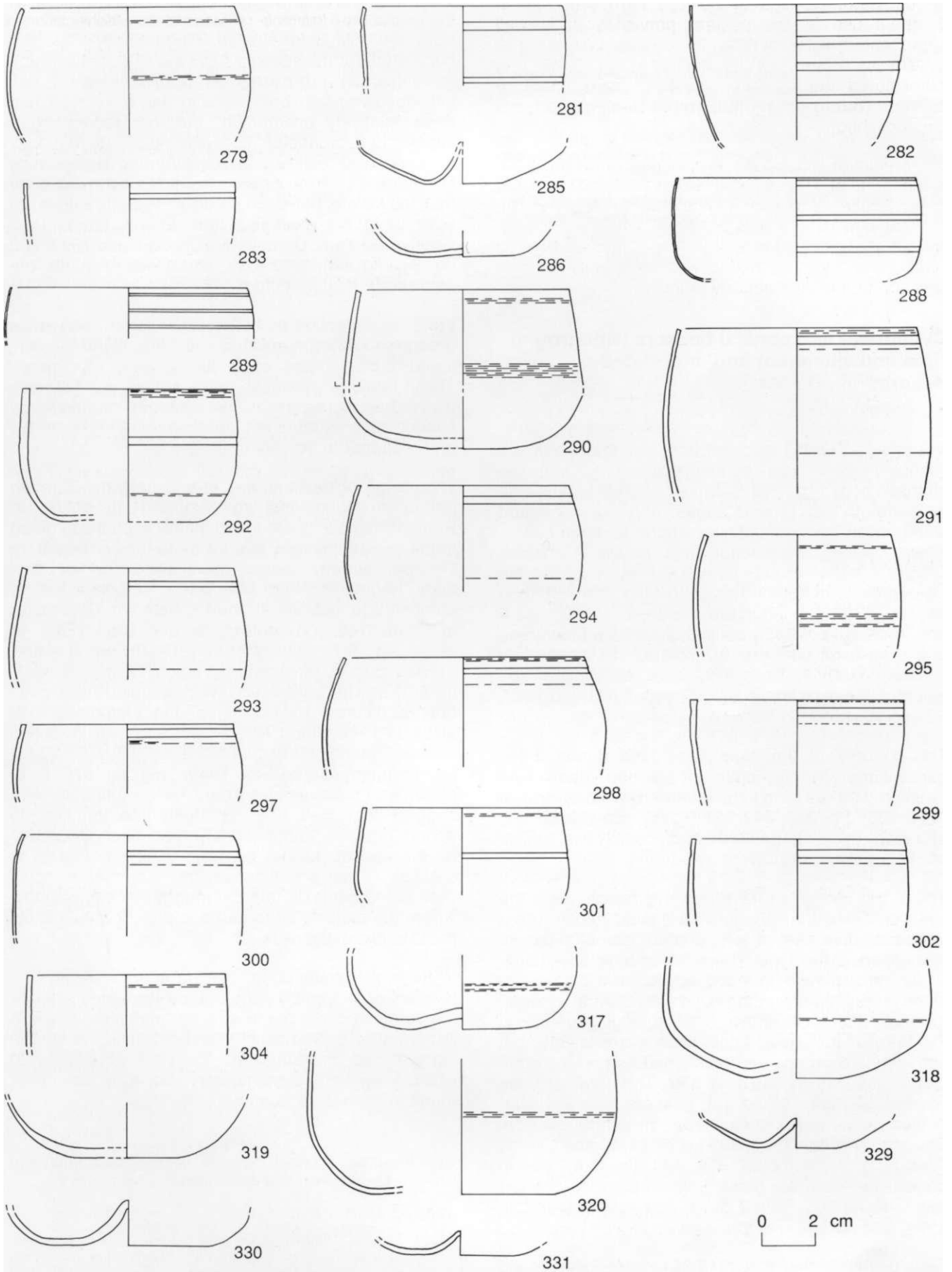


Fig 5.2 Hotheim cups. 1:2. [Pages 64-8]

Hofheim cups

- 320 BKC76 J403; modern. Three joining lower body and base fragments of cylindrical cup. Convex-curved body; slightly concave base mostly missing. Narrow abraded band on lower body. PH 51, WT 2.
- 329 BKC75 J371; Period 3 to 6. Lower body and base fragment of cup. Side curving in shallowly to concave base with pronounced kick. PH 10, BD approx 35-40, WT 1.5.
- 330 1.81 W140; unstratified. Base fragment of cylindrical cup. Convex-curved lower body sloping in to concave base with pronounced central kick. PH 12, BD 50-60, WT 2.5.
- 331 1.81 B1496 L366; early Period 3. Base fragment of cup. Concave base with pronounced central kick. BD approx 30, WT 2.

Cylindrical and conical beakers with ground rims and wheel-cut and/or abraded decoration (332-351)

[Fig 5.3; Table 5.1]

Fragments **332-351** all come from a range of beakers which were in use contemporaneously with the Hofheim cups. They have curved or vertical rims with knocked-off and ground edges, and are decorated with horizontal wheel-cut lines and/or abraded bands. These beakers were made in a variety of shapes. They are either slightly convex-curved, such as the olive green, amber and opaque blue barrel-shaped beakers from Vindonissa (Berger 1960, 43-4 nos 94-9, Taf 6.17-19), conical, such as a blue/green one from a pit dated to AD 75-100 at Richborough (Bushe-Fox 1949, 59 no 378, pi 59), or cylindrical, as in a blue/green example from Sheepen (Harden 1947, 303 no 78, pi 88).

The majority of the examples found during these excavations (where sufficient of the body was preserved for the form to be identified) were cylindrical (**334, 336, 338-339, 342-344 & 346**), but at least one of a more ovoid shape (**340**), and possibly two conical beakers (**332 & 345**), were also found.

These beakers often have concave bases, as is the case on those from Vindonissa quoted above, but a very distinctive form of solid domed base also occurs on beakers of this type. These bases have thick horizontally out-splayed rounded edges, and flat undersides, sometimes with a small central indent. Internally the base shows a thickening, generally in the form of a hemispherical knob such as **348**, but sometimes occurring as a thickened ring on the edge of the base as in **349** and **350**. This form of base occurs on both cylindrical beakers whose lower bodies are convex-curved, as in examples from Sheepen (Harden 1947, 303 no 77, pi 88) and Cyprus (Vessberg & Westholm 1956, 144, fig 45.6), and in conical beakers like those from Vindonissa (Berger 1960, 46 no 105, Tafn 7 & 19) and Asberg (van Lith 1984, 243 no 180, Taf 93).

Four bases of this sort (**348-351**) have been found during the excavations at Colchester, bringing the

total from this area of Essex to seven. In addition to the examples from Sheepen, two were also recovered from the Claudian site at Fingringhoe (CM, not numbered; for the site see *VCH Essex & Willis* 1990). In connection with a fragment from Valkenberg, van Lith observed that beakers with this base type had been relatively uncommon, but that recent excavations had produced more examples so that they now occurred relatively frequently in the Netherlands (1978-79, 61). In a similar way it is becoming clear that they were not uncommon in Roman Britain. In addition to the examples from Essex, others from Greyhound Yard, Dorchester (Cool & Price 1993, 162 no 94, fig 86), and Usk and Chester (both unpublished), may be noted.

With the exception of **332** (yellow/green), **334** (pale green) and **335** (greenish colourless), all the beakers found during these excavations were blue/green. These beakers were also made in light yellow/brown glass, but examples in the stronger monochrome shades such as opaque blue, deep blue and emerald green appear to be very rare.

This range of beakers was in use from the Tiberian period at Magdalensberg (Czurda-Ruth 1979). In Roman Britain they are found mainly in contexts dated to the mid 1st century. In addition to the beakers from Sheepen already quoted, there are further rim and body fragments: from the early Neronian fort at Mancetter (unpublished); from Kingsholm, Gloucester in a late Neronian context (Price & Cool 1985, 48 no 32, fig 18 & 50 no 46); from Southwark in a pre-Flavian context (Townend & Hinton 1978, 151 no 1, fig 60); at The Lunt which was occupied from c AD 60/4-80 (Harden 1971-3, 77); and in a legionary level at Lincoln (Harden 1949, 77 no 5, pi 10). The two beakers found in a pit dated to AD 75-100 at Richborough (Bushe-Fox 1949, 159 no 376 & 8, pi 69), and the examples from Chester (unpublished), suggest that their use continued into the Flavian period, but they do not seem to have been still in use by the end of the 1st century. Their date range is c AD 25-75 and is well demonstrated by the examples from dated contexts found during these excavations, where the majority were found in pre- or immediately post-Boudican deposits.

In these excavations, as can be seen in Table 5.1, beakers of this sort were found on the same sites as the Hofheim cups, but in smaller quantities; this is a pattern that is frequently observed. They have the same broad distribution as the Hofheim cups with which they were contemporary, but they are never found in such large numbers.

Cylindrical and conical beakers with ground rims and wheel-cut and/or abraded decoration

Yellow/green

- 332 LWC72 J1083 F315; Building 8; Period 2. Rim fragment. Pale yellow/green. Slightly in-turned rim, edge cracked-off and ground; straight side tapering in. Two narrow abraded bands. PH 36, RD 55, BT 1.

Pale green

- 334 BKC75 K650 L119; Period 4a/b. Rim fragment. Large yellow/brown impurity. Curved rim, edge cracked-off and ground; straight side. PH 20, RD 70, WT 1.5.

Colourless

- 335 BKC75 J150 L1; modern. Fifty-five rim, body and base fragments of cylindrical beaker. Green-tinged colourless. Curved rim edge cracked-off and ground; straight side; slightly concave base. One narrow abraded band on upper body and 1 on lower body. Circular pontil scar. PH (rim) 37 and (base) 38, RD 70, BD 50, WT 1, pontil-scar diameter 10.

Blue/green

- 336 LWC72 J1682 F586; Period 1. Rim fragment of cylindrical beaker. Curved rim, edge cracked-off and ground; vertical straight side. One narrow abraded band on upper body with wider band below. PH 40, RD 80, WT 2.
- 337 LWC71 C356; ?Period 2 or 3a & 3b. Rim fragment. Curved rim, edge cracked-off and ground; side beginning to slope in. PH 13, RD 80, WT 2.
- 338 GBS84 A567 L8; Period 3a. Rim fragment of cylindrical beaker. Curved rim, edge cracked-off and ground; straight side. Thin abraded band below rim. PH 22, RD 75, WT 1.
- 339 1.81 D1415 F1344; Period 4. Rim fragment of cylindrical beaker (or cup). Curved rim, edge cracked-off and ground with inward bevel; straight side. Abraded band on upper body. PH 21, RD 75, WT 1.
- 340 GBS84 A241 L8; Period 3a. Rim fragment of slightly ovoid beaker. Curved rim, edge cracked-off and ground; slightly convex-curved side sloping out. Thin abraded bands below rim and on upper body. PH 33, RD 70, WT 1.5.
- 342 BKC74 E1161 L382; Period 1b or 2. Rim fragment of cylindrical beaker. Curved rim, edge cracked-off and ground; straight side. Narrow abraded band below rim. PH 29, RD 70, WT 1.5.
- 343 GBS84 A1748 L136; Period 2. Two joining rim and 2 body fragments of cylindrical beaker. Curved rim, edge cracked-off and ground; straight side. Abraded band below rim, wide wheel-cut groove on body. PH (rim) 21, RD 70, WT 2.5.
- 344 GBS85 A2377 L250; Building 131; Period 1 or 2. Rim fragment of cylindrical beaker. Curved rim, edge cracked-off and ground. Thin abraded band on upper body. PH 22, RD 60, WT 1.5.
- 345 1.81 G2313 F2218; Period 3. Rim fragment of conical beaker. Rim curved out, edge cracked-off smoothly but not ground. Straight side sloping in. PH 11, RD approx 65, WT 1.
- 346 BKC75 K459 L70; Period 4a. Rim fragment of cylindrical beaker. Curved rim, edge cracked-off and ground; straight side. Narrow abraded band below rim. PH 20, RD 60, WT 1.
- 348 GBS84 A317 L9; Period 3a. Complete base and lower body of beaker. Convex-curved side sloping in steeply to horizontal out-splayed base edge; thick flat base with central internal dome. PH 31, BD 49, WT 2.
- 349 1.81 M209 L1; unstratified. Side and base fragment of beaker. Side sloping in to horizontal out-splayed base edge; thick flat base with small central concavity on underside and thick rounded ridge on interior. Side irregularly-grooved. PH 17, BD 42, WT 2.
- 350 LWC71 B517 F184; Period 4. Lower body and base fragment. Side sloping in to horizontal out-splayed base edge; thick flat base with rounded ridge on interior. Base worn. PH 12, BD 60, WT 4.
- 351 1.81 D2013 L1745; Period 4. Lower body and base fragment of beaker. Convex-curved side sloping in to horizontal out-splayed base edge; thick flat base mostly missing. PH 18, BD approx 40, WT 1.5.

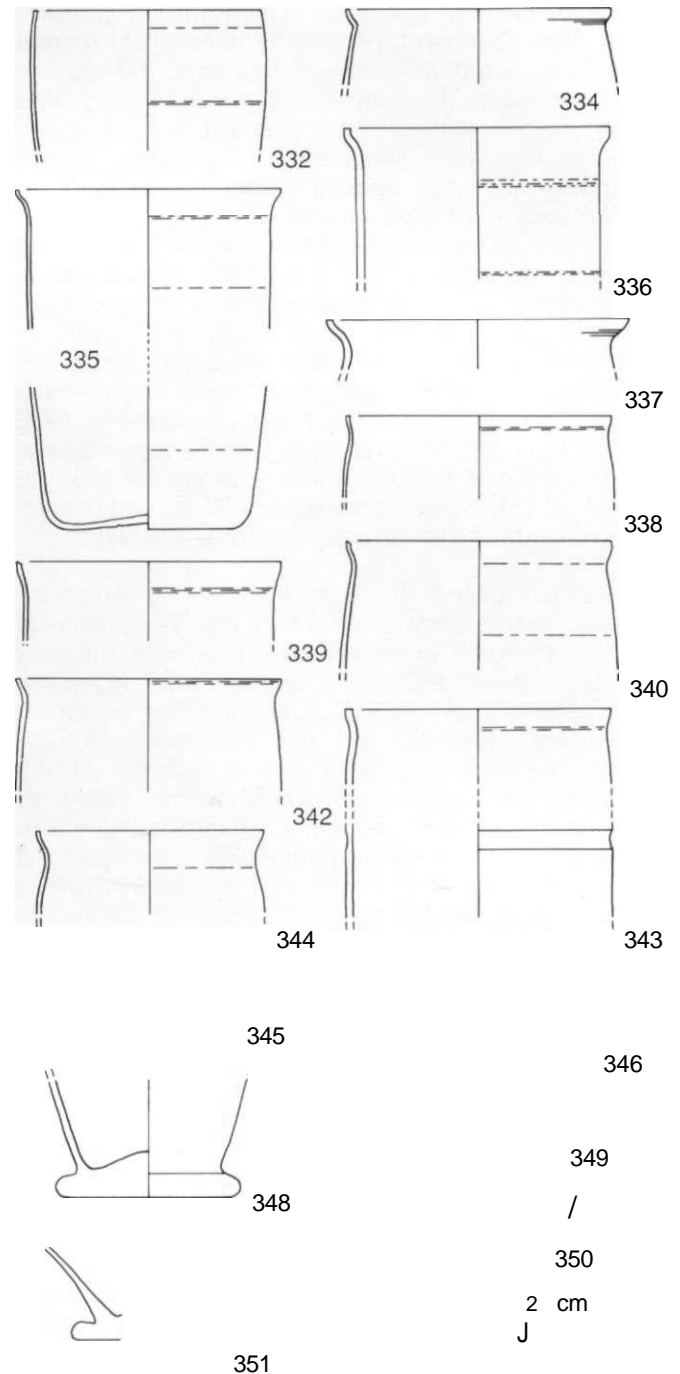


Fig 5.3 Cylindrical and conical beakers with ground rims and wheel-cut and/or abraded decoration. 1:2. [Pages 68-9]

Indented beakers (385-393)

[Fig 5.4; Table 5.1]

The majority of the indented beakers found during these excavations belong to the cylindrical or slightly convex-sided form whose main period of use was during the second half of the 1st century. These have knocked-off and ground rims, below which there is

Indented beakers

often a wheel-cut line or abraded band. The bases are concave or have pushed-in base rings. In the latter case the base can be markedly concave or domed. The sides are decorated with four large indents or a larger number of narrower oval indents. They were made in yellow/green, pale greenish, colourless and blue/green glass. The range of variation is well demonstrated by beakers from Corbridge and Richborough. At Red House, Corbridge, fragments from two blue/green beakers with concave bases were found in the silt of a latrine accompanied by Flavian pottery. One had large and the other narrower indents (Charlesworth 1959b, 166, fig 22.1-2). At Richborough two colourless beakers with base rings have been found, one with large indents from a well-deposit dated to the mid 1st century (Bushe-Fox 1926, 49 no 8, pi 19), and the other with narrower indents from a pit dated to AD 50-80 (Bushe-Fox 1932, 85 no 61, pi 15). Isings Forms 32 and 35 include beakers of this kind but also encompass some later types.

The occurrence of these beakers during the recent excavations is shown in Table 5.1 (p 64). The usual range of colours is represented. There are one each in yellow/green (385) and blue/green (393) glass, two light green ones (386 & 387), and five colourless examples (388-392). All but 391 were probably decorated with large indents, and sufficient of 386, 388 and 393 are preserved to show that they each had four indents producing a fundamentally square outline. There is evidence for the type of base used on six of the beakers and all but one (386-388, 391 & 392) had a base ring; the exception (393) was concave.

These beakers came into use during the second quarter or middle of the 1st century (Isings 1980, 288; van Lith 1984, 243 no 179), but they are primarily a Flavian form whose use may have continued into the early 2nd century. This is supported by the dating evidence from these excavations. One example (385) was found in a pre-Boudican context, and three (388-390) came from contexts pre-dating AD 125.

Such beakers were a widespread form. In the northern provinces they may be noted, for example: in the late 1st-century or very early 2nd-century pits at the *canabae legionis* at Nijmegen (Isings 1980: Find 1/66 288 nos 23-30, fig 3.14 & 16; Find 1/67 298-30 nos 80-112, fig 9.25-31 & 10.1-8; Find 1/85 331-3 nos 17-23, fig 38.1-2); in a Flavian inhumation at Niort, Deux Sevres (Mitard 1977, 219 no 14, fig 5); in a deposit at Valkenburg dated to AD 70-80 (van Lith 1978-79, 57 no 200, Abb 29); and at Vindonissa (Berger 1960, 46 nos 107-8, Tafn 7 & 19), but they are probably more numerous in the Mediterranean areas (see Scatozza Horicht 1986, 40; Price 1985c, 73).

Indented beakers are relatively common in Britain. In addition to the examples from Corbridge and Richborough already mentioned, they have been found at Doncaster in a late 1st-century ditch (three examples; Buckland 1986, fig 11); at Brading villa on the Isle of Wight (Tomalin 1987, 43, B8); Greyhound

Yard, Dorchester (Cool & Price 1993, 160 nos 29-31 & 51, fig 85); and at Castleford, Chester, Gloucester, Wroxeter, and Blake Street, York (all unpublished).

One of us has suggested (Price 1985c, 73) that the form with a base ring occurred mainly in the Mediterranean area, but the evidence from Roman Britain now indicates that these were as likely to occur in the north as the beakers with concave bases.

Indented beakers

Light/pale green

386 BKC75 J242 L33; Period 3/4/5a. Eight body and base fragments. Pale green. Straight side sloping in to constriction above tubular pushed-in base ring; domed base. Four deep elongated oval indentations. PH 58, BD 38, WT 1.5.

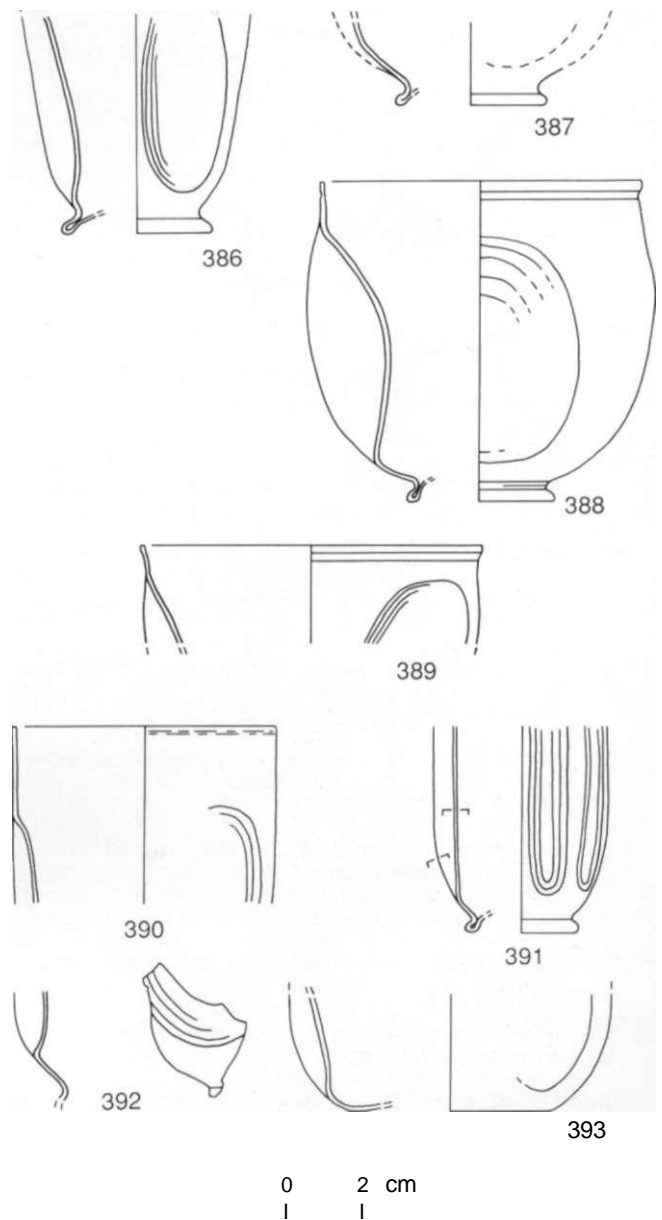


Fig 5.4 Indented beakers. 1:2. [Pages 69-71]

- 387** 1.81 G1523 L1344; Period 4. Two lower body and base fragments. Light green. Side curving in to wide convex-curved lower body; closed pushed-in base ring; base missing. PH 22, BD 40, WT 1.

Colourless

- 388** LWC72 J1025 & 941; Building 16; Period 3. Thirty-one rim, body and base fragments of squat cylindrical beaker. Green-tinged colourless. Vertical rim, edge cracked-off and ground; convex-curved body; open pushed-in base ring; high concave base mostly missing. Wide shallow wheel-cut groove below rim; 4 deep oval indentations on body. Height approx 90, RD 80, BD 39, WT 1.
- 389** BKC76 V234 L21; Period 4. Rim fragment. Slightly curved rim, edge cracked-off and ground; slightly convex-curved body with part of 1 large indentation. Wide wheel-cut groove below rim. PH 26, RD 90, WT 1.
- 390** GBS84 A291 L9; Period 3a. Two rim and 8 body fragments (several joining) of beaker. Slightly green-tinged colourless. Vertical rim, edge cracked-off and ground; straight side above indentations. Abraded band below rim. PH 46, RD approx 70, WT 1.
- 391** LWC72 J718 F220; Period 3. Nine body and base fragments. Straight side curving in at bottom to solid pushed-in base ring; base missing. Long, narrow, deep indentations on side. PH 31 (min height 55), BD approx 30, WT 0.5.
- 392** 1.81 G3139 F2695; Period 3. Lower body fragment. Side with base of 1 large indentation curving into wide lower body; fragment broken as it curves out to form base ring. Dim approx 40x25, WT 1.

Blue/green

- 393** GBS84 A573 F90; Period 3b. Lower body and base fragment. Convex-curved side sloping in steeply to shallow concave base, mostly missing. Parts of 2 elongated indentations. PH 31, BD approx 55, WT 1.5.

Arcaded beakers (394)

[Fig 5.5; Table 5.1]

Fragment **394** is a pale green fragment of an arcaded beaker (Isings Form **33**). The straight side with the lower body curving in to a pushed-in tubular base ring survives, and when complete the vessel would probably have had a vertical rim with cracked-off and ground edge and a horizontal wheel-cut groove below the rim edge, as on one from the Liverpool open cemetery, Muralto (Simonett 1941, 62 no 7.1, Abb 41, Taf 12.2). The bodies of these beakers are decorated with trails in low relief pinched in an elongated oval pattern, which is either separate as on the Muralto example, or joined together to give an arcaded pattern as on **394**. So far only the latter pattern has been recorded in Roman Britain. The beakers were made in colourless or yellow/green glass.

These beakers were contemporary with the indented beakers represented by **385-393**. They were in use during the second half of the 1st century and were mainly a Flavian form. Fragment **394** was clearly an early example of the type as it was found in a context dated to c AD 49-75. Both trails and indents are sometimes noted on one beaker, as for example on a

colourless example from a Flavian pit at Corbridge where the trails are applied around the edges of oval indents (Charlesworth 1979b, 58 no 2, fig 20).

The greatest concentration of these beakers is in Italy and south Switzerland (Berger 1960, 47), and others are known from southern France and Spain (Price 1981b, 443-5). They are not so common in the north-western provinces, but they have been found at, for example, Hedderheim (Welker 1974, 25-7 no 27, Taf 3) and Nijmegen (Isings 1980, Find 1/67 295 no 26, fig 8.6). In Roman Britain, as well as **394** and the hybrid version from Corbridge, they are known at South Shields (Charlesworth 1979c, 166 no 4, fig 84), Caerleon (Nash-Williams 1929, 257 no 4, fig 18/4), and Berkeley Street in Gloucester and Wroxeter (both unpublished), though the South Shields example is rather unusual in that it has a separately-blown foot. Their relative scarcity in the northern provinces is well demonstrated by comparing their occurrence with that of the indented beakers. Here at Colchester, for example, only one example was found in comparison to nine indented beakers. And, amongst the large amounts of glass found in the late 1st- or early 2nd-century pits at the *canabae legionis* at Nijmegen, Isings was able to identify only one example of an arcaded beaker (Isings 1980, Find 1/67 295 no 26, fig 8.6), as opposed to over 300 fragments of indented beakers (*ibid*, Find 1/66 288 nos 23-30, fig 3.14 & 16, Find 1/67 298-30 nos 80-112, fig 9.25-31 & 10.1-8, Find 1/85 331-3 nos 17-23, fig 38.1-2).

Arcaded beaker

Pale green

- 394** COC79 902 L226; Period 2. Lower body and base fragment. Straight side; convex-curved lower body; broken pushed-in tubular base ring; domed base mostly missing. Arcaded trails on straight side. PH approx 67, BD approx 40, WT 1.5.

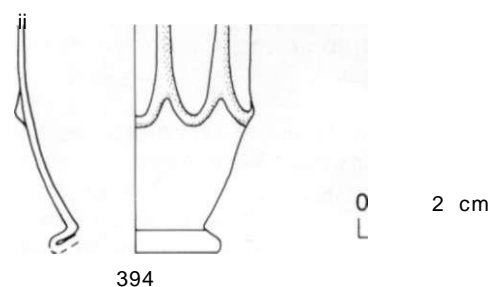


Fig 5.5 Arcaded beaker. 1:2.

Facet-cut beakers and related forms (395-410)

[Fig 5.6]

Externally ground facet-cut beakers were the first type of Roman drinking-vessel always to be made in good-quality colourless glass. They usually have truncated conical bodies which stand on a low foot ring, and

Facet-cut beakers and related forms

occur in both a tall and a lower squat form. They were produced by grinding away the exterior of a blown blank. That the blank was originally blown and not cast is shown by the fact that the interior retains the glossy appearance associated with blown glass, and shows no signs of the wheel-polishing that would have been needed had the blank been cast. The basic decorative pattern used has most of the side covered by horizontal rows of oval facets closely set in quincunx, so that the cutting frequently appears to be diamond or hexagonal. The area above and below the faceted zone is left plain. A narrow horizontal ridge or cordon is produced just below the rim edge by grinding down the surface, and the faceted zone may either be in relief above the ground-down plain zones, or there may be a ground-out cordon or ridge above and below it, or both features may occur on the same vessel. A general impression of the appearance of what these beakers were like may be gained by reference to the only intact example of the type found in Britain, namely a low beaker without ridges from Barnwell, Cambridgeshire (Harden *et al* 1968, 79 no 101 & 1987, 194 no 104).

Isings Form 21 includes both these beakers and a less common variety that is not externally ground, such as the example from the Liverpool unten cemetery, Muralto (Simonett 1941, 84 no 8, Abb 68, Taf 12.3; Berger 1960, table facing 92; see also Doppelfeld 1966, Taf 40; Berger 1960, Taf 11, Form V). These may be distinguished from the externally-ground facet-cut beakers not only by the absence of ground-out decoration such as ridges, but also by the position of the facets. In both varieties the rows of facets are set in quincunx, but while on the externally-ground beakers the facets are close-set to form diamonds or hexagons, the facets on the other beakers are more widely spaced and retain their oval outlines. For the sake of clarity in the discussions in this section, the term 'facet-cut' will refer to the externally ground form. The beakers which are not externally ground will be termed 'facet- and linear-cut' beakers.

The combination of different heights, and the presence or absence of ridges etc, means that many different variants of facet-cut beakers have been recognised. This has led to many different typologies being produced for the form, including those by Ekholm (1936), Eggers (1951, 178 Types 185-7), and Berger (1960, 67-70); these have been usefully summarised by Welker (1974, 56-8; see also Harden & Price 1971, 339-41 and Rutti 1988, Abb 34). However, no-one has yet shown that there is any significant variation in either spatial or chronological distributions associated with these variants.

The beakers have recently been studied by Oliver (1984), who divided them into two groups, each with a high or low form, according to whether the ridge on either side of the faceted zone was absent (Group 1) or present (Group 2). As Oliver clearly demonstrated in this paper, facet-cut beakers were widely spread both within the Empire and beyond its borders. They

have been found, for example, in Sweden and Denmark (Oliver 1984, 49 nos 29-30), and at Begram in Afghanistan (*ibid*, 48-9 nos 19-28, 54 nos 55-63). It should be noted, however, that they are much more numerous than Oliver's paper suggests. He cites just over one hundred examples in total, whereas well over fifty are now known from Roman Britain alone.

Facet-cut beakers were manufactured during the last third of the 1st century and possibly also in the early 2nd century. They were certainly in use by the late Neronian or early Flavian period. At Exeter a fragment from a Group 1 beaker was found in a construction level dated to c AD 60-65 (Charlesworth 1979a, 224 no 12 fig 70), and at Fishbourne a lower body fragment of a Group 2 beaker as well as a body fragment of unknown type were found in the construction deposits of the Period 2 palace dated to c AD 75 (Harden & Price 1971, 342 nos 42-3, fig 139). Examples are also found on the sites overwhelmed by the eruption of Vesuvius in AD 79 (Harden *et al* 1987, 192 no 102). Both of Oliver's groups appear to have come into use about the same time. Oliver noted that in his sample of beakers those of Group 2 (with ridges) outnumbered those of Group 1 by about three to one (Oliver 1984, 44), and he suggested that this might have been due to the Group 2 pattern continuing in production for a longer time than that of Group 1. From Roman Britain, the examples of Group 2 beakers do outnumber those of Group 1 but not to such a marked extent. Until finds from dated contexts have been extensively examined, this suggestion should probably be viewed with some caution.

The less numerous facet- and linear-cut beakers have not often been found in well-dated contexts. The beaker from Locarno already mentioned came from a 1st-century grave, and another was found in a grave dated to c AD 100-150 at Losone, Arcegno (Carazzetti & Biaggio Simona 1988, 118 no 146). Fragments from two examples were found at Verulamium in a fire deposit dated to c AD 150-150/60 (Charlesworth 1972, 207, fig 77.41-2). Facet- and linear-cut beakers would thus appear to be broadly contemporary with facet-cut beakers, but to have continued in use into the mid 2nd century.

Only facet-cut beakers are present in this assemblage (**395-403**, & probably **404-406**). There are two examples of Oliver Group 1 beakers (**395 & 396**) and two Oliver Group 2 beakers (**397 & 401**), though as the vessel **401** was broken and did not retain any evidence of facets it could have come from one of the beakers with a plain rather than facet-cut middle zone, such as that found at Rough Castle (Charlesworth 1978-80, 268-9 no 273, fig 12). The other fragments were not sufficiently diagnostic to be assigned to a group.

One of the Group 1 beakers (**396**) has been cut with a series of long curving and interlocking facets. This has been achieved by first cutting oval facets in quincunx and then grinding away some of the junctions between the facets. This style of cutting is much rarer

than the style where oval facets are left in a regular quincunx, and occurrences of it have been discussed in connection with the three fragments found at Fishbourne (Harden & Price 1971, 340 nos 39-41, figs 138-9). It was noted there that other examples from Britain had been found at Nanstallon, Cornwall and Gloucester, and these have since been published (Harden 1972, 107 no 159; Charlesworth 1974b, 76 no 19, fig 24). In addition, lower body fragments of Group 1 beakers with this style of faceting have been found at Exeter (Charlesworth 1979a, 224 no 12, fig 70) and Annetwell Street, Carlisle (unpublished), and there is also a body fragment from Blake Street, York (unpublished). A rim fragment from a Group 1 beaker found at Abbey Green, Chester (unpublished) may perhaps also be added to the list.

Two of these fragments have been found in early contexts. The Nanstallon one must have been in use during the occupation of the fort which began in the Neronian period and did not continue later than AD 80, and the fragment from Exeter was found in a construction layer dated to AD 60-65. All the evidence, including the beakers from Pompeii (Harden & Price 1971, 340; Harden *et al* 1987, 192 no 102), points to this style of cutting being used very early in the production of facet-cut beakers. The fragment from Culver Street (396) cannot help in dating as it was unstratified, but it should be noted that it is yet another example of this style of cutting being used on beakers of Oliver Group 1. So far this has been the case on all these beakers where sufficient is preserved to be able to identify their group (Colchester, Fishbourne, Exeter, Chester, Carlisle, Pompeii and Vindonissa: Berger 1960, 71 no 167, Tafn 10 & 19). As this style of cutting is undoubtedly early, its concentration on Oliver Group 1 beakers perhaps strengthens his case that Group 1 may have begun before Group 2 (1984, 44), though the occurrence of a Group 2 fragment at Fishbourne in a context dated to AD 75 suggests that the interval between the introduction of the two groups, if there was one, is not very great.

Fragments 404 and 405 do not come from the classic type of facet-cut beaker discussed so far. Fragment 404 is a lower body fragment curving in towards the base and broken on its lower edge either at the foot ring or possibly at a ridge of the type seen on Group 2 beakers. There is a plain zone above this, and above that two horizontal rows of facets separated from each other by another plain zone. The other fragment is straight-sided and has two horizontal rows of facets on either side of a ground-out plain zone, with a narrow horizontal ridge left in relief centrally.

Facet-cut beakers with two or more zones of facet-cutting separated by a plain zone (as well as the plain zones above and below) occur, but they are much rarer than beakers with only one zone of faceting. In Britain there are three other examples. One was found in a pit sealed by Hadrianic fire debris at Salter's Hall, Walbrook, London (Price 1991a, 165 no 168, fig 115; Charlesworth 1959a, pi 1.3; Harden 1970a, 8 no 19;

Oliver 1984, 57 no 91), and the others come from Annetwell Street, Carlisle (unpublished) and Deanery Field, Chester (Newstead 1924, 74, pi 8 no 8). When they occur they tend to have the plain zones between the faceted zones bounded on either side by horizontal ribs rather than the pattern seen here. The arrangement of 405 is very similar to a fragment found at Vindonissa (Berger 1960, 72 no 179, Taf 10), though, as the latter is described as coming from a small bowl (*Schalchen*) rather than a beaker, this might imply that the fragment is convex-curved rather than straight-sided as on 405. There seem to be no close parallels for the arrangement seen on 404 and 405. From their shape they could both belong to beakers, for, though 405 is thin and has shallow cutting, it is no thinner than the facet-cut beaker fragments 399 and 400; and as has been observed in connection with a fragment from Caerwent (Price 1984a, 244), shallow cutting is not infrequently seen on the beakers from Britain. We have, therefore, tentatively identified 404 and 405 as facet-cut beakers.

It has already been noted that facet-cut beakers have a wide geographical distribution. Within the western Empire, however, they are not evenly spread and Welker has suggested that they are more heavily concentrated on military and former military sites than on civilian sites (Welker 1974, 59). This also appears to be the case in Roman Britain. Three of the legionary fortresses occupied during the Flavian to early Trajanic period when the use of these beakers was at its height have produced them in relatively large numbers. There are, for example, eighteen known from Caerleon (Dr D Allen pers comm), six from Gloucester (unpublished), and at least eight from Chester (unpublished). Auxiliary forts such as Castleford, West Yorkshire (unpublished) have also produced them in relatively large numbers. This military distribution in Britain and the other frontier provinces may, however, reflect nothing more than the fact that in these provinces it was only at military sites that there was a sufficient concentration of spending power for large numbers of these no doubt costly vessels to be acquired.

Although facet-cut beakers are by far the most numerous type of vessel to be produced by grinding the exterior of a blown blank to shape, they were not the only form to be finished in this way. Cylindrical cups and beakers such as that from Silchester (Boon 1974, fig 36.6), and convex-sided and truncated conical bowls like those from Verulamium (Charlesworth 1984a, 156 nos 107-8, fig 63.58 and 60), also have ground exterior surfaces. All of these are decorated with ground-out ribs. A difference may be detected between the beakers and cups with ground-out ribs and the facet-cut beakers, in that the latter were produced from thicker blanks and the relief of the decoration is generally deeper.

These excavations produced four blown fragments with external grinding which do not come from facet-cut beakers. One of these, 408, is probably an example of a mould-blown and wheel-polished beaker

like the indented example **249** discussed in Chapter 3 (p 54); it is very similar to **249**, but in the portion extant retains no evidence that it was mould-blown. The form of the other fragments cannot be closely identified. The fragments numbered **409** are the lower body and base of a small conical vessel with bevelled foot. It is similar to a small conical vessel found at Fishbourne in a Period 3 context (AD 100-270; Harden & Price 1971, 336 no 35, fig 138). This is described as cast and wheel-polished, but the closed shape of the vessel suggests that it is the result of wheel-polishing a blown blank. All that can be said of **407** and **410** is that they came from straight-sided conical or cylindrical beakers.

There is a slight difficulty in defining how long vessels decorated with ground ribs remained in use. They would surely have been expensive items, and more care might have been taken with them than with cheaper everyday vessels. They were broadly contemporary with the facet-cut beakers as they were in use from the late 1st century. Several fragments have been found at Chester in assemblages of primarily late 1st- to early 2nd-century date (unpublished). Fragments from facet-cut beakers and the range of vessels decorated with ground-out ribs can of course occur in contexts where they considerably post-date their period of use, as many of the fragments found during the 1971-85 excavations were. Occasionally, however, vessels with ground-out ribs have been found in late 2nd-century contexts in circumstances which show they were not residual but had been thrown away relatively recently. For instance, a virtually complete segmental bowl with ribs has been found in a pit at Felmongers, Harlow dated by the samian it contained to c AD 160-170 (Price 1987a, 202 no 1, fig 1). It is thus possible that the vessels with ground surfaces and ribs continued in use into the early part of the second half of the 2nd century, but not for long after that time.

The dating evidence provided by the fragments from Colchester discussed here is of little help in settling this question. Two fragments (**399 & 406**) were found in late Neronian/Flavian and Flavian contexts, and two in mid 2nd-century contexts (**398 & 409**). Both of the narrowly-dated pairs contained fragments of facet-cut beakers. The contexts of the other fragments are either clearly residual or have too long a date range to be informative.

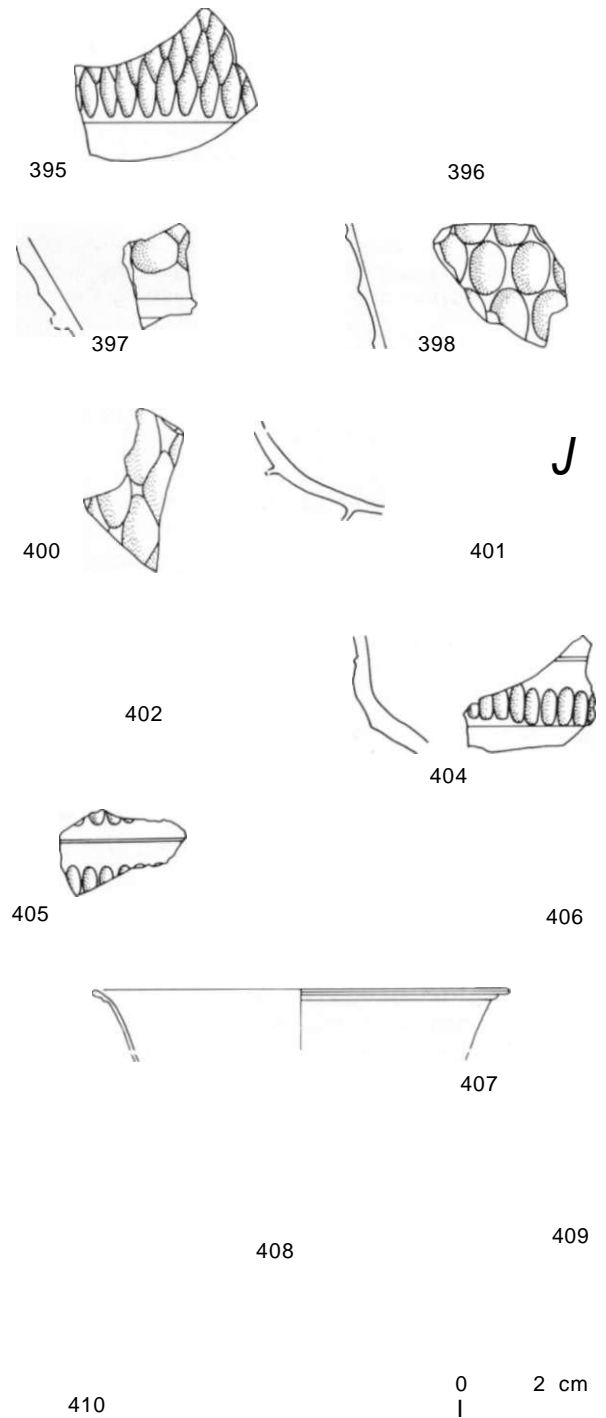


Fig 5.6 Facet-cut beakers and related forms. 1:2. [Pages 71-5]

Facet-cut beakers and related forms

Colourless

- 395 1.81 G1544 F1473, G1561 L1473; Period 4 or 5. Two joining rim fragments of facet-cut beaker. Exterior ground. Straight side with at least 5 rows of oval facets close set in quincunx to form diamonds; lower body slopes in slightly with only slight ridge between it and facet-cut zone. Dim 48x46, WT 4-3.
- 396 1.81 E738; unstratified. Body fragment of facet-cut beaker. Exterior ground. Straight side with parts of 2 elongated facets forming part of an irregular 'jigsaw' pattern; lower body slopes in and has been ground to leave facet-cut zone as raised area. Dim 33x10, WT 5-2.

- 397 1.81 G1118 L1112; Period 5. Lower body fragment of facet-cut beaker. Exterior ground. Straight side with parts of 2 rows of circular facets close-set in quincunx to form diamonds; lower body slopes in and has been ground to leave facet-cut zone as raised area and a rib part way down lower body. Dim 29x17, WT 5.5-3.
- 398 LWC72 M147; dump over Road 2 and between Road 2 and wall; probably Flavian. Body fragment of facet-cut beaker. Exterior ground. Straight side tapering in. Three rows of large oval facets set in quincunx. Dim 33x36, WT 4.

- 400 1.81 E102 F17; Period 7. Body fragment of facet-cut beaker. Exterior ground. Straight side with at least 4 rows of oval facets in shallow relief close set in quincunx to form diamond. Dim 44x22, WT 2.
- 401 BKC75 J38 L4; Period 5b. Lower body and base fragment of beaker. Exterior ground to produce convex-curved lower body with horizontal rib; foot ring at edge of base; flat base. Rib and base ring now chipped. Dim 39x20, BD approx 40, WT 3.
- 402 1.81 E349 F247; Period 7. Base fragment of beaker. Exterior ground to produce lower body sloping in to low out-splayed base ring; flat base, mostly missing. PH 10, BD 35, WT 1.
- 404 1.81 G4260 L4241; Period 3d. Lower body fragment of beaker? Side curving in to lower body. Exterior ground to leave 2 horizontal zones with lower edges raised (upper edge of lower zone sloping in smoothly to undercut lower edge of upper zone); lower zone has row of vertical oval facets with plain area above; upper zone retains bottom of 1 similar oval facet; lower body below lower facet-cut zone is plain and broken at edge of ground-out foot ring or rib. Dim 36x30, WT 6-3.5.
- 405 BKC75 J176 F32; Period 5c/6. Body fragment of beaker? Exterior ground. Straight side. Two horizontal rows of vertical oval facets separated by horizontal band ground down to leave central rib. Dim 34x21, WT 2-2.5.
- 406 1.81 B1069 L279; Period 3. Rim fragment of beaker. Exterior ground. Curved rim, edge cracked-off and ground; straight side. Exterior ground to leave rib below rim edge. PH 15, RD 75, WT 1.5.
- 407 MID78 A3110 L366; Building 69, Phase 2 or Building 70, Phase 1; Roman Period 2b or 3a. Rim fragment of conical beaker. Exterior ground. Out-turned rim, edge cracked-off and ground; straight side sloping in. Exterior ground to leave cordon below rim edge. PH 16, RD 110, WT 1.
- 408 1.81 G2915 L2374; Period 3d. Rim fragment of beaker. Exterior ground. Vertical rim; straight side. Horizontal zone below rim edge ground away to leave slight ridge on upper body. Wheel-cut groove below rim edge on interior. PH 26, RD 75, WT 2.5.
- 409 LWC72 M138; dump over Road 2 and between Road 2 and wall; probably Flavian. Lower body and base fragment. Exterior ground. Straight side sloping into slightly concave base with angular bevelled foot ring. PH 17, BD 30, WT 1.
- 410 LWC71 C59; post-Roman. Upper body fragment of beaker or cup. Straight side. Exterior ground to leave horizontal rib. Dim 31x15, WT 1.

Vessels with high-relief cutting (411)

[Fig 5.7]

Facet-cut beakers and the beakers and cups with ground-out ribs were not the only types to be formed and decorated by grinding the entire exterior of a blown blank. At several periods during the 1st to 4th centuries, colourless vessels decorated in high relief were made by this process. Such vessels were always uncommon and the expenditure of effort required to make them (von Saldern 1991, 111) would suggest that they are to be regarded as true luxury glass.

Three main groups may be distinguished. The earliest is contemporary with facet-cut beakers with which

many of the vessels share a common shape (von Saldern 1991, 112-17). The second group consists of a small number of 3rd-century vessels with decoration in high relief, such as the cylindrical cup from Caerleon (Boon 1985). The third, and probably the best known, group is the 4th-century cage cups or *diatrete* (Harden & Toynbee 1959; Harden 1963; Harden *et al* 1987, 186). Fragment 411 is the only fragment decorated with high-relief cutting to be identified at Colchester. It was found at Culver Street in a context dated to c AD 65/80-150 (Site G, Period 3d), and thus clearly belongs to the earliest group of vessels with high-relief cutting.

The commonest form of vessel with high-relief cutting during the 1st century is a truncated conical beaker with rows of motifs such as shells, ovals, rosettes and pointed kidney shapes as seen on the one from Luxemburger Strasse, Koln (Fremersdorf 1967, 67, Taf 30). Some beakers are decorated with deeply undercut sprays of foliage such as the beaker from the Esquiline, Rome (Harden *et al* 1987, 190 no 100). On one beaker with this type of decoration from Nijmegen, the sprays of oak leaves and acorns are not only in high relief but also, in places, in open-work cutting (Koster 1989; Koster & Whitehouse 1989, 25, figs 1-3). The most elaborate high-relief decoration in this group, again combined with open-work cutting, depicts scenes thought to be derived from the harbour at Alexandria and is also on a truncated conical beaker. It was found at Begram in Afghanistan (Hackin 1954, 101, fig 359 & 362; Koster & Whitehouse 1989, 29, figs 4-6). Other forms decorated with high-relief cutting include shallow handled bowls, such as those from Pompeii (Fremersdorf 1967, 66 Abb 2; von Saldern 1985, 32, fig 6), and an amphorisk from Bonner Strasse, Kbln (Fremersdorf 1967, 66, Taf 2; Harden *et al* 1987, 191 no 101). Fragment 411 is so small that it is impossible to identify with certainty either the vessel type it came from or the decorative motifs used.

Vessels of this type were in use by the early Flavian period at the latest. Fragments from a truncated conical bowl with a handle found at Fishbourne came from a Period 1 context and therefore have a *terminus ante quem* of c AD 75 (Harden & Price 1971, 334 no 29, fig 138), and the bowls from Pompeii have a *terminus ante quem* of AD 79. How much earlier such vessels came into use is open to question. A small body fragment with part of an elongated oval motif was found at Vindonissa in a Tiberian to early Claudian context (Berger 1960, 74 no 182a, Taf 10), though such an early date must be suspect as colourless glass would be exceptional at that period. The possibility that their manufacture began in the late Neronian period, however, would seem quite reasonable. As noted in the previous section, facet-cut beakers, which have several points of similarity with these vessels in respect of colour, manufacturing method and shape, were in use by the late Neronian period. So too were truncated conical mould-blown beakers (Isings Form 31; Price 1991b, 70) which often

have very similar shapes and motifs to the beakers with high-relief cutting. Both varieties were presumably imitating the same prototypes in more expensive materials such as metal.

Like the facet-cut beakers, vessels with high-relief cutting continued in use through the Flavian period and into the early 2nd century. The oak-leaf beaker from Nijmegen was found in a grave where the other grave goods can be dated to the last two decades of the 1st century (Koster & Whitehouse 1989, 25). Other examples from Flavian contexts include a beaker with shell and elongated oval motifs from Berkeley Street, Gloucester (unpublished) and a body fragment with a leaf motif from Fishbourne (Harden & Price 1971, 336 no 30, fig 138). The beaker with four rows of motifs from Ironmonger Lane, London is of Flavian or slightly later date as it was found in a rubbish pit containing late 1st- and early 2nd-century pottery (Harden 1970a, 8 no 18; Harden & Price 1971, 332). Examples found in primarily 2nd-century contexts include a small body fragment from the second phase (AD 90-140) occupation of the *vicus* at Castleford, West Yorkshire (unpublished), and the conical bowl decorated with papyrus-spray motifs found at the Park Street villa, St Albans (Harden 1945, 70 no 2, fig 11). This was found in a pit in which rubbish had accumulated for some time but which contained nothing dated to later than the mid 2nd century.

Vessels with high-relief cutting of the later 1st or early 2nd century are a rare occurrence but they do have a wide distribution across the Empire. Von Saldern's most recent survey of the type (1991, 112-17) lists twenty complete or fragmentary vessels and fragments of at least nine others. Four of these are British finds; the beaker from Ironmonger Lane in London, the bowl and body fragment from Fishbourne, the bowl from the Park Street villa, and a second beaker from London (Leadenhall Street; Wheeler 1930, 122 no 7, fig 42). Other finds of this type from Britain include: the examples from Gloucester and Castleford already mentioned; a beaker from Old Jewry, London (Museum of London, Guildhall collection); a body fragment from Silchester (Boon 1974, 232); body fragments probably from two different vessels at Blake Street, York (unpublished); and **411** from Culver Street. Superficially, therefore, Britain would appear to have a higher concentration of these vessels than any other province in the Empire. Many of these vessels, however, have been recognised from relatively small fragments, and it is possible that the significance of similar fragments from other provinces has not been recognised.

Vessel with high-relief cutting
Colourless

- 411 1.81 G2094 L2024; Period 3d. Body fragment of cup. Straight side. Exterior ground to leave decoration in relief; part of a rectangular shape with a concave depression centrally about long axis and part of an elongated V-shape. Dim 33x28, WT 4-2.5.



Fig 5.7 Vessel with high-relief cutting. 1:2. [Pages 75-6]

Facet-cut cups and other facet-cut fragments (412-425)

[Fig 5.8]

Facet-cut beakers of the types discussed above were the first widely-distributed vessel types to exploit the ability of colourless glass to reflect and refract light in attractive patterns when cut. From the 2nd century onwards, facet-cutting was used to decorate a variety of vessels, especially cups and bowls. These were generally hemispherical but were occasionally of a shallower segmental form as, for example, the one from a 2nd-century cremation at Ospringe (Whiting *et al* 1931, 35 no 340, pi 32). These vessels are similar to the facet- and linear-cut beakers, described in the last-but-one section, in that the wheel-cutting is limited to the facets and lines of the decoration. The entire surface of the blank is *not* ground and wheel-polished as it is with facet-cut beakers and vessels with decoration in high relief.

A variety of patterns are used on the cups. Oval facets set together in a quincunx pattern to form diamonds as on the facet-cut beakers occur sometimes, as on one from Birrens (Charlesworth 1959a, 44 fig 3.5). The commonest 2nd-century style, however, consists of horizontal rows of oval or circular facets divided into bands by horizontal wheel-cut lines or abraded bands; see for example those from Corbridge (*ibid*, 44, fig 3.6) and York (Harden 1962, 136, fig 88.HG 205.1). This style of cutting continued in use into the 3rd century. In the later 3rd century, more complex geometric designs developed, with the facets and wheel-cuts being grouped into panelled and arcaded patterns. This is the style of cutting used to decorate a group of seven cups found in contexts dating to the very early 4th century at Verulamium (Charlesworth 1972, 208-210 no 5, fig 78.48-53). It is however possible that geometric designs were also used in the 2nd century; Allen has noted the occurrence of a geometric facet-cut fragment in a mid 2nd-century context at Verulamium (1988, 292).

During the recent excavations only small facet-cut fragments were generally found, and it is not often possible to identify either the vessel form or the complete pattern of decoration. The majority are of good-quality colourless glass, but **418** and **425** are pale green and the latter is of the bubbly glass typical of the 4th century.

A minimum of three examples of hemispherical cups decorated with horizontal rows of circular or oval facets and wheel-cut lines (**412-414 & 416**) have been recognised, of which one (**416**) was found in a context dated to c AD 75-150. The body fragments **418**, **420** and **424** might also come from such cups, but they are too small for secure identification. Hemispherical cups with this zoned combination of facets and wheel-cut lines are numerous and widespread. Previous excavations in Colchester produced one from the Castle Park (CM, 650.36; probably Wheeler 1923, 35), and in addition to those already noted, other examples from Britain include vessels from: a pit at Towcester dated to AD 155-165 (Price 1980a, 63 no 1 fig 14); Woodcuts, Dorset (Pitt-Rivers 1887, 126 no 7, pi 44); Verulamium (Charlesworth 1984a, 145 no 86, fig 62.38); Caister by Yarmouth (Price & Cool 1993, 141 nos 4-5, fig 129); Chester and Aldborough, North Yorkshire (both unpublished); and Kenchester, Hereford (Hereford Museum, 759.1).

Examples from other north-western provinces include vessels from: Xanten (Charlesworth 1984b, 290, Taf 102.9); Koln (Doppelfeld 1966, 64, Taf 148; Fremersdorf 1967, 92 Taf 75, 94 Taf 81); Nida-Hedderheim (Welker 1985, 28 nos 86-7, Taf 7 & 19); Strasbourg (Arveiller-Dulong & Arveiller 1985, 106-8 nos 205 & 206); Rheims (Morin-Jean 1913, 236 fig 319); and also Lillebonne (Sennequier 1985, 55 no 26), where most unusually the cup has an inscription below the rim (though this was not necessarily produced at the same time as the rest of the decoration). The cups are also found beyond the borders of the Empire; for example, one was found in Grave 1 at Himlingoje, Denmark and another at Haven, Kreis Wismar (Fremersdorf 1967, 92-3, Tafn 76,78). Elsewhere they may be noted: in the Iberian peninsula at Conimbriga, Portugal (Alarcao 1965, Est 3/84 & 86) and at several sites in Spain (Price 1981a, 467-71); in Italy (Aquilaia; Calvi 1968, 66-7, 72 no 168, tav 11.3); on the Black Sea coast (Sorokina 1978); in Egypt (Karanis; Harden 1936b, 120 no 317, pi 14); and at Dura-Europos (Clairmont 1963, 66 Group d). Thus superficially very similar hemispherical cups decorated with zoned facet-cutting were in use throughout the Empire and beyond during the 2nd and early 3rd centuries.

Fragments **413** and **414** are especially interesting, because very faintly-abraded horizontal lines can be seen on them; these were clearly guidelines to help the glass-cutter position the facets in horizontal rows. A similar feature may be seen on a fragment from a cup of this type at Nun's Field, Chester (unpublished), and a device of this kind may have been widespread throughout the Roman world.

As has already been noted, a more geometric style of cutting was developed in the 3rd century which was frequently applied to deep hemispherical cups. It is very probable that **415** came from a cup of this type. These cups frequently have two or three rows of small horizontal oval facets below the rim (see for example vessels from Verulamium; Charlesworth 1972,

208-210 no 5, fig 78.48-50 & London; Wheeler 1930, 121, fig 42.1-2), but examples where the top row of decoration consists of oval facets between short lines or 'rice-grain' facets, as here, are not unknown. There is one from Silchester (Boon 1974, fig 36.4), and the pieces from Verulamium found in a very early 4th-century context included one with that pattern (Charlesworth 1972, fig 78.52). A cup found at Boulogne (Morin-Jean 1913, 236, fig 321) is virtually identical to the piece from Verulamium. Another example of a geometric cup from Colchester is probably represented by a base fragment from the Union Grounds (CM, 1664.31), which has a festoon pattern of semicircular lines around a central facet, a style of base decoration which is not uncommon on these cups.

In addition to those already noted from Britain, there is a lower body fragment from Canterbury found in a context dated to AD 290-320 (Charlesworth & Price 1987, 222 no 12, fig 88), and other fragments from York (Harden 1962, 137 fig 88.HG210-1); Richborough (Bushe-Fox 1928, 52 no 75, pi 16); Park Street villa, Hertfordshire (Harden 1945, 71 no 9, fig 11); Portchester (Harden 1975, 369 no 4, fig 197); Catsgore, Somerset (Price 1984b, 30 no 1, fig 14); Corbridge (Allen 1988, 292 no 36, fig 132); and Caistor by Norwich (Norwich Castle Museum, 52.929). There are also many small fragments from other sites which probably come from this type of cup but which are too small for the identification to be certain.

Geometric cups are also frequently found in the other north-western provinces. In addition to the one from Boulogne, examples may be noted from Koln where they are very common (Fremersdorf 1967, 78, 80-84, Tafn 49, 54-63), Trier (Goethert-Polaschek 1977, 54 no 182, Taf 38), and Xanten (Charlesworth 1984b, 290, Taf 102.10 & 12-13). They are also well known in other parts of the Roman Empire, as at Dura-Europos (Clairmont 1963, 74-9 nos 275-306, pis 27-9) and in Spain (Price 1981b, 467-71). Unfortunately these geometric cups (including **415**) have not often been found in closely-dated contexts, but the ones found at Verulamium and Canterbury clearly show that they were in use at the end of the 3rd and the beginning of the 4th centuries.

Another style of cutting, which is much rarer, is represented by **419**. The fragment is made of good-quality colourless glass, and has well-cut circular facets arranged in rows. The same style of cutting occurs on hemispherical cups from North Hill, Colchester (Hull 1958, 79, fig 35.1), Site 433 at Catterick (unpublished), and on a fragment from Westgate Street, Gloucester (Price 1980b, 112 no 2, fig 17). Fragment **419** is clearly from a wide shallow vessel and not from a hemispherical cup. The hemispherical cup from Colchester was unstratified, but it was found above a pavement which is unlikely to have been laid down earlier than the Antonine period. The fragment from Gloucester was found in a late 3rd- or 4th-century context. It seems likely, therefore, that vessels with

Facet-cut cups and other facet-cut fragments

this style of cutting are of late Roman date, but at present it is not possible to be more precise:

Two other fragments are worthy of note but their forms cannot be closely identified. Fragment 417, from a later 1st- to mid 2nd-century context (Lion Walk Site J, Period 3), is the rim fragment of a bowl or beaker which retains one facet on the exterior and a wheel-cut line on the interior just below the rim. Fragment 423, from a post-Roman context, is slightly green-tinged and decorated with four oval facets arranged in a diagonal cross. It is likely to have come from a truncated conical beaker of Isings Form 106 (see 574-614, pp 89-90) and would thus be of 4th-century date.

Facet-cut cups
Colourless

- 412** LWC71 B45 F23; Period 4 to 5. Rim fragment. Slightly curved rim, edge cracked-off and ground; convex-curved body. One wheel-cut groove below rim and second on upper body with row of vertical rice-grain facets below. PH 28, RD 110, WT 2.
- 413** 1.81 G824 L784; Building 120; Period 5. 1.81 G226; Period 4 to 6. Four body fragments (2 joining) probably from a hemispherical cup. Slightly green-tinged colourless. Convex-curved side. Facet-cut decoration from top to bottom is probably as follows:-
 - (a) a row of horizontal rice-grain facets,
 - (b) at least 2 rows of vertical rice-grain facets with ends of upper row between ends of lower row,
 - (c) abraded band with wheel-cut line above and below,
 - (d) as (b) but facets larger.
 Lightly-abraded horizontal guidelines can be seen between (a) and (b). Dim 38x30, 31x25, 29x18, WT 2-3.5.
- 414** 1.81 G897 L425; Building 120; Period 5. Body fragment. Slightly green-tinged colourless. Convex-curved side. A row of narrow vertical rice-grain facets above 2 rows of larger vertical oval facets with ends of upper row between those of lower row. Lightly-abraded horizontal guidelines can be seen at the lower edge of the upper row of facets. Dim 30x22, WT 2.
- 415** BKC73 A92 L12; post-Roman. Rim fragment. Curved rim, edge cracked-off and ground; convex-curved side. Two abraded bands on upper body; parts of 2 oval facets separated by rice-grain facet below. PH 27, RD 100, WT 2.
- 416** 1.81 G177 L177; Building 120; Period 5. Lower body fragment. Slightly green-tinged colourless. Convex-curved side. Decoration from top to bottom as follows:-
 - (a) lower ends of a row of vertical rice-grain facets,
 - (b) row of horizontal rice-grain facets,
 - (c) row of large circular facets,
 - (d) broken at edge of large facet.
 Dim 30x20, WT 4.
- 417** LWC72 J718 F220; Period 3. Rim fragment of bowl or beaker. Vertical rim, edge cracked-off and ground; slightly convex-curved body. Part of 1 oval facet on exterior; wheel-cut groove below rim on interior. PH 19, WT 2.5.

Other facet-cut body fragments
Pale green

- 418** 1.81 G355 F16; Period 6. Body fragment. Parts of 2 rice-grain facets. Heat-affected. Dim 29x21, WT 3.

Colourless

- 419** 1.81 D337 F299; Period 6. Body fragment. Slightly convex-curved side. Parts of 12 circular facets arranged in 5 rows, facets of each row touch each other. Dim 50x26, WT 5.

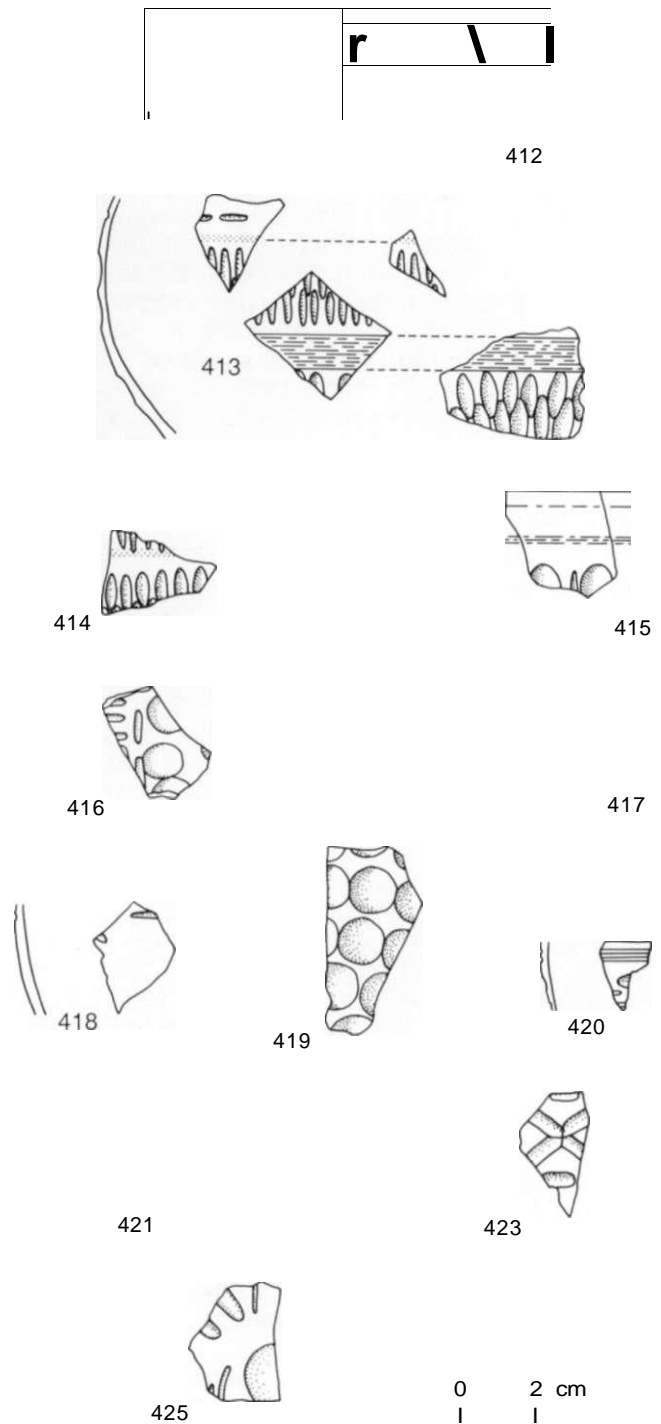


Fig 5.8 Facet-cut cups and other facet-cut fragments. 1:2. [Pages 76-9]

- 420** MID78 B1483 L214; Roman Period 3. Body fragment. Two wheel-cut lines with part of 1 horizontal rice-grain facet and 1 oval facet, third wheel-cut line below. Dim 18x13, WT 2.
- 421** BKC75 J38 L4; Period 5b. Body fragment. Convex-curved side. Parts of 2 oval facets and 1 wheel-cut line. Dim 49x11, WT 3.5.

- 423 1.81 D1096 F22; Period 4. Body fragment. Slightly green-tinted colourless. Straight side. Two large elongated facets arranged in a diagonal cross between 2 horizontal oval facets. Dim 34x19, WT 2.

Late Roman green

- 425 1.81 H378 F377; Period 6. Body fragment. Greenish colourless. Convex-curved side. Part of 1 circular facet with parts of 2 oval facets and 3 wheel-cut lines. Dim 31x24, WT 2.5.

Colourless wheel-cut beakers (426-464)

[Figs 5.9-5.10; Table 5.2]

The commonest forms of glass drinking-vessel in use in Roman Britain in the early and middle part of the 2nd century were a range of colourless wheel-cut beakers. These had cracked-off and ground rims which were generally curved, and they were decorated with groups of wheel-cut and abraded horizontal lines at intervals on the body. They were made in a variety of shapes but most examples fall into two categories. In one they have cylindrical upper bodies and either a tubular pushed-in base ring, such as one found in a context dated to the late 1st or early 2nd century at Wroxeter (Bushe-Fox 1916, 34 pi 23 fig 1), or a separately-blown foot as on a beaker from Verulamium found in a deposit dated to AD 150-160 (Charlesworth 1972, 208 no 2, fig 77.43). It is noticeable that the examples with tubular pushed-in base rings tend to be thin-walled. In the other variant, the upper body slopes out and there is a distinct carination, with the lower body sloping in diagonally. This form has a separately-blown foot as, for example, on three examples from a pit at Felmongers, Harlow dated to AD 160-170 (Price 1987a, 189 & 202 nos 8-10, fig 2) and another from Crundale, Kent (Charlesworth 1959a, 49, pi 2.2).

A shallower carinated form with a wide lower body and a pushed-in base ring is also known from such sites as Doncaster where one was found in a rubbish pit containing coarse pottery dated to the Trajanic to Hadrianic period (Allen 1986b, 107-8 no 10, fig 24), and the St Pancras cemetery, Chichester, where a beaker probably of this type was found in a disturbed cremation (Rule & Down 1971, fig 5.22.79e). Examples with slightly convex-curved sides producing a more ovoid outline are also known. These have either separately-blown feet as at Bainsse Farm, Catterick (unpublished), or a pushed-in base ring as at Melyd Avenue, Prestatyn (Allen 1989, 118 no 12, fig 54). At present the ovoid vessels do not appear to be as numerous as the cylindrical or the carinated examples.

Other forms include truncated conical examples, such as the one from an Antonine drain deposit at Housesteads (Charlesworth 1971a, 35 no 7, fig 7), and carinated beakers with flat or slightly concave bases, like that from Ebchester (Reed *et al* 1964, 181, fig 4.6). Related cup forms include low cylindrical

Table 5.2 Distribution of colourless wheel-cut beakers and colourless cylindrical cups. [Page 76]

SITE	wheel-cut beakers		cylindrical cups — trailed		cylindrical cups — plain	
	Frs	EMN	Frs	EMN	Frs	EMN
1.81	17	5	13	2	43	9
BKC	30	5	4	3	20	9
LWC	28	4	1	1	8	6
GBS	-	-	-	-	2	2
MID	6	2	1	1	9	6
CPS	1	1	-	-	11	6
CGS	-	-	-	-	1	1
Totals	82	17	19	7	94	39

cups with flat bases such as the one from the Antonine Wall fort at Castlecary (Christison *et al* 1902-3, 337-8, fig 35), and a globular cup with a concave base from a cremation at Fordstreet, Braughing which also contained a samian vessel dated to AD 150-180 (Harden 1977a, 102, fig 43.23, pi 9b).

The fragments likely to have come from this range of beakers are shown in Table 5.2. As is often the case, it is not possible to identify exactly the shape of beaker for the majority of the fragments, and a complete profile cannot be reconstructed for any of them. The nearest to that is **426** which was almost certainly a cylindrical beaker with a separately-blown foot. Fragments **433**, **434** and **442** probably also came from beakers with cylindrical upper bodies. Beakers with carinated bodies are represented by **439** and **440** and probably by **441**. Fragments **427**, **430** and **431** came from ovoid beakers, and **435** and **436** may have come from truncated conical ones. There are fragments from two separately blown feet and six pushed-in base rings. The latter could have come from beakers with cylindrical upper bodies or the low carinated form, although some could have come from the indented and arcaded beakers discussed above (see **385-394**) which also had this type of base.

The dates of the Roman contexts in which fragments of wheel-cut beakers were found is shown in Figure 5.9. This shows a peak of use in the mid-to-late 2nd century with a decline through the 3rd century. The overall pattern is distorted by the increasing length of the periods to which contexts are assigned in the 2nd and 3rd centuries (see Chapter 1, pp 5-6). A better appreciation of when these beakers were in use can be gained by considering the evidence from other sites.

Examples from this range of beakers were in use by the end of the 1st century, as can be seen from **435** and the late 1st/early 2nd-century context of a cylindrical example from Wroxeter. There is also an upper body fragment from the amphitheatre at Caerleon which was associated with pottery dated to AD 80-100

Colourless wheel-cut beakers

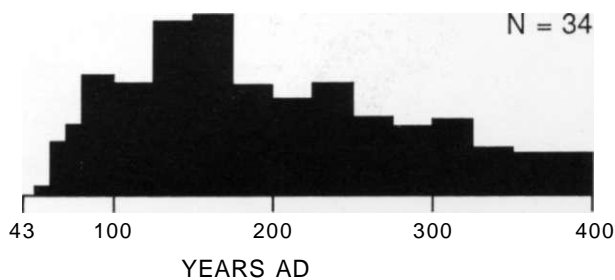


Fig 5.9 Histogram showing the dates of the fragments of colourless wheel-cut beakers found in Roman contexts (for the method of calculating the histogram see pp 5-6). [Page 79]

(Wheeler & Wheeler 1928, 170 no 2, pi 34 fig 1). Nevertheless, the main period of use for colourless wheel-cut beakers occurred in the second and third quarters of the 2nd century. At Verulamium, a cylindrical example with blown foot found in a context dated to AD 150-160 has already been noted, and excavations in the town have also produced an upper body fragment of a second cylindrical beaker in a context dated to AD 155-160 (Charlesworth 1984a, 115 no 97 fig 63.49). Fragments from other cylindrical beakers have been found, ie at Shakenoak in a context dated to c AD 160 (Harden 1971, 101 no 100, fig 44.47) and in a pit dated to AD 155-165 at Park Street, Towcester (Price 1980a, 64 no 4, fig 14; with a pushed-in base ring). The carinated beakers from a pit dated to AD 160-170 at Felmongers, Harlow have already been noted. Upper body fragments which slope out and probably come from carinated beakers have been found at Verulamium in contexts dated to AD 115-130 and AD 130-150 (Charlesworth 1984a, 155 nos 93 & 96, fig 63.45 & 48) and AD 150-160 (Charlesworth 1972, 206 no 4, fig 77.44). There is also a beaker from a context dated to c AD 180 at Jewry Wall, Leicester which has a blown foot and is probably carinated (Charlesworth 1959a, 49). Amongst the less common shapes, ovoid and truncated conical beakers found in Antonine contexts at Harlow and Housesteads, and cylindrical and globular cups from Castlecary and Braughing, have already been noted. At present the evidence seems to suggest that the cylindrical form with pushed-in base ring, often made of thin glass, came into use first and was joined later in the 2nd century by the various other shapes that make up the range, and that the separately-blown foot was not in use as early as the pushed-in base ring on these vessels.

Although it is relatively easy to chart the introduction and period of maximum use of these beakers, it is more difficult to decide when they went out of use. The pit at Felmongers, Harlow, which has already been mentioned several times in connection with these beakers, contained much vessel glass, and coarse and samian pottery with the last category suggesting a date for the filling of the pit of c AD 160-170. At least 36 glass vessels were found, many surviving

in large fragments, and these may perhaps be the result of a domestic accident which necessitated the dumping of part of the glassware then in use in a household. The group thus gives a picture of the forms of vessels in use at the end of the middle third of the 2nd century in southern Britain. As it contains parts of six beakers from the colourless wheel-cut range, it is reasonable to suppose that they were still common at that time. By contrast they do not regularly occur in contexts belonging to the end of the 2nd or the early 3rd century. It seems likely therefore that this type went out of common use soon after c AD 160-170.

Although these beakers are unlikely to occur in large numbers at any one site in Roman Britain, at least one or two fragments can generally be recognised amongst most 2nd-century assemblages. Given this abundance, their relative scarcity in the other north-western provinces seems surprising. None of the type series published by Kisa (1908), Morin-Jean (1913) and Isings (1957) contain forms in which these beakers can be included. This scarcity, though, may be more apparent than real. As can be seen from the examples found at Colchester, these beakers are often found in small fragments that are not always diagnostic unless one is familiar with more complete specimens.

Colourless wheel-cut beakers of this range do exist in other provinces, for example, they are common in southern Spain where some appear to have been manufactured (Price 1987d, 33-4, fig 1). Carinated examples have been noted at Nuits-St-Georges, where one with a blown foot was found in a 2nd-century cremation (Joubeaux 1982, 63 no C104, pi 18), and at Soissons (Sennequier 1980, 39 no 59 fig 34). There are also upper body fragments of ovoid, carinated and truncated conical beakers at Xanten (Charlesworth 1984b, 289, Taf 102.1-2 & 5), and a low carinated vessel from a 2nd-century burial at Maastricht Belfort (Isings 1971, 18 no 46, fig 12.6). Carinated examples with separately-blown foot rings are known from Koln (Fremersdorf & Polonyi-Fremersdorf 1984, 18 no 44), Mainz (Mittelrheinisches Landesmuseum, 65/146), and Rossfeld, Bern (Bernisches Historisches Museum). It is clear that these beakers are present elsewhere, but currently it is not possible to judge if they were as common in other north-western provinces as in Britain.

Colourless wheel-cut beakers

- 426 LWC72 M111; Rampart 1a; mid 2nd century. M102; Rampart 1b; mid 2nd century. M92; Rampart 1c; late Roman. Sixteen rim, body and base fragments of cylindrical beaker. Curved rim, edge cracked-off; straight side sloping out to slightly rounded carination with lower body; base ring formed from separately-blown paraison; base ring edge bent out, cracked-off and ground. One pair of wheel-cut lines below rim, a second pair on upper body and a third pair above change of angle to lower body. PH (base and lower body) 53, BD approx 50, widest body diameter 80, WT 1-2.5.
- 427 BKC75 J142, J186 & J238 F13; Period 5b. J10 L1; modern. Eighteen rim and body fragments of ovoid beaker. Curved rim, edge cracked-off and probably ground; slightly

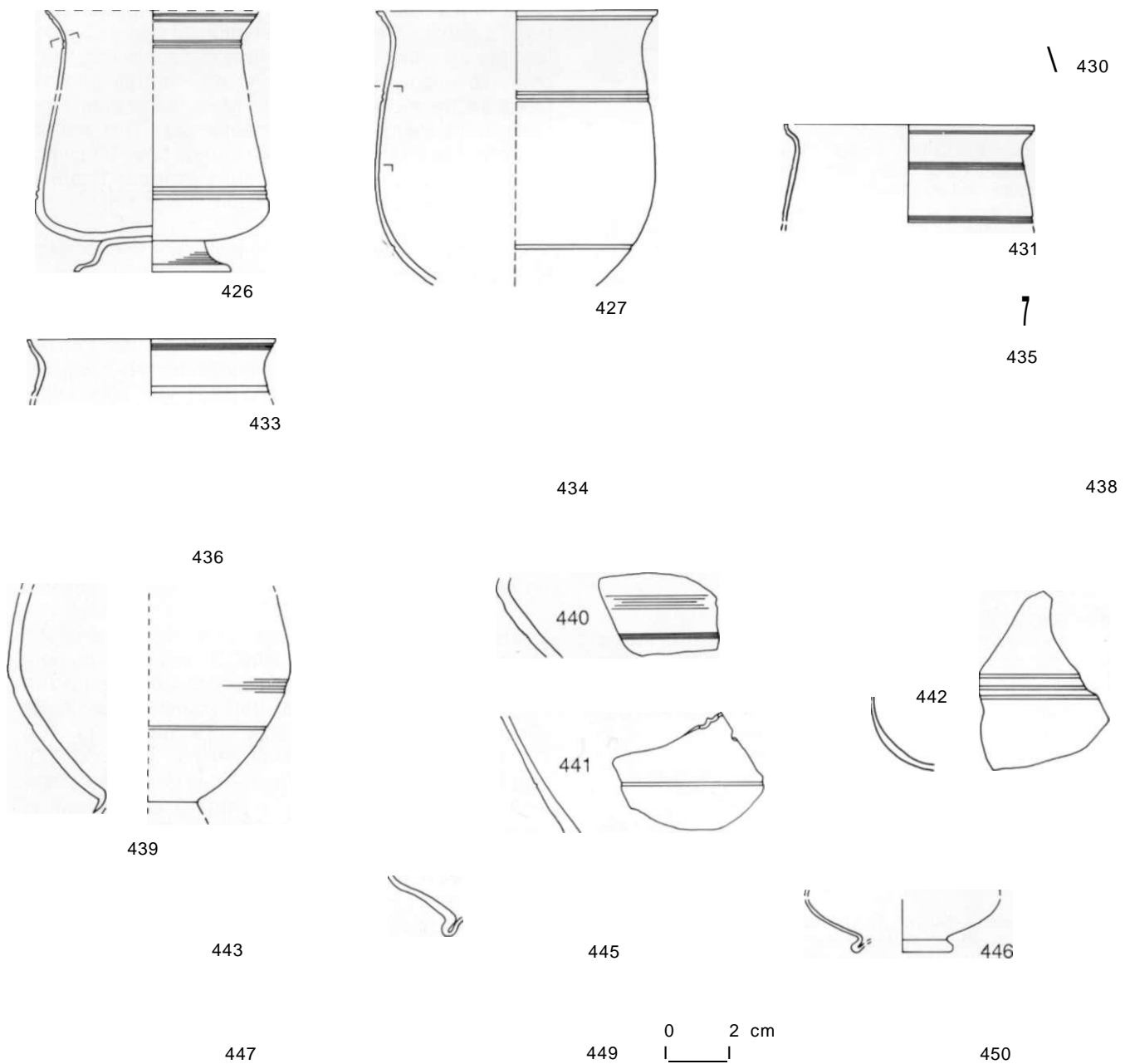


Fig 5.10 Colourless wheel-cut beakers. 1:2. [Pages 79-82]

- convex-curved upper body sloping out; convex-curved lower body. One wheel-cut groove below rim edge, possibly 2 on upper body and 1 on lower body. PH (rim fragment) 23, RD 90, WT 1.5-2.5.
- 430** CPS73 124 F45; Period 5. Rim fragment. Curved rim, edge cracked-off and ground; convex-curved body sloping out. Abraded band on interior of rim; 1 wheel-cut line below rim and 1 on upper body with abrasions on either side. PH 15, RD 90, WT 1.
- 431** MID78 C1194 L114; Period 1 or pre-Period 1. Rim fragment. Curved rim, edge cracked-off and ground; convex-curved body. One wheel-cut line below rim edge, 2 on upper body, and 2 lower down. PH 31, RD 80, WT 1.
- 433** 1.81 B330 F108; Period 4. One rim and 1 body fragment of cylindrical beaker. Out-curved rim, edge cracked-off and ground; straight side. Two wheel-cut grooves below rim edge and 1 on upper body. PH 15, RD 80, WT 2.
- 434** BKC75 J176 F32; Period 5c/6. Two rim fragments of cylindrical beaker. Curved rim, edge cracked-off and ground; straight side. One wheel-cut line below rim edge and 1 on upper body. PH 37, RD 75, WT 0.5.
- 435** LWC72 K278 F102; Building 15; ?Period 3. Rim fragment of beaker. Out-turned curved rim, edge cracked-off and ground; side sloping in. Abraded band below rim; wheel-cut groove on upper body. PH 10, RD 90, W T 1.5.

Colourless wheel-cut beakers

- 436 BKC75 J212 F46; Period 5c or 6. Rim fragment. Curved rim, edge cracked-off and ground; straight side sloping in. One wheel-cut groove below rim edge and 1 on upper body. PH 22, RD 65, WT 2.
- 438 BKC75 N33 L3; Period 6. Rim fragment of beaker? Vertical rim, edge cracked-off and ground. Narrow abraded band below rim edge. PH 13, RD 110, WT 2.
- 439 1.81 D1621 L1629; D1648 L1372; Period 4. D1242; unstratified. Four lower body fragments (3 joining) of carinated beaker. Straight side curving through carination to lower body sloping in diagonally to base ring (upper edge only surviving); slight horizontal concavity on lower body below carination. Wheel-cut groove on lower body. Max body diameter approx 90, WT 4.
- 440 BKC75 J196 F44; Period 5c/6. Lower body fragment of carinated beaker. Carination from upper body to diagonally sloping convex-curved lower body. Two close-set wheel-cut grooves on lower body; slight horizontal concavity on lower body below carination. Dim 38x30, WT 3.
- 441 LWC72 M111; Rampart 1a, mid 2nd century. Lower body fragment of carinated beaker. Straight side sloping in, becoming very thick and convex-curved towards bottom. Deep wheel-cut groove. Dim 48x40, WT 2-5.
- 442 1.81 B1421 L340; Building 94, Room 1b; Period 3/4. Six body fragments of beaker. Slightly convex-curved upper body beginning to curve out to rim and curving through rounded carination to lower body. Three wheel-cut grooves above carination. Dim 60x40, WT 1.5.
- 443 BKC75 J88 L17; Building 60, Phase 3; Period 5b. Base fragment of beaker. Small flat base with foot ring formed from separately-blown paraison. Side grazed; edges of foot ring broken. BD 21.
- 445 MID78 A3148 L490; Building 69, Room 4; Roman Period 2. Lower body and base fragment of beaker. Side curving in through carination to diagonally sloping lower body; slightly open pushed-in base ring; concave base mostly missing. PH 18, BD 44, WT 1.5.
- 446 LWC71 B561 F190; Period 4. Lower body and base fragment of beaker. Rounded carination to convex-curved lower body sloping into solid pushed-in base ring; domed base mostly missing. PH 17, BD 32, WT 1.
- 447 1.81 G4311 L4310; Period 3d. Lower body and base fragment of beaker. Wide lower body sloping in to closed pushed-in base ring; domed base missing. PH 10, BD 35, WT 1.
- 449 1.81 G3579 F3578; Period 5. Lower body and base fragment of beaker. Side sloping in to closed pushed-in base ring; base missing. PH 19, BD 40, WT 2.
- 450 1.81 B2554; unstratified. Lower body and base fragment. Wide lower body sloping in shallowly to solid pushed-in base ring. Base missing. PH 6, BD 45, WT 2.

Cylindrical cups (465-540)

[Figs 5.11-5.12; Table 5.2]

Cylindrical cups of Isings Form 85b are well represented amongst the assemblages from several sites (see Table 5.2, p 79). There are two main variants of this type of cup, and both are present here. The most frequently-encountered variety is undecorated, with a vertical or very slightly in-turned rim, the edge of which is fire-rounded and fire-thickened. It has an angular carination to a wide lower body, with a base ring which is generally pushed-in and is either tubular

or solid. On the underside of the centre of the base there is a thick circular trail often bearing the scars from a pontil-iron. The combination of base ring and trail produce the very characteristic double ring base of these cups. Occasionally the inner trail may be replaced by a circular blob of glass as occurs on a base from Piercebridge (unpublished). This variant has often been called an Airlie cup or bowl by British glass historians after the complete example found at Airlie, Angus (Charlesworth 1959a, 44, pi 1.4).

Very occasionally, cylindrical cups were decorated with painted or engraved scenes (Fremersdorf & Polonyi-Fremersdorf 1984, 119-42; see also **277**), but these must have been produced in very small numbers. Fragments from less than two dozen painted or engraved cups are known from Britain (see p 63), in comparison to some thousands of plain cups. The second variant is much less common. It is very similar in basic form to the plain variety, but the rim is often out-turned and the base ring may be trailed. The cup is decorated with one horizontal trail on the upper body and another at the carination to the lower body. A typical example of a trailed cylindrical cup is that from the cemetery at Baldock (Westell 1931, 276 no 4828, fig 6).

Both variants were almost always made in colourless glass usually of a good quality. Of the other colours used, blue/green is the commonest. Blue/green rim fragments may be noted at, for example, Towcester (Price & Cool 1983, 116 & 119 no 9, fig 46), Chesterholm (Price 1985e, 208-9 nos 23-5, fig 77), and Piercebridge (unpublished). Pale greenish colourless glass was used for a trailed cup found at Lullingstone (Cool & Price 1987b, 112, 135 no 368, fig 55), and cups in deep blue glass have been found at Newstead (National Museums of Scotland, FRA 1214) and at Lincoln (Holmes Grain Warehouse site, unpublished). Very occasionally these cups were decorated with trails of a different colour. At Castle Street, Carlisle, for example, a blue/green cup with out-turned rim was decorated with an opaque white trail (Cool & Price 1991, 171 no 641, fig 153), and similar fragments are known from Caerleon (Boon 1972-3, 121). In this case it is possible that, when complete, the cups had snake-thread decoration (see **276**), as unslashed coloured trails were often used to border areas of snake-thread decoration (Fremersdorf 1959, Tafn 53, 58, 60-63).

During these excavations a minimum of thirty-nine plain and seven trailed cups were found. All are of colourless glass, with the exception of **465** which is pale green. Five fragments from vertical fire-rounded cup or bowl rims (**536-540**) may have come from blue/green examples, but they are all very small, and, as vertical fire-rounded rims were also used on other blue/green bowls such as those with cut-out loops (see **699**, pp 100-101), this identification cannot be made with any certainty. Several of the base fragments show interesting variations in the position of the pontil scar which is usually on the inner trail and concentric with it. On **521**, it is a deep linear scar across

the central trail, and on **520** a post rather than a pontil-iron was used to hold the vessel while the rim was being finished. The scars from this are visible on the base ring. The use of the post technique on small cups is unusual, as it was normally reserved for large or heavy vessels with a wide base ring.

Two of the bases have been grazed around the outside of the base ring (**522** and **523**). This is a common way of reusing Roman glass which is recorded on many other sites. Two other fragments (**533** & **534**) show a much rarer form of reuse. On these the base outside of the central ring has been carefully grazed away to leave a small disc, perhaps intended to be used as a counter.

Two of the rim fragments (**516** & **517**) listed as coming from cups of this type have rim diameters of only 50 mm which is very small, as these cylindrical cups normally have a rim diameter in the region of 80-90 mm. For example, the rim diameters in this assemblage (excluding **516** and **517**) range from 75 to 120 mm with a typical value of about 90 mm. Small cylindrical cups are known, as in the set of four cups of diminishing size designed to nest inside each other found in Koln. These had rim diameters ranging from 49 to 27 mm (Fremersdorf & Polonyi-Fremersdorf 1984, 9 no 28), but such small examples are uncommon. It is possible, therefore, that the rim fragments **516** and **517** may have come from wide-mouthed flasks rather than cups of this kind.

These cups were in use during the later 2nd and 3rd centuries. In Britain, the earliest finds consist of a small fragment from the pit at Felmongers, Harlow dated to AD 160-170 (Price 1987a, 192 & 204 no 19, fig 2), and at least four more from late Antonine contexts at Lullingstone (Cool & Price 1987b, 112). Fragment **511** here may also be added to this list of early examples, as it was found at Middleborough in a Period 1 or 2 context (late 1st to mid 2nd century). Both varieties were found in a drain deposit at Housesteads which was originally thought to be of early Antonine date (Charlesworth 1971a, 34, figs 1-2, 4 & 5). Subsequent publication, however, has shown that the deposit also contained late Antonine material (Charlesworth 1975c, 24), so it can no longer be used as evidence that the cups were in use in Britain before the mid 2nd century.

Cups of this type are very common in contexts dating to the end of the 2nd and early 3rd centuries. They were still in use by the beginning of the second quarter of the 3rd century, as three were deposited in a cemetery at Brougham, Cumbria where burial was taking place between AD 220/30 and 270/80 (Cool 1990, 170, fig 1.1). It is likely that they went out of use during the middle part of the century.

Figure 5.11 shows the dating histogram for all the fragments of cylindrical cups found in Roman contexts during the 1971-85 excavations in Colchester. The distorting effect of the increasing length of the periods with terminal dates in the 2nd to 4th centuries,

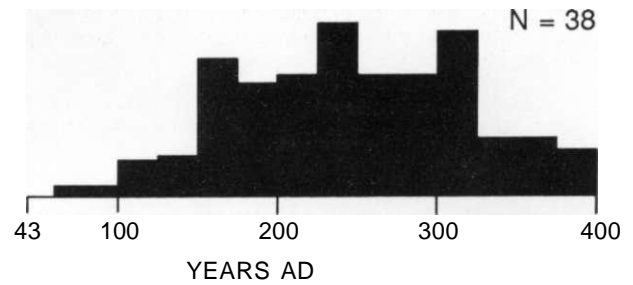


Fig 5.11 Histogram showing the dates of the fragments of colourless cylindrical cups found in Roman contexts (for the method of calculating the histogram, see pp 5-6).

described in Chapter 1, is clear. The sudden rise in the mid 2nd century reflects the introduction of the form, but the peak in the early 4th century is artificial, as the decline after the mid 3rd-century peak must more closely reflect the decline in use.

These cups were the dominant drinking-vessel throughout the north-western provinces during the late 2nd and early 3rd centuries. They are very well represented on sites in the Rhineland and its tributaries. They occur for example at: Xanten (Charlesworth 1984b, 290-91, Taf 103.1-2, 7 & 14-16); Koln (Fremersdorf & Polonyi-Fremersdorf 1984, 8-10 nos 20-28); Trier (Goethert-Polaschek 1977, 48 Form 47a); Nida-Hedderheim (Welker 1974, 112-16, nos 259-70, Taf 16); Strasbourg (Arveiller-Dulong & Arveiller 1985, 94 nos 164-8); and Oberwinterthur (Rutti 1988, 58, Taf 11.871-7). In France, they occur at least as far west as Normandy (Sennequier 1985, 50-52 nos 17-22) and Mayenne (Naveau 1990, 55 no 30), and as far south as the Massif Central/Burgundy region (Genty 1972; Sennequier 1977, 257-9, fig 5; Joubeaux 1982, 61-2 nos C85-98, pi 17).

The plain form is recorded as being present at Regensburg (von Schnurbein 1977, 74), though the examples illustrated (*ibid*, Tafn 138.7 & 158.15) lack the characteristic double ring base and are, therefore, not precisely similar to the cups from the north-western provinces. It should be noted, however, that a colourless cylindrical cup with the typical double ring base is present in the Museum der Stadt Regensburg (Acc No A3520). The occurrence of the type so far east is exceptional.

On Romano-British sites cylindrical cups frequently occur in large numbers. From the recent Colchester excavations a minimum of 46 vessels has been calculated, and this is far from exceptional. The scale of their use can be judged by looking at their presence in glass assemblages which are primarily of 2nd- or 3rd-century date, as they tend to form an appreciable proportion of such assemblages no matter what the size. Sites with relevant assemblages of varying sizes include the Defences site at Gloucester (Price & Cool 1986, 46), and The Park in Lincoln and Piercebridge

Cylindrical cups

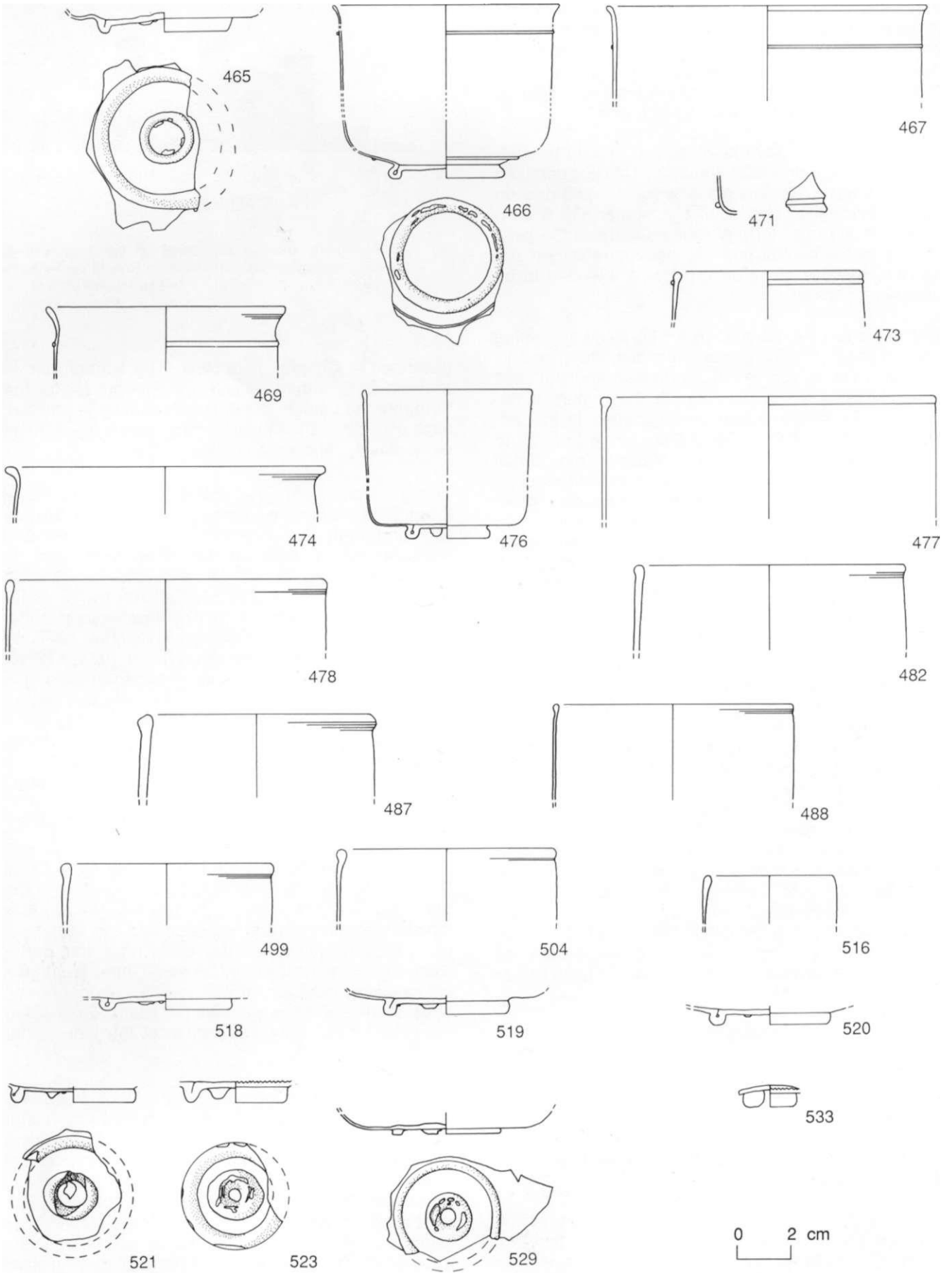


Fig 5.12 Cylindrical cups. 1:2. [Pages 82-5]

(both unpublished). These three sites produced approximately 150, 500 and 1,250 fragments of Roman vessel glass respectively, and the minimum numbers of identifiable cylindrical cups were 6, 21 and 61 respectively. These cups dominate the contemporary glass assemblages in the north-western provinces in a way in which no previous drinking-vessel had done. There can be no doubt that they represent a massive expansion of the production of glass drinking-vessels during the late 2nd century.

Cylindrical cups
Pale green

465 1.81 M195 F193; Building 123; Period 4. Base fragment. Wide lower body broken at carination to side; solid intermittently-tubular pushed-in base ring; slightly concave base with circular trail applied to underside. Circular pontil scar on base inside trail. PH 5, BD 50, WT 1.

Colourless

466 1.81 G3966 L3948; Building 118?; Period 4. One rim and 11 body fragments and complete base. Out-turned rim, edge fire-rounded; straight side curving in through rounded carination to wide lower body; tubular pushed-in base ring; slightly concave base. Horizontal trail on upper body and another on lower body. Post-technique scars on base ring. PH (rim) approx 30, RD 85, BD 40, WT 0.5.

467 BKC73 D225 L1; Anglo-Saxon. Rim fragment. Slightly out-turned rim, edge fire-rounded; straight side. Horizontal trail on upper body. PH 36, RD 110, WT 1.5.

469 BKC75 J38 L4; Period 5b. Rim fragment, description as 467. PH 24, RD 90, WT 1.

471 BKC75 H14 L2; post-Roman. One carinated body fragment with narrow trail at carination possibly from a cup similar to 466.

473 LWC73 G208; Building 28, Phase 2; end of Period 3. Rim fragment. Vertical rim, edge fire-thickened; straight side. Horizontal trail applied immediately below rim edge. PH 19, RD 70, WT 1.

474 1.81 C82 L7; Building 114 destruction; late Period 4. Rim fragment. Out-turned rim, edge fire-thickened; straight side. PH 18, RD 105, WT 1.

476 1.81 G1493 L1043; Period 5. Five rim and 8 body fragments and complete base. Vertical rim, edge fire-rounded; straight side with rounded carination to wide lower body; pushed-in base ring; slightly concave base with circular trail with pontil scar on underside. PH (rim) 32 and (base) 15, RD approx 60-70, WT 0.5.

477 BKC76 N641 L106; Building 64, Phase 1; Period 5b1. Rim fragment. Vertical rim, edge fire-rounded; straight side. PH 46, RD 120, WT 1.5.

478 CPS73 791 L111; Building 134; Period 4. Description as 477. PH 27, RD 110, WT 1.5.

482 BKC75 H36 L7; Period 6. Description as 477. Rim edge fire-thickened. PH 37, RD 100, WT 1.

488 MID78 A2531 F49; early medieval robbing. Description as 477. Rim edge fire-rounded. PH 26, RD 90, WT 1.

487 MID78 B292 F40; modern. Description as 477. Rim edge fire-thickened. PH 31, RD 90, WT 2.

499 CPS73 514 L75/22?; Period 6. Description as 477. Rim edge fire-thickened. PH 23, RD 80, WT 1.5.

504 1.81 G3293 F3292; Period 5 or 6. Description as 477. Rim edge fire-thickened; 2 fragments. PH 27, RD 75, WT 1.

516 BKC76 N322 F97; Building 64, Phase 1; Period 5b2. Rim fragment of small cylindrical bowl or flask(?). Slightly funnel-mouthed with rim edge fire-rounded. PH 18, RD approx 50, WT 1.

518 1.81 G673 L618; Period 5. Base fragment. Wide lower body; tubular pushed-in base ring; slightly concave base with circular trail on underside. Pontil scar on trail and centre of base. BD 55, WT 1.

519 BKC73 A66 F11?; post-Roman. Seven lower body and base fragments. Side curving into wide lower body; solid pushed-in base ring; circular trail with pontil scar applied to underside of flat base. PH 7, BD 48, WT 1.

520 1.81 G4155; Period 4 to 5. Base fragment. Wide lower body; intermittently tubular pushed-in base ring; slightly convex base with circular trail on underside. Post-technique scars on base ring. BD 45, WT 1.5.

521 CPS73 761 L67; Period 5. Base fragment. Wide lower body; tubular pushed-in base ring; circular trail applied to underside of flat base; linear pontil scar across trail and on centre of base. BD approx 45, WT 1.

523 LWC71 B321 F70; Period 5. Base fragment. Solid pushed-in base ring; thick circular trail with pontil scar on underside of flat base. Base ring highly worn; side grazed. BD 39.

529 1.81 G1321 G1363, L1157; Period 5. One lower body and 2 base fragments (all joining). Straight side with rounded carination to wide lower body; trailed base ring; circular trail with pontil scar on underside of slightly concave base. PH approx 12, BD 38, WT 1.

533 1.81 D1793 L1372; Building 112, Room 5; Period 4. Base fragment. Circular trail with pontil scar applied to underside of slightly concave base. Base grazed around edge of trail. Dim 24x22.

Stemmed beakers or flasks (541-542)

[Fig 5.13]

Fragments from two colourless stemmed vessels were found. Fragment **541** is part of a stem and lower body found at the Cups Hotel, and **542** is a fragment from the fire-rounded edge of a foot found at Culver Street. The most likely vessel forms represented by these fragments are the stemmed beaker or goblet of Isings Form 86 or the stemmed flasks of Isings Form 93 (see, for examples, Fremersdorf 1959, 41, 43, 45-9, Tafn 17, 18, 23, 30-33 & 35-45, mainly from Koln). These fragments were both from three-part vessels with a thick short stem and circular near-horizontal foot with fire-rounded edge. Such vessels were frequently decorated with snake-thread and other trailed decoration, as on the examples from Koln noted above (and see **276**), but undecorated ones also occur. These beakers and flasks were in use during the second half of the 2nd and in the early 3rd century. The fragments from Colchester were found in contexts post-dating AD 225.

Stemmed vessels are not very common on Romano-British sites. Lower bodies from stemmed vessels with snake-thread decoration are known from: Aldborough (Charlesworth 1959a, 54, pi 3.4); Parsonage Field, Cirencester (Charlesworth 1971b, 85 no 15, fig 11); Silchester (Thorpe 1935, fig 2k); Greyhound Yard

Stemmed beakers or flasks

in Dorchester (Cool & Price 1993, 158 no 16, fig 84); and the General Accident site, York and Witcombe in Gloucestershire (both unpublished). From Lullingstone, Kent there are fragments from two vessels, one decorated with a self-coloured trail (Cool & Price 1987b, 112-13, 131 nos 350-51, fig 54), and fragments from others have been recorded at Caerwent (Boon 1972-3, 116 no 17, fig 2), York (Church Street; Charlesworth 1976b, 17 no 52, fig 13; also at Fishergate and Blake Street, both unpublished), Cramond (Maxwell 1974, 197 nos 1 & 2), Gloucester (Price & Cool 1986, 50 no 17, fig 25), and Lincoln (unpublished).

Stemmed beakers or flasks

Colourless

- 541 CPS73 698 L61; Building 154; Period 4. Lower body fragment. Short convex-sided cylindrical stem broken at junction with missing body; wide, slightly convex-curved broken foot. Small circular pontil scar at centre of foot. PH 16, stem diameter 15, WT 2, pontil-scar diameter 10.
- 542 1.81 G1003 L936; Period 5. Base fragment. Wide foot with slightly concave upper surface and fire-rounded edge. BD 60.

541

542

Fig 5.13 Stemmed beakers or flasks. 1:2. [Pages 85-6]

Hemispherical cups with fire-rounded rims (543-550a)

[Fig 5.14]

The commonest drinking-vessel of the mid-to-late 3rd century is a hemispherical cup with out-turned fire-rounded rim and concave base which is sometimes rather thick. These cups are made in colourless or slightly green-tinged colourless glass, and are often decorated with knobs or lugs pinched out of the glass while it was still hot. The decorated cups also often have lightly-abraded bands or wheel-cut lines on the upper body above the area with pinched-up features. This is the variety of cup which occurred most commonly at the cemetery at Brougham, Cumbria, where burial was taking place between AD 220/30 and 270/80 (Cool 1990, 170, fig 1.2-4 & 6). In that cemetery both plain and decorated cups were found, but in assemblages from domestic contexts it is the cups with pinched-up decoration that are most frequently recognised. This is because small fragments from the rims and bases of plain cups, unlike for

example those from cylindrical cups with double ring bases (see **465-540**), are not very diagnostic when found individually. This means that it is often difficult to recognise the plain cups in an assemblage of fragments, and so to assess the ratio between plain and decorated cups.

This difficulty is clearly demonstrated by the examples from Colchester. One plain example has been identified (**550a**), but only because it was deposited in Grave 693 at Butt Road and, although much shattered, could be recognised by the combination of rim and base fragments. By contrast, three decorated cups can be identified. These are represented by **543** from Lion Walk and **544** from Culver Street, which both had pinched-up knobs, and by **545**, also from Culver Street, which had lugs.

Five other body fragments with pinched-up knobs (**546-549**) and lugs (**550**) were also found. Such decoration was used on beakers as well as hemispherical cups. A beaker from the Brougham cemetery had lugged and indented decoration (Cool 1990, 170, fig 1.5), and one from a well at Verulamium had pinched-up knobs (Wheeler & Wheeler 1936, 186, fig 29.26). However, such beakers are very rare, and the only other recorded occurrence from Britain is from Reculver (Philp 1959, 114). In the Rhineland, pinched-up decoration is found on other varieties of vessels (see below), but this has not been recognised in Britain. Therefore, even though **546-550** are too small for the vessel forms to be identified, it seems most likely that they came from hemispherical cups.

Hemispherical cups, both plain and with pinched-up decoration, were in use during the mid 3rd century. The examples from Brougham, deposited between AD 220/30 and 270/80, have already been noted. A cup with alternating pinched-up lugs and knobs from a latrine pit at Sparsholt, Hampshire has a *terminus ante quem* of AD 270-295 (information from Dr D Allen), and one with pinched-up knobs came from a context at Stonham Aspal, Suffolk that post-dated the early 3rd century (Charlesworth 1967, 240, fig 38a). To these may now be added **550a** from Butt Road found in Grave 693 dated to c AD 270-300/20. Body fragments with pinched-up decoration have been found in mid 3rd-century occupation deposits at Chesterholm (Price 1985e, 208 no 15) and in late 3rd- or 4th-century rubbish deposits at Chilgrove (Down 1979, 163 no 6, fig 56).

It is possible that pinched-up decoration like this was in use by the end of the 2nd century. A body fragment from Bayford Wharf, Lincoln (unpublished) came from a late 2nd- to early 3rd-century context, and **549** came from one dating to between AD 60/1-c 150/200 (Culver Street Site E, Phase 3a). The well in which the beaker with pinched-up knobs from Verulamium was found was originally dated to AD 160-190. Doubt has recently been cast on this dating (Allen 1988, 292), however, and this beaker is not secure evidence for the early occurrence of pinched-up decoration.

In the Rhineland, pinched-up decoration continued to

be used on cups of late 3rd- or 4th-century date such as those from Koln Braunsfeld (Doppelfeld 1960-61, 17 nos 7-9, Abb 9 & 10), and on forms such as funnel-mouthed flasks and funnel-mouthed jugs with thick trails below the rim edge which are primarily of 4th-century date (eg Doppelfeld 1959, 156, Abb 3.5; Fremersdorf 1939, Taf 18.1). In Britain there is no evidence that this occurred, and pinched-up decoration appears to have gone out of use by the end of the 3rd century.

None of the fragments with pinched-up decoration found during these excavations came from closely-dated contexts, though several (eg **544**, **547** & **550**) were from contexts belonging to phases spanning the 3rd century.

Cups with pinched-up knobs and lugs are quite frequently found in the north-western provinces but beakers are less common, as is the case in Britain. Examples may be cited from: Kbln (Fremersdorf & Polonyi-Fremersdorf 1984, 25-7 nos 65-70); Bonn (Follman-Schultz 1988, 109 nos 407-410, Taf 46); Saalburg (Fremersdorf 1939, Tafn 11.1-3 & 5, 12.1); Nida-Heddernheim (Welker 1985, 50-52 nos 189-91, Tafn 14 & 22); Oberwinterthur (Rutti 1988, 59 no 878, Taf 11); Neuville-le-Pollet, Seine Maritime (Sennequier 1985, 55 no 29); and Nuits-St-Georges (Joubeaux 1982, 56 no C132, pi 19). Complete examples of the plain cups have been noted at Nida-Heddernheim (Welker 1985, 50 no 186, Taf 14) and Bonn (Follman-Schultz 1988, 109 nos 404-6, Taf 47).

In Roman Britain, in addition to the examples already noted, lugged hemispherical cups have been found at Braintree (Drury 1976, 37, fig 19.6); Colliton Park, Dorchester (Dorchester Museum); at Chilgrove (Down 1979, 163 no 5, fig 56); and previously in Colchester at North Hill (CM, 201.39). Lugged body fragments are also known from: Aldborough, North Yorkshire (Charlesworth 1971c, 69, fig 20.4); Boxmoor, Hertfordshire (Charlesworth 1974-6, 101 no 8, fig 54); Cirencester (Charlesworth 1982a, mf E02, fig 69.304); Ratcliffe on Soar, Nottinghamshire (Elsdon 1982, 45, fig 8.91); Greyhound Yard in Dorchester (Cool & Price 1993, 162 no 71, fig 163); and Piercebridge (unpublished). A lower body and base decorated with pinched-up knobs, which is almost certainly from a hemispherical cup, was found during earlier excavations in Colchester (CM, 468.P), and body fragments also with pinched-up knobs have been noted from Northchurch, Hertfordshire (Charlesworth 1974-6, 33 no 17, fig 20), Claydon Pike, Gloucestershire, and Site 15, Castleford (both unpublished).

The only three examples of undecorated hemispherical cups to have been identified with certainty from Roman Britain are **550a**, the example from Brougham (cited above), and one from the General Accident site, York (unpublished), but rim and base fragments that could have come from such cups are not uncommon, see for example those from York (Charlesworth 1978b, 57 no 177) and Chesterholm (Price 1985e, 207 no 7, fig 77).

Hemispherical cups with fire-rounded rims
Colourless

- 543** LWC71 B128 F46; ?medieval and later. Lower body and base fragment. Convex-curved side sloping into flat base edge. Horizontal row of small pinched-up knobs on lower body, 3 remaining. PH 16, WT 1.
- 544** 1.81 D1833 L1818; Period 4. Body fragment probably from hemispherical cup. Slightly convex-curved side. Two horizontal wheel-cut grooves above a pinched-up knob. Dim 26x21, WT 1.5.
- 545** 1.81 G900; Period 3d to 6. Body fragment probably from hemispherical cup. Convex-curved side curving into edge of thick base. Lower part of pinched-up lug with pincer marks on sides. Dim 30x31, WT 1.5-4.5.
- 546** 1.81 G2908 L1; Period 6. Body fragment. Slightly green-tinged colourless. Convex-curved side. Three pinched-up knobs. Dim 34x33, WT 2.
- 547** 1.81 M194 F193; Building 123; Period 4. Body fragment. Convex-curved side. Two pinched-up knobs. Dim 28x21, WT 1.5.
- 548** BKC75 H7 L2; post-Roman. Body fragment. Convex-curved side. Pinched-up knob. Dim 20x18, WT 2.
- 550** CPS73 264 L22/57; Period 4. Body fragment. Convex-curved body. Pinched-up lug with at least 3 rounded points, 2 of which remain. Dim 18x18, WT 0.5.
- 550a** BUC79 H1039-1041 G693; SF 1708; Period 1. Seventeen rim and about 260 body and base fragments (many very small) of cup. Out-turned rim, edge fire-rounded, slightly convex-curved side sloping into thick flat base. RD 70, WT 1.

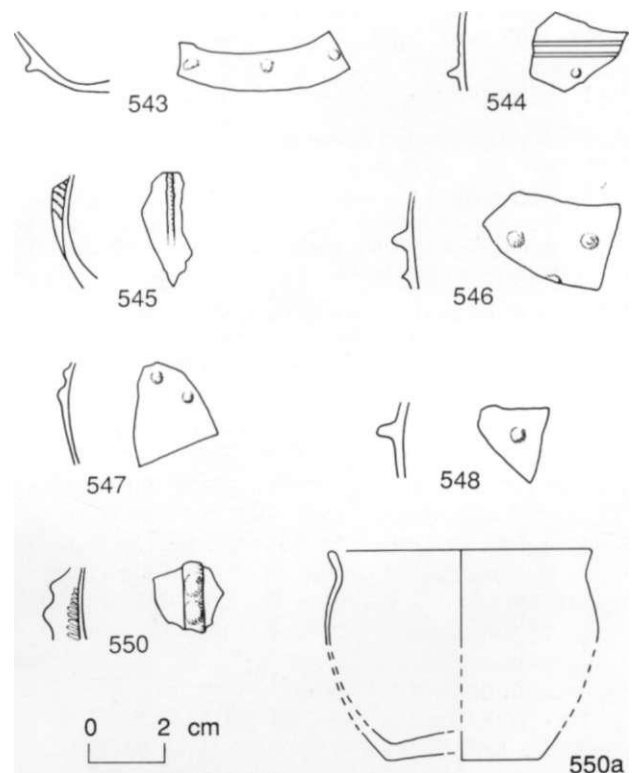


Fig 5.14 Hemispherical cups with fire-rounded rims. 1:2.
[Pages 86-7]

Miscellaneous indented beakers (551-552)

[Fig 5.15]

After the indented beakers of the Flavian period (see above, **385-393**) went out of use, oval indented decoration continued to be used on colourless beakers of various forms in the 2nd century and later. Later varieties include beakers with fire-rounded rim, convex side and double ring base such as that found in the drain deposit at Housesteads which accumulated during the 2nd century (Charlesworth 1971a, 34, fig 6); and tall cylindrical forms with cracked-off rims and separately-blown feet like those from a pit dated to AD 160-170 at Felmongers, Harlow (Price 1987a, 191, 203 nos 15-17, fig 2). The colourless fragments **551** and **552** belong to these later developments, though neither of them are large enough for the full form to be identified.

Fragment **551** from Balcerne Lane had a tubular pushed-in base ring and indents immediately above it, as on a fragment from Manchester (Price 1974, 113 no 85, fig 45). The pontil scar on the base suggests that **551** had a fire-rounded or possibly rolled rim. It was found in a context dated to the second half of the 3rd century.

Fragment **552** from the Cups Hotel is only represented by a body fragment with a flattened rather than truly indented side. It was decorated with two horizontal trails below the flattening and was found in a context dated to c AD 200-400+ (or later). A similar combination of indentation and trailed decoration occurs on a beaker fragment from Bignor found in a context dated to the 3rd century or later (Charlesworth 1982b, 183 no 2, fig 32).

Miscellaneous indented beakers

Colourless

- 551 BKC75 G354 F112; ?Period 5c. Base fragment. Indented side above tubular pushed-in base ring; concave base with central kick. Circular pontil scar. PH 10, BD 51, WT 1, pontil-scar diameter 12.
- 552 CPS73 691 L61; Building 54; Period 4. Lower body fragment. Straight, slightly indented/flattened side; convex-curved lower body. Two horizontal trails on lower body. Dim 55x32, WT 1.5-2.5.

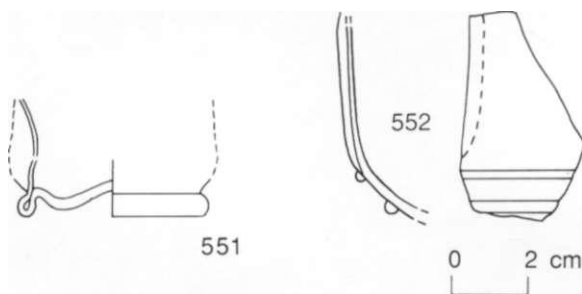


Fig 5.15 Miscellaneous indented beakers. 1:2.

Hemispherical cups and conical beakers (553-614)

[Fig 5.16; Table 5.3]

Hemispherical cups (Isings Form 96) and truncated conical beakers (Isings Form 106) will be discussed together as they share many features and were in use contemporaneously. The rims are either straight or curved and always have cracked-off edges, which in the majority of cases are left unground. Some rim edges show scratches indicating that they were lightly smoothed on a wheel. Ground rim edges are rare, occurring mainly on vessels which have a much higher quality of glass and decoration than the majority found. Both forms have small flattened or concave bases, and some variation occurs in their shapes. For example, the conical beakers may have slightly convex sides and the hemispherical cups may curve abruptly rather than smoothly into the base. This range of variation in shape is well illustrated by the cups and beakers from: Portchester, Hampshire (Harden 1975, 369-71 nos 6, 10a, 10c & 11, figs 197-8); the Lankhills School cemetery, Winchester (Harden 1979b, 211-15 Classes 1 & 2, fig 27); Towcester, Northamptonshire (Price & Cool 1983, 117-22 nos 2, 11-15, 19-21, 30, 32 & 34, figs 46-7); Cirencester (Shepherd 1986b, 120-21, nos 625-6, 629, 632-3, 639 & 645, figs 86-8); and Caister by Yarmouth (Price & Cool 1993, 144-7 nos 49-104, figs 130-31). Most of these cups and beakers were made in the yellowish green and greenish colourless bubbly glass typical of the 4th century, but they were also occasionally made in better-quality colourless glass.

These vessels are almost invariably decorated with horizontal abraded bands, as may be seen on many of the examples from Portchester, Lankhills, Towcester, Cirencester and Caister noted above. The pattern most frequently encountered has an abraded band below the rim with one on the upper body and a third below; see for example a cup from Towcester (Price & Cool 1983, 119 no 11a & b, fig 46) and a conical beaker from Wint Hill, Somerset (Harden 1960b, 51 -2, figs 8-9). Very occasionally there may be horizontal wheel-cut grooves, which tend to occur on vessels of better quality, such as a beaker from Kingsholm, Gloucester (Price & Cool 1985, 54 no 89, fig 20).

Other forms of decoration occur much less frequently. In addition to the abraded bands, the application of blobs of different colours, most commonly blue, is not uncommon, though it is unlikely that such vessels were ever very numerous. Decoration of this kind occurs on conical beakers from: Richborough (Roach Smith 1850, 77, fig 6); Barnsley Park, Gloucestershire (three examples; Price 1982b, 175 no 2, fig 59); Caister by Yarmouth (Price & Cool 1993, 144 no 99, fig 131); and Berkeley Street, Gloucester (unpublished); and on hemispherical cups from Corbridge (Charlesworth 1959a, 50, fig 8.2), Portchester (Harden 1975, 371 no 10c, fig 198), Wroxeter (Harden 1975-6, 41 no 1; also from excavations directed by Mr P Barker; pers comm Dr K Pretty), and Piercebridge

and Berkeley Street, Gloucester (both unpublished). Body fragments have also been found at: Traprain Law (Curie 1931-2, 294); Carrawburgh (Charlesworth 1959a, 50); Southwark (Townend & Hinton 1978, 491 no 171); Frocester Court, Gloucestershire (Price 1979, 40 no 3); Nettleton (Charlesworth 1982c, 153 no 21); Greyhound Yard, Dorchester (Cool & Price 1993, 158 no 17, fig 84); and Witcombe, Gloucestershire (unpublished). Trilled decoration like that on 553-557 also occurs, but normally in self-coloured glass rather than in a contrasting colour.

Both cups and beakers were occasionally decorated with cut patterns including figured scenes, such as those on the cups from Lullingstone, Kent (Cool & Price 1987b, 113-17, 129 no 338, fig 54) and on the beaker from Frocester Court, Gloucestershire (Price 1979, 41 no 4, fig 16, pi 3). Vessels with these figured scenes were made in good-quality glass and frequently have ground rims with wheel-cut lines immediately below them. Lightly-cut geometric patterns were also used as decoration, such as on the conical beaker from a grave dated to the first half of the 4th century at Krefeld-Gellep (Pirling 1967-8, 34, Abb 1.1).

Occasionally mould-blown cups and beakers of these shapes with a honeycomb pattern are found (Isings Form 107a), such as the examples from Koln (Fremersdorf 1961, 57-8, Tafn 113-15). Vessels like this are rare in Roman Britain. Examples of hemispherical cups have been found at York Minster (unpublished) and Fishbourne Beach, the Isle of Wight (information from Mr D Tomalin), and fragments from conical beakers at Winchester (unpublished) and Wroxeter (information from Dr K Pretty). Body fragments are also known from Shakenoak (Harden 1968, 79, nos 25-6, fig 26.10), York (Charlesworth 1976b, 17 no 53, fig 14), and Chesterholm (Price 1985e, 210 no 31, fig 77).

The occurrence of these two forms from the various sites is shown in Table 5.3. This shows that the

Table 5.3 Distribution of hemispherical cups and conical beakers with cracked-off rims and cups and beakers with fire-rounded rims.

SITE	hemi-spherical cups		conical beakers		cups/beakers with fire-rounded rims	
	Frs	EMN	Frs	EMN	Frs	EMN
1.81	3	2	7	5	1	1
BKC	-		1	1	6	4
LWC	5	3	7	7	2	2
BUC	14	3	5	2	1	1
CPS	7	4	13	1	1	1
CGS	-		2	1	-	-
Totals	29	12	35	17	11	9

assemblage is approximately evenly split between hemispherical cups and conical beakers. In each case, examples with vertical rims (**558-560, 571 & 574-575**) are slightly less numerous than those with curved rims (**561-566, 570 & 576-584**). Of the rim fragments, only **560** and **563** do not retain any abraded bands, though this does not necessarily indicate that the whole vessel was plain. It is likely that the majority of these cups and beakers belonged to the commonest form, decorated only with abraded bands, though the possibility that some of the smaller fragments came from vessels with additional decoration cannot be ruled out.

At least three of the hemispherical cups were decorated with self-coloured trails. On the virtually complete cup **553** from Grave 180 at Butt Road there is a single festoon pattern. Fragment **554** is fragmentary and the trails appear to have been arranged in a spiral or multiple-looped pattern, and the body fragments **555** and **556** are likely to have come from cups with a similar pattern. Fragment **557** retains part of a curved trail but, though it is almost certainly from a cup of this type, the fragment is too small for the pattern of trails to be identified.

A hemispherical cup with a single festooned trail was found in a grave dated to AD 330-350 at the Lankhills School cemetery, Winchester (Harden 1979b, 211 no 385, fig 27), and fragments from similarly decorated cups are known from other sites in Britain. Examples have come from: Shakenoak in a late 4th-century context (Harden 1973, 103 no 206, fig 52); Gestingthorpe, Essex (Charlesworth 1985b, 66 no 326, fig 70); Gloucester (Price & Cool 1986, 54 no 39, fig 26 & fig 26/39; also Berkeley Street, unpublished); Caister by Yarmouth (Price & Cool 1993, 144 nos 73-5, fig 131); and Claydon Pike, Gloucestershire and Victoria Road, Winchester (both unpublished). There is also a pale greenish body fragment with an opaque light blue trail of this type from Barnsley Park, Gloucestershire (Price 1982b, 175 no 3, fig 59). Cups decorated with multiple patterns like **554-556** have been found less frequently, but fragmentary examples are known from Barnsley Park (Price 1982b, 177 nos 16-17, fig 59) and Towcester in a context dated to c AD 330-370 (Price & Cool 1983, 116, 120 no 19, fig 46).

Two body fragments (**423** and **588**) may have come from conical beakers decorated with wheel-cut geometric patterns. These patterns resemble the ones found on the earlier facet-cut bowls (see **415** above) but the cutting here is much shallower as it occurs on thin-walled vessels. Fragment **423** has shallow facet-cutting of this kind and on **588** the pattern is produced by narrow wheel-cut lines. Beakers decorated in this manner have not often been recorded from Roman Britain and they were probably never very common, but examples of lower body and base fragments are known from Verulamium (Charlesworth 1984a, 154 no 187, fig 62), Chesterholm (Price 1985e, 210 nos 33a & b, fig 77) and Cirencester (Shepherd 1986b, 121 no 638, fig 87), and body fragments

Hemispherical cups and conical beakers

possibly from this form have been found at Barnsley Park, Gloucestershire (Price 1982b, 176 no 9, fig 59), Catsgore (Price 1984b, 30 no 1, fig 14), and Piercebridge (unpublished).

Both hemispherical cups and conical beakers were in use from the very early 4th century at the latest. At Verulamium, hemispherical cup fragments were found in contexts dating to AD 280-315 and 300-315 (Charlesworth 1972, 210 no 4, fig 79.61), and at Portchester a conical beaker fragment was found in a well filling whose latest coins were those of Constantine dated to AD 308-317 (Harden 1975, 371 no 11, fig 198). It is possible, therefore, that the types were developed in the last years of the 3rd century. They were in use throughout the 4th century as is shown by the examples from late 4th-century contexts, such as the conical beakers found in graves dated to AD 370-390 and 390-410 at the Lankhills School cemetery, Winchester (Harden 1979b, 214 nos 382, 391 & 530, fig 27).

Almost forty per cent of the fragments assigned with a high degree of certainty to either hemispherical cups or conical beakers (**553-588**) were found in post-Roman contexts. The cup from Grave 180 was probably deposited in c AD 360-380, and as is to be expected the majority of the others were found in contexts that wholly or in part belong to the 4th century. Two conical beakers (**570 & 575**) came from 3rd-century contexts. Both are colourless rather than the more common greenish shades. Fragment **575** came from a context dated to c AD 225-275/325, and **570** came from the late 3rd-century dumping on the allotments of Site V at Balkerne Lane, Colchester. These fragments help provide confirmation of the use of this form in the late 3rd century. However, the scarcity of fragments from contexts of that date indicates that production probably only started in the last decade or so of the 3rd century.

These cups and beakers dominate the drinking-cup assemblage in the north-western provinces in the 4th century in the same way as colourless cylindrical cups (see **465-540**) dominated that of the late 2nd and earlier 3rd centuries. This may be appreciated by considering the numbers found at two sites where the assemblages were primarily of 4th-century date. Out of a total of approximately 380 fragments of glass at the Alchester Road suburb site at Towcester, a minimum of 19 of these cups and beakers were recognised (Price & Cool 1983), while at Caister by Yarmouth there was a minimum of 47 amongst approximately 580 fragments (Price & Cool 1993, 149). Both the cups and beakers are very common on Romano-British sites. The ratio between the two forms fluctuates from site to site but at present no significance can be attributed to this. These vessels are equally numerous elsewhere in the western European provinces, at for example Krefeld-Gellep (Pirling 1966, 96-9, Types 178-188); Trier (Goethert-Polaschek 1977, 50, 64-9, Types 49 and 52); Vermand (Eck 1891, pis 3/3, 4/3 and 7/11); Bonn (Follmann-Schulz 1988, 85-7 nos 293-302, 103-5

nos 380-87, Tafn 37-7 & 44-5); Strasbourg (Arveiller-Dulong & Arveiller 1985, 102-5 nos 185-200, 145-6 nos 321-9); Paris (Landes 1983, 91 no 134, pi 24); Rouen (Sennequier 1985, 65 no 41); Conimbriga (Alarcao 1976, 207 nos 288-9, pi 46); Stabio (Simonett 1941, 202 no 1, Abb 177 Taf 17.9); and Aquileia (Calvi 1968, tav 26.2-5).

Hemispherical cups *Late Roman green*

- 553** BUC B1180 G180 SF413; Period 2. Cup in 12 fragments, missing only 3 small body fragments. Pale greenish colourless. Vertical rim, edge cracked-off with slight step and not ground; convex-curved body; concave base. Abraded band on upper body, a festooned trail with 5 loops below. Height 68, RD 76, WT 1.
- 554** CPS73 547 F112; Period 5. Rim fragment. Pale greenish colourless. Vertical rim, edge cracked-off smoothly but not ground; convex-curved side. Four abraded bands on upper body; 2 curved trails below. PH 44, RD 75, WT 1.
- 555** CPS73 576 F115; Building 154; Period 4. Body fragment. Pale greenish colourless. Convex-curved side. Curved trail with second curved trail running into it. Dim 28x15, WT 2.
- 556** CPS73 533 F116; Period 5. Body fragment. Pale greenish colourless. Convex-curved body. Curving trail running over second curved trail, side of vessel deeply tooled inwards at junction. Dim 27x17, WT 2.
- 557** 1.81 D1269 F1291; Period 4. Body fragment. Convex-curved side. Part of 1 abraded band and 1 curving trail. Dim 25x22, WT 0.5.
- 558** LWC74 U60; Roman to medieval. Rim fragment. Pale green-tinged colourless. Vertical rim, edge cracked-off and possibly ground; convex-curved body. Abraded band at rim edge, 3 similar narrow bands on upper body. PH 28, RD 80, WT 1.
- 561** BUC77 E258 L16; 5th century. Rim fragment. Pale yellow/green. Curved rim, edge cracked-off with slight step and not ground; convex-curved body. Abraded band at rim edge; 1 similar band below rim and 1 on lower body. PH 70, RD approx 102, WT 2.
- 562** CPS73 567 F115; Building 154; Period 4. Rim fragment. Pale yellowish green. Thick curved rim, edge cracked-off smoothly but not ground; convex-curved side. Abraded band below rim and 1 on body. PH 38, RD approx 80, WT 1.
- 564** LWC72 K249 F55; Building 19, Room 18; end of Period 4b. Two rim fragments. Pale greenish colourless. Curved rim, edge cracked-off smoothly but not ground; convex-curved body. One abraded band below rim and 3 on upper body. PH 26, RD 75, WT 0.5.
- 566** 1.81 G650 F174; Period 6. Rim fragment of hemispherical cup or conical beaker. Pale greenish colourless. Curved rim, edge cracked-off smoothly but not ground; slightly convex-curved side. Abraded band below rim. PH 20, RD 90, WT 1.5
- 567** LWC74 U25 F10; medieval. Base fragment. Pale green. Convex-curved lower body; slightly concave base. PH 16, WT 1.5.

Conical beakers *Colourless*

- 570** BKC76 V927 L5; late Period 5 (c AD 300). Rim fragment. Curved rim, edge cracked-off and ground; straight side. One narrow abraded band below rim, 1 wider band on upper body. PH 21, RD 80, WT 1.5.

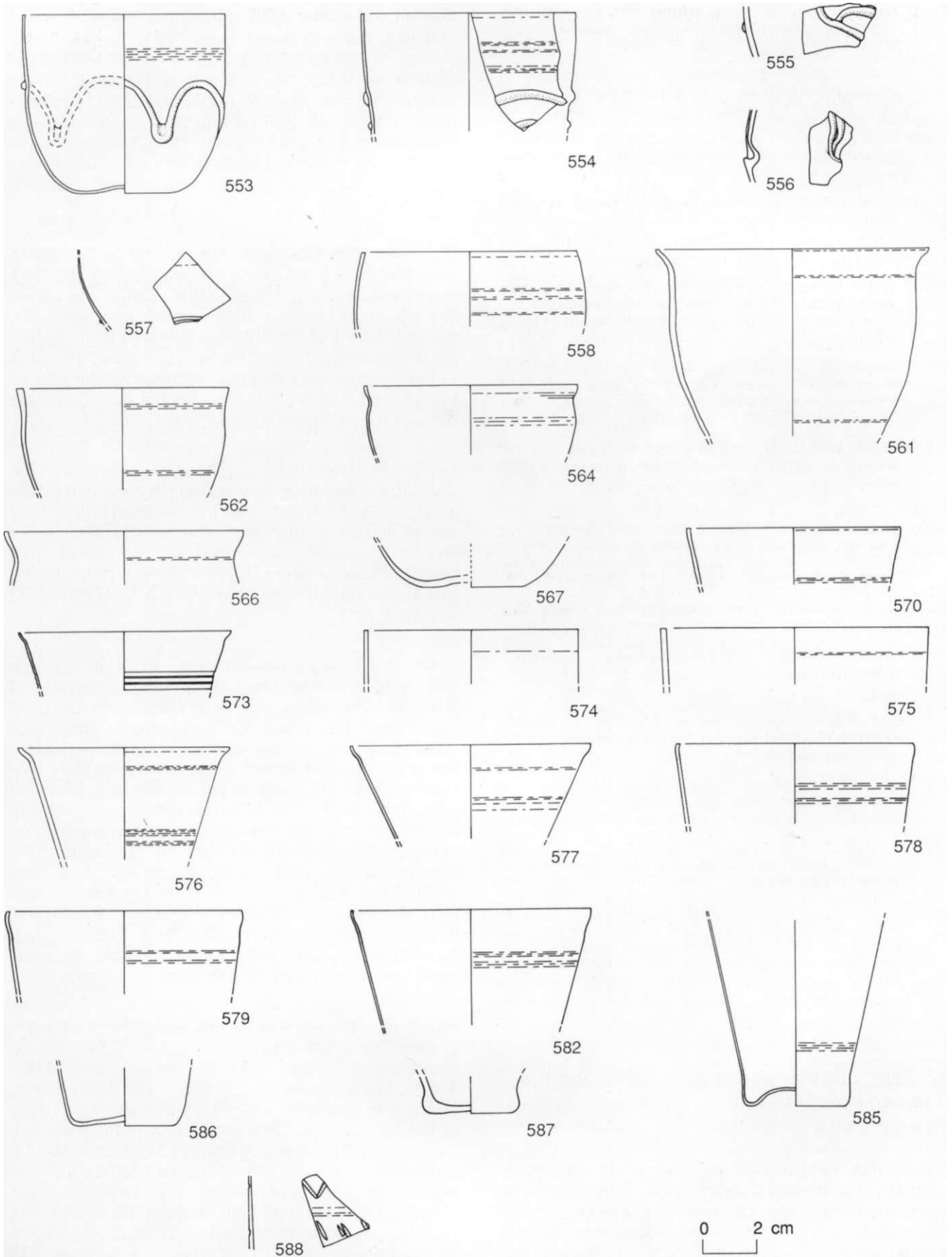


Fig 5.16 Hemispherical cups and conical beakers. 1:2. [Pages 88-92]

Hemispherical cups and conical beakers

- 573 1.81 G4300; Period 3d to 4. Rim fragment of conical beaker. Curved rim, edge cracked-off and probably not ground; straight side sloping in. Three wheel-cut grooves on upper body. PH 21, RD 80, WT 0.5.
- 574 1.81 J69 L1; Period 6. Rim fragment of cylindrical beaker. Vertical rim, edge cracked-off and probably ground; straight side. Abraded horizontal band on upper body. PH 15, RD 80, WT 1.
- 575 1.81 G636 L518; Period 5. One rim and 1 body fragment of cylindrical beaker. Vertical rim, edge cracked-off and smoothed; straight side. One abraded band on upper body and another on body fragment. PH 21, RD 100, WT 1.5.

Late Roman green

- 576 1.81 C46; early medieval. Rim fragment. Very pale green-tinged colourless. Curved rim, edge cracked-off and ground; straight side sloping in. One abraded band below rim and 2 on body. PH 42, RD approx 80, WT 2.
- 577 BKC73 A31 TT2 L2; post-Roman. Rim fragment. Pale green-tinged colourless. Curved rim, edge cracked-off smoothly but not ground; straight side sloping in. Four narrow abraded bands on body. PH 34, RD 90, WT 1.
- 578 BKC74 E360 L433; post-Roman. Rim fragments. Greenish colourless. Curved rim, edge cracked-off smoothly but not ground; straight side sloping in. Two abraded bands on body. PH 30, RD 90, WT 1.
- 579 BUC77 E324 L17; 5th century. Rim fragment. Pale greenish colourless. Slightly curved rim, edge cracked-off smoothly but not ground; straight side tapering in. Two abraded bands on upper body. PH 31, RD 90, WT 1.
- 582 LWC72 H202 F56; post-robbing; ?pre-18th century. One rim and 1 body fragments. Pale greenish colourless. Curved rim, edge cracked-off smoothly but not ground; straight side sloping in. Two abraded bands on upper body. PH 43, RD approx 80, WT 1.
- 585 BUC77 E622 F94; post-Roman. Two base and body fragments. Pale greenish colourless. Straight side tapering in to concave base. Abraded band on lower body. PH 71, BD 42, WT 0.5.
- 586 BUC77 C1605 G427; Period 2. Lower body and base fragment. Pale greenish colourless. Straight side tapering in to slightly concave base. PH 22, BD 40, WT 1.
- 587 1.81 G803 L450; Period 6. Base fragment. Green-tinged colourless. Side sloping in steeply to slightly concave base. PH 14, BD 32, WT 2.5.
- 588 1.81 B1847 F550; post-Roman. Body fragment. Greenish colourless. Straight side. Two rice-grain wheel cuts arranged in a V-shape above 2 abraded bands; parts of 4 diagonal shallow rice grain wheel-cuts below. Dim 26x20, WT 2.

Beakers, cups or bowls with out-turned fire-rounded rims (615-629)

[Fig 5.17; Table 5.3]

During the 1971-85 excavations at Colchester a number of out-turned, fire-rounded rim fragments were found which seem to belong to beakers, cups or bowls. One group of these (**620-629**) form a well-defined subset of 4th-century date. The other fragments are more varied and are likely to have come from a variety of different vessel forms.

Various cup and beaker forms with fire-rounded rims were in use in the 4th century. These included hemispherical cups such as those from Krefeld-Gellep (Pirling 1966, 100 Types 189-91 & 1979, 50 Type 332), truncated conical beakers (both trailed, like the example from a grave at Gallowtree Gate, Leicester (Dore 1927-8, 39, pi 3.2), and plain as in the Burgh Castle deposit of glass (Harden 1983, 83 nos 85 & 87, fig 37)), and cylindrical beakers with a high pushed-in foot such as those in the same deposit (*ibid*, 83 nos 88-9, fig 37).

Fragments 620-629 came from this range of vessels, a minimum of eight being represented by rim fragments (see Table 5.3, p 89). One (620) came from a hemispherical cup and another (621) from a beaker, but insufficient of the side is preserved on the other fragments for the form of the vessel to be identified. A further beaker is likely to be represented by 629 as the presence of a pontil scar on the base indicates that the rim was most probably heat-finished.

Fire-rounded rims have long been associated with the drinking-vessels in use during the 5th century (Harden 1983, 86), but it is clear that this rim form had already come into use on such vessels in the 4th century. For instance, several fire-rounded rim fragments from cups and beakers were found in contexts dating to the mid 4th century at Towcester (Price & Cool 1983, 122 nos 42-4, fig 47).

In most 4th-century assemblages, rim fragments from this range of vessels are present. Here a minimum of 9 has been identified, compared with a minimum of 29 cups and beakers with cracked-off rims (see Table 5.3). This illustrates well the normal pattern found on 4th-century sites, for drinking-vessels with heat-finished rims were never as common as those with cracked-off rims. A similar pattern was seen in the two assemblages already used to show the frequency of hemispherical cups and conical beakers with cracked-off rims. At Towcester (Price & Cool 1983) there was a minimum of 6 with fire-rounded rims as opposed to at least 19 with cracked-off rims, while at Caister by Yarmouth (Price & Cool 1993, 149-50) there were only 2 with fire-rounded rims compared with at least 47 with cracked-off rims.

Blue/green examples of hemispherical cups with fire-rounded rims are also known, as may be seen in examples from Lullingstone, Kent (Cool & Price 1987b, 119 & 134 no 360, fig 55) and Berkeley Street, Gloucester (unpublished). These are generally made in bubbly glass and are possibly contemporary with the greenish bubbly examples. The two blue/green rim fragments do not come from this variety of cup, however, and they cannot be precisely identified. Fragment **618** comes from a large bowl and was found in a 3rd-century context. The shape of the vessel from which the blue/green rim fragment **619** comes from is unknown, but there is a carination on the upper body.

Fragment 615, from an unstratified context, is a most unusual vessel. It is made of very dark yellow/green glass appearing black. It may have come from a beaker but could as easily have come from a cup or jar. The form of vessel that 616 came from is also open to question; it is a small heat-affected translucent yellow/green fragment which might have come from a jar rather than a cup or beaker. It was found in a 2nd-century context at Middleborough.

Beakers, cups or bowls with out-turned fire-rounded rims

Yellow/green

615 1.81 E1; unstratified. Rim fragment of cup beaker or jar. Very dark yellow/green appearing black. Out-turned rim, edge fire-rounded; side sloping in. PH 18, RD 85, WT 1.

Blue/green

618 BKC76 V813 L22; late Period 5 (c AD 300). Rim fragment of cup or bowl. Out-turned rim, edge fire-rounded; convex-curved body. PH 14, RD approx 170, WT 1.

619 CPS73 860 F115; Building 154; Period 4. Rim fragment of bowl? Out-turned rim, edge fire-rounded; short upper body sloping out to carination. PH 20, RD 110, WT 2.

Late Roman green

620 BUC77 C1157 G367; Period 2. Rim fragment of hemispherical cup. Pale greenish colourless. Out-turned rim, edge fire-thickened; slightly convex-curved body. PH 24, RD 95, WT 1.

621 BKC75 N102 F30; Period 6. Rim fragment of beaker? Light greenish colourless. Out-turned rim, edge fire-thickened, slightly convex-curved side. PH 26, RD 70, WT 1.

622 LWC72 E108; 17th-20th century. Two rim fragments of cup or beaker. Pale green. Out-turned rim, edge fire-rounded, straight side. PH 17, RD 90, WT 1.

624 BKC75 N11 L1; modern. Rim fragment of cup or beaker. Green-tinged colourless. Out-turned rim, edge fire-rounded; side sloping in. PH 15, RD 120, WT 1.5.

625 BKC75 N72 F18; Period 6+. Rim fragment. Light greenish colourless. Out-turned rim, edge fire-rounded. PH 7, RD 65.

629 1.81 G158 F158; Period 6. Base fragment of conical beaker. Light green. Side sloping in steeply to slightly concave base. Pontil scar with small amount of additional glass. PH 9, BD 35, WT 2.

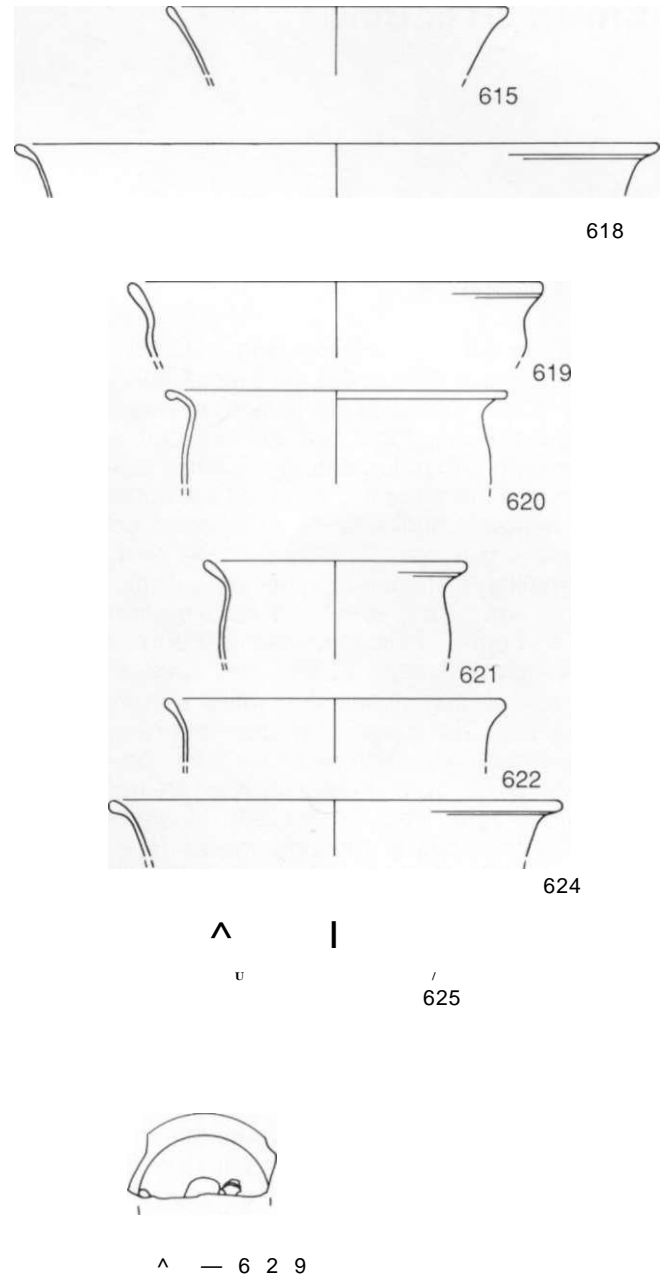


Fig 5.17 Beakers, cups or bowls with out-turned fire-rounded rims. 1:2. [Pages 92-3]

CHAPTER 6: Bowls

Tubular-rimmed bowls (630-692)

[Figs 6.1-6.3; Table 6.1]

Various forms of open dishes and bowls with tubular rims were in use throughout the Empire during the 1st and early 2nd centuries. In Britain, the variety most often found is cylindrical, with either a carination or a more smoothly-rounded change of angle to the lower body. In this form, the rim edge is bent out and down with a hollow round tube or a flattened collar. (On some the rim is bent in before being bent out and down, making a double-tubular rim, but this is much less common.) This variety of tubular-rimmed bowl occurs in both a deep form (Isings Form 44) and a shallow form (Isings Form 45), and the deep examples are sometimes decorated with vertical or diagonal ribs. The range of shapes and decoration is well illustrated by such examples as: an emerald green shallow bowl from Sheepen (Charlesworth 1985a, mf 3:F6-7 no 37, fig 80); blue/green deep examples from pits at Richborough which were filled by AD 85 (Bushe-Fox 1949, 158 nos 369 & 372, pi 68); an amber ribbed deep bowl from a pit at Hemel Hempstead, Hertfordshire dated to the Trajanic period (Charlesworth 1974-6, 117, fig 64a, pi 41); and a blue/green ribbed bowl from Faversham, Kent (Harden *et al* 1968, 84 no 110). The bases of all these bowls generally have either applied true base rings or applied pad bases.

These tubular-rimmed bowls were made in a wide variety of strong colours including deep blue, emerald green and yellow/brown, as well as in blue/green and the various lightly-tinted shades of yellow/green and pale green. Greenish colourless glass, however, was rarely used. Occasionally, polychrome examples are found where opaque white blobs have been marvered smooth on the surfaces of strongly-coloured bowls. Examples of these include a bright green bowl from Krov, Bernkastel-Wittlich (Goethert-Polaschek 1977, 35 no 93), and a deep blue bowl from Houdeng Goegnies (Faider-Feytmans 1940, pi 3/1).

Included in this section are all the tubular-rim fragments which may have come from bowls and some body fragments that almost certainly do (see Table 6.1). Many of the vessels, however, are only represented by a fragment from the tubular rim, and it is not always possible to be sure of their precise form. During these excavations, at least three deep blue (630-632), two emerald green (634-635), three dark yellow/brown (636-638), three light yellow/brown (639-641), five yellow/green (644-648), two pale green (649-650), and twenty-one blue/green bowls (651-681) were found which could have come from

the standard form described above. Of these, 635 (emerald green) and 679-681 (blue/green) were probably shallow bowls or dishes, while 649 (pale green) and 651 (blue/green) were definitely deep bowls. It is noticeable that the depth of the rims on deep bowls is greater than that on shallow bowls, and from the depth of such rim fragments as 630, 636, 646-648 and 656 it is likely that deep bowls were in the majority, though this cannot be proved. Ribbed decoration occurs on 651-654 but this is not necessarily an accurate reflection of the ratio of plain to ribbed bowls in the assemblage, as the ribbing generally only started at a lower level on the side than is preserved on most of the fragments. The double-tubular rim form occurs on a minority of these fragments (641, 646 & 672, and the shallow bowls 680 & 681). The bases on these tubular-rimmed bowls are formed from an applied true ring or applied pad, and it is likely that many of the applied true base ring fragments (1452-1471) and some of the applied pad bases (1472-1479) could originally have come from bowls of this sort.

There is a form of tubular-rimmed bowl which has a flat or slightly concave base, usually with a thickened centre and without a base ring (Isings Form 46). These are normally shallow bowls; see for example those in a late Neronian or Flavian grave at Cadra, Minusio (Simonett 1941, 163 no 4, 166 no 17, Abb 142). However, it is also known in a deeper form, and a ribbed deep example was found at Abbey Green, Chester (unpublished). The fragments 677 and 678 may be examples of this variant.

Another variety of tubular-rimmed bowl has a base ring of approximately the same diameter as the rim,

Table 6.1 Distribution of tubular-rimmed bowls.

SITE	Coloured		Blue/green	
	Frs	EMN	Frs	EMN
1.81	5	5	6	4
BKC	10	8	51	12
LWC	4	3	7	5
GBS	5	3	5	3
BUC	-	-	3	2
MID	-	-	3	3
CPS	-	-	3	3
Totals	24	19	78	32

with the base ring itself in some cases being formed by a tubular figure-of-eight fold (Isings Forms 41a & 48; discussed below in connection with 702 & 712). The rims on these bowls tend to be smaller than those on the cylindrical form with the wide lower bodies (Isings Forms 44/45). Therefore, it is possible that the smaller and more tubular rims such as 660, 662, 666, 669 and 672 could have come from bowls of Isings Form 41a, rather than from Forms 44 or 45.

Tubular-rimmed bowls of Isings Forms 44 and 45 first appeared during the late 1st century BC (Grose 1973, 50, footnote 18), and they became numerous by the mid 1st century. From then until the mid 2nd century, the bowls were very common in Britain and the other western provinces; see for example the vessels noted in connection with those found at Valkenberg (van Lith 1978-79, 69-70). The form was well established by the Flavian period, as fragments are often found in contexts of that date. The form went out of use during the second half of the 2nd century. At Verulamium, for example, of the 35 stratified examples found during Frere's excavations (Charlesworth 1972, 199(v) & 1984a, 151-2 nos 53-70), 25 came from contexts that predate AD 155/60, and several of the later examples (*ibid*, 1984a, 151 nos 57 & 67) are from the redeposited Antonine fire debris. However, some bowls must still have been in use in the period AD 160-170, as two examples were amongst the finds from the rubbish pit of that date at Felmongers, Harlow, Essex (Price 1987a, 202 nos 4-5, fig 1).

The same predominantly mid 1st- to mid 2nd-century date is shown by the fragments from dated contexts found during these excavations, as can be seen from Figure 6.1, which shows all the fragments from the standard form of deep and shallow bowls. The other tubular-rimmed bowl variants which have been mentioned (Isings Forms 41a and 46) were also in use during the 1st century, but how long their use

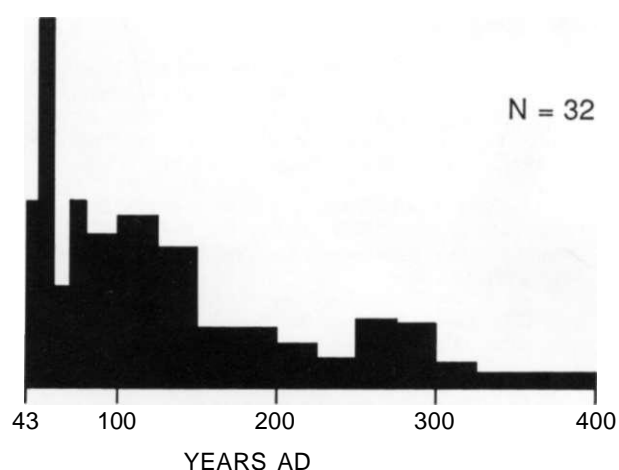


Fig 6.1 Histogram showing the dates of the fragments of tubular-rimmed bowls found in Roman contexts (for the method of calculating the histogram, see pp 5-6).

continued into the 2nd century is not clear. The bowl 677, which may have been of the variant without a foot ring (Isings Form 46), was found in a context dated to c AD 75-125 (Balkerne Lane, Period 4).

The assemblage also included rim fragments from bowls where the tubular rim edge is at the end of an almost horizontally out-turned rim. This form is represented by five blue/green examples (682-686). The double-tubular rim 682 comes from a shallow bowl; the depths of the other vessels from which these rims derive are not known. This variety may perhaps be related to bowls of Isings Form 42 (see discussion in connection with 693), which have a horizontal rim with fire-rounded edge. The form represented by 682-686 is not common in Roman Britain, though it has been noted at Mancetter and The Park, Lincoln (both unpublished), and possibly also at Verulamium (Charlesworth 1984a, 167 no 257, fig 67.111).

One example (684) was found in a pre-Boudican context at Balkerne Lane, and another (686) came from the silt over Road 2 at Lion Walk which was probably of Flavian date. Generally the variant appears to have been in use contemporaneously with the standard form of tubular-rimmed bowl.

Also included in this section are a small number of rim fragments where the tubular rim edge has been in-bent rather than out-bent. These include one fragment each in deep blue (633), yellowish colourless (642), and dark yellow/brown glass (643), as well as five blue/green examples (687-691). It is far from certain whether all of them came from bowls. The mean rim diameter of the standard form of tubular-rimmed bowl in this assemblage is 159 mm (minimum 110, maximum 250 mm), but the rim diameters of the examples with in-bent rims are between 70 and 130 mm, with the exception of 690 which is 160 mm, so the possibility that they came from some form of jar cannot be excluded. The contexts of the blue/green fragments were not closely dated. The deep blue, yellowish colourless and dark yellow/brown examples were found in 1st-century contexts.

A form of tubular-rimmed bowl was also in use in the 4th century, but it can generally be distinguished from the 1st- and 2nd-century form because it is made of late Roman bubbly green glass and has a rounded rather than a carinated profile. This late form may have either a tubular pushed-in base ring, as on the bowls from the 4th- or early 5th-century deposit of glass at Burgh Castle, Norfolk (Harden 1983, 81, nos 81-2, fig 37), or an applied pad base, as on one from Trier (Goethert-Polaschek 1977, 35 no 94, Taf 33). It is sometimes decorated with optic-blown shallow ribbing.

Only one rim fragment which can be identified as coming from this later variety of tubular-rimmed bowl was found during these excavations, and that is 692, from a post-Roman context at the Gilbert School. This was not a very common 4th-century form, but it has been found in Britain: at Ilchester, Somerset

Tubular-rimmed bowls

(Price 1982a, 230 no 25, fig 112); Dorchester-on-Thames, Oxfordshire (Charlesworth 1984c, 155 no 18, fig 39); Abingdon, Oxfordshire (Price 1986b, mf A6 no 4); Bath (Shepherd 1985, 163 no 22, fig 92); Chichester (Price & Cool 1989, 135, fig 19.4); and Atworth, Wiltshire (unpublished), all in addition to those from Burgh Castle noted above. The examples from Dorchester-on-Thames, Abingdon and Atworth were definitely ribbed, as may have been one from Burgh Castle. One example of this type survived long enough to be deposited in a 5th-century grave at High Down, Sussex (Harden 1951, 263, 266 no I(h), fig 8).

Tubular-rimmed bowls

Deep blue

- 630 BKC75 G398; Period 2 or 3? Rim fragment. Slightly out-bent rim, edge rolled out and down. PH 16, RD 150.
- 631 1.81 B4 F1; medieval. Rim fragment. Vertical or slightly out-bent rim, edge rolled out and down. PH 7, RD approx 160.
- 633 BKC76 V553 L55 B46; Period 2. Rim fragment of bowl or jar. In-bent rim, edge rolled out and down. PH 8, RD 110.

Emerald green

- 634 KC74 E918 L226; Period 1b. E243 L36; Period 6. Rim fragment. Vertical rim, edge bent out and down; straight side. PH 19, RD approx 100, WT 1.5.
- 635 GBS85 A2396 L258; Building 131, Room 5. A2345 F310; Building 131, Period 2. Two joining body fragments of shallow bowl. Out-bent rim missing; straight side with rounded carination to wide body broken at edge of base ring. PH approx 40, max body diameter approx 90, WT 1.5.

Yellow/brown

- 636 LWC71 B289 F113; Building 23, Period 5. Rim fragment. Dark yellow/brown. Slightly out-bent rim, edge bent out and down. PH 15, RD approx 190.
- 637 BKC74 E1262 L387; Building 37, Period 1b. Rim fragment. Dark yellow/brown. Vertical rim, edge bent out and down; straight side. PH 17, RD 170-190, WT 1.
- 641 BKC76 V1253 F482; Period 4. Rim fragment. Light yellow. Out-bent rim, edge first rolled in, then out and down. PH 10, RD 190.
- 642 1.81 B1417 L319; Period 3. Rim fragment of bowl or jar. Yellowish colourless. In-bent rim, edge bent out and down. Side grazed. PH 11, RD 100.
- 643 1.81 B1579 L380; Building 94, Room 2, Period 3. Rim fragment of bowl or jar. Dark yellow/brown. In-bent rim, edge first rolled in then folded out and down. PH 11, RD 70.

Yellow/green

- 644 BKC76 V938 L11; late Period 5 (c AD 300). Rim fragment of large bowl. Slightly out-bent rim, edge bent out and down; straight side sloping in. PH 16, RD 250, WT 2.
- 645 GBS84 A420 L1; post-Roman. Rim fragment. Vertical rim, thickened edge bent out and down; straight side sloping in. PH 21, RD 185, WT 2.
- 646 BKC76 V169 F50; Period 5 (or 6). Rim fragment of bowl or jar. Rim edge first rolled in, then out and down. PH 15, RD 130.

Pale green

- 649 LWC72 J954 F193; Period 4a or b. Two rim fragments. Out-bent rim, edge bent out and down; slightly concave-sided upper body. PH 47, RD approx 180, WT 2.

- 650 BKC76 T468; Period (2 or) 3. Rim fragment. Vertical rim, edge bent out and down; straight side sloping in. PH 14, RD approx 110, WT 1.

Blue/green

- 651 BKC75 J49 L7; Period 5b. Rim fragment of ribbed bowl. Out-bent rim, edge bent out and down; straight side. One diagonal optic-blown rib in low relief. PH 32, RD 160, WT 1.5.
- 652 BUC77 C1413 L4; modern/post-Roman. Rim fragment of ribbed bowl. Out-bent rim, edge bent out and down; body sloping inwards. Optic-blown diagonal ribs. PH 20, RD 175, WT 1.5.
- 654 1.81 B147; unstratified. Body fragment. Straight side curving through carination to lower body. One vertical rib dying out at carination. Dim 34x20, WT 2.
- 655 BKC74 E1170 F251; Period 2. Rim fragment. Slightly out-bent rim, edge bent out and down. PH 12, RD 240.
- 656 1.81 M357 L248 & L249; Period 3 or 4. Rim fragment. Out-bent rim, edge rolled out and down; straight side. PH 22, RD approx 200, WT 1.5.
- 657 GBS84 A1406 L66; Period 3a. GBS84 A861 L28; post-Roman. Two rim fragments. Vertical rim, edge bent out and down; straight side sloping out slightly. PH 25, RD 200, WT 1.5.
- 658 GBS84 A243; Roman. Rim fragment. Vertical rim, thickened edge bent out and down. PH 14, RD 170.
- 660 LWC72 J1290; Building 8 floor, Period 2. Rim fragment. Vertical rim, edge bent out and down. Straight side. PH 11, RD 160-170, WT 1.
- 661 BKC73 B48 F13/L30; modern? Rim fragment. Out-bent rim, edge bent out and down; side sloping in steeply. PH 20, RD 160, WT 1.
- 663 MID78 A2269 F48?; modern. Rim fragment. Vertical rim, edge bent out and down; straight side sloping in. PH 10, RD approx 150, WT 1.
- 665 BUC76 A357 F123; Period 2 or later. Rim fragment. Vertical rim, edge bent out and down; body sloping inwards. PH 13, RD 130-140, WT 1.
- 666 BKC76 V932 L11; late Period 5. Rim fragment. Vertical rim, edge bent out and down; straight side sloping in slightly. PH 15, RD 130, WT 1.
- 676 1.81 G2679 F2370; Period 4 or 5. Rim fragment. Vertical rim, edge first rolled in, then out and down. PH 8, RD approx 100.
- 677 BKC75 J49 L7; Period 5. J45 L6; Period 5b? Twenty-eight rim and body fragments. Almost vertical (slightly out-bent) rim, edge bent out and down; concave-sided body with carination to wide lower body tapering in. Vessel very bubbly. PH (rim) 26 and (base) 29, RD 140, WT 1.
- 678 1.81 E784 F579; Building 89, Period 2. Lower body fragment of bowl. Side curving out then in to rounded carination to slightly convex lower body. Max body diameter 130, WT 1.5.
- 679 LWC72 J1634; Building 16, Period 3. Rim fragment of ?shallow bowl. Vertical rim, edge bent out and down; convex-curved body curving in. PH 18, RD approx 150, WT 2.
- 680 GBS84 A552 F95; ?Period 3a. Rim fragment of probably shallow bowl. Vertical rim, edge first rolled in then out and down; side curving in through rounded carination. PH 10, RD 150, WT 1.5.
- 682 BKC75 N170 L3; Period 6. N159; Period 6. Eleven rim and body fragments of rim of ?shallow bowl. Horizontally out-bent double tubular rim; shallow convex-curved body. PH approx 10, RD 280, WT 1.

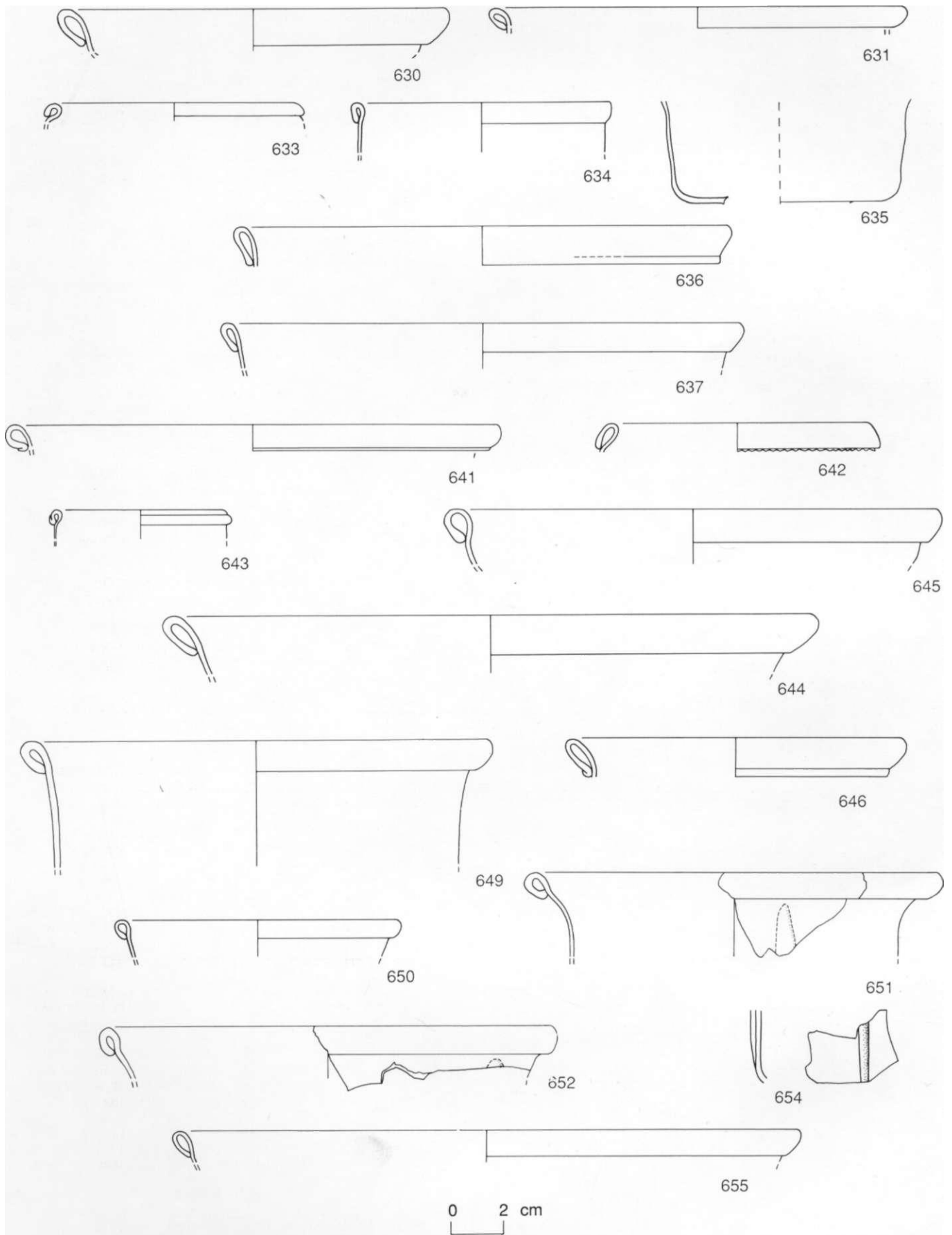


Fig 6.2 Tubular-rimmed bowls. 1:2. [Pages 94-6]

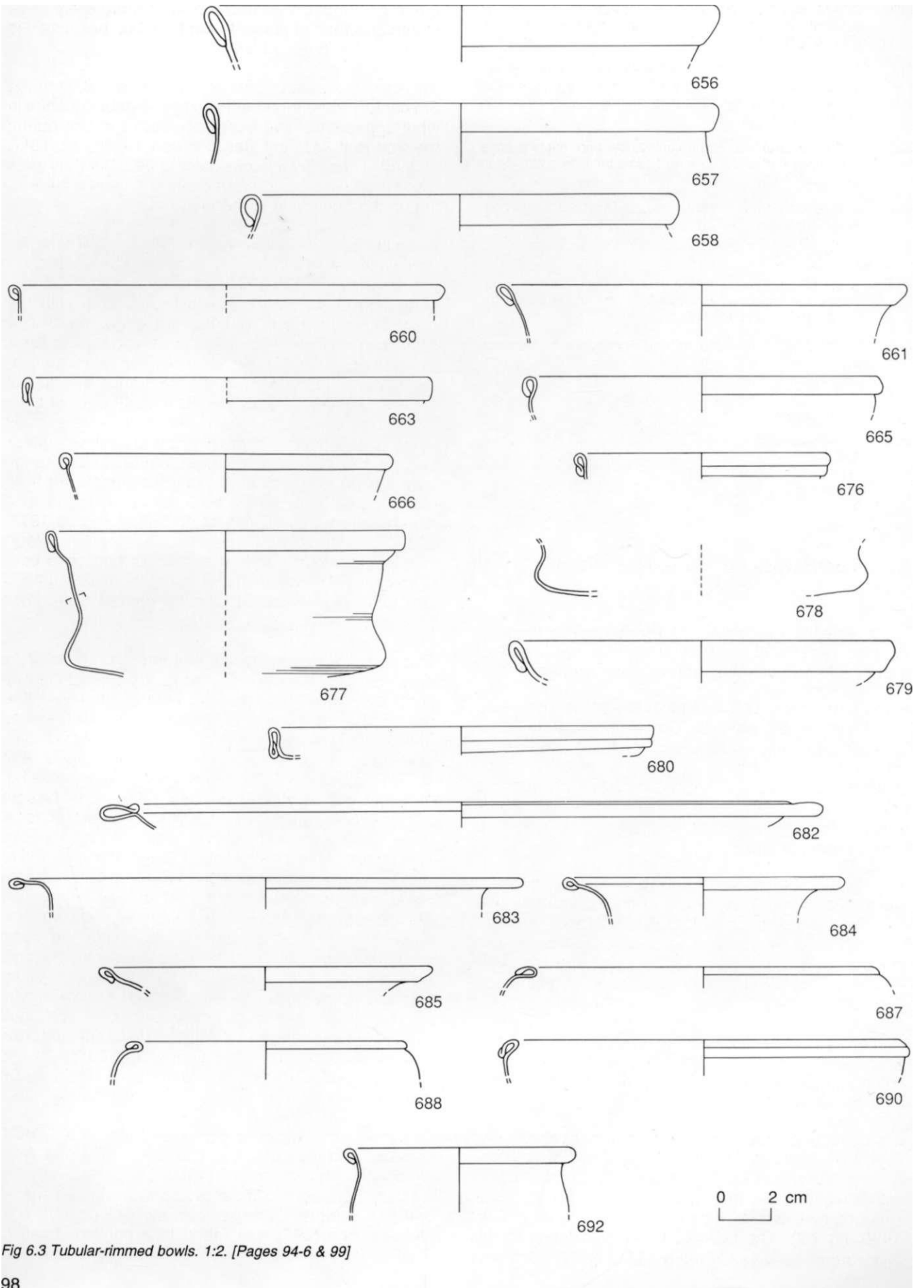


Fig 6.3 Tubular-rimmed bowls. 1:2. [Pages 94-6 & 99]

- 683 CPS73 683 L61; Period 4. Rim fragment. Horizontally out-bent rim, edge bent out and down; vertical side. PH 200, WT 1.12, RD 200, WT 1.
- 684 BKC76 T566 F206; Period 1 or 2. Rim fragment. Rim out-bent almost horizontally with edge bent down and under to form hollow tube; side sloping in very shallowly. PH 15, RD 110, WT 1.
- 685 BKC75; unstratified. Rim fragment. Out-bent rim with edge bent down and under to form hollow tube; side sloping in very shallowly. PH 9, RD 130, WT 1.5.
- 687 BKC75 J218; Periods 5/6 or modern. Rim fragment of bowl or jar. Rim inbent almost horizontally, edge bent out and down; convex-curved body. PH approx 8, inner RD approx 130, WT 1.
- 688 BKC J81 L23; Period 5 or 6. Rim fragment of bowl or jar. Inbent rim, edge bent out and down; convex-curved body. PH 20, RD approx 100, WT 1.
- 690 MID78 A24 L1; medieval or later. Rim fragment. Markedly inbent double tubular rim; straight side. PH 15, RD (outer) 160, WT 1.

Late Roman green

- 692 GBS84 A21 L1; post-Roman. Rim fragment. Light green. Out-bent rim, edge rolled out and down; convex-curved side. PH 25, RD 90, WT 1.

Bowls with wide out-turned rims (693-698)

[Fig 6.4]

Fragments from six bowls with out-turned fire-rounded rims are present in the assemblage, and at least two slightly different varieties appear to be represented.

One of the bowls (**693**) is almost complete, and it was found outside the coffin in Grave 100 at Butt Road. This was the only glass vessel found in association with a Period 1 Phase 3 burial at that cemetery (*CAR 9*, 50-51). It is a small blue/green bowl with a horizontally out-bent rim with fire-rounded edge, straight sides which slope in slightly, and a tubular pushed-in base ring.

This bowl (**693**) is very similar to Isings Form 42, which occurs most commonly in contexts of the later 1st and early 2nd centuries. For instance, bowls of this kind were deposited at Niort, Deux Sevres with an inhumation which is unlikely to post-date the early Flavian period (Mitard 1977, 219-20 nos 19-22, pi 5). Examples have also been found in graves at Cadra, Minusio belonging to the last third of the 1st century (Simonett 1941, 163-8 nos 11, 17b-c, 22, 24-6 & 28-9, Abb 142 & 174 no 13, Abb 148), and at Justenville belonging to the 2nd century (Vanderhoeven 1961, 43-4 no 43, pi 10).

It is becoming increasingly apparent that vessels of a similar form were in use during the 3rd century. Another blue/green bowl, with an out-turned rim but with a higher base ring, was found in a cremation at Brougham, Cumbria dated to c AD 250-270 (Cool 1990, fig 2.7). The bowl **693** clearly belongs to this later group of bowls. Grave 100 may be dated to

c AD 300/20-320/40, but the bowl is more likely to be of late 3rd- than of early 4th-century date because it is made of blue/green glass.

Two other bowls with wide rims which may date to the 3rd century were found at Hauxton, Cambridgeshire in what appears to have been a cemetery in use during the 2nd and 3rd centuries (Harden 1958b, 12, fig 7, pi 3c-d). These bowls are similar to **693**, but they were made in greenish colourless glass and have a thickening on the underside of the rim.

A similar feature occurs on the other rim fragments from wide-rimmed bowls in this assemblage. Three of the fragments (**695-697**) are very similar. On the underside of the rim, close to the junction with the body and concentric with the rim edge, there is a slight fold or kink. This sometimes appears to be a trail, but on one (**696**) there is a slight step above it on the upper side of the rim. These fragments do not appear to have come from vertical-sided vessels such as **693** or the vessels from Hauxton, as the sides slope in relatively shallowly. They are all colourless and are parts of vessels whose rim diameters range from 110 to 300 mm. It is likely that these rim fragments came from bowls such as those found in a 2nd-century burial at Maastricht-Belfort (Isings 1971, 223-4, nos 66-72, figs 12.8-10). These were colourless or yellowish, and had small foot rings and concave bases. The rim diameters were between 100 and 220 mm, and the vessel shapes ranged from small and relatively deep to wide and shallow.

This is not a frequently-encountered type of bowl or dish. Others have been noted from 2nd-century cremation burials at Apt, Vaucluse (Dumoulin 1964, 94 no 27f fig 12g) and Bolards, Nuits-St-Georges (Joubeaux 1982, 64 no C120, pi 18). Other examples are known from Xanten (Charlesworth 1984b, 287 no C4631 Taf 100.11), Nida-Hedderheim (Welker 1985, 56 no 196, Taf 15), and The Park, Lincoln (unpublished). All of these are colourless and at least three, from Xanten, Nida-Hedderheim and Lincoln, show traces of wheel-polishing. This feature has led to the suggestions that the Xanten and Nida-Hedderheim vessels were cast and polished. The Lincoln one by contrast was certainly blown and wheel-polished, as is also the case with the three examples found at Colchester. It is noteworthy that, on both of these fragments from Xanten and Nida-Hedderheim, the outline has a more gentle convex curve than is normally associated with cast and ground vessels, such as the superficially similar bowls discussed above in connection with **212-223**. In this they are similar to the fragment from Lincoln and it may also be that they were blown and wheel-polished.

The evidence, from the graves at Maastricht-Belfort, Bolards and Apt and the context of the one from Lincoln (a rampart deposit of the late 2nd or early 3rd century), shows that these bowls were in use during the 2nd century. Of those from the Colchester excavations, one (**695**) was found in a context dated to c AD 80/5-100 at Balkerne Lane (Site K, Period 4c),

Bowls with wide out-turned rims

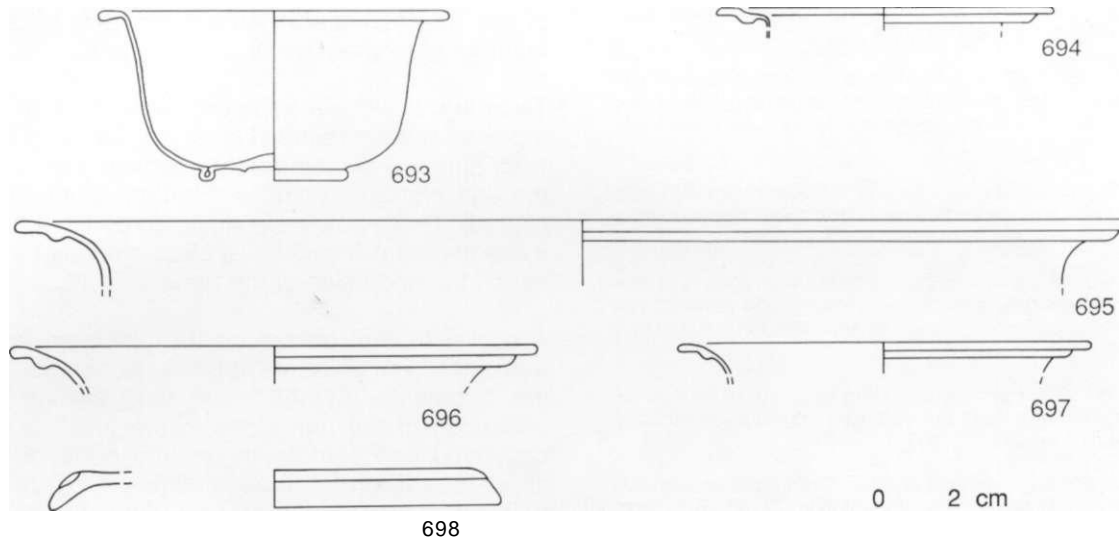


Fig 6.4 Bowls with wide out-turned rims. 1:2. [Pages 99-100]

while the others (**696-697**) came from contexts dated to c AD 150-300 and 250-400+ at Lion Walk (Site J, Period 4) and Balkerne Lane (Site J, Periods 5c-6) respectively. The weight of the evidence suggests production in the later 2nd and 3rd centuries, and that **695** is from an unusually early context.

The original forms of the other two vessels cannot be so easily suggested. Fragment **694** has a rim with a slight step and rib on the underside that is similar to those of **695-697**, but it is made of dark yellow/brown glass that appears black, is of a smaller diameter and has a body that slopes in much more steeply. It is possible that it came from a jar rather than a bowl. Two similar 'black' stepped or kinked rims are known from the *vicus* at Castleford, West Yorkshire (unpublished) and from Deansgate, Manchester (pers comm E McAdam). The Castleford fragment came from a mid 2nd-century context, while the Deansgate fragment is most likely to be of late 1st- or early 2nd-century date. Fragment **694** is not directly dated as it was found unstratified at Balkerne Lane, but the evidence from Castleford and Manchester suggests that it is most likely to be of 1st- or 2nd-century date.

The other vessel (**698**) is represented by a small blue/green rim fragment with a trail on the upper side, and it is not closely paralleled. It was found in a rampart deposit at Lion Walk Site M, so a mid 2nd-century date or earlier is indicated.

Bowl with wide out-turned rim
Blue/green

693 BUC76 B464 G100 SF 278; Period 1, Phase 3. Bowl in 33 fragments, parts of body missing. Rim out-bent horizontally, edge fire-rounded; straight side sloping in slightly to carination with lower body; tubular pushed-in base ring; base has applied pad which has produced a central thickening on interior and exterior; deep oval pontil scar. Base ring worn. Height 45, RD 93, BD 39, WT 1.

Bowls with wide out-turned ribbed rims
Yellow/brown

694 BKC74 G1; unstratified. Rim fragment. Dark yellow/brown appearing black. Horizontally out-bent, stepped rim with fire-rounded edge. Rim has slight step on upper surfaces and rib on lower. PH 5, RD 90, WT 0.5.

Colourless

695 BKC75 K493 L95; Period 4c. Rim fragment. Rim out-bent almost horizontally with fire-rounded edge, rib on underside; side sloping in. PH 15, RD approx 300, WT 2.

696 LWC72 J825 F262; Period 4. Two rim and 2 body fragments of shallow bowl or plate. Wide, horizontally out-bent rim, edge fire-rounded, rim has slight step on upper surface and rib on lower; convex-curved side sloping in very shallowly. PH 10, RD 140, WT 1.5.

697 BKC75 J210 F44; Period 5c/6. Rim fragment. Rim out-bent almost horizontally, edge fire-rounded, rib on underside; side sloping in. PH 6, RD 110, WT 1.5.

Blue/green

698 LWC M76; Rampart 1e; late Roman. Rim fragment of shallow bowl or plate. Wide rim bent out and slightly down, edge fire-rounded; side sloping in very shallowly. Horizontal trail on upper rim/body junction. PH approx 10, RD 120, WT 4.

Canthari and other vessels (699-701)

[Fig 6.5]

The blue/green stepped-rim fragments **699** from Culver Street and **700** from Lion Walk are most likely to have come from *canthari* of Isings Form 38a. This form has already been discussed above, in connection with the blue/green example from Balkerne Lane (**253**), which is decorated with opaque blue blobs. As this kind of decoration is applied to the body and not to the rim, the possibility exists that the two fragments

699 and 700 could also have been similarly decorated. As noted above, this is a mid 1st-century form, the use of which did not extend far into the Flavian period, and both of these fragments came from pre-Boudican contexts.

The third vessel with this sort of rim (701) is much thinner and of smaller diameter, and it is thus most unlikely to have come from a *cantharus*. It may have come from a beaker, but the form is as yet unknown. Two similar fragments have been recovered from Wroxeter (unpublished), one from a 1st-century context. Fragment 701 was found unstratified at the Gilberd School. This site produced only a little glass post-dating the 1st century, and a 1st-century date is thus also likely for 701.

Canthari and other vessels

Blue/green

- 699 1.81 C390 L60; Building 79, Room 2/3; Period 2. Rim fragment of bowl. Out-turned stepped rim with fire-rounded edge; straight side sloping in. PH 13, RD 85, WT 1.5.
- 700 LWC J1233; Building 8 gravel yard, Period 2. Rim fragment of bowl. Out-bent stepped rim, edge fire-rounded. Rounded cordon below rim. PH 17, RD 130, WT 3.
- 701 GBS85 A2302; unstratified. Rim fragment of cylindrical beaker. Stepped rim, edge fire-rounded; straight side. PH 17, RD 60, WT 1.

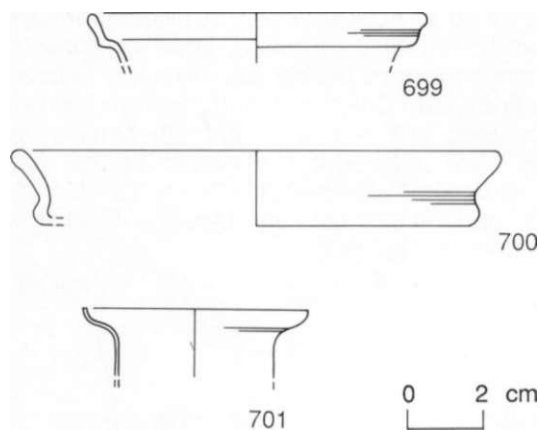


Fig 6.5 *Canthari* and other vessels. 1:2. [Pages 100-101]

Vessels with cut-out folds (702-712)

[Fig 6.6]

Various forms of vessels were decorated with cut-out folds in the Roman period, and several bowl forms are probably represented amongst the fragments in this group from the 1971-85 excavations at Colchester. There are twelve fragments, from a minimum of six vessels, but their forms cannot always be identified as several of the fragments are too small.

Fragment 703 is a blue/green out-turned rim fragment with a figure-of-eight fold on the upper body and part of an upper handle attachment on the fold. It may well have come from a *modiolus* of Isings Form 37; these

are slightly conical beakers with out-splayed horizontal tubular base rings and a handle on the upper body. The rims can be simply out-bent or elaborately folded, and cut-out folds just below the rim edge are not uncommon; see for example three with differing rim forms from Herculaneum (Scatozza Hbricht 1986, 42, nos 70-72, tav 29.2916, 2888 & 151), one of which (*ibid*, tav 29.151) has a figure-of-eight cut-out fold like 703. *Modioli* were made in the strongly-coloured glass typical of the mid 1st century as well as blue/green, and very occasionally the handles were of a different colour from the body (van Lith 1978-79, 63).

This vessel type is primarily western, concentrated in the Mediterranean area, and rare in the northern provinces (Welker 1974, 28-9). In Roman Britain, the form has only been identified with certainty at Exeter, where a blue/green ribbed example was found in a pit containing material dated to AD 50-80 (*J Rom Stud*, 43 (1953), 124, pi 23.3 & 4). Welker (1974, 29) has suggested that the dated examples of this type were concentrated in the last three decades of the 1st century. However, van Lith points out that many were found in contexts with a *terminus ante quem* of AD 80 (van Lith 1978-79, 64). This evidence, coupled with the fact that they are often made in strongly-coloured glass, suggests that they were a mid 1st-century form and were probably going out of use early in the Flavian period. The context of 703 (Culver Street Site E, Period 3a, datable to AD 60/1-c 90/100) is not sufficiently closely dated to help confirm this.

Fragment 708 could come from the lower body and base of another *modiolus*, as it came from a slightly conical vessel with a cut-out fold probably forming a base ring, and is very similar to the lower body and base of one of the *modioli* from Herculaneum cited above (Scatozza Horicht 1986, 42, tav 29.2888 no 71). However, the diameter of the fold is only 70 mm; this would be small for the base diameter of a *modiolus*, which is generally in the range of 100-170 mm, so the attribution is not secure. It could be from a vessel contemporary with *modioli*, as it was found in a contaminated context dated to c AD 75-80 at Balkerne Lane (Site T, late Period 3).

Another type of vessel that can be identified from these fragments is the cylindrical dish of Isings Forms 41a and 48. These are cylindrical, with tubular rims, a tubular base ring of approximately the same diameter as the rim, and a low concave base. They occur in both shallow forms (Isings Form 48) and deep forms (Isings Form 41a). Here they are represented by 702, which is emerald green and has a figure-of-eight fold as a base ring, and possibly by the blue/green fragment 712, which also has a figure-of-eight fold apparently acting as a base ring, but which is too small for a positive identification to be made. These dishes were made in strongly-coloured, lightly-tinted and blue/green glass. They appear to have been in use by early in the Claudian period, from the evidence of a base fragment found at Magdalensberg (Czurda-Ruth 1979, 89-90, no 679), but the majority from closely-dated 1st-century contexts are of Flavian date. A

cremation burial at Vervoz which produced a total of twelve can be dated to the late Neronian or early Flavian period (Philippe 1962, 1250, pi 234), and another burial at Niort which produced four is of the same period (Mitard 1977, 219, nos 15-18). The six fragments numbered 702 are from a plate which thus represents a very early example, as they were found at Balkerne Lane in several contexts, one of which was pre-Boudican (but could be as late as AD 60/1). Such an early date would be appropriate for the strong emerald green glass, and may account for the care taken in its manufacture, as the base was wheel-polished.

These dishes appear to have a western form that was not common in the east (Price 1985c, 78). It is difficult to estimate how common they were, as it is a form which is difficult to identify unless large portions are preserved, as in the case of 702, which is a rare occurrence on domestic sites. As noted in connection with 630-690, it is possible that some tubular-rim fragments could have come from this form of vessel rather than from the cylindrical bowl with wide lower body to which tubular rim fragments are frequently attributed. This difficulty in identifying the form must presumably explain, in part at least, its apparent rarity in Roman Britain.

The forms of the vessels of the other fragments with cut-out folds are much less certain. There is one fragment (704) from a small bowl with a vertical fire-rounded rim and cut-out fold on the side. The most obvious suggestion for the form of this is a shallow hemispherical bowl with foot ring and cut-out fold on its side (Isings Form 69b), such as the one found at Silchester (Boon 1974, fig 36.7). These have rarely been identified with certainty in Roman Britain, and the only other secure identifications are at

Piercebridge and the Western Link site at Dorchester (both unpublished). The diameter of the fold of 704 is smaller than is usual for vessels of Form 69b. In size, 704 more closely resembles two fragments from small bowls found in a pit dated to the late 1st or very early 2nd century at the *canabae legionis* at Nijmegen (Isings 1980, figs 27.3-4). The horizontal cut-out fold fragment 706, by contrast, is of approximately the correct dimensions to have come from a bowl of Isings Form 69b, but this must remain a tentative suggestion given the size of the fragment.

The rim fragment 709 has a fire-rounded edge and a cut-out fold. It seems most likely to have come from a plate or a dish with a wide rim such as those found at Tipasa in 2nd-century graves (Lancel 1967, pis 9.4 & 10.8). A comparable blue/green rim fragment with cut-out fold was found at Manchester (Price 1974, fig 84.82), but this too is broken in such a way that the original form of the vessel is not readily apparent. Several of the other fragments with cut-out folds that were found (705, **707** & 710-711) could also have come from plates or shallow dish forms, as the curve of the fold indicates that the plane of the wall must have been near-horizontal at the point where it was broken. Vessels made of blue/green glass decorated with cut-out folds appear to have been mainly in use during the 1st and 2nd centuries. Most of these fragments came from post-Roman contexts, but **711** came from one dated to AD 60/1-c 225 (Culver Street Site G, Period 3). It should be noted, however, that this general tendency does not necessarily apply to bowls of Isings Form 69b. Colourless and greenish bowls of this form were still in use in the 4th century, as examples have been found in graves of that date at Trier (Goethert-Polaschek 1977, 37, Taf 16.176e no 102) and at Strasbourg (Arveiller-Dulong & Arveiller 1985, 87, no 154).

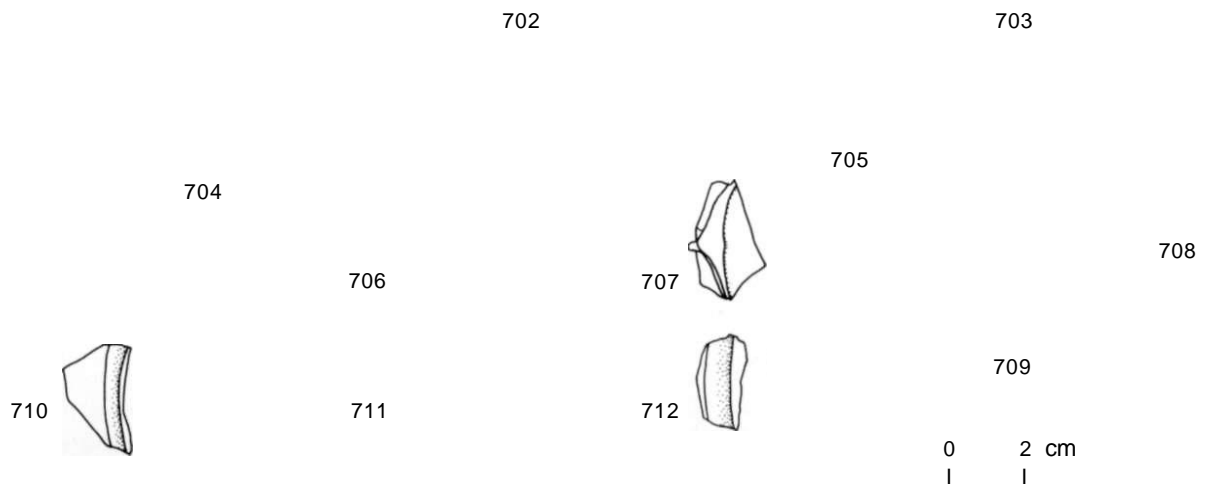


Fig 6.6 Vessels with cut-out folds. 1:2. [Pages 101-3]

Bowls and plates with cut-out folds

Emerald green

- 702 BKC76 T487; Periods 1 & 2. T94 L16; Building 47, end of Period 3. T322 L37; Building 47, Period 3? T200; unstratified. Six base fragments of plate. Cut-out and pushed-in figure-of-8 base ring; flat base wheel-polished on underside. Side broken. PH 10, BD 145.

Blue/green

- 703 1.81 E813 L52; Period 3a. Rim fragment of bowl. Out-turned rim, edge fire-rounded; figure-of-8 fold on upper body; side sloping in. Part of upper handle attachment on underside of fold. PH 19, RD 100, WT 1.5.
- 704 LWC71 C22 F9; post-Roman. Rim fragment of small bowl. Vertical concave-sided rim, edge fire-rounded; cut-out fold below. PH approx 15, body diameter of fold 80, WT 1.5.
- 705 LWC71 B329; Period 5?. Rim fragment of plate? Wide, almost horizontally out-bent rim, edge fire-rounded; slight change of angle at junction with flat body marked on outside by cut-out fold. RD 160, WT 1.5.
- 706 LWC72 J281 F121; post-Roman. Body fragment. Convex-curved body with horizontal cut-out fold. Dim 30x13, body diameter of fold approx 120, WT 1.5.
- 707 BKC75 K40 F9; modern. Body fragment. Convex-curved body with cut-out fold. Vertical trail caught between fold and body on 1 side. Dim 31x18, WT 1.5.
- 708 BKC76 T219; end of Period 3 (contaminated). Lower body fragment. Straight side sloping in steeply to out-splayed cut-out fold; lower body curving in. PH 25, body diameter of fold 70, WT 1.
- 709 LWC73 R326 F123; post-Roman. Rim fragment. Rim edge fire-rounded with figure-of-8 fold. Dim 25x17, WT 1.
- 710 CPS73 120 F46; Period 5. Lower body fragment. Figure-of-8 fold with wide lower body projecting out. Dim 29x17, WT 1.5.
- 711 1.81 G2294 L1703; Period 3. Rim or body fragment. Horizontal cut-out figure-of-8 fold. Dim 41x13, WT 1.
- 712 1.81 H338 L283; Period 5. Body fragment. Figure-of-8 cut-out fold. Dim 24x11, WT 1.

Shallow plates and bowls with fire-rounded rims (713-719)

[Fig 6.7]

Six vessels are represented by rim fragments which have fire-rounded edges and bodies which slope in shallowly (**713-718**). Such rim fragments occur only occasionally on Romano-British sites and it is often difficult to suggest the precise form of vessel they came from. Examples can be cited from: South Shields (Charlesworth 1979c, 167, fig 48, no 20; colourless); Park Street villa, St Albans (Harden 1945, 70-71, fig 11 nos 1 & 5; amber and colourless); and Chichester (Charlesworth 1978a, 269, fig 10.22, no 18; greenish). On four of the examples in this assemblage (**714-716 & 719**), the body slopes in so shallowly and the diameter is so large (200-250 mm) that it seems likely that they came from plates or very

shallow bowls, perhaps like the small greenish one found in Jarmin Grave 10 at Colchester (May 1930, 288, pi 90.10). This has a very wide flange with fire-rounded rim, a shallow convex-curved body and a foot ring. A similar colourless one from Koln has been dated to the mid 3rd century (Fremersdorf & Polonyi-Fremersdorf 1984, 3, no 4). Fragment **714**, which came from a context dated to the second half of the 2nd century (probably), is the only example from these Colchester excavations to come from a closely dated context.

Fragments **713** and **717** probably both come from deeper bowls, though a closer identification cannot be made. Fragment **713** is most unusual; it is made of yellow/green glass which is so dark that it appears black on superficial examination, and externally at the rim it has a rounded lip. It was found in a 4th-century context, but it is likely to have been residual there because this type of glass was mainly in use both in the 1st century and in the later 2nd and 3rd centuries. The form suggests a 1st-century date as it is quite closely paralleled by two emerald green bowls from Sheepen, one of which was found in a Neronian context (Harden 1947, 301, nos 58-9 pi 88), but they were cast and wheel-polished whereas **713** is blown.

The unusual curved rim fragment **718** has only been included tentatively in this section, as it is possible that it came from a jar. It was found unstratified at Culver Street.

Shallow plates and bowls with fire-rounded rims

Yellow/green

- 713 BKC75 H298 F94 & F167; Period 6. Rim fragment. Dark yellow/green appearing black. Fire-thickened rim with marked external lip; straight side sloping in. PH 17, RD 120, WT 2.

Blue/green

- 714 LWC73 J1475 F494; Period 4a. Rim fragment. Slightly out-turned rim, edge fire-thickened; straight side sloping in very shallowly. PH 7, RD 230-50, WT 1.
- 715 LWC72 E103 F52; post-Roman. Rim fragment. Rim edge fire-thickened, straight side sloping in very shallowly. PH 11, RD 210-40, WT 1.
- 716 BKC75 J167; unstratified. Rim fragment. Rim edge fire-rounded; side sloping in very shallowly. PH 5, RD 200, WT 2.5.
- 717 BUC77 D109; unstratified. Rim fragment. Rim edge fire-thickened; slightly convex-curved body sloping in. PH 13, RD 130, WT 1.5.
- 718 1.81 D2003; unstratified. Rim fragment of bowl? Rim out-bent almost horizontally, fire-rounded rim edge curved up and slightly in. PH 9, RD 95, WT 1.5.
- 719 1.81 W74 F66; Period 4. Rim fragment of bowl? Out-bent rim, edge fire-rounded; convex-curved side sloping in. Broken at change of angle? PH 17, RD approx 210, WT 1.5.

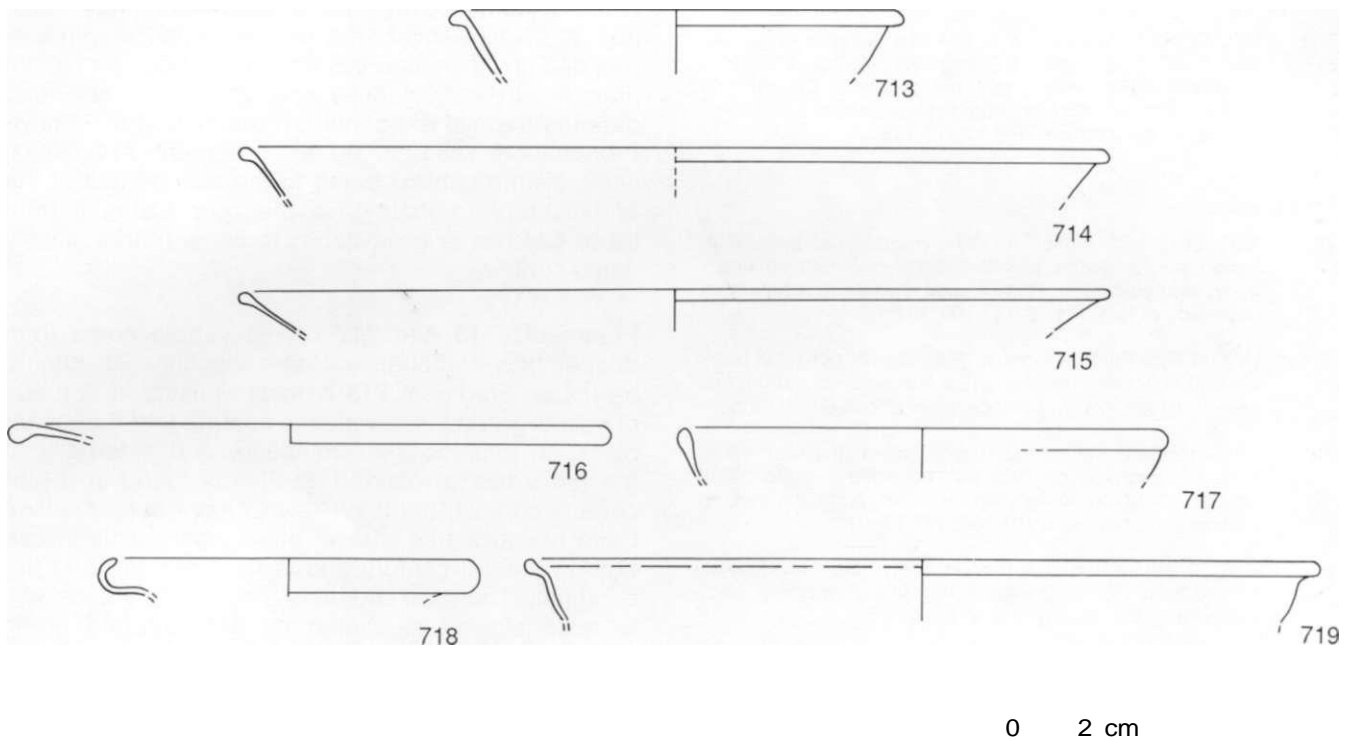


Fig 6.7 Shallow plates and bowls with fire-rounded rims. 1:2. [Page 103]

Indented truncated conical and segmental bowls (720-731)

[Fig 6.8]

Seventeen fragments from a minimum of six indented truncated conical bowls of Isings Form 117 were found (720-728). Bowls of this type have curved rims with the edge knocked-off but not ground, and slightly convex-curved sides sloping in to small flattened or slightly concave bases. The sides are decorated with elongated oval indents, and there may be abraded horizontal bands on the upper body. The bowls are made in the bubbly greenish glass typical of the 4th century. In addition to the fragments that could definitely be assigned to this form, three small rim fragments (729-731) could either have come from this type of bowl or from segmental bowls of Isings Form 116.

These bowls were in use during the 4th century, and appear to have been at their commonest in the second half of the century. Examples from Roman Britain have only occasionally been found in closely-dated contexts, but there is one from a late 4th-century context at Shakenoak (Harden 1973, 103, no 220), and of the minimum of four bowls found at Berkeley Street, Gloucester (unpublished), two came from pits also containing coins of the last decade of the 4th century.

The majority of the fragments from these excavations were from contexts that were either not closely dated within the Roman period or were post-Roman. However, the context of 730 is extraordinary, as it dates to c AD 150-300 (Lion Walk Site J, Period 4), and even the latter end of this period is very early for either the truncated conical or segmental bowl.

Indented truncated conical bowls were widespread in the western provinces including Roman Britain, but they are not generally found in such large quantities as hemispherical cups or conical beakers (see 556-614). Many of the examples from Roman Britain have been noted in connection with the two found at Lullingstone, Kent (Cool & Price 1987b, 118-19, 137, fig 30 nos 375-6), and others are now known from The Park at Lincoln, Claydon Pike in Gloucestershire and Blake Street, York (all unpublished).

Indented truncated conical bowls *Late Roman green*

- 720 BKC75 N61; Period 6? One rim and 1 body fragment. Light greenish colourless. Curved rim, edge cracked-off smoothly but not ground; convex-curved body sloping in with 1 indentation. PH 21, RD approx 120, WT 1.
- 724 LWC71-3 J185 F94; early medieval. Rim fragment. Pale green. Curved rim, edge cracked-off smoothly but not ground; slightly convex-curved body with parts of 2 indentations. PH 28, WT 1.5.



Fig 6.8 Indented truncated conical bowls and fragments from indented truncated conical or segmental bowls. 1:2. [Pages 104-5]

Indented truncated conical or segmental bowls

Late Roman green

729 CPS73 117 F43; Period 5. Rim fragment. Pale yellow/green. Curved rim, edge cracked-off smoothly but not ground; straight side sloping in. Wide abraded band on upper body. PH 20, RD 160, WT 2.

730 LWC72 J500; Building 20, Room 2 make-up/floor, Period 4. Rim fragment. Pale greenish/yellowish colourless. Curved rim, edge cracked-off and ground; straight side sloping in. PH 17, RD 120, WT 1.

731 LWC72 E73; 16th-17th centuries. Rim fragment. Green-tinged colourless. Curved rim, edge cracked-off smoothly but not ground; straight side sloping in. PH approx 15, RD 100, WT 0.5.

CHAPTER 7: Jars

Collared jars (732-764)

[Figs 7.1-7.2; Table 7.1]

Rim fragments from a minimum of 31 collared jars were found during the 1971-85 excavations at Colchester (see Table 7.1). They are most likely to have come from globular or ovoid vessels of Isings Form 67b or 67c, though the rim form is also used on some jars with prismatic bodies (Isings Form 61: discussed in connection with **1834-2239**, p 185). The globular and ovoid jars have slightly out-bent collared rims, formed by bending the rim out and down. Very frequently the edge was rolled in before being bent out and down so that the appearance is of two horizontal ridges. Where the rim edge has not first been rolled in, the same effect is frequently achieved by tooling the collar as on **758-760** and **764**. The ovoid examples, like one from a late Neronian context at Exeter (Charlesworth 1979a, 227 no 23, fig 70), are generally plain. The globular examples frequently have pinched-up ribs on the bodies, as on two from Verulamium found in pits dated to AD 60-75 and c AD 105 (Charlesworth 1972, 204, figs 76.25-6). The bases are usually slightly concave with open pushed-in base rings. The ribbed jars were made in deep blue, yellow/brown, blue/green and various shades of green, but not colourless, glass. The plain ovoid jars, which do not appear to have been as common as the globular ribbed ones, were usually made in blue/green glass.

Table 7.1 Distribution of collared jars, jars with tubular and rolled rims, jars with funnel mouths, and jars with fire-rounded rims. [Pages 106, 109, 112 & 113]

SITE	coloured collared		blue/green collared		tubular and rolled rim		funnel-mouthed		fire-rounded rim	
	Frs	EMN	Frs	EMN	Frs	EMN	Frs	EMN	Frs	EMN
1.81	11	2	5	4	16	15	2	2	19	9
BKC	14	5	8	8	53	10	4	2	14	7
LWC	2	2	7	3	8	8	2	1	1	1
GBS	2	1	7	6	1	1	6	5	-	-
BUC	-	-	-	-	2	2	6	4	-	-
MID	-	-	-	-	1	1	2	1	1	1
CPS	-	-	-	-	1	1	-	-	-	-
COC	-	-	-	-	-	-	-	-	1	1
Totals	29	10	27	21	82	38	22	15	36	19

In this assemblage there is a minimum of one deep blue (**732**), four yellow/brown (**733-736**), one yellow/green (**737**), three pale and light green (**738-739**), and twenty-one blue/green jars (**741-763**). Most unusually there is also one polychrome example (**764**); this is a blue/green jar with faint opaque white spots marvered smooth. This vessel is exceptional on two counts. In the first place, collared jars with opaque white marvered decoration have rarely been recorded. There is a dark yellow/brown lower body and base fragment with opaque white spots, from a ribbed globular vessel which could be either a collared jar or a globular jug of Isings Form 52 (see **871-954**) from Gloucester (Price 1983a, 168 no 1). There are also some strongly-coloured ribbed body fragments with opaque white spots, which again could be from either a collared jar or a globular jug, from The Lunt (deep blue, Charlesworth 1971-3, 78 no 1) and Castleford (deep blue and dark yellow/brown, unpublished). The second reason why **764** is exceptional is that the opaque white decoration has been applied to a blue/green vessel and not, as is normally the case, to a strongly-coloured one (see **257-271**). Though opaque white trailed decoration on a blue/green body occurs on *zarte Rippenschalen* (see **254-256**), opaque white spotted decoration on such a background is much rarer. The only other example of this colour-combination from Roman Britain seems to be a conical jug of Isings Form 55 from Lincoln (Cool & Price 1988, 42 no 10, fig 11).

As so many of the jars are represented by rim fragments, it is rarely possible to suggest whether they were plain or ribbed, or if they were globular or ovoid. Only **733** and **763** can definitely be identified as coming from ribbed globular jars. The polychrome example **764** shows no evidence of having been ribbed on the few body fragments surviving. The assemblage also included lower bodies and open pushed-in base rings from deep blue (**955-957**), yellow/brown (**958-961**), yellow/green (**962-966**), light and pale green (**967-971**), and blue/green (**972-993**) vessels, which in the cases of **962**, **972** and **973** were decorated with vertical ribs. These are most likely to have come from globular collared jars or globular jugs of Isings Form 52 although, where only the base rather than the lower body and base survives, it is possible that they could have come from conical jugs of Isings Form 55b (see **871-954**), as the lower body and base on both forms is identical.

The main period of use for globular ribbed jars was from the Neronian period into the 2nd century. Neronian and very early 2nd-century examples from Verulamium have already been mentioned, and

examples are also known from burials of the second half of the 1st century at Thornborough, Buckinghamshire (Price 1975, 21 no 3, fig 10) and Shefford, Bedfordshire (Kennett 1970, 201), and also from a pit at Richborough dated to AD 80-120 (Bushe-Fox 1932, 84 no 57, pi 15). Ribbed globular jars probably went out of use quite early in the second half of the 2nd century. There is one, for example, in the pit at Park Street, Towcester dated to AD 155-165 (Price 1980a, 66 no 10, fig 16), and in the other north-western provinces there is also evidence that they were still in use in the mid 2nd century (Faider-Feytmans 1952, 76). Their greatest period of popularity, however, did not extend much beyond the early 2nd century (*ibid*, 75).

Plain ovoid jars were certainly in use in the Neronian and Flavian periods. The ovoid example from Exeter in a late Neronian context has already been noted, and the form is also found at Pompeii, for example at the House of the Menander (Maiuri 1932, fig 183), but how long they continued in use is not clear. This is in part due, as their apparent scarcity may also be, to the fact that they occur less frequently in burials and are more difficult to identify from fragments than ribbed globular jars.

The primarily Neronian to early 2nd-century date of these jars is illustrated by Figure 7.1. With only two exceptions they were all found in post-Boudican contexts. It is interesting to note that one of the exceptions is the polychrome jar (764) which was found in a context dated to AD c 49/55-60/1 at Culver Street (Site E, Period 2). Opaque white marvered-spot decoration was going out of use during the Neronian period, so it is only likely to occur during the early phase of the production of collared jars.

Ribbed globular jars are common on Romano-British sites (although they are generally only represented by rim fragments, as here), and also in the other north-western provinces (Faider-Feytmans 1952, 75ff). Unlike the ovoid form, which has a wider distribution, they do not seem to occur south of the Alps (Price 1978, 74). In Gaul they occur as far south as the Cote d'Or, where they have been found, for example, at

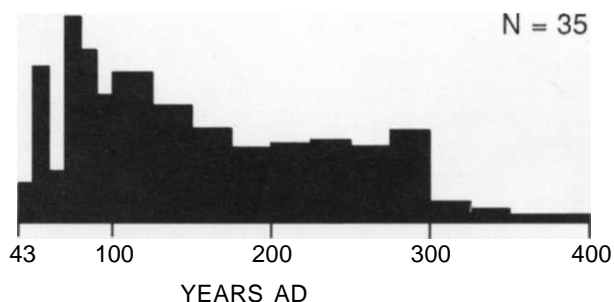


Fig 7.1 Histogram showing the dates of the fragments of collared jars found in Roman contexts (for the method of calculating the histogram, see pp 5-6).

Mueilley (Sennequier 1977, 255), at Nuits-St-Georges (Joubeaux 1982, 58-9 nos C52-72, pis 15-16), and at Besancon (Koltes 1982, 44 no 116, pis 24-5). Elsewhere in the north-western provinces, occasional variations from the basic type described at the beginning of this section occur, but these have not yet been recognised in Britain. At Nuits-St-Georges, for example, vessels with a pad base and nipped ribs were found (Joubeaux 1982, 59 nos C69 & 71, pis 15-16), while at Hedderheim one with a solid base ring is recorded (Welker 1974, 40 no 63, Taf 4).

Collared jars

Deep blue

732 BKC75 K361 L35; Period 4a/b. Rim fragment. Part of vertical rim, edge (now missing) bent out and down to form collar. PH 17, RD 110.

Yellow/brown

733 BKC75 J84 L15 & J240 L33; Period 3/4/5a. J166 & J219 F36; Period 5b. Ten rim and body fragments of ribbed jar. Dark yellow/brown. Slightly out-bent rim, edge bent out and down; convex-curved globular body. Parts of at least 4 narrow pinched-up ribs. PH 45, RD 90, WT 1.

734 BKC76 T218 F98; Building 47; Period 3. Rim fragment. Light yellow/green. Slightly out-bent rim, edge bent out and down. PH 20, RD 105.

735 1.81 E827 L44; Period 3. Rim fragment. Light yellow/brown. Vertical rim, edge first rolled in, then bent out and down. PH 17, RD 115.

736 LWC73 J1003 F210; Period 4b destruction. Rim fragment. Light yellow/brown. Slightly out-bent rim, edge first rolled in then bent out and down. PH approx 10, RD approx 85.

Yellow/green

737 LWC72 K31; post-Roman. Rim fragment. Vertical rim, edge first rolled in then out and down. PH 15, RD 85.

Pale green

738 BKC76 T1; unstratified. Rim fragment. Pale green. Slightly out-bent rim, thickened edge bent out and down; body sloping out. PH 22, RD 100, WT 2.

739 GBS84 A970 L2; Period 3b + 4. A891 L10; Period 3b. Two joining rim fragments. Light green. Vertical rim, edge bent out and down then deeply tooled horizontally to produce a double-ridge effect. PH 12, RD 67.

740 BKC76 T200; unstratified. Rim fragment. Light green. Slightly out-bent, double tubular rim, edge first rolled in then out and down. PH 12, RD 75.

Blue/green

741 BKC76 V1102; Period 4. Rim fragment. Out-bent rim, edge first bent in then out and down, neck curving out. PH 19, RD 110, neck thickness 2.

742 BKC75 J176 F32; Periods 5c/6. Rim fragment of thick-walled jar. Vertical rim, edge first rolled in then out and down. PH 20, RD approx 110, neck thickness 3.5.

743 BKC75 J186 F13; Period 5b. Rim fragment of thick-walled jar. Out-bent rim, edge first rolled in then out and down. Side grazed. PH 16, RD 100, neck thickness 3.

744 BKC76 V71; unstratified. Rim fragment of thick-walled jar. Out-bent rim, edge first bent in to form very small roll and then out and down; neck curving out; heat-affected. PH 18, RD 100, neck thickness 3.

Jars with tubular and rolled rim edges

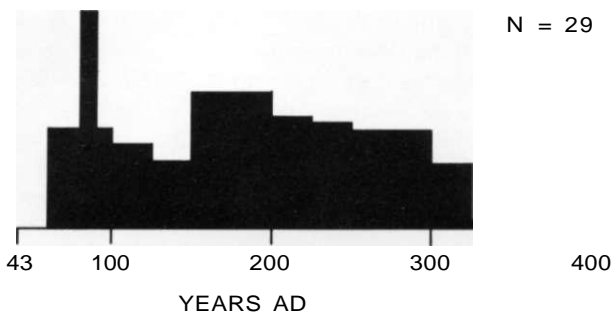


Fig 7.3 Histogram showing the dates of the fragments of jars with tubular and with out-bent and rolled rim edges (for the method of calculating the histogram, see pp 5-6).

probable that their use as domestic containers continued into the 3rd century. Certainly the examples from dated contexts found during these excavations suggest this. Their date range is shown in Figure 7.3, and it is useful to compare this with Figure 7.1 (p 107) for the collared jars. The comparison suggests that they continued to be in use for some time after collared jars had disappeared. It is interesting to note that none of the jars with out-turned and rolled rims from these excavations were found in pre-Boudican deposits. This might be fortuitous as the data set is comparatively small. It might, however, indicate that jars with rolled rims were not used in large numbers until the later 1st century.

The two jars in strong colours (**765 & 771**) came from contexts dated to c AD 225-400+ (the Cups Hotel, Period 4) and the post-Roman period respectively, but both are likely to be residual in these contexts because emerald green and deep blue glass mostly went out of use in the Flavian period. It is interesting to note, therefore, that **765** had a double-tubular rim where the edge had first been rolled in before the rim was bent out and down. This form of folding also occurs on a blue/green example (**805**) found in a context dated to c AD 65/75-100/125 (Culver Street Site C, Period 3), as well as on the jars from Thornborough and Easter Haprew noted above which were of Flavian or earlier date. It is possible that jars with this rim form were an early variant.

This range of utilitarian jars was widespread and numerous in the western Empire north of the Mediterranean, but the type has not often been noted in the eastern provinces.

Jars with tubular rims
Emerald green

765 CPS74 693 L61; Building 154; Period 4. Rim fragment. Horizontally out-bent double tubular rim, edge bent in then out and down; body curving out. PH 10, RD 85, WT 1.

Blue/green

766 1.81 B285 L23; Period 4. Rim fragment. Tubular rim out-bent horizontally, edge rolled out and down; neck sloping in very shallowly. PH 7, RD 125, neck thickness 1.5.

767 1.81 K434 F411; Period 3a or 3b. Rim fragment. Tubular out-bent rim, edge rolled out and down. Side grazed. RD 120.

768 BKC76 T306 L38; Period 5a & b. Three rim fragments of jar or bowl. Markedly out-turned rim, edge rolled out and down. PH approx 10, RD 105, WT 1.

770 BKC75 J435 F276; Period 5? Rim fragment. Markedly out-turned rim, edge bent out and down; side sloping out. PH 20, RD 80, WT 1.

Jars with out-bent rims and edges rolled in
Deep blue

771 1.81 H33 L0003; Period 6. Rim fragment. Out-bent rim, edge rolled down and in. PH 5, RD 75.

Blue/green

772 BKC75 J157 F31; Period 5b. Approximately 40 rim, body and base fragments of bulbous jar. Wide horizontal rim bent out and down, edge rolled up and in; short neck; convex-curved, slightly squashed spherical body; concave base with central thickening on inner and outer surfaces. Circular pontil scar. Height approx 90, RD 92, BD 55, WT 1, pontil-scar diameter 14.

773 1.81 G1393 L865; Period 3 or 4. Rim fragment of large jar. Wide horizontal rim, edge rolled down, up and in. RD approx 140, WT 2.

774 BKC76 N379; Period 6. Rim fragment. Wide horizontal rim bent out and down, edge rolled up and in unevenly and flattened; neck beginning to curve out to shoulder. PH 8, RD approx 60, WT 1.5.

776 BKC75 J15 L1; modern. Rim fragment of large jar. Rim bent out almost horizontally, edge rolled in and flattened; neck sloping in. PH 12, RD 210, WT 3.

777 1.81 G2351 L1746; Period 3. Rim fragment of jar or large bottle. Rim bent out, up and in; neck sloping in slightly. PH 17, RD 110, WT 5.

778 BKC76 V13 L5; late Period 5 (c AD 300). BKC J19 L1; modern. Two joining rim fragments of large jar. Rim bent out almost horizontally, edge rolled in and flattened. Top of rim shows much wear and short radial lines scratched around the edge at intervals. RD approx 190, WT 5.

779 1.81 G4006 L3985; Period 3. Rim fragment. Rim bent out, up, in and flattened. RD approx 150.

781 LWC72 J445; Building 20, Room 3; Period 4. Rim fragment of jar? Wide rim bent out horizontally, edge rolled in. PH 10, RD 110, WT 2.

782 BUC76 A414 F134; modern. Rim fragment. Rim bent out horizontally, edge rolled in and flattened. PH 10, RD approx 110, WT 6.

784 BKC76 V80 L5; late Period 5 (c AD 300). Rim fragment. Wide rim bent out horizontally, edge rolled in and flattened; neck curving out steeply to shoulder. PH approx 10, RD approx 95, WT 1.5.

785 LWC72 J859; Building 20, Room 2; Period 4. Rim fragment. Wide rim bent out horizontally; edge rolled in very neatly; neck sloping out. PH 11, RD 85, WT 2.

787 BUC79 E868 L66; post-Roman. Rim fragment of jar? Wide rim bent out horizontally, edge rolled in. RD 75, WT 1.

788 LWC71 B236 F24; post-medieval. Rim fragment. Wide rim bent out horizontally, edge rolled in. PH 6, RD 70, WT 2.

790 BKC76 V188 F50; Periods 5 or 6. Rim fragment. Rim bent out horizontally, edge rolled in and flattened. RD 60, WT 1.

795 1.81 J99 F80; Period 6. Rim fragment. Out-bent rim, edge rolled in; cylindrical neck. PH 15, RD 80, neck thickness 1.

- 745 BKC75 J240 L33; Periods 3/4/5a. Rim fragment. Vertical rim, edge first bent in then out and down. PH 18, RD 95, neck thickness 1.
- 746 1.81 C153 F43; Building 96; Period 3. Rim fragment. Slightly out-bent rim, edge first rolled in then out and down; body sloping out. PH 17, RD 75, WT 1.5.
- 747 LWC72 J530 J805; Building 20, Room 4; Period 4a and b occupation on floor. Four rim fragments. Vertical double tubular rim, edge irregularly rolled in then out and down. PH 16, RD 85.
- 748 BKC76 T306 L38; Period 5a or b. Rim fragment. Out-bent rim, edge first rolled in then bent out and down. PH 7, RD 75, neck thickness 1.
- 749 GBS84 A407 F79; Period 3b? Rim fragment. Vertical rim, edge first rolled in then out and down. PH 15, RD 70.
- 753 GBS84 A356 F75; Roman. Rim fragment. Slightly out-bent rim, thickened edge bent out and down; side beginning to curve out. PH 19, RD 120, WT 4.5.
- 754 GBS84 B180 F34; Period 3. Rim fragment. Description as 753. PH 17, RD 100.
- 755 GBS84 B373; unstratified. Rim fragment. Slightly out-bent rim, thickened edge bent out and down. PH 20, RD 90.
- 756 BKC75 J40 F3; modern. Rim fragment. Slightly out-bent rim, edge bent out and down and horizontally tooled. PH 12, RD 90, neck thickness 1.
- 757 1.81 G1193 L723; Period 5. Rim fragment. Vertical rim, edge bent out and down; body sloping out. PH 15, RD 70, WT 1.5.
- 759 GBS84 A916 L14; Period 3a. Rim fragment. Thickened rim edge bent out and down, upper part of collar then bent out. PH 10, RD 90-100.
- 760 LWC71 C3 F2; post-Roman. Rim fragment. Vertical rim with concave profile, edge bent out and down. PH approx 15, RD 90.
- 761 1.81 E11 F9; but contaminated unstratified. Two rim fragments. Vertical rim, irregularly-thickened edge bent out and down; convex-curved side sloping out almost horizontally. Distorted by heat. PH 18, RD 70, WT 1.5.

Polychrome

- 764 1.81 E828 F661; Building 89; Period 2. Six rim and 4 body fragments (several joining). Blue/green with opaque white. Vertical rim, edge bent out and down and tooled horizontally; convex-curved side. Thin opaque white spots marvered smooth. PH (rim) 13, RD 60, WT 1.

Jars with tubular and rolled rim edges (765-806)

[Figs 7.3-7.4; Table 7.1]

Ovoid or globular jars with concave bases and out-turned rolled rims are common and widespread vessels, and are well represented in this assemblage. The rim edges on these jars can either be rolled up and in or down and in. Most unusually for a domestic site, sufficient of one globular jar with a rolled rim was recovered for the complete profile to be established (772); but, as is normal on sites of this kind, the majority can only be recognised from rim fragments. It is likely, however, that some of the concave base fragments 1556-1639 have also come from jars of this

sort. The distribution of securely-identified examples by site is shown in Table 7.1 (see p 106). During these excavations, the majority of the jars recognised had their edges bent out, up and in (771-804 & 806), but there were also some which had the rim edge bent out, down and in (765-770). In the latter case a more tubular rim form resulted. The degree to which the rim is bent out can vary; it generally approaches the horizontal, although in this assemblage it is noticeable that this is much less frequently the case on the tubular-rimmed form where the rim edge has been bent out and down (765-770), than where the rim edge is rolled up and in (771-804 & 806). All the examples are of blue/green glass, apart from 765 and 771 which are made of emerald green and deep blue glass respectively.

Jars of this type were made in a range of sizes and obviously had a variety of uses. Small examples (Isings Form 68) were probably used as containers for unguents and salves, and large examples (Isings Form 67a) often served as cinerary urns, as in the case of those found at Mersea Island (Hazzledene Warren 1915, 130, pi E) and West Mersea (Montagu Benton 1926, 129, plate facing 128). The small jars have diameters of 30-40 mm and their rims were frequently tubular, such as those from graves dated to the second half of the 1st century at Trier (Goethert-Polaschek 1977, 242 nos 1440 & 1441, Tafn 10.118k, 6.72b) and in a 2nd-century drain deposit at Housesteads (Charlesworth 1971a, fig 10). The largest examples can have rim diameters of 200 mm or more, as in an example from Bishopgate, London (*RCHAM* London 1928, 159, fig 65.32). The majority, however, fall between these two extremes and were probably used as domestic storage vessels. The examples from these excavations show almost the complete range of sizes, with rim diameters ranging from 40 to 210 mm.

The occurrence of a rim fragment from a pre-Boudican context at Sheepen (Harden 1947, 305 no 90, pi 88) indicates that the form was manufactured in the mid 1st century, and there are numerous examples from contexts dated c AD 50-200. Dated examples include a tubular-rimmed one with slightly flattened sides from a cremation burial dated to c AD 65-75 at Thornborough, Buckinghamshire (Price 1975, 20 no 2, fig 10), and another tubular-rimmed one from the fort at Easter Haprew, Peebleshire which was occupied during the Agricola period to Domitianic period (Steer 1956-7, 100, fig 5/3). A small example with a rolled-in rim was found in a cremation burial at West Tenter Street, London (Whytehead 1986, 91, fig 38.4). The deposition of this burial group is dated to the period AD 120-180 but the grave groups also contain Neronian material. Part of a large jar with a tubular rolled-in rim was recovered from a pit dated to AD 155-165 at Park Street, Towcester (Price 1980a, 66 no 12, fig 16).

With the decline of cremation burial from the 2nd century onwards, the secondary use of the larger jars as cinerary urns obviously ceased, but it seems

Jars with tubular and rolled rim edges

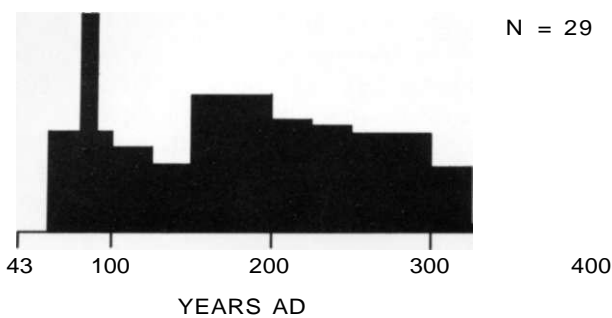


Fig 7.3 Histogram showing the dates of the fragments of jars with tubular and with out-bent and rolled rim edges (for the method of calculating the histogram, see pp 5-6).

probable that their use as domestic containers continued into the 3rd century. Certainly the examples from dated contexts found during these excavations suggest this. Their date range is shown in Figure 7.3, and it is useful to compare this with Figure 7.1 (p 107) for the collared jars. The comparison suggests that they continued to be in use for some time after collared jars had disappeared. It is interesting to note that none of the jars with out-turned and rolled rims from these excavations were found in pre-Boudican deposits. This might be fortuitous as the data set is comparatively small. It might, however, indicate that jars with rolled rims were not used in large numbers until the later 1st century.

The two jars in strong colours (**765 & 771**) came from contexts dated to c AD 225-400+ (the Cups Hotel, Period 4) and the post-Roman period respectively, but both are likely to be residual in these contexts because emerald green and deep blue glass mostly went out of use in the Flavian period. It is interesting to note, therefore, that **765** had a double-tubular rim where the edge had first been rolled in before the rim was bent out and down. This form of folding also occurs on a blue/green example (**805**) found in a context dated to c AD 65/75-100/125 (Culver Street Site C, Period 3), as well as on the jars from Thornborough and Easter Haprew noted above which were of Flavian or earlier date. It is possible that jars with this rim form were an early variant.

This range of utilitarian jars was widespread and numerous in the western Empire north of the Mediterranean, but the type has not often been noted in the eastern provinces.

Jars with tubular rims
Emerald green

765 CPS74 693 L61; Building 154; Period 4. Rim fragment. Horizontally out-bent double tubular rim, edge bent in then out and down; body curving out. PH 10, RD 85, WT 1.

Blue/green

766 1.81 B285 L23; Period 4. Rim fragment. Tubular rim out-bent horizontally, edge rolled out and down; neck sloping in very shallowly. PH 7, RD 125, neck thickness 1.5.

767 1.81 K434 F411; Period 3a or 3b. Rim fragment. Tubular out-bent rim, edge rolled out and down. Side grazed. RD 120.

768 BKC76 T306 L38; Period 5a & b. Three rim fragments of jar or bowl. Markedly out-turned rim, edge rolled out and down. PH approx 10, RD 105, WT 1.

770 BKC75 J435 F276; Period 5? Rim fragment. Markedly out-turned rim, edge bent out and down; side sloping out. PH 20, RD 80, WT 1.

Jars with out-bent rims and edges rolled in
Deep blue

771 1.81 H33 L0003; Period 6. Rim fragment. Out-bent rim, edge rolled down and in. PH 5, RD 75.

Blue/green

772 BKC75 J157 F31; Period 5b. Approximately 40 rim, body and base fragments of bulbous jar. Wide horizontal rim bent out and down, edge rolled up and in; short neck; convex-curved, slightly squashed spherical body; concave base with central thickening on inner and outer surfaces. Circular pontil scar. Height approx 90, RD 92, BD 55, WT 1, pontil-scar diameter 14.

773 1.81 G1393 L865; Period 3 or 4. Rim fragment of large jar. Wide horizontal rim, edge rolled down, up and in. RD approx 140, WT 2.

774 BKC76 N379; Period 6. Rim fragment. Wide horizontal rim bent out and down, edge rolled up and in unevenly and flattened; neck beginning to curve out to shoulder. PH 8, RD approx 60, WT 1.5.

776 BKC75 J15 L1; modern. Rim fragment of large jar. Rim bent out almost horizontally, edge rolled in and flattened; neck sloping in. PH 12, RD 210, WT 3.

777 1.81 G2351 L1746; Period 3. Rim fragment of jar or large bottle. Rim bent out, up and in; neck sloping in slightly. PH 17, RD 110, WT 5.

778 BKC76 V13 L5; late Period 5 (c AD 300). BKC J19 L1; modern. Two joining rim fragments of large jar. Rim bent out almost horizontally, edge rolled in and flattened. Top of rim shows much wear and short radial lines scratched around the edge at intervals. RD approx 190, WT 5.

779 1.81 G4006 L3985; Period 3. Rim fragment. Rim bent out, up, in and flattened. RD approx 150.

781 LWC72 J445; Building 20, Room 3; Period 4. Rim fragment of jar? Wide rim bent out horizontally, edge rolled in. PH 10, RD 110, WT 2.

782 BUC76 A414 F134; modern. Rim fragment. Rim bent out horizontally, edge rolled in and flattened. PH 10, RD approx 110, WT 6.

784 BKC76 V80 L5; late Period 5 (c AD 300). Rim fragment. Wide rim bent out horizontally, edge rolled in and flattened; neck curving out steeply to shoulder. PH approx 10, RD approx 95, WT 1.5.

785 LWC72 J859; Building 20, Room 2; Period 4. Rim fragment. Wide rim bent out horizontally; edge rolled in very neatly; neck sloping out. PH 11, RD 85, WT 2.

787 BUC79 E868 L66; post-Roman. Rim fragment of jar? Wide rim bent out horizontally, edge rolled in. RD 75, WT 1.

788 LWC71 B236 F24; post-medieval. Rim fragment. Wide rim bent out horizontally, edge rolled in. PH 6, RD 70, WT 2.

790 BKC76 V188 F50; Periods 5 or 6. Rim fragment. Rim bent out horizontally, edge rolled in and flattened. RD 60, WT 1.

795 1.81 J99 F80; Period 6. Rim fragment. Out-bent rim, edge rolled in; cylindrical neck. PH 15, RD 80, neck thickness 1.

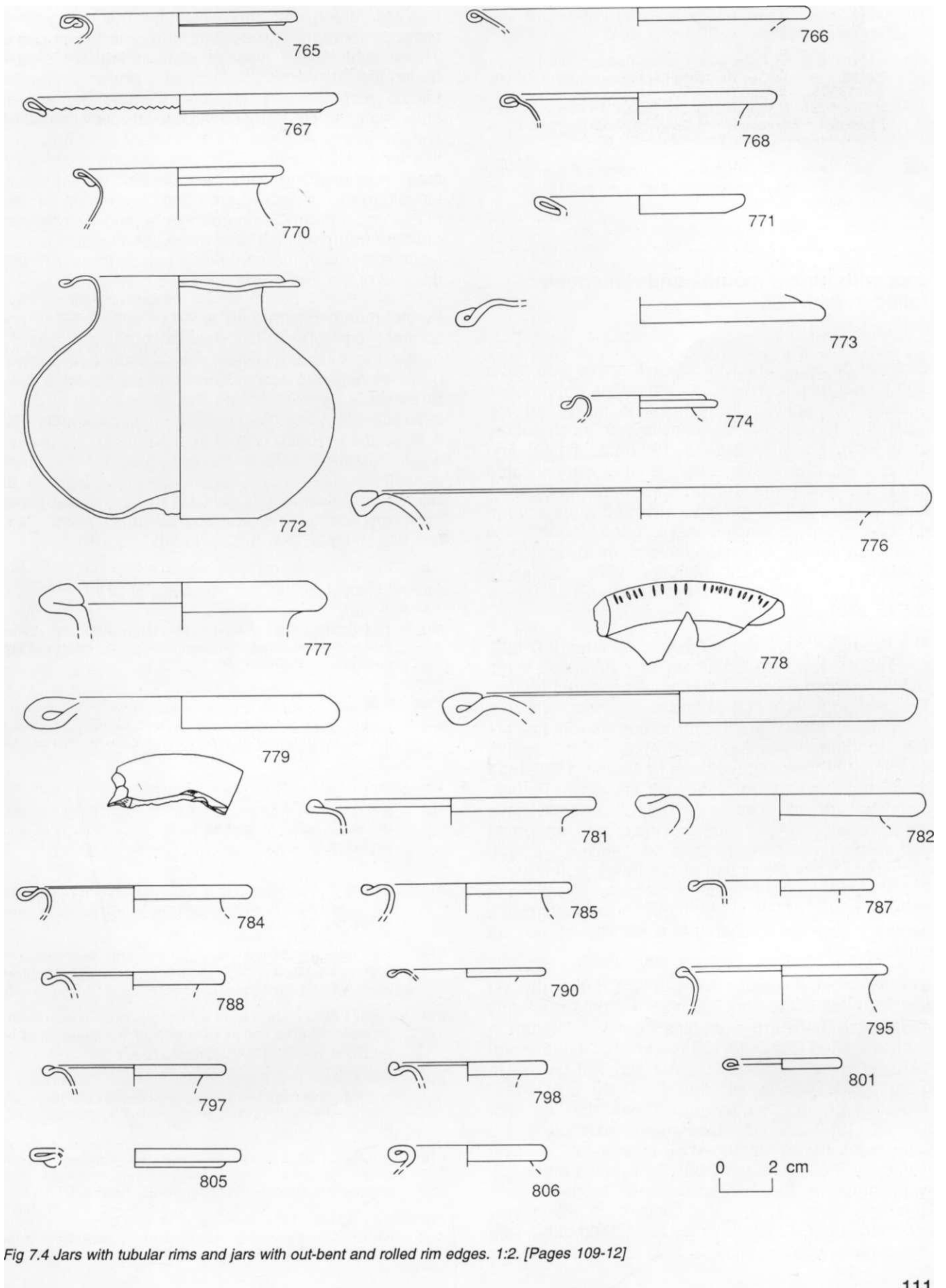


Fig 7.4 Jars with tubular rims and jars with out-bent and rolled rim edges. 1:2. [Pages 109-12]

Jars with tubular and rolled rim edges

- 797 BKC75 J49 L7; Period 5b. Rim fragment. Markedly out-bent rim, edge rolled in. PH 8, RD approx 70, WT 1.5.
- 798 BKC75 J62 L1; modern. Rim fragment. Out-bent rim, edge rolled in. PH approx 6, RD approx 60, WT 1.5.
- 801 MID78 B1125L114; Period 1 or pre-Period 1. Rim fragment of flask or small jar. Rim edge bent out, up and in. RD 45.
- 805 1.81 C270 L30; Building 96, Room 1; Period 3. Rim fragment. Rim edge first rolled in then out and down, complete rim bent out horizontally. RD 80.
- 806 1.81 G3930 L3624; Period 3. Rim fragment. Rim edge bent out and down; complete rim bent out horizontally; neck sloping out. RD 60.

Jars with funnel mouths and rim edges rolled in (807-827)

[Fig 7.5; Table 7.1]

Globular or ovoid jars with concave bases also occur with funnel mouths where the rim edges are rolled in or, less frequently, out, such as on the bluish one found in a fort ditch at Manchester with much pottery of Agricola date (Petch 1954, 193 no 22, fig 10), and the yellow/brown example from a pit at Harlow dated to AD 160-170 (Price 1987a, 205 no 23, fig 3). Occasionally jars of this type have indented sides. Indented blue/green examples have been found in a cremation burial with Hadrianic samian at Lower Runham, Lenham, Kent (Monkton 1979, 120 no g, fig 2), and in the Antonine pit at Harlow (Price 1987a, 205 no 24, fig 3).

The examples identified in this assemblage (**807-827**; see Table 7.1, p 106) are all rim fragments, so it is not known whether they had smooth or indented bodies. The rim edge is rolled in on all of them, with the exception of **827** where it is rolled out. As with the jars with out-turned rims discussed above, it is possible that some of the concave base fragments **1556-1639** could have come from jars of this sort. Funnel-mouthed jars with rolled rims do not generally have the same wide range of sizes as those with out-turned and rolled rims. They tend to be smaller, with rim diameters in the lower half of the range of that type. For example, those from the Colchester excavations have a range of 38 to 85 mm. Their smaller size generally argues against the possibility of use as cinerary urns.

Jars with funnel mouths were in use during the 1st and 2nd centuries. In addition to those already mentioned, there are examples from Verulamium in contexts dated to AD 90-105 (greenish; Charlesworth 1972, 205 no x3, fig 76.29), AD 155-160 (yellowish green; *ibid* 205 no x4, fig 76.30), and AD 125-145 (blue/green; Charlesworth 1984a, 167 no 256, fig 67.110), and a blue/green example from Gloucester in an early-to-mid 2nd-century context (Price 1983a, 169 no 9, fig 89). As with the preceding type, none of the examples were found in pre-Boudican contexts, and the contexts in which they occurred suggest that they may have been primarily a 2nd-century type.

Such dating would not be at variance with the colours in which the form was made. The commonest colour was blue/green, but they were also made in yellow/brown, yellow/green, and light and pale green glass. These lightly-tinted glasses were going out of use during the 2nd century but probably not until after the middle part of it. In this assemblage they are all blue/green, apart from **807** (yellow/brown) and **808** (yellow/green). At present it is not very clear how long this type of jar continued in use, though a rim fragment was found in a rampart deposit at The Park, Lincoln (unpublished) where most of the material was of late 2nd- or early 3rd-century date, and the contexts of some fragments in these excavations would not be inconsistent with the continuing use of this form until the end of the 2nd or the early 3rd century.

Funnel-mouthed jars with rolled-in rims are not uncommon on Romano-British sites, but it is difficult to gauge the extent to which they occur in the other north-western provinces. This may be because they rarely occur as grave goods and, when found on domestic sites, they are often in such small fragments that it is hard to identify the vessel form. That they do occur outside Britain is demonstrated by the large deposit of glass found at the *canabae legionis* at Nijmegen, in several pits dated to the end of the 1st or the very early 2nd century (Isings 1980, 320 nos 872-3, fig 26.3-4, & 335 no 142, fig 40.12).

Jars with funnel mouths and rim edges rolled in *Yellow/brown*

- 807 1.81 G2484 L2483; Period 5. Rim fragment. Deep yellow/brown. Funnel mouth, rim edge rolled in; straight-sided neck sloping in. PH 17, RD 55, WT 1.

Pale green

- 808 LWC71 C43 F42; post-Roman. Rim fragment. Funnel mouth, rim edge rolled in. PH 15, RD 65, WT 1.

Blue/green

- 809 GBS84 A366 L10; Period 3b. Rim fragment. Funnel mouth, rim edge rolled in and flattened; neck sloping in and beginning to curve out to side. PH 27, RD approx 80-90, WT 2.
- 810 BKC76 V111; Periods 3 or 4. Rim fragment. Funnel mouth, rim edge rolled in; body beginning to curve out. PH 22, RD approx 80, WT 1.
- 813 1.81 B26; unstratified. Rim fragment. Funnel mouth, rim edge rolled up and in; neck sloping in and beginning to curve out to body. PH 27, RD 70, WT 1.5.
- 814 LWC71 C209 F129; Period 4. Rim fragment. Funnel mouth, rim edge rolled up and in; neck sloping in and beginning to curve out to body. PH 20, RD 70, WT 2.
- 816 GBS84 A301 F57; Period 3b. Rim fragment. Red inclusions in rim. Funnel mouth, rim edge rolled in and flattened; neck sloping in and beginning to curve out to side. PH 22, RD 65, WT 1.5.
- 818 BUC77 C1285 L1; Periods 1 to 2. Rim fragment. Funnel mouth, rim edge rolled up and in; neck sloping in and beginning to curve out to body. PH 20, RD 60, WT 1.
- 819 1.81 G2136 L1824; Period 3 or 4. Rim fragment. Funnel mouth, rim edge rolled out, up and in; neck sloping in. PH 17, RD 55, WT 1.

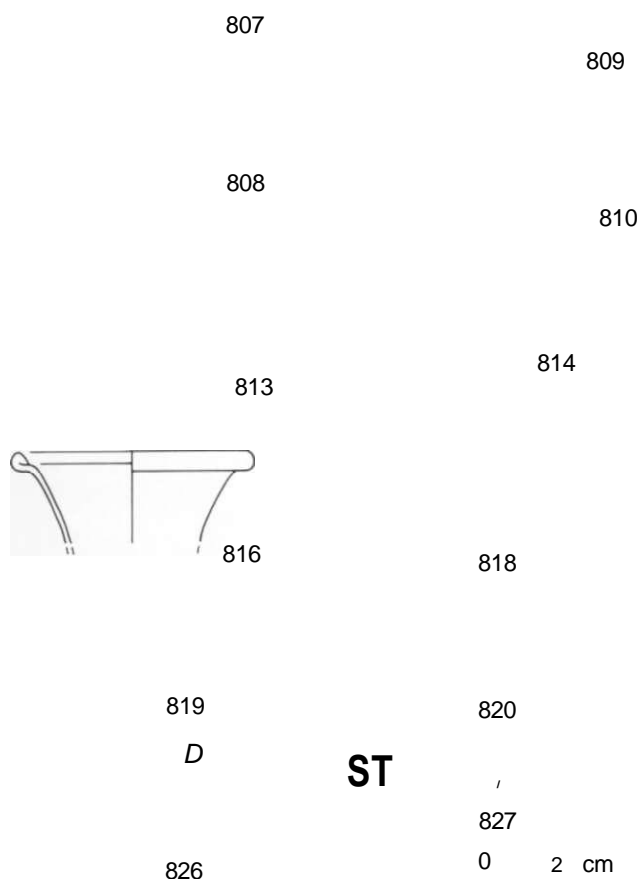


Fig 7.5 Jars with funnel mouths and rim edges rolled in. 1:2. [Pages 112-13]

- 820 GBS84 A668 F107; Period 3b. Rim fragment. Funnel mouth, rim edge rolled in; neck sloping in and beginning to curve out to side. PH 19, RD 55, WT 1.
- 826 LWC72 J805; Period 4a & b. Three rim fragments of small jar? Funnel-mouth, rim edge rolled in; body beginning to slope out. PH 23, RD 38, WT 1.
- 827 1.81 G2679 F2370; Period 4 or 5. Rim fragment. Funnel mouth, rim edge rolled out and down; neck sloping in. PH 8, RD 50, neck thickness 1.5.

Jars with fire-rounded rims (828-857)

[Figs 7.6-7.7; Table 7.1]

Some blue/green rim fragments with fire-rounded edges (see Table 7.1, p 106) also appear to have come from jars. The only example to retain a large part of its body is **832**, which had a high carination. However, this type of rim was also used on jars with more rounded, globular or ovoid bodies, as on one from Gloucester (Charlesworth 1974b, 76 no 6, fig 29), and also occasionally on vessels with

indented bodies, as on one from Felmongers, Harlow found in a pit dated to c AD 160-170 (Price 1987a, 205 no 25, fig 3). As jars with this type of rim do not appear to have been commonly used in burials, there is a difficulty in identifying the normal base type. It seems likely, however, that they were part of the general blue/green, globular/ovoid jar range discussed above, so the bases were probably concave and are likely to have had a pontil mark. The rims range from being turned out horizontally (see **832-834**) to having funnel mouths (see **846 & 847**). The jars appear to have been made in a wide range of sizes like the jars with out-turned and rolled rims discussed above. The examples from these excavations in Colchester are between 55 and 170 mm in rim diameter.

The dating evidence for the blue/green examples from these excavations is shown in Figure 7.6. There it can be seen that, in comparison with the jar forms with rolled rims discussed above, they are better represented in earlier contexts and possibly went out of use at an earlier date. The pattern shown in Figure 7.6 is one that compares more closely with that of the collared jars (Fig 7.1, p 107), which were in decline during the mid 2nd century, and fragments of jars with fire-rounded rims were found in pre-Boudican contexts.

Thus the evidence from these excavations suggests that the use of blue/green jars with fire-rounded rims may have been concentrated in the 1st and early-to-mid 2nd centuries. Whether this reflects the dating evidence from elsewhere is difficult to say, as little information has been gathered about the distribution and dating of the type from published reports from other sites. That may be because the type is rare elsewhere or, more probably, because it is generally represented by small blue/green fragments which are often ignored in glass reports. These jars were still being manufactured in the middle part of the 2nd century, as rim fragments which appear to be wasters were found amongst the glass associated with the mid 2nd-century glass-blowing industry at Mancetter (unpublished).

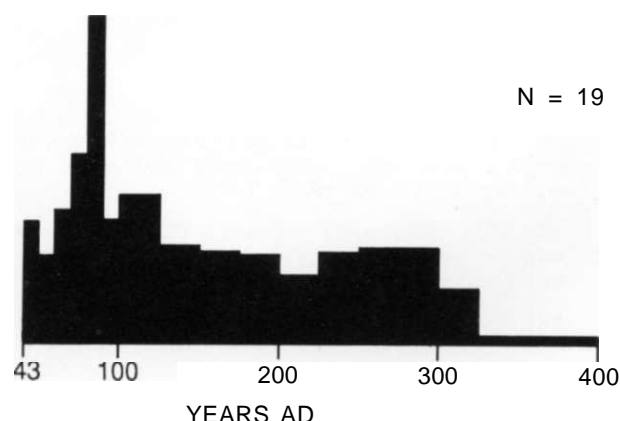
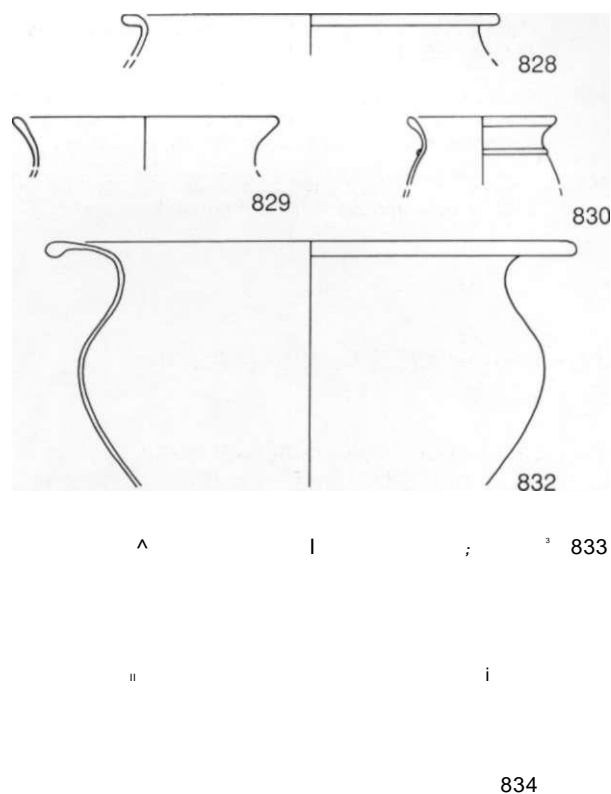


Fig 7.6 Histogram showing the dates of the fragments of jars with fire-rounded rims (for the method of calculating the histogram, see pp 5-6).

Jars with fire-rounded rims

In addition to the blue/green examples already discussed, one light yellow/brown fragment (**829**) and a number of blue/green fragments (**850-857**) might have come from this sort of jar, but they are too small for a positive identification to be made. The emerald green example **828** could have come from a jar of this type or from a bowl.

The colourless rim fragment **830**, with out-turned fire-rounded rim and a horizontal trail on the upper body, is placed here with the jars. It would, however, probably be better described as a beaker, as it is likely to have come from a vessel with a slightly inverted truncated conical body and a foot ring, similar to one found at Neuville-le-Pollet, Seine Maritime (Sennequier 1985, 63 no 37). These vessels have horizontal trails on the upper and lower body and sometimes an additional trail on the underside of the base. Some have indented sides, such as the examples from Fecamp (*ibid*, 63 no 38) and from a 2nd-century deposit at Housesteads (Charlesworth 1971a, 34, fig 6). The vessels are clearly related to the trailed variant of Isings Form 85 (see **465-540**), but appear to be less common. They are, therefore, likely to have been used during the later 2nd and 3rd centuries. Fragment **830** was found in a context dated to between c AD 150-325 (Culver Street Site D, Period 4).



Jars with fire-rounded rims

Emerald green

828 GBS84 A739 L33; post-Roman. A164; unstratified. Three rim and 3 body fragments of jar or bowl. Streaky opaque red impurities parallel to rim edge. Horizontal out-bent rim, edge fire-rounded; convex-curved body sloping out. PH 11, RD 100, WT 1.5.

Yellow/brown

829 1.81 G1939 L1868; Period 3. Rim fragment. Light yellow/brown. Out-bent rim, edge fire-thickened. PH 13, RD 70, WT 1.

Colourless

830 1.81 D1293 F1252; Period 4. Rim fragment. Out-turned rim, edge fire-rounded; slightly convex-curved side sloping out. Horizontal trail on upper body. PH 18, RD approx 45, WT 1.

Blue/green

832 BKC75 J463 F286; Buildings 47-49; Periods 3/4/5a. Eight rim and body fragments. Rim bent out almost horizontally, edge fire-thickened; convex-curved body with high carination. PH 65, RD 140, WT 1.

833 1.81 J30 L1; unstratified in Period 6. Rim fragment. Rim bent out horizontally, edge fire-rounded. RD 130, neck thickness 1.5.

834 BKC76 V71; unstratified. Rim fragment. Rim bent out almost horizontally, edge fire-thickened. PH 9, RD 120, WT 1.

835 BKC74 E261 L59; Period 5. Rim fragment. Markedly out-turned rim, edge fire-rounded; neck curving out to wide shoulder. PH 19, RD approx 110, WT 3.

837 BKC75 M26 TT1; Periods 3/4 to 6. Rim fragment. Markedly out-turned rim, edge fire-rounded; neck curving out to wide shoulder. PH 9, RD 95, WT 2.

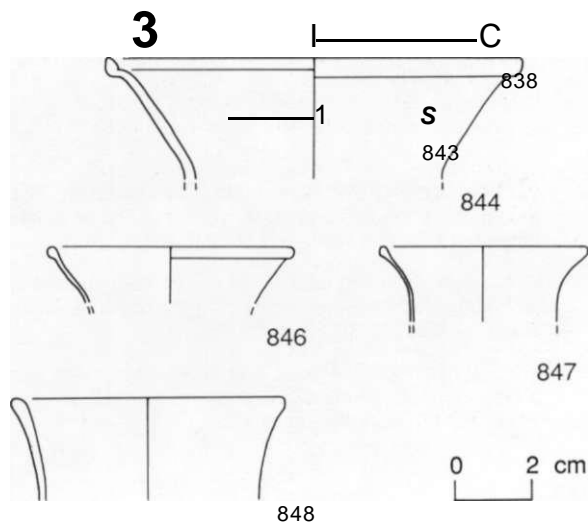


Fig 7.7 Jars with fire-rounded rims. 1:2. [Pages 113-15]

843 1.81 G2119 L2024; Period 3d. Rim fragment. Out-bent rim with thin fire-rounded edge. PH 8, RD 70, WT 1.

844 1.81 G1393 L865; Period 4 or 5. Three rim fragments (2 joining). Streaky green impurities. Funnel mouth, fire-rounded rim edge irregularly bent in; neck sloping in and beginning to curve out to body. PH approx 40, RD 110, neck thickness 3.

- 846 1.81 B1491 L353; Building 94, Room 1a; Period 3/4. Two joining rim and 4 body fragments. Some black impurities. Funnel mouth, rim edge fire-rounded; convex-curved side. PH (rim) 15, RD 65, WT 1.
- 847 1.81 B1036 L235; Building 112; Period 4a. Rim fragment. Funnel mouth, rim edge fire-rounded; neck sloping in and beginning to curve out to body. PH 20, RD 55, WT 1.
- 848 BKC75 J176 F32; Period 5c/6. Two rim fragments of jar? Slightly out-turned rim, edge fire-rounded. PH 27, RD 72, WT 2.5.

Jars with vertical necks (858-859)

[Fig 7.8]

Two small blue/green jars with vertical rims were found. On one (**859**), the rim edge was rolled in, whereas on the other (**858**), it was curved out and in irregularly near the fire-rounded edge. Fragment **858** apparently had a body with a high carination. These little jars do not seem to be closely paralleled. The most comparable piece is a jar from Verulamium (Charlesworth 1972, 205 no x1, fig 76.27), but that was much larger and had a more rounded body. As noted previously in this chapter, the precise angle at which the rim bends out can vary a great deal, so these two rim fragments should probably be viewed as part of that range of globular or ovoid jars in use from the 1st to 3rd centuries. They were found in contexts that dated from the mid 2nd century onwards (Balcerne Lane, Periods 5b & 5c-6).

Jars with vertical necks

Blue/green

- 858 BKC75 J166 & J219 F36; Period 5b. Five rim and body fragments. Tall, near-vertical rim curved out and in irregularly near fire-rounded edge; diagonal shoulder beginning to curve down to body. PH 24, RD 50, WT 1.
- 859 BKC75 J196 F44; Period 5c/6. Rim fragment. Rim edge bent out, up and in; wide cylindrical neck. PH 19, RD 55, WT 1.5.

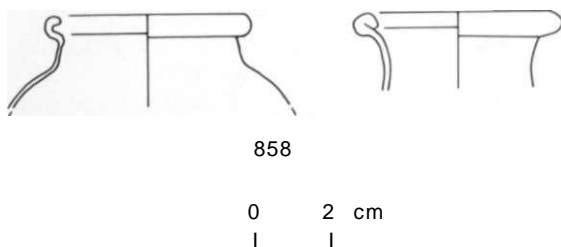


Fig 7.8 Jars with vertical necks. 1:2.

Pear-shaped jars or beakers (860)

[Fig 7.9]

A small complete vessel (**860**), which might have been either a beaker or a jar, was found in a grave at the Inner Relief Road Site B. It is approximately pear-

shaped with a wide mouth, ovoid body and small pushed-in base ring. This shape is more frequently found in colour-coated pottery than in glass vessels. It was, for example, the standard late Roman colour-coated beaker form in the Oxford industry, where it began to be made at the beginning of the 3rd century; it also occurred in most of the other centres producing colour-coated pottery (Young 1977, 152). Both the context and the greenish colour of **860** suggest that it too is of late Roman date. It is probably related to the ovoid jars of Isings Form 131, such as those from late Roman inhumations at Strasbourg (Arveiller-Dulong & Arveiller 1985, 96 nos 388-9), which were in use in the north-western provinces during the late 3rd and 4th centuries. These do not tend, however, to have such a pronounced division between the neck and the body as occurs on **860**, and it may well be that **860** was a deliberate imitation of the contemporary and common pottery beaker form.

Pear-shaped jar or beaker

Late Roman green

- 860 IRB72 F78 130; inhumation grave. Complete pear-shaped jar or beaker. Greenish colourless. Out-turned rim, edge fire-rounded; wide straight-sided neck sloping out to junction with ovoid body with high rounded carination and lower body sloping in to narrow constriction above small open pushed-in base ring; slightly concave base with central kick. Circular pontil scar. Height 88, RD 34, BD 25, max body diameter 58, WT at rim 2, pontil-scar diameter 7.

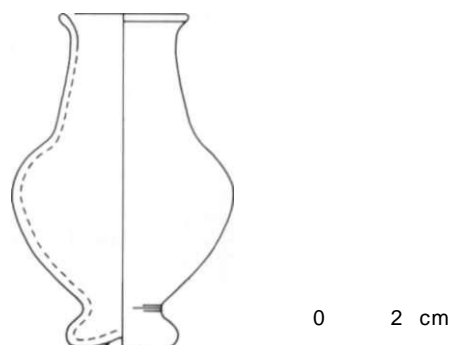


Fig 7.9 Pear-shaped jar or beaker. 1:2.

Hat-shaped unguent jars (861)

[Fig 7.10]

Fragment **861** is a small, complete, blue/green jar which has a wide, flat rim with the edge bent up and in, an inverted truncated conical body with a maximum diameter smaller than the rim and a concave base. In outline it resembles a top hat. Such tiny hat-shaped jars, which were probably intended to hold unguents, are not very numerous but seem to be a discrete variant within the range of jars with out-turned and rolled-in rims. They are made of blue/green or green glass. The precise shape of the body can vary; for example it can be more cylindrical or more convex-

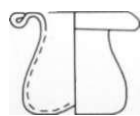
curved than is the case in **861**, but they are always distinguished by the large flattened rim.

Such jars have been found on sites in northern France, the Lower Rhineland and Britain. For example, they have been recovered as parts of the grave goods of cremation burials at Frixheim-Anstel, Kreis Grevenbroich dated to the beginning of the 2nd century (Muller 1959, 404, Abb 37.6), at Novaesium dated to the last third of the 2nd century (Muller 1977, 119, Taf 75.18), at Amay and Jusleville, Liege (Vanderhoeven 1961, 94 nos 104-5, pi 24), and at Sainte Helene and Eslettes, Seine Maritime (Sennequier 1985, 75 nos 65 & 68). They have also been found in cremation burials in Britain; four were found with one such burial at Mill Cottage, Billericay (information from Mr S P G Weller, report forthcoming in *Essex Archaeology and History*), and there was also one in a rich burial which contained samian pottery dated to AD 165-200 at Springfield Road, Brighton (Kelly & Dudley 1981, 86, fig 9.5). The lack of examples from closely-dated contexts makes it difficult to date their period of use precisely, but they were clearly in use during the later 1st and 2nd centuries. One is recorded, however, as having been found in a stone coffin at the Railway Station, York (Harden 1962, 140, fig 89.H.G.2), which suggests that some continued in use into the later Roman period. Fragment **861** was found in a context at Culver Street dated to c AD 225-275/325. Its undamaged state suggests that the piece is unlikely to have been redeposited before it reached the context in which it was found, so this 3rd-century date probably reflects the time that it was in use.

Hat-shaped unguent jar

Blue/green

861 1.81 G631 L631; Period 5. Complete unguent jar. Horizontal rim bent out, up, in and flattened; slightly convex-curved body sloping out; concave base. Pontil scar. Height 27, RD 34, BD21.



0 2 cm

Fig 7.10 Hat-shaped unguent jar. 1:2. [Pages 115-16]

Inkwells (862-866)

[Fig 7.11]

Fragments from four inkwells of Isings Form 77 were found. They came from Balkerne Lane, Lion Walk, Culver Street and the Gilberd School. The example from Culver Street (**862-863**) was the best preserved. It had a folded rim flattened into the shoulder to leave a small central aperture and a cylindrical body. It

retained the lower attachment of one loop handle and its base was missing. Complete examples, such as those from Patcham, Sussex (Griffith 1912), Koln (Fremersdorf 1958b, 56, Taf 131), and Paris (Boulevard de Port Royal: Morin-Jean 1913, fig 238; Rue St Pierre: Landes 1983, 96 no 140, pi H), show that when complete it would have had a concave base and probably three handles attached to the outer edge of the rim and the upper body. During these excavations all the examples with identifiable body shapes (**862-864 & 866**) were cylindrical, and this seems to have been most often the case; but hexagonal-bodied examples, such as the one from Xanten (Charlesworth 1984b, 294, Taf 105.3), were also made.

This type of vessel is more commonly found in samian pottery (Ritterling Form 13) than in glass. It is difficult to gauge how common the form was in glass. Welker (1984, 61) has observed that they were scarce and that she did not know of more than about a dozen examples. However, the total known from Roman Britain alone is now approaching that number. In addition to the complete inkwell from Patcham, fragmentary examples include two from Cirencester (Charlesworth 1971b, 88 no 18, fig 11; Shepherd 1986b, 119 no 434, fig 86), two from Gloucester (Eastgate & Berkeley Street, unpublished), and others from Braughing (Price & Cool 1988, 83 no 18, fig 35), London (London Museum, Guildhall, no 14.736), and Castleford (Site 1/74, unpublished). With the exception of the examples from London and Castleford, which are hexagonal, all those where the body shape is known are cylindrical. It is notable that the number from Roman Britain has been greatly increased recently by the identification of several from relatively small fragments, and it is likely that the number from other provinces could be similarly increased.

The majority of glass inkwells recorded so far are from the north-western provinces (see examples cited above and Arveiller-Dulong & Arveiller 1985, 88). They came into use during the middle part of the 1st century, as there is one from Nijmegen with a cremation burial dated to between AD 30 and 70 (Isings 1959, 93). Examples from later contexts, such as one from a late Flavian context at Berkeley Street, Gloucester (unpublished) and those from the pits at the *canabae legionis* at Nijmegen dated to the end of the 1st or the very early 2nd century (Isings 1980, 288 no 31, fig 3.7 & 319 no 847, fig 25.13-4 & 328 nos 23-4, fig 36.6), suggest that they continued in use until at least the end of the 1st century. It is not yet clear whether they continued in use into the 2nd century, and if so, for how long. Unfortunately only one example came from a usefully dated context during these excavations, namely **865**, which came from a Period 3a context at the Gilberd School site (dated to AD 60/1 -c 100/125). Only one other example (**864**) came from a Roman context; ie Period 5 at Balkerne Lane, c AD 100-300, and thus it was not closely dated.

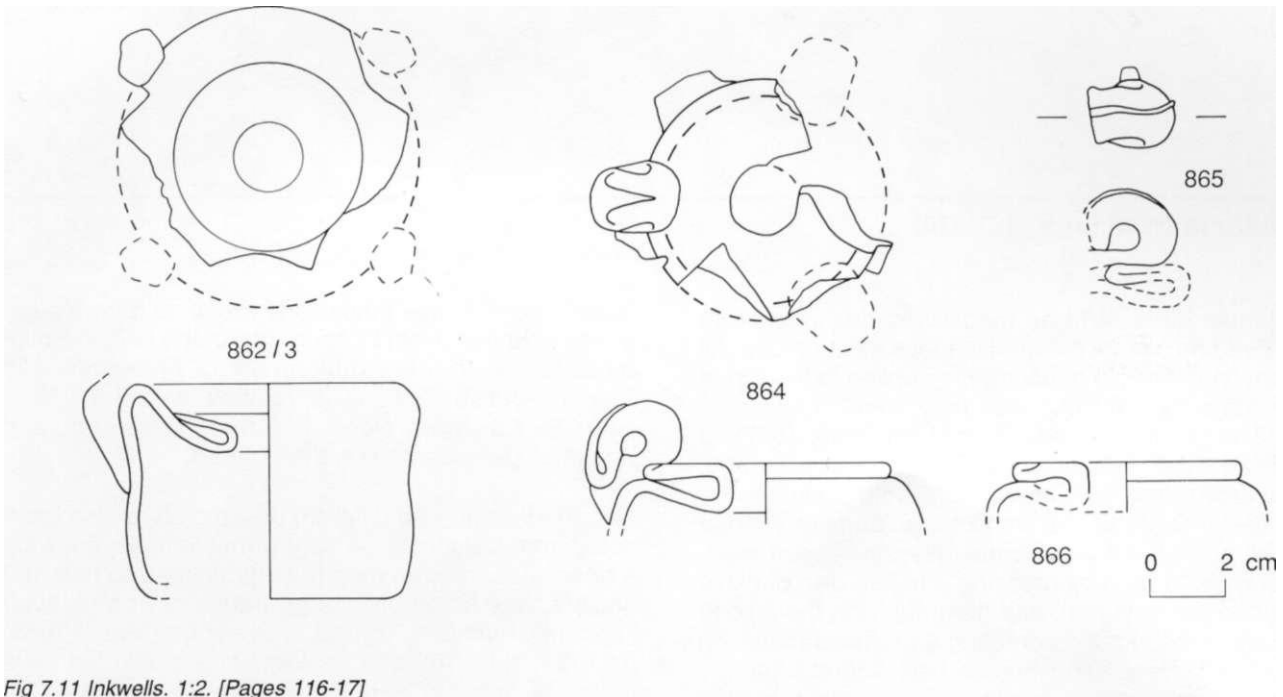


Fig 7.11 Inkwells. 1:2. [Pages 116-17]

Inkwells

Blue/green

- 862/3 1.81 H206 F146; Period 6. H289 F146; Period 6. Complete rim and joining handle and side fragment. Folded rim with rounded edge bent out and flattened into shoulder to produce concave upper surface with small central aperture; shoulder curving over to cylindrical body with slight horizontal convexity; side curving into missing base. Side and edge of shoulder retain simple rounded lower attachment from 1 loop handle. Height approx 57, body diameter approx 80, central-aperture diameter 18, WT 3.
- 864 BKC76 V272 & V285 L27; Period 6. Four rim and handle fragments. Rim bent out, up, in and flattened into shoulder

to leave central aperture; shoulder curving down steeply to side. Originally probably 3 loop handles, 1 now remaining; loop handle applied to shoulder and rim and then bent out, down and up with thick trail. PH (excluding handle) 12, RD (outer) 65, WT 3.5.

- 865 GBS84 A1172 F134; Period 3a. Handle fragment. Loop handle retaining outer edge of folded rim and shoulder. Dim 25x24.
- 866 LWC71 C145 F90; 17th century. Rim fragment. Rim bent out, up, in and flattened into convex-curved shoulder to leave central aperture; shoulder broken beneath rim. PH 13, RD approx 60, WT 3.

CHAPTER 8: Jugs

Medallions from jugs (867-870)

[Fig 8.1]

Substantial parts of three medallions decorated with male head masks were found in these excavations. All of them have handle attachments applied to the top of the medallion, indicating that they were attached to jugs. The dark blue one from Lion Walk (**867**) is complete, and the two from Culver Street (**868**, yellow/brown and **869**, blue/green) both preserve the facial features of the masks, although parts of the hair and the surrounding areas are missing. These medallions were formed by pressing a trailed disc of glass into a decorated stamp, and then applying the disc to the body of the jug, thus creating a prominent boss on the inside surface. The handle was added after the medallion; one prong or claw of the lower handle attachment overlies the top of the disc and obscures part of the head. In addition, part of a circular trailed disc of blue/green glass was found in Culver Street (**870**), and this may come from a fourth medallion although no decoration now survives.

The three medallions are oval in shape, and they all show an adult head with prominent facial features and long hair, with an arrangement of leaves in the hair projecting above ringlets on each side of the face. On both **868** and **869**, a band with two small bosses across the forehead is also visible.

The quality of the moulding varies on the three medallions. On **868** and **869** the facial details are crisper and more pronounced than on **867**. They have also been formed from larger discs of glass and have a rounded ridge at the edge. Fragment **867** is a smaller and thinner medallion; it lacks a rounded edge ridge and the right-hand top quarter of the design behind the head is absent, suggesting that the stamp itself may have been cut down. The stamp appears to have been heavily worn by the time this impression was made, as the points of the nose and chin have become rounded, and the nose has consequently become partly amalgamated with the top lip of the mask. By contrast, many of the details not under pressure in the mould, such as the hair arrangement and garland of leaves, have remained crisp on all the medallions.

It is very probable that the three examples are derived from the same prototype, though they were not formed in the same stamp. At least two more very similar medallions are already known from Colchester; one from the Pollexfen Collection is now in the Department of Prehistoric and Romano-British Antiquities of the British Museum (Acc No 70.4-2.12)

and another from the Jarmin Collection is in the Colchester Museums (CM, 288.37).

Closely-comparable medallions are known from elsewhere in Britain: from London (two in the Roach Smith collection: now in the Department of Prehistoric and Romano-British Antiquities, British Museum 56.7-1.634-5), Caistor by Norwich (Norwich Museum), and Wroxeter (Atkinson 1942, 233, pi 62A, no 4).

Two medallions with different designs have also been noted from Colchester. A very worn example, showing a head with an open mouth, centrally-parted hair and ringlets, was found on a large fragment of a globular jug from Cremation Group 4 at Sheepen (Niblett 1985, mf 1:A 7-8, fig 16), and another, with a bearded male head, is now in the Colchester Museums (CM, 945.73).

Decorated medallions are known from numerous sites in Roman Britain, and they are divisible into three basic types. There are many variants of the design occurring on **867-869**, that is, a male head with garlands of leaves and ringlets, and these are often larger, better-moulded and more elaborate in their detail than the Colchester medallions. Examples of one of these variants are known from Leadenhall Street, London (Roach Smith 1842, 153), and Abergavenny, Mancetter and Wroxeter (all unpublished). A second type shows a head with short hair parted centrally, which is surrounded by a ring of pellets. This has been recorded on a medallion on a discoid jug from Litlington, Cambridgeshire (*Fitzwilliam*, 36-7 no 65a), and on several fragments, including examples from London (Roach Smith 1859, 121), Springhead, Kent (information from Mr J Shepherd), and Castleford (unpublished). A third type shows a bearded male head; the only examples known to us, apart from the example already noted from Colchester, are two in the Museum of London (GM, 2331 & 2511).

No examples similar to **867-869** have been noted outside Britain, but some of the other medallion types have been found elsewhere in the north-western provinces. For instance, examples similar to the group from Leadenhall Street, London have also been noted at Vindonissa (Berger 1960, 40-42, Taf 6, 90) and from an unknown findspot, now in the Musée Rolin, Autun (Grosjean 1985, 149-50 no 250c), and two examples of heads with short hair surrounded by pellets are recorded in the Romisch-Germanisches Museum, Köln (Fremersdorf 1961, 24, Taf 12 f-g), though it is by no means certain that they were formed in the same moulds as the British examples.

These medallions are often described as 'Medusa-masks', but those found in Britain do not have the attributes of Medusa, and it seems more probable that they were produced as representations of Bacchus and his companion Silenus.

Fragments **867-869** come from jug handles with one central rib. It is not possible to say very much about the jug forms as not enough of the body survives, though none of the pieces shows any signs of ribbed decoration. The medallions appear to have been preserved for some secondary purpose after the jugs were broken, and in the case of **867** and **869** this has involved carefully working the broken edges of the body back to the edges of the medallion. Fragment **867** has a patch of heavy wear arising from secondary use on the lower edge of the disc. Fragments **867-868** are likely to belong to conical jugs, and **869** is from a convex-curved jug, although it is not clear whether this was ovoid or globular.

It is rare in Britain to find complete jugs or large fragments with medallions attached, except on the jugs included in burial deposits, but when the vessel form is identifiable it is generally a jug of Isings Forms 52 and 55 (see **871-954**). The medallion from Sheepen survives at the base of the handle of a fragmentary globular jug from Cremation Group 4 mentioned above, and elsewhere in Britain two other complete jugs with medallions are known. One is the ribbed discoid jug from Litlington, Cambridgeshire, already mentioned (*Fitzwilliam*, 36-7, fig 65a), and the other is a ribbed conical jug from Bex Hill, Milton-next-Sittingbourne, Kent (Payne 1874, 170-71 and plate), which has a medallion applied to the body on the opposite side from the angular ribbon handle with central rib, claw attachment and vertical trail with pinched projections.

The medallions at the base of handles on globular and conical glass jugs most probably copy the decoration on metal vessels, though the inspiration for them may be derived more immediately from other glass vessels produced in the early 1st century AD. It is noteworthy that the Portland Vase and other cameo-cut vessels display cut masks beneath the handles (Harden *et al* 1987, 58-65, 68-9, nos 29 & 31).

Some of the medallion types found in Britain appear to come from mid 1st-century vessels. For instance, the one from Leadenhall Street was deep blue and attached to a deep blue jug with opaque white marvered splashes, and the blue/green fragment from Mancetter, which was found in a Claudio-Neronian context, had already been broken away from the jug and reworked before it was deposited. The medallion from Vindonissa comes from an even earlier context, as it was found in a Tiberian deposit.

The medallion **867**, a reworked piece from a worn and apparently defective mould, seems to provide an early date of deposition for the medallion type as it came from Period 2 dump at Lion Walk Site A, possibly dated to AD c 49/55-60/1. This would be a very early

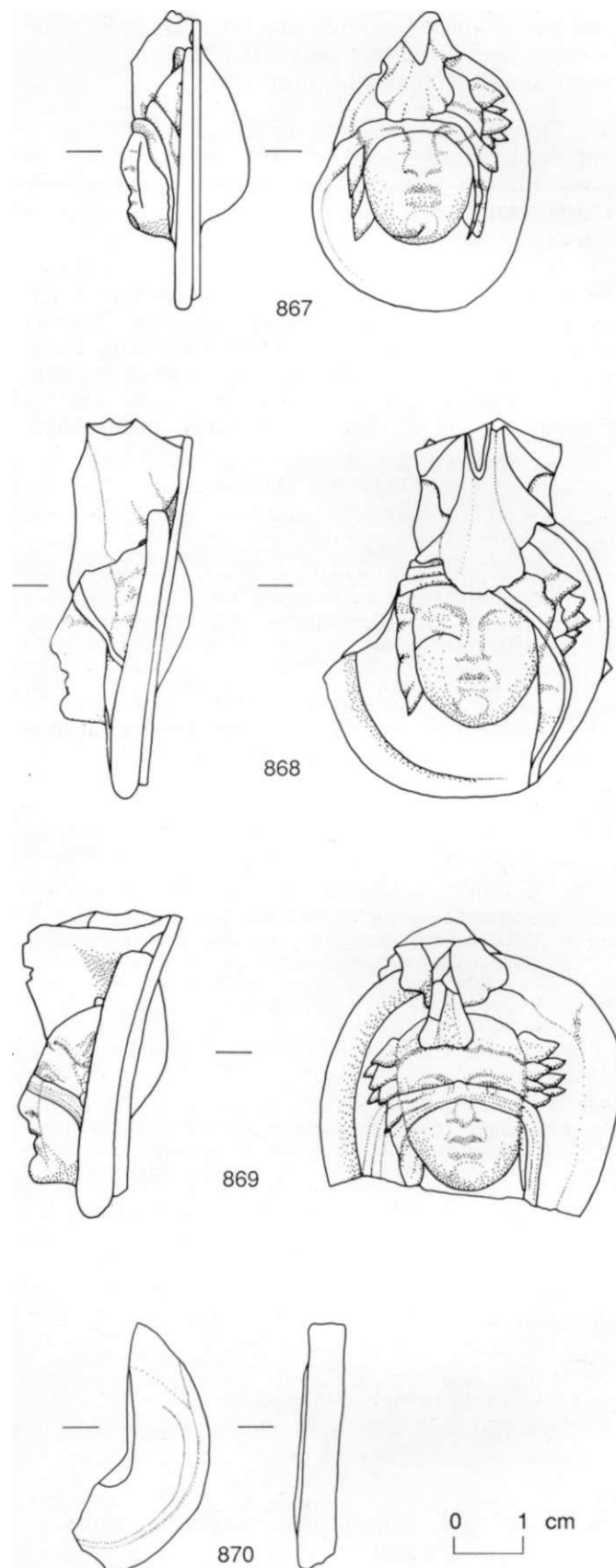


Fig 8.1 Medallions from jugs. 1:1. [Pages 118-20]

Medallions from jugs

date for a jug of Isings Forms 52 or 55, as these do not appear to have been produced before c AD 65, and the medallion seems likely to have come from another jug form. Fragments **868-869** were found in post-Roman contexts at Culver Street.

The occurrence of medallions on jugs in Britain is noticeably concentrated on sites established by the early Flavian period. They appear comparatively rarely in northern Britain, though examples have been found at Castleford and Piercebridge (unpublished). There are few closely-dated early examples, perhaps because so many pieces were preserved as keepsakes after the vessels were broken. The Sheepen piece comes from a Neronian or early Flavian burial group, and elsewhere examples have been found in late Neronian contexts, at Usk (unpublished) and in a Flavian context at Caerleon (Nash-Williams 1929, 257, fig.18,5).

Medallions from jugs

Deep blue

867 LWC71 A292; ?Period 2 dump. Medallion, handle and side fragment of jug. Oval medallion. Face in high relief with trail from medallion as prominent band across forehead merging with hair details on left side of face. Hair shown as spikes radiating from head on left of head only. Ridges with 3 diagonal scored lines giving ringletted appearance. Head surrounded by flat border apart from on one part of upper edge where it was never present. Body of jug neatly grazed behind edge of mask. Lower handle attachment on top of head and forehead. Dim of medallion 48x31.

Yellow/brown

868 1.81 W107 L106; unstratified. Medallion, handle and side fragment of jug. Deep yellow/brown medallion, handle and body a lighter slightly green-tinged shade. Well-moulded face with prominent chin; ringlet down each side of face and leaves projecting from head above ringlet on left side (other side broken); trail from formation of medallion crosses forehead and 1 ringlet diagonally. Central prong from lower handle attachment on forehead. Side broken behind medallion and on either side of the handle. Dim of medallion 40x41.

Light green

869 1.81 E123 F108; Period 8. Medallion, handle and side fragment of jug. Approximately circular medallion broken below chin. Well-moulded face with prominent chin; ringlet down each side of face and leaves projecting from head above ringlets on both sides of head; trail from formation of medallion crosses eyes and bridge of nose. Central prong from lower handle attachment on crown of head; side broken behind medallion and handle. Present dim of medallion 34x41.

Blue/green

870 1.81 G749 L653; Period 5. Fragment of mask medallion of jug? Lower border of medallion with trail from formation on underside. Dim of medallion 36x14.

Globular and conical jugs of Isings Forms 52 and 55 (871-983)

[Figs 8.2-8.7; Table 8.1]

The commonest forms of glass jugs found on Romano-British sites occupied during the later 1st and

Table 8.1 Distribution of globular and conical jugs of Isings Forms 52 & 55.

SITE	coloured		blue/green	
	Frs	EMN	Frs	EMN
1.81	14	6	20	7
BKC	19	9	21	7
LWC	32	3	10	4
GBS	14	6	12	4
BUC	4	3	1	1
MID	-	-	1	1
MRC	1	1	-	-
Totals	84	28	65	24

earlier 2nd centuries are globular and conical jugs of Isings Forms 52 and 55. During the 1971-85 Colchester excavations, 139 fragments of this type of jug were recovered, representing a minimum of 52 vessels (see Table 8.1).

Jugs of both shapes have folded rims and, generally, relatively long, slender cylindrical necks which were often constricted at their bases. The conical examples (Isings Form 55) have either slightly concave bases as on one from a Flavian grave at Radnage (Skilbeck 1923, 334, fig 2c; Harden *et al*/1987, 140 no 68), or a carination to a wide lower body with open pushed-in base ring and concave base, as on one from a rubbish pit dated to AD 155-165 at Park Street, Towcester (Price 1980a, 66 no 9, fig 15). The body shape can range from the truly conical, as in the examples already cited, to a more piriform shape, such as the one with a pushed-in base ring found in a cremation burial with Hadrianic samian at Lower Runham, Kent (Monkton 1979, 120, fig 3). Very rarely examples of the conical form are elaborated by a cut-out flange around the lower body which in extreme cases, such as the jug from a Hadrianic grave near Huntingdon (Harden 1968c, 308, pi 80a; Harden *et al* 1987, 141 no 69), can give the impression that the jug is sitting inside a bowl. Globular jugs (Isings Form 52) have open pushed-in base rings and concave bases. Their bodies can be either approximately spherical or discoid, as may be seen on the examples from Old Newton, Stowmarket (Low 1907-9, pi C; Honey 1940, pi 7E) and Littleton, Cambridgeshire (Kempe 1835, 371, pi 45 nos 7 & 12; Fox 1923, pi 25.4; Liversidge 1977, 30, pi 11) respectively.

The handles on both types of jugs are angular and join the underside of the rim or upper neck with a simple folded attachment. On conical jugs, the commonest type is a ribbon handle with a central rib. The lower attachment is generally shaped like a claw with three tooled prongs, the central one extending down the body and pinched to form a series of narrow projections, as on the vessels from Radnage, Towcester, Lower Runham and Huntingdon noted above. A central unpinched projection is less common but occurs, for example, on a jug from Barnwell,

Cambridgeshire (Harden *et al* 1968, 59 no 73) and on a fragment from Usk (unpublished). Curved ribbon handles are used on some of the conical jugs found in the Rhineland, for example at Koln (Fremersdorf 1961, 43-4 Tafn 74 & 75) and Trier (Goethert-Polaschek 1977, 192 no 1190), but in Britain only a few conical jugs have been identified with this form of handle. A ribbed jug from Bayford-next-Sittingbourne, Kent (Payne 1886, 2, fig 2; Harden *et al* 1968, 82 no 108) has two handles, both with pinched extensions to the lower attachments. The larger handle is a normal angular single-ribbed ribbon, and the smaller is a curved rod.

Single-ribbed ribbon handles were also used on globular jugs, as may be seen in the one from Littleton noted above, but the commonest handle form on these jugs is angular with narrow multiple ribs in high relief, as on the jug from Old Newton, and also on an example from Baldock found in a cremation burial which also produced samian pottery of AD 65-85 (Price 1986a, 61 no 3, fig 27). On globular jugs, the lower handle attachment is generally simple, with the edges and the ribs drawn down into small prongs. A long pinched trail is much less common on the globular than on the conical jugs. The lower handle attachment on both types of jug may be applied on to moulded face-masks of the type discussed in connection with 867-870 above, and very occasionally one of these masks may be applied elsewhere on the body, as in the case of a conical jug from Milton-next-Sittingbourne, Kent (Payne 1874, plate following p 169).

As well as being made in blue/green glass, these jugs were also made in the strong colours which mostly went out of use during the Flavian period, such as deep blue, dark yellow/brown and claret, and the weaker colours such as light and pale green, yellow/green and light yellow/brown whose production continued into the 2nd century. Neither form was ever made in completely colourless glass.

Polychrome examples decorated with opaque white spots are occasionally found but these are very rare. Conical jugs represented by body and handle attachments have been found at Annetwell Street, Carlisle (deep blue; unpublished) and Lincoln (blue/green; Cool & Price 1988, 42 no 10, fig 11). A dark brown lower body and base fragment, from either a ribbed globular jug or globular jar of Isings Form 67c (see 732-764), is also known from Gloucester (Price 1983a, 168 no 1).

The jugs were made in both plain and ribbed forms. The ribs could be produced by optic-blowing, tooling or trailing, and sometimes two or more methods were used on different parts of the same jug as occurred on the globular one from Baldock. It is often not easy to identify the way in which the ribs have been produced. The ribs may be vertical or diagonal and occasionally both are combined on the same vessel as on a conical jug from Faversham (Thorpe 1935, pi 4f) and the discoid one from Enfield (Price 1977b, 155 no 2,

fig 27). Another form of ribbed decoration occurs on a jug from a Flavian burial at Grange Road, Winchester (Harden 1967, 238 no 17, fig 7); on this jug, vertical ribs have been pinched together to form an irregular diamond-shaped lattice. However, this type of ribbing seems to be very uncommon on jugs from Romano-British sites.

In this assemblage, fragments from both shapes of jugs appear to be approximately equally represented. Fragments **873-877**, **879**, **881**, **892**, **899-903**, **923-925** and **927** may be assigned to conical jugs, and **878**, **888-890**, **896**, **904**, **905** and **915-921** to globular jugs. In each case this includes pieces for which identification is secure and those for which identification is probable rather than definite. Many handle fragments were also recovered which do not retain enough of the body to allow identification of jug shape. Handle fragments with a single central rib (**882-886**, **893-895**, **906**, **926 & 929-938**) and those with two ribs (**871**, **887 & 944**) could have come from either conical or globular jugs. The handle fragments with multiple ribs (**872**, **897**, **907-910**, **922**, **945**, **946 & 948-954**) are most likely to have come from globular or discoid jugs. It is probable that the fragments from pinched extension trails of handles (**939-943**) came from conical jugs, but sufficient of the side is preserved to make this certain in only one case (**939**).

Some of the folded rim and cylindrical neck fragments catalogued as **1262-1446** could also have come from jugs of this type, but it is only possible to suggest this with any degree of confidence in the cases of **891**, which retains fragments of handle, and the ribbed neck fragment **928**. Fragments **880**, **898** and **911-913** are all fragments of concave bases probably from conical jugs. It is not possible to identify with any certainty the base fragments from either globular or conical jugs with pushed-in bases, as they are identical with those of collared jars. This assemblage contained many such fragments, which have been discussed in connection with the collared jars **732-764** (see pp 106-7).

The fragments from the 1971-85 Colchester excavations demonstrate very well the difficulty that is encountered in identifying precisely the forms of jugs present on a domestic site. The different combinations of shape, decoration, and base and handle forms, etc, give rise to many variants, but on sites such as these, where only fragments are being dealt with, information on the full combination of the features for any one jug is rarely available.

Here there are at least three conical jugs decorated on the lower body with vertical ribs: **874** (light yellow/brown) and **879** (dark yellow/brown) had concave bases, while the base of the jug represented by **875-877** (light yellow/brown) was probably an open pushed-in base ring. On none of these is the type of handle and lower handle attachment known. By contrast, on the fragments from conical jugs with diagonal ribbing, information is present about the handle but not about the base. The jug **900** (light green) has

narrow prominent ribs and the lower handle attachment had a plain central extension trail. It may have been similar to the jug from Barnwell which had a concave base. Two other jugs with similar ribbing, **902** (light green) and **923** (blue/green), had pinched central extension trails. A fourth spiral-ribbed conical jug is represented by the light green fragment **901**. This has a pinched extension trail and closely-set ribs which are shallow corrugations rather than the individual, relatively well-defined ribs seen on **900**, **902** and **923**. The jug **901** has the same colour, shape, style of ribbing and type of central extension trail as a jug with a concave base from Turriff, Aberdeenshire (Thorpe 1933-4).

In addition to these fragments from ribbed conical jugs, in what may be termed the 'mainstream' of variants, there are also two other examples which are unusual. Fragment **924** came from a blue/green conical jug with vertical ribs and a plain ribbon handle with simple lower attachment. Such a combination is uncommon on jugs of this type from Britain, but has sometimes been found on continental sites, for example one with a concave base from Koln (Fremersdorf 1961, 43, Taf 74), so it is possible that **924** is a jug of Isings Form 55. Fragment **899** is a light green cylindrical neck and upper body fragment with the ends of shallow vertical ribs on the upper body. It may tentatively be assigned to this type of jug though it differs from most examples as the neck/body junction is only tooled rather than constricted, and the neck is relatively wide.

Fragments **873** and **881** (both light yellow/brown), **892** (yellow/green), **903** (light green), and **925** and **927** (both blue/green) all come from jugs with conical upper bodies which show no evidence of having been ribbed. In the case of **892** and **903**, however, so little of the body is extant that the possibility cannot be ruled out that the jugs they came from were decorated with widely-spaced vertical ribs. In most cases the handle attachment is applied over ribbed decoration, and sufficient of the bodies of **873**, **925**, **927**, and to a lesser extent **881**, remain for it to be fairly certain that they came from plain conical jugs. The extension trails of **873** and **927** were pinched and those of **881**, **892** and **925** were plain. On all of them where the type of handle was identified it was single-ribbed, and on none of these jugs can the type of base be identified. Fragment **881** is interesting because it retains a weakly S-shaped profile beneath the lower handle attachment. This profile does not seem to be the result of the application of the handle, and it is possible that the fragment came from a wide conical jug like the greenish example from Blehen (Vanderhoeven 1961, 77 no 81, pi 18) where the carination is accentuated so that it is almost marked by a cut-out loop as on the Huntingdon jug. This results in an S-shaped profile similar to that seen on **881**.

In only three cases, of all the fragments from this assemblage assigned to jugs of Isings Form 52, is it possible to identify whether they came from globular or discoid jugs. These are **904** and **916** which are from discoid jugs, and **915** which is from a globular

jug. Three styles of ribbing can be isolated. The light green discoid jug **904** had vertical ribs which ran into the neck, and two small shoulder fragments, **905** (light green) and **918** (blue/green), probably also came from globular or discoid jugs with vertical ribs. There are no indications of the handle form for any of these vessels. The blue/green globular jug **915** has shallow diagonal ribs and a single-ribbed handle with plain extension trail of moderate length. The ribs on this jug are widely spaced, whereas those on the blue/green discoid jug **916** are very closely set as they spiral into the base of the neck. Similar closely-set packed spiral ribbing is seen on **896** (yellow/green), **878** (yellow/brown), and **917** (blue/green). Fragments **878** and **917** are too small for the precise shape of the jugs to be identified but **896** probably also came from a discoid jug; like **916**, **896** had a multiple-ribbed handle with a simple lower attachment. Whether the ribs would have continued to be diagonal lower down the body is open to question; on the discoid jug from Enfield, the rib arrangement was very similar to that of **916** on the upper body near the neck, but lower down the spiral trails were arrested and became vertical.

Globular or discoid jugs are also represented by **888-890** (yellow/brown) and **919-921** (blue/green). These are multiple-ribbed handle fragments retaining parts of the body. On none of these is there any evidence that the body was ribbed, but, as in the comparable cases of the conical jugs the possibility that some of these came from ribbed rather than plain jugs cannot be entirely ruled out.

It is probable that some of the ribbed body fragments **1655-1685**, **1691-1705**, and **1708-1727** came from similar globular or discoid jugs but this cannot be proven. One body fragment, though, does call for special mention. This is **914**, a light green fragment with close, shallow, optic-blown ribs. It is only slightly convex-curved and could have come from a conical jug. By one broken edge the ribs are dying out but there are slight indications that they may have been arrested during the blowing process so that they changed direction (Price 1977b, 155). As already noted, this type of arrested ribbing occurs both on conical and globular jugs, but it has not often been found. In addition to the jugs from Enfield and Faversham, it has been found on fragments from Caerleon and Usk (Price 1977b, 157). Another conical yellow/brown jug in the Royal Museum, Canterbury (Acc No 7233) is very similar to the one from Faversham and may also have come from Kent. No jugs or fragments with this type of ribbing have been noted from sites outside Britain.

Plain globular and conical jugs were in use during the first half of the 1st century; for example, a globular jug from a Tiberian context at Vindonissa (Berger 1960, 42 no 89, Taf 6), and conical examples from the Claudian site at Hofheim (Ritterling 1913, 274). The combination of the traits that combined to form the jugs defined as Isings Forms 52 and 55 seem first to have appeared in the Neronian period. Early examples from Britain include a greenish-brown

conical jug with open pushed-in base ring from a Neronian context at Sheepen (Harden 1947, 305 no 94), a deep blue conical jug from a disturbed late Neronian context at Kingsholm (Price & Cool 1985, 46 no 27, fig 18), and ribbed conical jug fragments from The Lunt which was occupied between AD 60/4 and 75 (Harden 1971-3, 78; Charlesworth 1971-3, 79). The globular and the conical jugs of the type under discussion were very common in Roman Britain from the Flavian to the early 2nd century, both as grave goods and site finds. It is likely that the conical jug continued in use into the middle of the 2nd century, though production may have ceased before that date. Examples occur in rubbish pits at Park Street, Towcester (Price 1980a, 66 nos 7-9, fig 15), Felmongers, Harlow (Price 1987a, 204 no 20, fig 3), and Alcester (unpublished). These deposits appear to consist mainly of vessels which were in use contemporaneously, and the samian pottery in all three pits provides close dating, namely c AD 150-160 at Alcester, c AD 155-165 at Towcester, and c AD 160-170 at Harlow. Whether the globular jugs remained in use this long is not clear.

The dates of the contexts in which the fragments from these excavations were found is shown in Figure 8.2. This shows the strong 1st-century presence of the jugs very well but, as many fragments came from contexts with long date ranges, it is of less help in tracing the later histories of the forms. Neither are the Colchester examples very helpful in any attempt to investigate whether jugs with particular combinations of decoration, handle and base form were more popular at one time than another. This is because many of the fragments potentially useful for such an investigation are found in contexts which are not closely datable or contexts in which they are clearly residual. The only piece from a context which is closely dated, and which may eventually prove to be of value in the

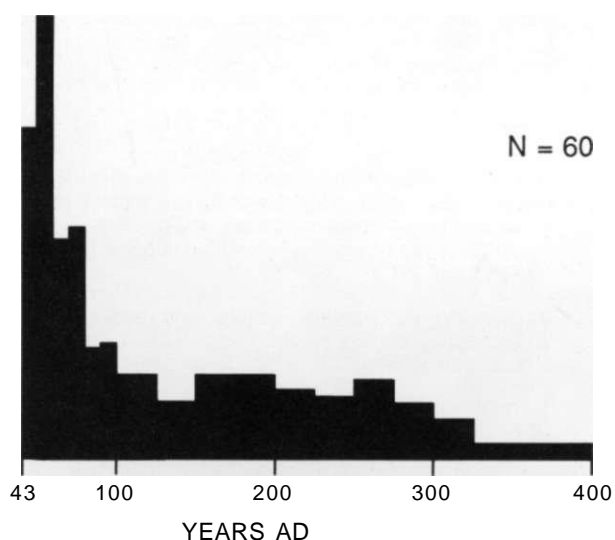


Fig 8.2 Histogram showing the dates of the fragments of globular and conical jugs found in Roman contexts (for the method of calculating the histogram, see pp 5-6).

closer dating of the variants making up this range, is **915**. This is the globular diagonally-ribbed jug with single-ribbed handle from a context dated to c AD 49-80 (Balkerne Lane, Period 2b or 3). The ribbed conical jug with ribbon handle (**924**), which has already been noted as unusual amongst the conical jugs from Roman Britain, is a very early form; it was found in a Boudican destruction deposit at Balkerne Lane. There are ten other early fragments from contexts that predate AD 60/1 or are from destruction deposits of that date. These are: **888** and **907** from globular jugs (Balkerne Lane, Period 2 and Lion Walk Site J, Period 2 respectively); **925** from an undecorated conical jug with plain extension trail (the Gilbert School, Period 1); the handle fragments **931** and **932** (single-ribbed; Culver Street Site A, Period 2 and Lion Walk Site J, Period 2 respectively); **887** and **944** (double-ribbed; the Gilbert School, Periods 1 and 2, and Lion Walk Site J, Period 2 respectively); and **897**, **908** and **909** (multiple ribs; Lion Walk Site B, Period 2, Culver Street Site B, Period 2 and Balkerne Lane, Period 1 respectively).

The discovery at Colchester of large numbers of these jugs is not unusual, as they were very popular in Roman Britain. The majority of sites which were occupied during their period of use produce fragments, and extensive excavation, as here, tends to yield them in large numbers. At Verulamium, for example, 21 vessels were identified from the excavations described in the first volume of Frere's report (Charlesworth 1972, 202), and a further 32 fragments were recorded in a subsequent volume (Charlesworth 1984a, 162-6 nos 195-226), while at Gloucester a minimum of 19 are now known (unpublished). Their popularity is as great in the other north-western provinces; and they are especially common in the Rhineland and the areas now occupied by northern France and Belgium (see, for example, Goethert-Polaschek 1977, 190, Types 112 & 113; Faider-Feytmans 1952, 76ff; Fremersdorf 1961, 43-4, Tafn 72-5; Isings 1971, 35 no 114, fig 9; Vanderhoeven 1961, 70ff nos 75-81; von Pfeffer *et al* 1960, 16 no 37, Abb 3; Follmann-Schulz 1988, 69 nos 225-32, Taf 27).

Globular and conical jugs of Isings Forms 52 and 55 *Deep blue*

871 BKC76 V938 L11; late Period 5 (c AD 300). Handle fragment. Straight ribbon handle, 2 central ribs. PH 61, section 34x6.

Yellow/brown

873 BKC76 T135; Period 5. Three neck, shoulder and handle fragments of conical jug. Light yellow/brown. Long, narrow, slightly tapering, cylindrical neck with tooled constriction at junction with conical body; claw lower handle attachment retains 1 side prong and central pinched trail running down body. PH (neck fragment) 104, neck diameter (outer) 18-22, WT 2.5.

874 LWC72 K210; Period 4b. K160 K246 F120; medieval and later. Twenty-two lower body and base fragments of ribbed conical jug. Light yellow/brown. Straight side sloping out to slightly concave base. Narrow vertical ribs. PH approx 65, BD approx 120, WT 1.

Globular and conical jugs of Isings Forms 52 and 55

- 881 MRC71 148 F85; Building 160 Phase 2, Flavian to early 2nd century but contaminated. Handle and body fragment. Ribbon handle with pronounced central rib; claw lower handle attachment with central rib forming elongated central prong; body below handle attachment has very shallow S-shaped profile. Body possibly deliberately broken away around edge of handle attachment. Dim 95x35, handle section (excluding rib) 18x3, WT 1.5.
- 888 BKC76 K677 F121 E; Period 2. Two joining neck, handle and shoulder fragments of jug. Light yellow/brown. Angular ribbon handle with 3 narrow prominent ribs; folded upper attachment with part of cylindrical neck; broken simple lower attachment with sides and ribs drawn out into short prongs; convex-curved side. Height of handle approx 60-65, handle section (at angle) 28x3, WT 1.
- 890 BUC77 C1025 L1; Period 1-2. C1715 L14; Period 1. Two handle and shoulder fragments. Angular ribbon handle with 3 ribs; simple lower attachment; convex-curved side. PH 70, handle section 23x6.
- 891 1.81 G330 F16; Period 6. Rim and neck fragment of jug. Deep yellow/brown. Rim bent out, up and in; fragments of handle attachment on rim and neck. PH 18, RD 30, neck thickness 2.5.
- Yellow/green*
- 895 BKC75 D359 F12; modern. Handle fragment. Angular ribbon handle with central rounded rib. PH 33, handle section (excluding rib) 15x5.
- Light/pale green*
- 899 BKC76 T468; Period (2 or) 3. Neck and body fragment of ribbed conical jug. Light green. Cylindrical neck with tooling-marks at neck/body junction; straight side sloping out. Shallow optic-blown ribs on body. PH approx 75, neck diameter (outer) 23, WT 3.5.
- 900 GBS85 B296 L11 in F40; Period 3a?. Seven joining body fragments with part of handle from conical jug. Light green. Slightly convex-curved body sloping out from edge of neck; lower part of long central extension trail from lower handle attachment. Narrow spiral ribs. PH approx 75, present max diameter approx 120, WT 1.5-4.
- 901 1.81 B1053 F302; Period 3. One handle and 1 handle and body fragment of probably conical jug. Light green. Straight ribbon handle with central rib divided into 2; edge of lower handle attachment with upper part of central extension trail with at least 5 pinched projections; slightly convex-curved body with close-set spiral optic-blown ribs in very shallow relief. Handle section (excluding rib) 25x5, WT 2.
- 903 1.81 E633 L27; Period 3. Handle and body fragment of conical jug. Light green. Angular ribbon handle with prominent central rib; broken claw lower attachment; straight side. Present length approx 80, handle section (excluding rib) 26x6, WT 1.5.
- 904 GBS85 B190 L8; Period 3. Shoulder fragment of discoid jug. Light green. Lower edge of cylindrical neck; wide convex-curved shoulder. Approx 20 vertical ribs, the majority narrow and prominent, some (in 2 areas) very shallow and almost imperceptible; prominent ribs run onto lower edge of neck and have tooling-marks at neck/shoulder junction. Neck diameter 30, WT 1.5-3.5.
- 907 LWC72 J951; Building 2 make-up, Period 2 destruction. Six handle, neck and shoulder fragments. Angular ribbon handle with 4 narrow prominent ribs; folded upper attachment with part of cylindrical neck; broken simple lower attachment with ribs and sides pulled out into short prongs; slightly convex-curved body. Handle section (excluding ribs) 45x5.
- 908 1.81 B2079 F490; Building 77, Room 5, Period 2. Two joining handle fragments. Upper part of angular ribbon handle with 3 prominent ribs. Handle. Section (excluding ribs) 33x4.
- 912 1.81 J6 L1; Period 6. Base fragment. Pale green. Side curving in to very shallow concave base. PH 10, BD approx 80-90, WT 1.5.
- 914 1.81 B506 L70; Period 4. Body fragment. Light green. Slightly convex-curved body. Diagonal optic-blown ribs in shallow relief dying out and possibly arrested by 1 broken edge. Dim 42x33, WT 2.
- Blue/green*
- 915 BKC76 T468; Period (2 or) 3. Handle, neck and body fragment of ribbed globular jug. Cylindrical neck with tooling-marks at junction with convex-curved body. Angular ribbon handle with central rib; broken at folded upper attachment; claw lower attachment with short central extension trail. Shallow diagonal optic-blown ribs on body. PH approx 140, handle section (excluding rib) 30x6, neck diameter (inner) approx 30, WT 2.
- 916 GBS85 B36 L7; Period 3. Five joining neck and handle fragments of discoid jug. Wide convex-curved shoulder broken at edge of neck; straight ribbon handle with 4 prominent ribs, simple lower attachment with sides and ribs drawn out into short prongs. Narrow prominent spiral ribs running to neck edge which retains evidence of tooling. Present length of handle 130, inner diameter of neck approx 15, WT 2.5.
- 920 LWC71 C223 F142; Period 4. Handle and shoulder fragment of large globular jug. Ribbon handle with 5 narrow ribs in high relief; simple lower handle attachment as 916; convex-curved body. Dim 75x35, handle section (excluding ribs) 50x6.5, WT 2.
- 921 BKC76 T345; unstratified. Three handle and body fragments. Convex-curved shoulder. Angular ribbon handle with 3 narrow pronounced ribs; simple lower attachment as 916. Present length of handle approx 90, handle section (excluding ribs) 19x5.
- 922 1.81 E924 F384 Building 104-5; Period 3b. Handle and shoulder fragment of globular jug. Multiple ribbed handle with at least 3 narrow prominent ribs; simple lower attachment as 916; convex-curved shoulder. Dim (shoulder) 30x24, WT 1.5.
- 923 BUC77 C939 L2; Period 1. Handle and shoulder fragment. Ribbon handle with central rib; claw lower attachment with beginning of central pinched trail. Spiral ribs on body. Dim 50x40.
- 924 BKC76 T297?; Period 3 (Period 2 destruction debris). Handle and body fragment of conical jug. Straight ribbon handle with simple lower handle attachment; straight-sided body. Shallow vertical optic-blown ribs on body. Dim 43x44, handle section 16x5.
- 925 GBS84 A1796 L156; Period 1. A1773 L139; Period (1 or) 2. Five joining handle and body and 3 body fragments of conical jug. Straight ribbon handle with central rib beginning to curve over at top; claw lower handle attachment with elongated central extension trail; straight side. Present length of handle (excluding central trail) approx 85, handle section 21x4, WT 1.
- 926 BKC75 J40 F3; modern. Handle and body fragment. Wide, slightly convex-curved body. Ribbon handle with pronounced central rib; claw lower attachment. Dim 60x64.
- 927 LWC72 M25; modern. Top of Roman wall. Handle and body fragment of conical jug. Straight ribbon handle with wide central rib; 3-pronged claw lower handle attachment with broken pinched extension trail; straight-sided conical body. Dim 67x52, handle section (excluding rib) 26x4, WT 1.5.
- 928 BKC75 N102 F30; Period 6. One cylindrical neck fragment with narrow diagonal optic-blown ribs dying out away from junction with body.

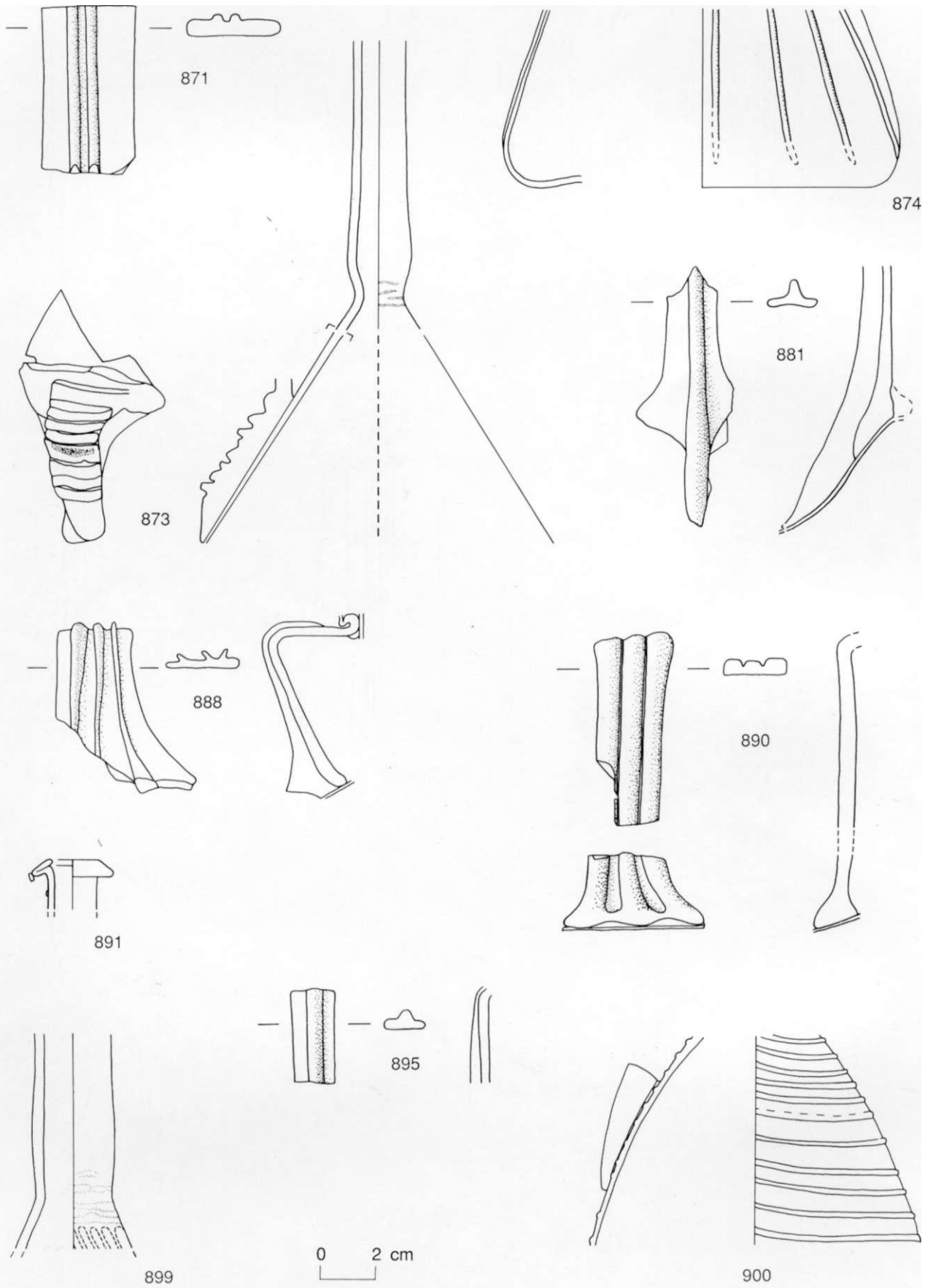


Fig 8.3 Globular and conical jugs of Isings Forms 52 & 55. 1:2. [Pages 120-24]

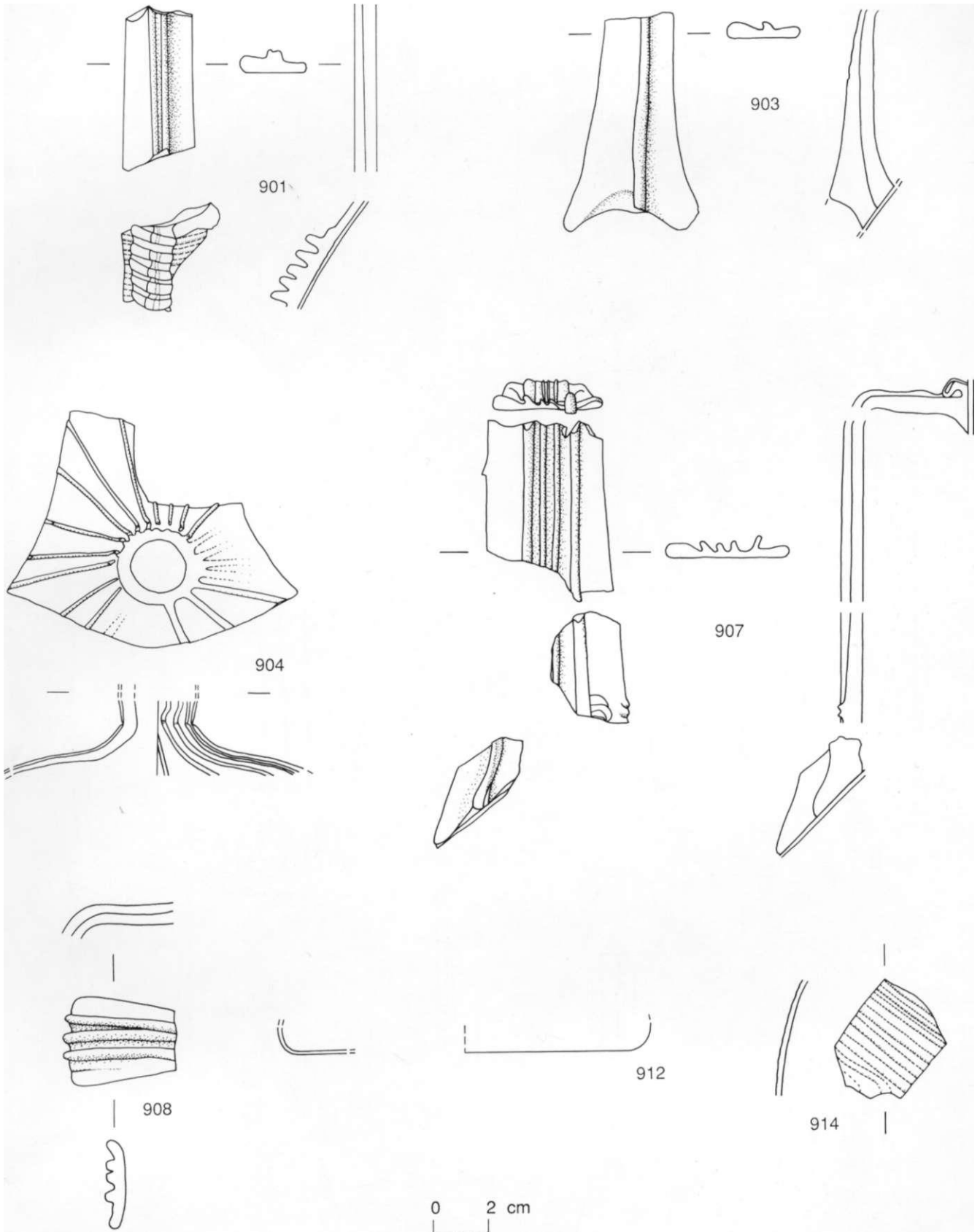


Fig 8.4 Globular and conical jugs of Isings Forms 52 & 55. 1:2. [Pages 120-24]

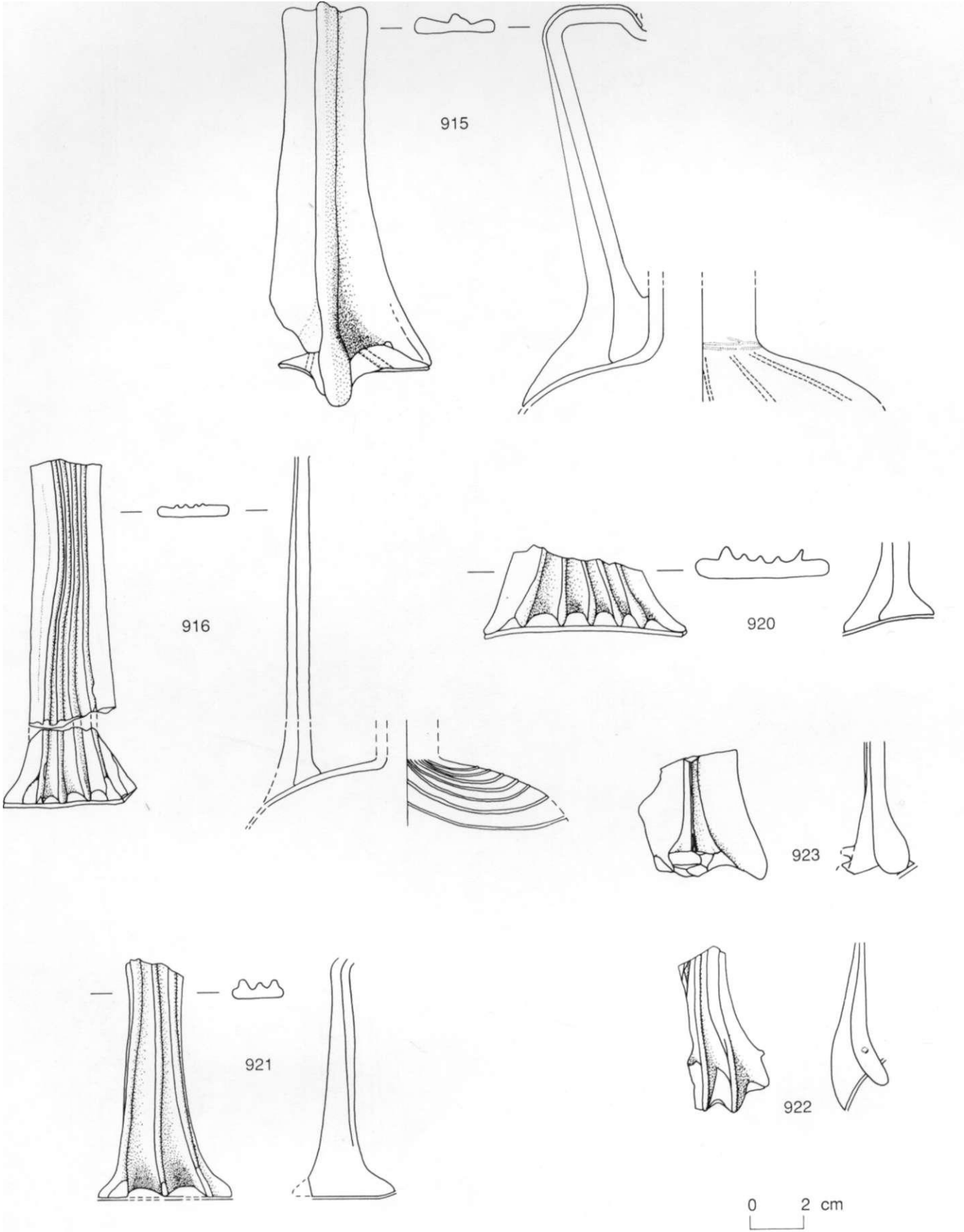


Fig 8.5 Globular and conical jugs of Isings Forms 52 & 55. 1:2. [Pages 120-24]

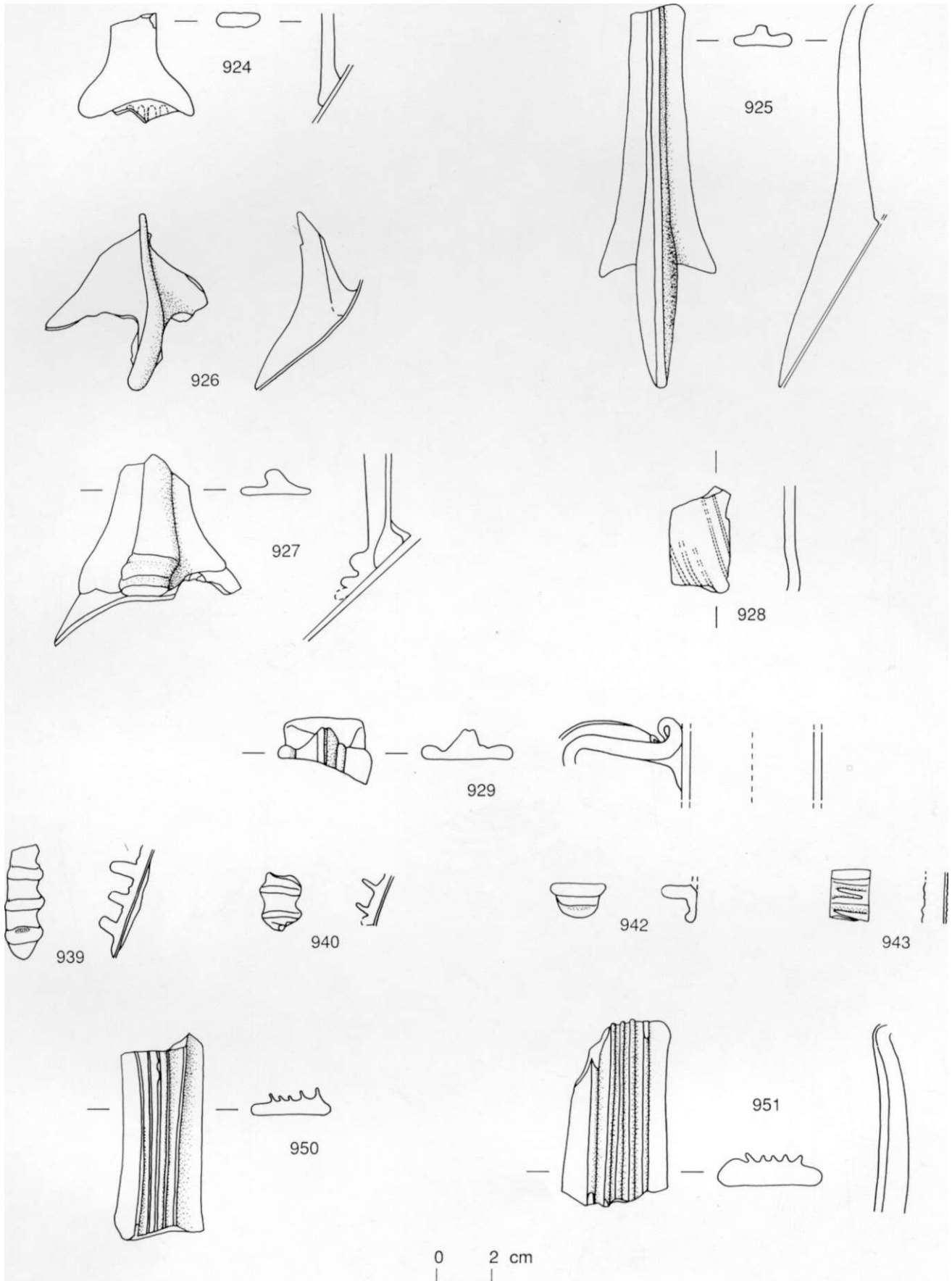


Fig 8.6 Globular and conical jugs of Isings Forms 52 & 55. 1:2. [Pages 120-24 & 130]

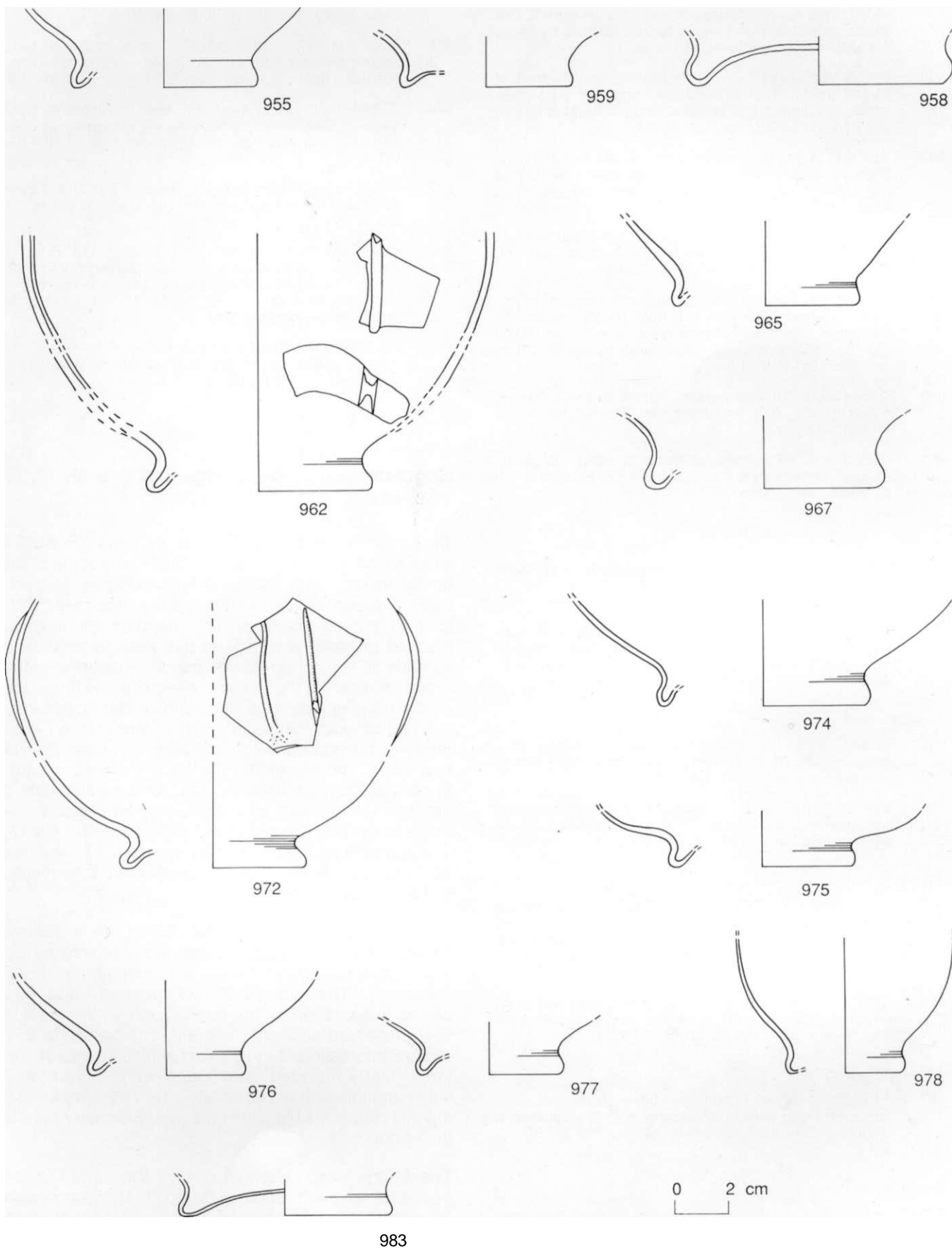


Fig 8.7 Lower body and base fragments of globular jugs and collared jars. 1:2. [Pages 106, 120-23 & 130]

Globular and conical jugs of Isings Forms 52 and 55

- 929 LWC71 B179; post-Roman? Handle and neck fragment. Angular ribbon handle with wide curved central rib; simple folded upper handle attachment; wide cylindrical neck. Dim 48x33, neck diameter (internal) approx 45, neck thickness 3, handle section (excluding rib) 32x5.
- 939 BKC76 V81; unstratified. Handle trail and body fragment of conical jug. Part of pinched extension trail from lower handle attachment, 3 projections. Body deliberately broken away around edge of trail. Dim 42x14.
- 940 1.81 G1116 F1010; Period 5 or 6. Handle trail and body fragment. Lower part of pinched extension trail with 2 projections from handle; convex-curved side broken at edge of trail. Dim 21x15.
- 942 BKC75 J384 F285; Period 3/4/5a. Handle-attachment fragment. Lower part of central pinched extension trail with 1 projection remaining. Dim approx 20x12.
- 943 1.81 J30 L1; Period 6. Handle and body fragment of jug. Part of central extension trail from handle horizontally slashed to form ribs in shallow relief. Side grazed behind trail. Some wear on inside surface indicating secondary use. Dim 19x14, WT 1.
- 950 GBS84 A237 F49; post-Roman? Handle fragment. Straight ribbon handle. Five prominent ribs. Present length 75, section 29x10.
- 951 GBS85 A2487 F292; Period 3b or 4. Handle fragment. Angular ribbon handle. Five prominent ribs. Present length 67, handle section 38x12.
- 974 BKC76 J403; modern. Lower body and base fragment. Convex-curved body; open pushed-in base ring, concave base, mostly missing. PH 40, BD 80, WT 2.
- 975 BUC79 H1045 ?G693; Period 1. Lower body and base fragment. Convex-curved side sloping in shallowly to open pushed-in base ring; base missing. PH 22, BD 70, WT 1.5.
- 976 GBS84 A275 L9; Period 3a. Lower body and base fragment. Convex-curved body sloping into open pushed-in base ring; concave base mostly missing. PH 36, BD 60, WT 3.
- 977 1.81 C464 F185; Building 79, Room 1 Period 1. Lower body and base fragment. Description as 964. PH 18, BD 55, WT 1.5.
- 978 1.81 B830 L138 & B1059 L230; Building 112, Room 1 Period 4a. Four lower body and base fragments (2 joining). Convex-curved globular body curving into open pushed-in base ring; base missing. PH 53, BD 45, WT 1.5. Handle section (excluding ribs) 33x4.
- 983 LWC71 B545 F195; Period 4 & B94; post-Roman. Three lower body and base fragments. Open pushed-in base ring; concave base. PH 14, BD 80, WT 2.

Short-necked globular jugs (997 & 1032)

[Figs 8.8-8.9]

Two short-necked globular jugs of Isings Form 57 were found at Balkerne Lane. Such jugs have short funnel mouths with the rim edges rolled in, globular bodies, concave bases, and narrow ribbon or rod-shaped curved handles. The handles often have pinched projections at one or both attachments, and sometimes a pinched trail or handle support extends around the part of the rim circumference on either side of the handle. The jugs are plain or decorated with pinched-up and generally vertical ribs. They were made in the stronger colours such as yellow/brown and blue, for example one from Pompeii (Ward-Perkins & Claridge 1976, no 111; amber with pinched rim decoration), and also in blue/green glass, as in those from Koln (Fremersdorf 1958b, 25 Tafn 14 & 17; blue/green with ribbed bodies and pinched handle attachments). Polychrome examples with marvered blobs are also known (Isings 1957, 76).

The fragments numbered **997** belong to a yellow/brown example, of which almost the complete profile apart from the upper handle attachment has been preserved. The jug **1032** is blue/green and has pinched decoration on the rim circumference, but it is only preserved as a rim fragment. The handle of **997** is most interesting, as the batch of glass it was made from clearly included purple and white polychrome cullet and this had not completely melted; streaks of it are still clearly visible within the yellow/brown mass of the handle.

These jugs were clearly in use by the early Flavian period as they are found at Pompeii. They continued in use until the beginning of the 2nd century at least, as two blue/green examples have been found which were used as cremation urns in burials of that date. At Ittenheim, Alsace a *terminus post quem* of AD 101

Globular jugs and collared jars: lower body and base fragments

Deep blue

- 955 1.81 D1724 L1721; Period 4. Lower body and base fragment. Convex-curved side sloping in to open pushed-in base ring; concave base mostly missing. Some wear on base. PH 30, BD 70, WT 2.5.

Yellow/brown

- 958 GBS84 A317 L9; Period 3a. Base fragment. Dark yellow/brown. Open pushed-in base ring; high domed concave base. PH 18, BD 100, WT 2.
- 959 1.81 J333; Periods 1-5. Lower body and base fragment. Light yellow/brown. Side curving in to open pushed-in base ring; concave base. PH 20, BD 65, WT 2.

Yellow/green

- 962 BKC76 V603 F8/130; Period 4. Two body and 1 base fragments of ribbed jug or jar. Convex-curved body; open pushed-in base ring; base missing. Vertical pinched-up ribs. Much wear on base ring. PH (base fragment) 23, BD 85, WT 2.
- 965 GBS84 A1150 F150; Period 3. Lower body and base fragment. Side sloping in steeply to open pushed-in base ring. Base missing. PH 33, BD 65, WT 2.

Pale/light green

- 967 1.81 B2348 L210; Period 3/4. Lower body and base fragment. Light green. Side sloping in to open pushed-in base ring; concave base mostly missing. PH 27, BD 90, WT 2.

Blue/green

- 972 BKC76 T283 L67; Building 56, Period 5c. Seventeen body and base fragments of ribbed jar or jug. Convex-curved body; open pushed-in base ring; concave base, mostly missing. Narrow pinched-up ribs on body. PH 40, BD 70, WT 2.

was provided by a coin of Trajan (Arveiller-Dulong & Arveiller 1985, 77 no 136), and at Wederath-Belginum, Kreis Bernkastel-Wittlich the jug contained a coin of Trajan dated to AD 98-102 amongst the ashes (Goethert-Polaschek 1982, 287, Abb 4e). Of the two fragments found at Balkerne Lane, **997** came from a context dated to AD 60/1-c 150 (Site J, Periods 3-5a) and **1032** was unstratified.

This type of jug was primarily an Italian form, and there is also a variant which was most probably produced in Iberia (Price 1987d, 35, tig 4). It is rare in the north-western provinces. In addition to those from Ittenheim, Koln and Wederath-Belginum, one from Asciburgium appears to be the only other example recorded in the Rhineland (van Lith 1984, 259 no 296, Taf 95). From Roman Britain the only other example known to us is a dark yellow/brown example from Lincoln (Cool & Price 1988, 43 no 11, fig 11).

The catalogue entries for the illustrated fragments in the above section are given with the illustrations on pages 140-47.

Spouted jugs (1005-1006, 1017-1018 & 1037-1042)

[Figs 8.8-8.9]

Spouted jugs, of which there is a minimum of nine in the assemblage, were always in a minority compared with jugs which had circular mouths and no special arrangements for pouring out the contents. Examples of spouted jugs are found throughout the Roman period, but they were most popular during the 1st, 2nd and 3rd centuries. The spouts were produced either by pinching in the rims or by pulling part of the rim out into a point. These mouth forms were combined with a variety of body, base and handle shapes, giving rise to many different forms. It is not possible to date accurately all of these at present, but certain general trends may be discerned.

Jugs with pinched-in spouts (Isings Forms 56 and 88), sometimes called 'trefoil-mouthed' jugs, appear to have been in use before those with pulled-up spouts. One is known from a 1st-century cremation at Lattes, Languedoc (Pistolet 1981, 40 no 167, pi 8.167), and there is another from Locarno which, from its opaque lilac colour, cannot be dated to later than the middle of the century (Simonett 1941, Taf 11.7). The jug from Locarno is unusual, not only because of its colour, but also because it appears to have an open pushed-in base ring. It is more normal for jugs with this type of mouth to have a globular or ovoid body with a concave base. The jug from Lattes has this type of body and base, as do examples from, for example, Claydon Pike, Gloucestershire found in a context dated to AD 100-150 (unpublished), Frixheim-Anstell, Kreis Grevenbroich in a cremation burial dated to the middle of the 2nd century (Muller 1959, 507 Abb 39.8), Skeleton Green, Hertfordshire in a cremation burial which contained a coin of Antoninus Pius (Charlesworth 1981a, 271 fig 106.12), and at Verulamium from a pit dated to AD 175-275 (Charlesworth 1972, 204 fig 76.24).

Globular jugs with pinched-in spouts normally have rolled-in rim edges and plain ribbon or rod handles with simple lower and folded upper attachments. The upper attachment may have a pinched thumb-rest projecting above the rim edge. The majority were made in greenish or blue/green glass, and examples in colourless glass are rare, as are examples in deliberately-coloured glass such as the one from Locarno.

It is noticeable that the jugs in use during the 1st and early 2nd centuries tend to have relatively wide necks. Welker (1974, 102) suggested that the development of the mouth into a more trumpet-like shape, so that the trefoil form of mouth could be better developed, was a feature of the 2nd century or later. This cannot always be maintained as being chronologically diagnostic, as the opaque lilac jug from Locarno, for example, has a very well-formed mouth of this sort. However, it is true to say that the spouts on the early jugs are more likely to be concentrated on one side of the mouth, causing less distortion from the circular on the side opposite, than the later jugs. In these, the pinching often occupies more of the rim circumference, resulting in the back of the mouth taking on a more oval outline. A typical example of this later form of pronounced funnel mouth with well-formed pinching occurs on a variety of colourless spouted jug with a wide shoulder, polychrome snake-thread decoration on a convex-curved body and pushed-in base ring (Fremersdorf 1959, 51 ff Tafn 55-7 & 59). These were in use during the later 2nd and early 3rd centuries, as is shown by the examples found in burials at Koln accompanied by coins of Crispina (AD 176-192) (*ibid*, 52 Taf 56) and at Gelsdorf accompanied by coins of Julia Domna (AD 193-217) and Julia Soaemias (AD 218-222) (*ibid*, 51).

At present there does not appear to be any evidence that jugs with pinched-in spouts continued in use in the north-western provinces much after the early 3rd century. A form of conical wide-mouthed jug (Isings Form 124), with either a pulled-out spout, such as on one from Kretz (Haberey 1942, 9, Taf 34, Abb 1 right), or a pinched-in one like that from Trier (Goethert-Polaschek 1977, 224 no 1345, Taf 72), came into use in the late 4th century, but this bears no relationship with the range in use from the 1st to the early 3rd centuries.

In the 1st century, pulled-out spouts occur on jugs with slightly out-bent rims with rolled-in edges, such as an opaque light blue one from Herculaneum (Scatozza Horicht 1986, 49 tav 32.2363) and a deep blue one from Pompeii (Ward-Perkins & Claridge 1977, no 118). These spouts tend to be mainly horizontal with only the tips turned up.

In the north-western provinces this rim form is rare, and the variant usually found is a pointed spout pulled up, often quite steeply, from a funnel-shaped mouth and short cylindrical neck. The shape of the body may be globular with either a concave base, as in a

colourless example found in a rubbish deposit with much middle-to-late 2nd-century pottery at Godmanchester, Cambridgeshire (Frend 1968, 33, fig 6.3), or with a base ring, as in one from the Foret de Brotonne, Seine Maritime (Sennequier 1985, 189, no 291, pi 4). The bodies may also be a squashed spherical or discoid shape, again either with a concave base as at Neusser Strasse, Koln (Fremersdorf & Polonyi-Fremersdorf 1984, 82, no 187), or with a base ring as on one found in a grave at Colchester (May 1930, 278, pis 86-91; Thorpe 1935, pi 8a). The pulled-up spouts on these jugs are either placed opposite the handle, or at right-angles to it as on the jug from Colchester. Such lateral spouts were probably in the minority amongst these spouted jugs, but were not as rare as lateral pinched-in spouts. Where sufficient of the jug is preserved for its body shape to be identified, lateral spouts appear to be more frequently found on discoid jugs than on globular ones. These jugs were made in both colourless and blue/green glass. The rim edges were rolled-in or fire-rounded, and the later finish appears to be more common than it was on jugs with pinched-in spouts. The handles tend to be plain ribbons with simple lower attachments and folded upper attachments that frequently have pinched thumb-rests.

These globular or discoid jugs with pulled-up spouts were in use during the second half of the 2nd century and probably into the 3rd. There is, for example, a discoid one from an Antonine grave at Rheinzabern (Ludovici 1927, 20 fig 27), and the rim and neck probably from a more globular-bodied one at Heddernheim in a deposit with material dated to the last quarter of the 2nd century and the beginning of the 3rd (Welker 1974, 104 Taf 15.230). Both of these had lateral spouts. A most unusual globular jug with a mould-blown body and a spout opposite the handle, which was also found at Heddernheim (*ibid*, 102 Tafn 15.229 & 22.3), may also be dated to the second half of the 2nd century by comparison to other jugs from the same body mould.

Jugs with pulled-out spouts were also in use during the 4th century. They had fire-rounded rim edges, generally rather squashed conical bodies, and base rings; see for example, one from a grave dated to the end of the 3rd century at Weinsheim (Kessler & Oxe 1932, 46 Abb 1.10) and another from a grave belonging to the second half of the 4th century at Jacobstrasse, Bonn (Haupt 1973, 321 fig 5; Follmann-Schulz 1988, 68 no 222, Taf 26). As well as the differing body shape, they can be distinguished from jugs of the 2nd to 3rd century because the spout remains in the same plane with the rest of the rim and does not rise as on the earlier examples. These jugs have many points in common with the 4th-century jugs of Isings Form 120 (see **1160-1161**). Like them they often have ribbed handles with looped upper attachments and a thick trail below the rim edge. They are made in the bubbly greenish glass typical of the 4th century.

When the examples of spouted jugs in this

assemblage are examined, the difficulties of identifying such jugs are immediately apparent. All of the fragments derive from rims because this is the only part that can be identified with certainty. Handle and body fragments could as easily belong to other forms of jugs which will be discussed below. This contrasts markedly with the case of the globular and conical jugs of Isings Forms 52 and 55, where fragments from handles and bodies can be as diagnostic as the rim fragments, if not more so. This has implications for any attempt to assess the relative frequency of the occurrence of the various jug types. Jugs of Isings Forms 52 and 55, for example, appear to have been much more common than those with spouted mouths but this may, in part, be due to the difficulty of identifying the latter.

Spouted jugs have been noted at Lion Walk, Culver Street and Middleborough. Three of the jugs have pinched-in spouts (**1037-1039**) and three have pulled-up spouts (**1005-1006, 1040 & 1041**). There are also several fragments (**1017, 1018 & 1042**) in which, although the rim is distorted and clearly had a spout, insufficient of it is preserved to identify whether this was pinched-in or pulled-out. Two fragments (**1043 & 1044**) show a similar distortion, but for different reasons their identification as spouted jugs can only be very tentative; in the case of **1043** the piece is very massive, and **1044** has an unusually short neck.

The jugs with pinched-in spouts are all blue/green and have fire-rounded rims, though in the case of **1039** this is combined with some folding. In no case is the shape of the body preserved, though it is most likely to have been globular. The jug **1037** is the best preserved, with a cylindrical neck which retains the terminals of vertical ribs decorating the body, perhaps as on one from Trier (Goethert-Polaschek 1977, 198 no 1226, Abb 47 Taf 66). That example differs from **1037**, however, in having a relatively wide neck and a rolled-in rim edge. Fragment **1039** is from the pouring-spout of the jug, and immediately below the rim edge there is a horizontal rib caused by a cut-out fold; this is a most unusual feature. Ribbed decoration on these jugs mainly consists of vertical, normally tooled, ribs as in the case of the jug from Trier, or horizontal trails as on a jug from Verulamium (Charlesworth 1972, 204 fig 76.24). Ribbed decoration below the rim edge virtually never occurs on globular jugs with pinched-in spouts. As **1039** is only a very small fragment, it is possible that what appears to be a deliberate rib might in fact merely be an area where the rim edge was less efficiently rolled-in.

Only **1037** comes from a Roman context (Culver Street Site K, Period 3c; c AD 150-400+): the rest all come from post-Roman deposits. As already noted, jugs with pinched-in spouts were in use mainly between the late 1st and early 3rd century. Fragments **1038** and **1039** cannot be dated more narrowly within this period. Fragment **1037** might have had a relatively wide neck and thus could have belonged to the later 1st or earlier 2nd centuries, but not enough of the vessel is preserved for this to be certain.

All the jugs with pulled-up spouts identified with certainty (**1005/6**, **1041** & **1041**) had spouts which rose above the level of the rest of the rim and were opposite to the handle. On the light green fragment **1005** the rim edge was fire-rounded, while those of the blue/green examples **1040** and **1041** were rolled-in. Fragment **1006**, which almost certainly comes from the same vessel as **1005**, is the lower part of a ribbon handle with simple lower attachment. Unfortunately the body around the lower attachment has been carefully broken away, so it is not possible to say whether it was globular or discoid. There are no indications of the handles or body shapes for **1040** and **1041**.

Jugs with pulled-up spouts were in use during the second half of the 2nd century and into the 3rd. Both the blue/green fragments came from contexts whose date ranges include this period: **1041** from one dated to c AD 200-275 (Culver Street Site B, Period 4b) and **1040** from one of c AD 100-350 (Culver Street Site B, Period 4-5). By contrast fragments **1005-1006** come from a late or post-Roman context at Middleborough; this and their light green colour raise the possibility that the vessel might be one of the less common late Roman spouted jugs. This seems unlikely as the spout is pulled up as on those of the 2nd and 3rd century and not out as on the later examples. It also lacks the trail below the rim edge frequently found on the 4th-century jugs. The quality of the glass is good and not bubbly, and it is thus more likely to be of 2nd- to 3rd-century date.

Of the other spouted jugs indicated by rim fragments, not even the type of spouts can be securely identified. Fragments **1017** and **1018** are both colourless and are thus more likely to have come from jugs with pulled-up rather than pinched-in spouts. Fragment **1043** is decorated with spiral trails below the rim edge, a feature most frequently encountered on spouted jugs with pulled-out spouts dating to the late Roman period, but **1043** is blue/green and thus likely to have belonged to the range in use during the 2nd to 3rd centuries.

As already noted, it is generally not possible to identify spouted jugs from handle fragments. So, although the ribbon-handle fragments such as **1068-1069** and **1071-1079** could have come from spouted jugs, they could as easily have come from several other forms. This is also the case for the angular handle fragment **1128** with pinched thumb-rest, which is almost identical to that used on the jug with lateral pulled-up spout found during earlier excavations in Colchester (May 1930, 278, pi 86/91; Thorpe 1935, 23 pi 8a).

Amongst the various handle fragments found during the Colchester excavations however, there is one which may be attributed to a spouted jug with a much higher degree of certainty. Fragment **1128** was found in a context dated to c AD 75-125 at Balcerne Lane (Site V, Period 4). It is a blue/green curving rod handle, to which has been applied a thick trail which was pinched at intervals to produce projecting transverse spines, all but one of which are now missing. It

is virtually identical to the handle of a complete blue/green globular jug with pinched-in spout, short wide neck, widely-ribbed globular body and concave base also found at Colchester (Thorpe 1935, pi 8c). As the handle form appears to be very rare, the likelihood that **1128** came from a jug with a spouted mouth must be high. A similar handle in the Colchester Museums (CM, 447.P) may represent a third example from Colchester.

The complete jug from Colchester with this handle form had a trail of glass applied to the rim before the handle was attached and this was also pinched to produce transverse projections. This decoration is also present on other jugs with pinched-in spouts, such as those from Claydon Pike (unpublished) and Trier (Goethert-Polaschek 1977, 198 no 1226, Abb 47 Taf 66). These jugs are all wide-mouthed, which tends to be a feature of the earlier jugs with pinched-in spouts. The example from Claydon Pike was found in a context dated to AD 100-150, and this type of pinched elaboration at the handle attachments appears to be a feature on the jugs of the 1st and early 2nd centuries rather than on later vessels. Its occurrence may be noted, for example, on the short-necked globular jugs (see **997** & **1032**), and on a wide-mouthed globular polychrome jug found in an early Claudian cremation at Xanten (Hinz 1984, Tafn 114.3 & 123.7) and a wide-mouthed ribbed jug from a Trajanic/Hadrianic burial at Bayford-next-Sittingbourne (Harden *et al* 1968, 83 no 109; Payne 1877, 80 pi opposite p 48 no E). It seems very probable, therefore, that the jugs with pinched-in spouts which also have this type of pinched decoration on the rim are likely to be early in the sequence of spouted jugs and to date from the late 1st or early 2nd centuries. The complete jug from Colchester has been attributed to the early 3rd century (Thorpe 1935, pi 8c), but the discovery of **1128**, which is a handle of similar form from a context dated to c AD 75-125, must now make this unlikely.

Spouted jugs with spouts made in both ways are widespread in the north-western provinces. In addition to the examples from Verulamium, Colchester, Godmanchester, Skeleton Green and Claydon Pike already mentioned, there are also jugs with pinched-in spouts from near Maidstone (Scott Robertson 1883, 80 fig W; Jessup 1959, 26.7, pi 8(1)) and London (Shepherd 1985a, 71 no 112). Examples with pulled-up spouts are recorded from Aldborough (Ecroyd Smith 1852, pi 24.5); Bath (Scarth 1864, 96 pi 44); Wroxeter (Bushe-Fox 1913, 32 no 3, pi 12 fig 1); Ospringe (Whiting *et al* 1931, pi 17.154); Happle, Northumberland (Wake 1939, 138); Verulamium (Charlesworth 1984a, 166 fig 67:104); Brading, the Isle of White (Tomalin 1987, 43 no B6); and Lincoln (Cottesford Place; pers comm Ms J Mann, Water Tower City of Lincoln Museum, 866.10). Rim fragments of the range in use during the 1st to 3rd centuries, but which cannot be closely identified, have also been noted at Frocester Court, Gloucestershire (Price 1979, 44 no 35 fig 17); Cirencester (Charlesworth 1982a, mf E02); Gloucester (Price &

Cool 1986, 47 fig 25/18; also Berkeley Street); and The Park at Lincoln, Catterick, and Chester (all unpublished). They are obviously not infrequent finds on Romano-British sites, but for the reasons noted above it is difficult to say how common they were.

The catalogue entries for the illustrated fragments in the above section are given with the illustrations on pages 140-47.

Globular and ovoid jugs with funnel mouths (1001, 1019, 1045-1050, 1052-1053 & 1160-1161)

[Figs 8.8-8.9 & 8.11]

In the period from the 2nd to the 4th centuries, a variety of ovoid or globular jugs with funnel mouths were in use. The rim edges were either fire-rounded or rolled-in, the relatively short necks were cylindrical or slightly concave-sided, the bodies were ovoid, globular, or less commonly discoid, and the bases were either concave or provided with base rings. The handles were either plain ribbons or ribbons with side ribs, though chain handles (formed from two strands of glass pinched together at intervals) and rod handles were also used. Very frequently the folded upper attachment of the handle was elaborated to form a looped thumb-rest which was often pinched flat. The jugs were nearly always made in colourless, blue/green or greenish colourless bubbly glass, though very occasionally 4th-century examples made in strong colours have been found. Self-coloured trailing was the most frequently used form of decoration; optic-blown corrugated ribbing is rarer and tends to be a 4th-century phenomenon. Within the range of jugs in this general category, examples with different combinations of shape and decoration were clearly in use at different times. However, with the small fragments of the sort normally found on domestic sites, it is often very difficult to identify precisely, or even generally, the variant from which they came.

One group of jugs with funnel mouths, in colourless and blue/green glass, shares many common features with the jugs with pulled-up spouts discussed above. Their rim edges are either rolled-in or fire-rounded, their bodies are globular or discoid, their bases are either simply concave or have a low base ring, and their upper handle attachments are most likely to have a pinched thumb-rest. They frequently differ only in the precise mouth formation; the mouths of the spouted jugs have a pear-shaped outline pulled-up at one point, while those under discussion here have a circular outline and the rim edge is horizontal. This sort of similarity is well demonstrated by the two colourless jugs found in the 2nd- to 3rd-century cemetery at Neuville-le-Pollet, Seine Maritime (Sennequier 1985, 191 nos 295-6). It is clear that the glass-houses were making both these forms with pulled-up spouts and those with horizontal, circular mouths contemporaneously. This is proved by the very rare occurrence of two jugs with mould-blown bodies from the same mould (Welker 1974, 103). One of these, from Heddernheim, had a pulled-up spout with a fire-rounded edge (*ibid*, 106 no 229 Tafn 15 &

22.3). The other came from a grave belonging to the second half of the 2nd century at Rheinzabern (Ludovici 1908, 148 fig 128). This variety of funnel-mouthed jug was in use during the second half of the 2nd century and into the 3rd.

In use at the same time as the globular and discoid jugs were jugs with ovoid bodies. These were made in the same colours as the globular jugs and had similar rim and handle formations. They generally had low base rings and tended to be larger than the globular variety. The necks of these jugs were either slightly concave, curving out smoothly to the body, as in a blue/green example found in a well at Verulamium (Wheeler & Wheeler 1936, 186 no 25 fig 29), or cylindrical with a marked change of angle to the body as in another blue/green one from a late Antonine cremation burial at Skeleton Green (Charlesworth 1981a, 268, BXXI fig 106/9).

Funnel-mouthed jugs became much more numerous in the late Roman period, when they were made in the greenish colourless bubbly glass typical of the 4th century. The globular and smoothly-curved ovoid shapes continued in use, but discoid jugs and ovoid ones with cylindrical necks appear to have become less common. A new body shape very typical of the 4th-century jugs is ovoid, smoothly curved out from the neck to a rounded carination high on the body and then sloping into a base ring. This is well illustrated by the complete jug (1160) found in Grave 180 at Butt Road. Strongly-coloured glass was rarely used to make funnel-mouthed jugs, though some relatively small jugs of this carinated ovoid form are found; see for example the deep blue one found in a late Roman inhumation grave at Sycamore Terrace, York (Harden 1962, 140 no H12 pi 67, fig 58), and the deep blue one with opaque white handle, base ring and decorative trails in an early Christian grave at St Aldegund, Kreis Zell (Haberey & Roder 1961, 137 Abb 23, Taf 32; *Trier* 245, no 134b Farb Abb 254-5).

The characteristic feature of these later jugs is a thick trail applied below the rim edge, and Isings (1957, 149) used this feature when she defined the characteristic 4th-century jug forms 120 and 121, though as already noted, jugs of some of the same basic shapes had been in use since the late 2nd century. Trailing decoration had been used on the earlier jugs, but on the 4th-century examples a thick trail below the rim edge is almost invariable (often combined with a thinner spiral trail), and this is not generally found on earlier ones.

Another difference between the earlier and later jugs is that the later ones virtually always have base rings rather than simple concave bases. The commonest handle form on the later jugs is a ribbon handle with prominent side ribs and sometimes also a central rib. The upper folded attachment frequently has a looped thumb-rest that is open rather than one that has been pinched closed, and at the lower attachment the ribs are drawn out into long points on the shoulder.

Chain handles continued to be used on the later jugs, but only on certain body shapes. These are the smoothly-curved ovoid form, such as the one decorated with trails nipped together in a diamond pattern found in the 19th century at Colchester (Harden *et al* 1968, 84 no 111), and the globular form, such as those from late 3rd- or 4th-century burials at Mainz (von Pfeffer *et al* 1960, 18 Abb 6). Chain handles do not appear to occur on carinated ovoid jugs.

The combination of the characteristics which may be thought of as typically late seems to have emerged towards the end of the 3rd century. Although most of the jugs are made in the greenish bubbly glass of the 4th century, some are made in blue/green glass and are found in contexts that could be of late 3rd-century date; see for example a globular trailed one found in a grave at Trier with a coin of Postumus issued in AD 260 (Goethert-Polaschek 1977, 205 no 1260 & 302 no 169, Taf 15.169a). The jugs with the very characteristic carinated ovoid bodies do not appear to have been found in late 3rd-century contexts and so may be a purely 4th-century form.

Although this general description gives the broad sweep of the development of the funnel-mouthed jugs from the 2nd to the 4th centuries, exceptions to it do occur. For instance, a globular jug found in an inhumation burial at Luxemburger Strasse, Koln could be of 2nd- or 3rd-century date from its form, for it has a mouth without a trail, a ribbon handle with simple lower attachment and a concave base (Riedel 1980, Abb 38 no 70.4). It is made, however, in greenish glass and the grave is clearly of 4th-century date, probably the later part of the century. Though it is possible that the jug had been in use for a considerable period of time, it seems more likely that it is of 4th-century date, and so indicates that the forms associated with earlier jugs were occasionally still made in the 4th century. In a similar way, some individual features that are very common on the later jugs, such as ribbed handles with the ribs drawn out into points on the shoulders, do occur on some of the earlier jugs. Thus when identifying jugs in this range merely from fragments, it should be borne in mind that caution must be exercised and that certainty is often not attainable.

Bearing in mind such caveats, it is possible to suggest a minimum of twelve funnel-mouthed jugs in this assemblage from fragments which retain at least a part of the rim and handle (**1001**, **1019**, **1045-1050**, **1052**, **1053**, **1161** & **1162**), though only in the case of **1161**, **1162** and possibly **1052** does sufficient of the rim remain for us to be certain that they are from jugs with circular mouths.

Two fragments, both from Culver Street, come from colourless jugs with trails. Fragment **1019** has a fire-rounded rim edge and a short neck curving out to the body; it retains part of a folded upper handle attachment and the upper part of the neck is decorated with a horizontal trail. Fragment **1024** is a convex-curved shoulder fragment which is decorated with spiral trails.

It includes the lower handle attachment of what was probably a chain handle. Both fragments **1019** and **1024** come from different vessels, but in neither case can the shape of the body or the type of base be identified.

Colourless globular or discoid jugs are not infrequent finds on Romano-British sites of the later 2nd century. The upper part of a jug which may have been very similar to **1019** was found at Winterton, Lincolnshire (Charlesworth 1976a, 249 no 26 fig 134). It had a fire-rounded rim edge, a neck smoothly curving out to a globular body, and a double-ribbed handle where the upper attachment was applied over the trail on the upper neck as on **1019** and with a pinched thumb-rest. Neither the Winterton fragment nor **1019** retain any trailed decoration on the upper body, but it is likely that many similar colourless jugs were decorated with spiral trails on the upper body at least. This is implied by the number of lower handle attachment fragments which were applied over trails. As well as **1024**, examples are known at Gloucester (Price & Cool 1986, 50 nos 19 & 20 fig 25) and Lincoln (The Park and Holmes Grain Warehouse; both unpublished).

Trailed funnel-mouthed jugs were also made in blue/green glass; for example a fragment of a blue/green one trailed both on the neck and upper body has also been found at The Park, Lincoln (unpublished). Trailed funnel-mouthed jugs in both colourless and blue/green glass were in use during the later 2nd and into the 3rd century. The Winterton fragment was found in an Antonine deposit and the ones from The Park, Lincoln were found in the rampart deposits dated to the late 2nd or early 3rd centuries. Neither of the fragments from Culver Street was stratified in a Roman context.

Sufficient of four funnel-mouthed rim and handle fragments with rolled-in edges (**1001** & **1045-1047**), and one with a fire-rounded edge (**1052**), remains to show that they did not have a thick trail below the rim edge. All are blue/green with the exception of **1001** which, most unusually, has a light green rim and a blue/green handle. Both the colour and rim formation suggest they are from the earlier variants of funnel-mouthed jugs in use from the mid 2nd to the later 3rd centuries. Although insufficient of the rims remain on the blue/green **1048-1050** to ascertain whether or not there was a trail below the rim edge, they too are likely to belong to the earlier range. Where the thumb-rest has been preserved (**1048** & **1052**), it is pinched rather than looped. Most of these fragments were found in post-Roman contexts (**1001**, **1045** & **1048-1050**), and one came from a context which is not closely dated (**1046** from Balcerne Lane Site V, Period 5-6, c AD 100-400+). Two occurred in contexts that broadly agree with their likely period of use (**1052**, Balcerne Lane Site H, Period 5b, c AD 150-250; **1001**, Lion Walk Site M, late 1st to mid 2nd centuries), though **1047** from Culver Street would also have been lost contemporaneously if it had been lost early in the duration of the context in which it was found (Site H, Period 5, c 225-275/325).

These rim fragments were found at Lion Walk, Balkerne Lane, the Cups Hotel and Culver Street, and many of the plain ribbon and double-ribbed ribbon handles from the same sites (**1010, 1011, 1013, 1069, 1071-1076, 1078-1081, 1085, 1086, 1092 & 1126**) and the fragments of thumb-rests (**1054-1057**) could also have come from the same type of jug.

This assemblage also contained at least three examples of the late forms of funnel-mouthed jugs (**1053, 1160 & 1161**). All have fire-rounded rim edges with a thick trail below. Fragment **1053** from Balkerne Lane is blue/green and is represented only by a rim fragment, which retains the folded upper attachment of a double-ribbed handle with a looped thumb-rest. The combination of these features and blue/green glass, means that it is most likely to have been in use during the later 3rd century, a supposition that unfortunately cannot be checked from its position on site as it was unstratified. The other two late jugs, both from Butt Road (**1160 & 1161**), are made of greenish colourless bubbly glass and are typical 4th-century forms.

The jug **1160** is complete and was found in Grave 180 together with **553**. The grave is dated to the second half of the 4th century and most probably to the period c AD 360-380. The jug has the carinated ovoid form and a high pushed-in base ring with a hollow tube at the edge. The handle has three ribs, the upper attachment is folded with a looped thumb-rest, and at the lower attachment the ribs are drawn out into points. The jug is optic-blown with shallow diagonal corrugations on the neck and upper body. Such decoration is not as common as trailing on these jugs. Two other complete jugs which are very similar have also been recovered from Romano-British sites. One came from a deposit of late 3rd- and 4th-century glass and pewter vessels which was found at Dorchester-on-Thames (Harden 1939, 293). It is of yellowish green glass and has diagonal corrugations on the neck and body. The other jug, an earlier find from Colchester (Thorpe 1935, pi 4c), is greenish and has corrugations on the body and a spiral trail on the neck. Handle and ribbed body fragments in greenish colourless glass which probably came from similar jugs have also been found in assemblages from domestic sites, for example at Frocester Court, Gloucestershire (Price 1979, 44 no 39 fig 17) and at Claydon Pike, Gloucestershire (unpublished).

The optic-blown decoration may indicate that jugs decorated in this way were not the product of the earliest 4th century. These shallow diagonal corrugations, which occur on a variety of vessels such as beakers, flasks and jars, are found more often in the late 4th century. The graves at Mayen dated to the last three decades of the 4th and to the early 5th century produced many glass vessels decorated in this way (Haberey 1942, 263ff Abb 3/3a, 6a, 7a, 9a, 10a, 11a & d, 15a, 19/23a, 20/24b & 25a, c), and the technique continued into the post-Roman period when it was used to decorate cone beakers in the 5th century (Harden 1956, 140 fig 3d 1 & 4). Such dating evidence as there is suggests optic-blown examples

of these jugs were in use in the mid-to-late 4th century. The Frocester Court fragments were found in and on a floor re-laid about AD 340, and **1160** is most likely to have been deposited between AD 360 and 380. There is also a jug which may be of this sort from a richly-furnished grave at Monceau-le-Neuf which contained a coin of Constantine II (AD 337-361) (Roosens 1962, 22 pi 11.2). It has diagonal ribs which start on the neck and die out on the lower body; they are described as 'unmarvered trails' though they may be optic-blown.

A considerable part of jug **1161** remains, namely the complete rim, neck and handle and part of the upper body in 35 fragments. It was found in the mixed post-Roman layer overlying the site at Butt Road but so much of it has survived that it must originally have been a grave deposit like **1160**. Vessel **1161** has a similar rim and handle formation to the complete jug, though the handle has two rather than three ribs, but its body was globular and decorated with spiral trails. This is a very common form of decoration on globular jugs. At Trier, for example, there are eight similarly decorated jugs from graves dating to the second half of the 3rd and the 4th centuries (Goethert-Polaschek 1977, 204ff nos 1254, 1255, 1258, 1260-62, 1266 & 1267). In the majority of cases the decoration extends under the lower handle attachment, but trails limited to the lower body, which must have been the case in **1161**, also occur (*ibid*, nos 1260 & 1266). Such jugs have not often been recorded from Britain, but body fragments with spiral trails have been found at Spong Hill (unpublished).

The catalogue entries for the illustrated fragments in the above section are given with the illustrations on pages 140-47.

Ribbed colourless globular jugs (1030 & 1031)

[Fig 8.8]

Two convex-curved colourless shoulder fragments (**1030 & 1031**) were found at Culver Street. They are decorated with vertical ribs which on **1030** run onto the neck. It is possible that they came from a form of colourless ribbed globular jug with funnel mouth, chain handle and trailed base ring which does not appear to have been very common, although there are large parts of one amongst the earlier material found at Colchester (CM, 467.P). A very similar rim and neck was found at Bayford Wharf, Lincoln (unpublished). The context of the Colchester jug is not known, while the example from Lincoln was found in a deliberately-dumped deposit on a wharf site. The dumping took place in the early 3rd century, which provides a *terminus ante quem* for the material in it. The greenish-tinged colourless glass of both the Lincoln and Colchester jugs suggests that a 3rd-century date would be most likely. The fragments from Culver Street are not helpful for dating the period of use of the type, as they are both too small for the identification to be secure and also come from a context which was not closely dated (Site G, Period 5, c AD 225-400+).

These jugs are not common, but there is a rim and neck fragment from Church Street, York (Charlesworth 1976b, 17 no 54 fig 14) which might have come from one, and a shoulder fragment very similar to **1030** and **1031** was found at The Park, Lincoln (unpublished). Their presence in the Rhineland is demonstrated by a jug, formerly in the collection of Frau Maria vom Rath at Koln (Kisa 1893, 123 no 103, Taf 8.81 & 1908, 325 Abb 160f), which is almost identical to the jug in the Colchester Museums (CM, 467.P).

The catalogue entries for the illustrated fragments in the above section are given with the illustrations on pages 140-47.

Small globular jugs with rod handles (1164)

[Fig 8.12]

The jug **1164** consists of about 700 generally very small green-tinged colourless fragments found in Grave 15 at Butt Road. Its precise form cannot be reconstructed, but it was probably a small globular jug of the type discussed by Harden in connection with the three found at the Lankhills cemetery, Winchester (Harden 1979b, 217-18 Class VI, nos 472, 551 & 632, fig 27). These had out-bent rims with the edge rolled in, cylindrical necks, globular bodies with concave bases and curved rod handles usually attached half-way up the neck. They were made in the greenish colourless bubbly glass typical of the 4th century. The jug **1164** has similar rim, neck and body details and a curved handle attached to the neck. The lower handle attachment is elaborated by a series of tight S-shaped folds. This differs from the simple lower handle attachment on most of these jugs but a similar feature occurred on one found in a grave at West Tenter Street, London (Jones 1986, 88, fig 40.11).

Jugs of this type were in use during the late 4th century. A mid 4th-century date has been suggested for the grave at West Tenter Street which contained two examples of this form. Two from the Lankhills cemetery were found in graves dated to AD 370-410 and 390-410, and two others were found in a deposit of glass at Burgh Castle, Norfolk thought to date to the late 4th or early 5th century (Harden 1983, 123 nos 79 & 80, fig 37). A seventh example from a 4th-century context is that from Richborough, which unfortunately is not more closely dated within the period (Bushe-Fox 1932, 85 no 62, pi 15). The jug **1164** was deposited in a grave dated to the last quarter of the 4th century.

Tightly-folded trails like that found on the lower handle attachment of **1164** occur on a variety of 3rd- and 4th-century vessels. Examples include the indented ovoid flask from Biewerer Strasse, Trier (Goethert-Polaschek 1977, 137 no 770, Tafn IV & 56, Abb 40) and an unguent bottle in the form of a dolphin from Luxemburger Strasse, Koln (Doppelfeld 1966, 52, Taf 101). However, they are most commonly found on late 4th-century vessels, notably the conical jugs of Isings Form 122; see for example one from Trier (Goethert-Polaschek 1977, 219 no 1322, Tafn IV & 71).

In his study of these jugs in connection with the examples from the Lankhills cemetery, Harden noted that, apart from one at Koln, most examples seemed to occur in Britain (Harden 1979b, 217). The identification of several others since then has underlined this insular distribution. In addition to those he noted from Winchester, Burgh Castle, Richborough and Icklingham, there are now also the examples from West Tenter Street, London, **1164**, and three others from Colchester in the Colchester Museums (unpublished). One of these is virtually complete apart from the handle. It is very similar to all the others except that it has a fire-rounded rather than a rolled-in rim (CM, 235). The other two are just represented by complete rod handles retaining fragments of the neck and side (CM, 702.04 & 76.41). One of these handles has the same kind of tightly-folded lower attachment as **1164**. The relative scarcity of the type from other north-western provinces, and the frequency with which it has been found in Britain, suggest that it was developed by Romano-British glass-houses.

The catalogue entries for the illustrated fragments in the above section are given with the illustrations on pages 140-47.

Miscellaneous jug fragments

[Figs 8.8-8.11]

In addition to the fragments which can be assigned to particular jug types, with greater or lesser degrees of accuracy, there are also many fragments of rims, necks and handles which probably also come from jugs. They may be divided into two broad categories. In the first are those pieces of rim and handle attachments which are not diagnostic enough to be identified, generally because they are too fragmentary. In the second are fragments of handles. Many of these are also too small to be diagnostic, but sometimes sufficient is preserved for the most likely form of vessel to be suggested. Unfortunately the same handle could be applied to a variety of different jug types, so for most jug forms it is not possible to identify their presence merely from a handle, although it is generally safe to assume that an angular ribbon handle with a central rib came from a globular or conical jug of Isings Forms 52 or 55 (**871-954**).

The fragments which fall into the first category may be discussed under the following headings: rim and handle fragments, neck and handle fragments, body and lower handle fragments, and handle fragments.

Rim and handle fragments

Six blue/green fragments from four vessels fall into this section (**1033**, **1034**, **1036** & **1051**). Two (**1033** & **1034**) come from cylindrical-necked vessels with rims which were folded out, up, in and flattened. Fragment **1033** retains a folded upper handle attachment on the neck, while **1034** has only a very small part of one on the rim. This rim form occurs mainly on 1st- and earlier 2nd-century jugs, particularly the very numerous globular and conical jugs of Isings Forms 52

Miscellaneous jug fragments: rim and handle fragments

and 55 (**871-954**). It also occurs, for example, on the globular jug with a cut-out fold on the shoulder (Isings Form 53), such as one from Richborough found in a pit dated to AD 50-70 (Bushe-Fox 1932, 85 no 60 pi 15), which is also a 1st-century form. So, while it is not possible to identify the forms of **1033** and **1034**, they are most likely to have been of 1st- or early 2nd-century date. This is confirmed by their contexts, which were both pre-Boudican.

Fragment **1036** also comes from a pre-Boudican context (the Gilberd School, Period 1 or 2). Here the rim edge is bent out and down and then up and in to form a small collar. The vessel had a wide cylindrical neck and the handle is now only indicated by a tiny portion on the attachment on the outer rim edge. This combination of diagonally folded rim and wide cylindrical neck occurs on amphorisks (Isings Form 60), which are two-handled ovoid vessels in use in the pre-Flavian period (see **1165-1169**), and it is possible that **1036** came from a vessel of this sort.

The fourth rim fragment is a very small piece, where the edge has been rolled out and in and has had a pinched trail applied to it. As noted above in connection with the probable handle from a spouted jug (**1128**), such pinched trails were applied to rims on a variety of jugs in use during the 1st and early 2nd centuries, and **1051** may be tentatively identified as coming from such a jug. It was found unstratified at Culver Street.

Neck and handle fragments

Globular and conical jugs of Isings Forms 52 and 55 (**871-954**) are very numerous in this assemblage, and it is likely that many of the neck and handle attachment fragments in this section came from these jugs. Where sufficient is preserved, the fragments often consist of cylindrical necks with folded attachments of angular handles. Fragments of this sort include **996** (deep blue), **1001** (light green), and **1058**, **1066** and **1067** (blue/green). The blue/green fragment **1063** is very similar, but the diameter of the neck is much larger than would be normal for such a globular or conical jug; this and the other blue/green fragments may have come from prismatic or cylindrical bottles (**1834-2239**). The fragments which consist of only a cylindrical neck and the stump or edge of a handle attachment (**998**, dark brown; **1002** & **1003**, yellow/green; & **1035**, blue/green) may also come from such jugs, as two of them are in the strong colours characteristic of these vessels. There is also one colourless cylindrical neck and folded handle attachment fragment (**1020**) which might have come from a colourless cylindrical wheel-cut bottle (**2243-2253**). The remaining neck and handle attachment fragments are all blue/green, and too small for even a tentative identification to be made.

Body and lower handle attachment fragments

The fragments in this section are **999** (yellow/brown) **1004** (yellow/green), **1012** (light green), **1013** (colourless), and **1132-1159** (blue/green). Of these,

approximately half (**999**, **1004**, **1012** & **1132-1143**) consist of part of the outer edge of a ribbon or ribbed handle with its lower attachment and part of the body immediately below the attachment. The lower attachment appears generally to have been one where the edges of the handle have been drawn out into pointed prongs to form a claw, although some may just have been from simple lower attachments. The body of the vessel has often been deliberately grazed or broken away, and the broken edge of the handle often appears to have been deliberately modified to form a straight edge (see **1133**, **1134**, **1138** & **1140-1142**). These fragments have clearly been shaped for some secondary use as a tool, and the reuse has made it impossible to identify precisely what type of jug they originally came from.

The other body and handle fragments tend to be equally undiagnostic, but here the breakages appear to be natural. Fragments **1148**, **1153** and **1154** are noteworthy; they have narrow pointed prongs from handle attachments. These might have come from cylindrical or prismatic bottles (**1834-2239**). Fragment **1145** has faint diagonal optic-blown ribs on the shoulder and could have come from a discoid or globular jug like **878**, **896**, **916** and **917**. The massive pinched lower attachment **1158** is also interesting as the body appears to have been deliberately broken around its edge, as is often the case with the moulded face-masks (**867-869**) and pinched extension trails (**939-940**).

Handle fragments

The fragments of handles have been divided into four broad categories: ribbon handles, ribbed handles, rod handles, and chain handles.

Ribbon handles

Fragments which probably come from plain ribbon handles include **994** (deep blue), **1008** and **1010-1012** (light green), **1021**, **1022** and **1029** (colourless), **1068-1078** and **1099-1114** (blue/green). Some of these (**1029** & **1099-1114**) consist only of the outer edge of a handle, so they may come from ribbed handles. This is perhaps most likely in the cases of **1099-1114** which are from angular or straight handles, and could come from the single-ribbed ribbon handle used on globular and conical jugs of Isings Forms 52 and 55 (**871-954**). As already noted, ribbon handles are found on many spouted or funnel-mouthed jugs, but simple ribbon handles occurred on many different types of vessels throughout the Roman period including, for example, amphorisks (**1165-1169**), prismatic bottles (**1834-2239**), and Frontinus bottles (**2259-2262**). This, therefore, is not a very diagnostic handle form, and most examples cannot be assigned to any particular type of vessel, although **1059**, which is the upper part of a large angular ribbon handle, could well have come from a prismatic bottle. Fragments **1008** and **1070** are worthy of special note because they curve over and down to join the neck at some distance below the rim.

Ribbed handles

As well as the many single-ribbed and multiple prominent-ribbed handles almost certainly from jugs of Isings Forms 52 and 55 (**871-954**), there are also many other fragments from ribbed handles. Most of these have been broken so that the complete handle section is no longer available (**995**, deep blue; **1000**, yellow/brown; **1014-1016**, light and pale green; **1027 & 1028**, colourless; **1087 & 1090-1098**, blue/green; and **1063**, greenish colourless bubbly), and little can usefully be said about such fragments. Amongst the fragments where the complete handle section is preserved there is one with a large off-centre rib (**1088**, blue/green), eight with side ribs which range from merely being produced by a central depression in a ribbon handle to being very pronounced (**1079-1081 & 1083-1087**, blue/green), two with three ribs (**1082 & 1089**, blue/green) and one with multiple ribs (**1162**, greenish colourless bubbly). As already noted, many of the handle fragments with edge ribs may be from funnel-mouthed jugs.

However, two pieces definitely have not come from such vessels. Fragments **1083** and **1084** retain parts of horizontal shoulders which curve over very steeply to the side, and on **1083** it is clear that the vessel it came from had a short neck. It seems most likely that **1083** came from a bottle. On prismatic bottles of Isings Form 50 (**1834-2239**), the commonest type of handle is reeded, but examples with edge ribs do sometimes occur, such as on a square bottle from Koln (Fremersdorf 1961, 45, Taf 82 right) and on a hexagonal bottle from Hermeskeil, Kreis Trier-Saarbrück (Goethert-Polaschek 1977, 196 no 1212, Taf 66). It is more likely, however, that **1083** came from a Frontinus bottle (**2259-2262**), for the vessel wall is thinner than is often the case on prismatic bottles. A very similar handle, though wider than **1083**, was used on a one-handled Frontinus bottle found in a cremation burial probably dated to the earlier 2nd century at Ourville-en-Caux, Seine Maritime (Sennequier 1985, 178 no 277). Fragment **1083** was found in a 4th-century context at Balkerne Lane (Site H, Period 6; c AD 300-400+), but the blue/green glass it is made of suggests that it is likely to predate the 4th century, so, if it is from a Frontinus bottle, it would be most likely to be of 2nd- or 3rd-century date. Fragment **1084** may also have come from a bottle but here the length of the neck is unknown; it was found in a context dated to AD 60/1 -c 100/50 (Culver Street Site A, Period 3), a date range which would be more in accord with its coming from a bottle of Isings Forms 50 or 51.

The complete handle with three ribs (**1089**) may come not from a jug but from a handled jar. It is short and wide and may be from a globular-bodied type with a long neck and rolled rim which is most often identified when it occurs as a cinerary urn. Handles like **1089** occur on jars of this sort at Lower Woolmer, Kent (Woodruff 1902, 8 no 2), and Trier (Goethert-Polaschek 1977, 246-9 nos 1462-6, 1471, 1472, 1474 & 1475, Abb 62 & 63, Tafn 13.147a, 78 & 79) where

they were found in graves dating from the Flavian period to the second half of the 2nd century. This handle form also occurs on other vessel types in the pre-Flavian period when **1089** was in use, as it was found in a Period 1 b context at Balkerne Lane.

One late Roman vessel is represented by the multiple-ribbed handle fragment with cut-out fold (**1164**) found in a modern context at Butt Road. The closest parallels are handles on the spherical flasks of Isings Form 129 found at Bishopsbourne, Kent (Bell 1847-8, 48, figs 1 & 2; Thorpe 1935, pi 5b), and Sandy, Bedfordshire (Simco 1984, 51 fig 50). However, the shoulder of the vessel preserved on **1164** is more angular than would be expected if it came from such a spherical flask so this identification cannot be firm.

Rod handles

Handles with a rod-like section are represented here by **1007** (pale green), **1026** (colourless), and **1115-1127** (blue/green). Rod handles occur on a large variety of vessels. As noted above they occur on short-necked globular jugs and spouted jugs (see **997 & 1032**, **1005-1006**, **1017-1018 & 1037-1042**), occasionally on globular jugs of Isings Form 52 as may be seen on one from Koln (Fremersdorf 1959, 37 Taf 5), and also on late Roman rod-handled small globular jugs (**1164**). Other vessel types include amphorisks (Trier; Goethert-Polaschek 1977, 227 no 1362, Taf 73) and grape flasks (Trier; *ibid*, 107 no 551, Taf 1.6d). Small rod handles were also used on late Roman cups like those from graves at Lankhills School, Winchester (Harden 1979b, 216 nos 117 & 508, fig 27) and at Colchester (May 1930, 280, pi 87.96), and on stemmed goblets such as the one from Koln (Fremersdorf 1962, 36, Taf 52). As with the preceding handle form, rod handles are found over such a wide variety of vessel types and used over such a long period that it is generally not possible to suggest the vessel forms merely from fragments.

Of the complete handles, **1127** is approximately the same size and angle of curve as those found on short-necked globular jugs (**997 & 1032**), whilst **1007** and **1125** resemble the handles of spouted jugs. Fragment **1120** is from a vessel with spiral trails. It is possible that it came from a spouted or funnel-mouthed jug, but the handle appears to be attached at the neck/body junction which would be most unusual on a jug of that sort. The remaining rod-handle fragments all tend to be slender and it is probable that they came from forms of vessel other than jugs.

Chain handles

Several fragments from Balkerne Lane, Lion Walk and Culver Street could be the lower attachments of one of the strands from a two-strand handle which has been pinched together to form a chain. One of these (**1129**, blue/green) retains an indication of the second strand while the others (**1024 & 1025**, colourless; **1130 & 1131**, blue/green) have been identified on the basis of the characteristic sharp curve to one side

Miscellaneous jug fragments: handle fragments: chain handles

immediately above the attachment. Chain handles were used mainly on funnel-mouthed jugs of the mid 2nd to 4th century, and **1025** and **1130**, which came from ribbed jugs, have already been noted in connection with them. The colours of **1024**, **1025** and **1129-1131** suggest they were of 2nd- or 3rd-century date. Only two were found in Roman contexts, **1129** in a context dated to c AD 100-325 (Culver Street Site B, Period 4) and **1025** in a pre-Boudican one (Lion Walk Site K, Period 1-2). The date of the latter cannot be used as strong evidence for the early occurrence of chain handles for, on the one hand, the identification of **1025** as a chain handle is open to doubt as it is chipped on the inner edge, and on the other it may be that its context is not secure as it is made in good-quality colourless glass, and this occurs very rarely at such an early date.

Chain handles are not as numerous as other forms of handle, but they are quite widespread in colourless and blue/green glass. At Colchester, as well as the chain handle on the late funnel-mouthed jug (Harden *et al* 1968, 84 no 111; Thorpe 1935, pi 6d), there is also a handle lacking its jug (*ibid*, 32 footnote 3(1)). Other sites which have produced chain handles include Chesters and Cirencester (*ibid*, 32 footnote 3(4) & (5)); York (Harden 1962, 137 HG 197; Home 1924, pi facing 168); Leicester (Charlesworth 1973a, 54 no 13); Birrens (Robertson 1975, 137 no 37, fig 48/1); Caerleon (which has produced two examples, one of which came from an Antonine/Severan drain filling; Boon 1978, 14 no 4, fig 10); Barnsley Park, Gloucestershire (Price 1982b, 182 no 35, fig 60); Lincoln (Cottesford Place; pers comm Ms J Mann); and Piercebridge (three examples), Gloucester (Westgate Street), and Blackfriars Street, Carlisle (Price 1990a, 172, fig 161.38). There is also an unpublished example from Annetwell Street, Carlisle.

Catalogue of the illustrated fragments of all jugs other than Isings Forms 52 and 55

(See page 121 for the catalogue of medallions for jugs and pages 129-31 for the catalogue of globular and conical jugs of Isings Forms 52 and 55.)

All other jugs

Deep blue

994 1.81 A98 F28; early medieval. Handle fragment. Straight ribbon handle curving over and down to folded upper attachment; central rib in shallow relief. Section 8x3.

Yellow/brown

997 BKC75 J463 F286; Buildings 47-49, Period 3/4/5a. Seven rim, body, base and handle fragments of globular jug. Light yellow/brown. Short funnel mouth, edge rolled in; globular body; concave base (mostly missing). Curved ribbon handle, upper attachment missing. Simple lower attachment has deep tooling-marks; streaky glass of handle appears darker than that of body and contains streaks of opaque white and purple glass. PH (rim) 18 and (base and body) 57, RD 70, BD approx 60, WT 1.5.

998 LWC72 J611; Period 4. Neck fragment. Dark yellow/brown. Cylindrical neck beginning to curve out to rim, edge of upper handle attachment on neck below rim. Lower edge of fragment grazed to form sharp edge. Present length 41, WT 2.

1000 BUC77 C1316 L1; Period 1-2. Handle fragment. Angular ribbon handle with at least 3 vertical ribs. PH 37, handle section 15x4.

Yellow/green

1001 LWC72 M120; Rampart 1a (mid 2nd century) or ditch for Road 3 (late 1st to mid 2nd century). Rim and handle fragment. Rim yellow/green; handle blue/green. Funnel mouth, edge rolled in; cylindrical neck. Folded upper handle attachment. PH 14, RD approx 40, neck thickness 1.

Pale/light green

1005 MID78 A2012 L241; late or post-Roman. Rim fragment of spouted jug. Pale green. Funnel mouth, rim edge fire-thickened; part of rim pulled up to form narrow spout. PH (excluding spout) 18, RD (excluding spout) approx 40-45, WT 1.5.

1006 MID78 A2012 L241; late or post-Roman. Handle and shoulder fragment. Pale green. Ribbon handle with simple lower attachment; convex-curved shoulder carefully broken around edge of handle attachment. PH 25, handle section 19x3.

1007 BKC75 K500 L106; Period 4c. Neck, shoulder and handle fragment. Pale green. Curved D-sectioned rod handle; folded upper attachment with thumb rest and small part of neck; simple lower attachment with 2 pinched ridges; convex-curved shoulder. PH approx 70, handle section 12x8, WT 2.

1008 BKC76 V932 L11; late Period 5 (c AD 300). Handle fragment. Light green. Curved ribbon handle; folded upper attachment with scar from junction with neck. Handle section 26x4.

1010 BKC74 E83 L32; post-Roman. Handle and shoulder fragment. Light green. Simple lower attachment of ribbon handle; convex-curved shoulder carefully broken off around edge of attachment. Dim 45x20, WT 1.

1013 BKC74 E249 L30; Period 5. Handle and shoulder fragment. Pale green. Ribbon handle with central vertical indentation; simple lower attachment; convex-curved shoulder carefully broken off around attachment. Handle section 15x3, WT 0.5.

1014 LWC72 G292; Building 28, post-Roman. Handle fragment. Light green. At least 4 rounded ribs. Handle section 26x6.

Colourless.

1017 1.81 G55 F55; Period 6. Rim fragment of spouted jug. Slightly green-tinged. Funnel mouth, rim edge fire-rounded. PH 18, neck thickness 2.

1019 1.81 K240 L3; Period 6. Rim, neck and handle fragment. Out-bent rim, edge fire-rounded; short cylindrical neck curving out to body. Horizontal trail with overlapped ends on upper neck. Folded upper handle attachment applied to neck over trail. PH approx 52, RD approx 40, neck thickness 2.

1021 LWC72 L261; Building 19, Room 3, Phase 3 Period 4(3). Handle and shoulder fragment. Ribbon handle; simple lower attachment; convex-curved shoulder. PH 17, handle section 17x3.

1022 GBS84 A890 L10; Period 3b. Handle and shoulder fragment. Edge of ribbon handle with simple lower attachment retaining part of convex-curved shoulder broken away around edge of attachment, possibly grazed. Dim (shoulder) 30x17, WT 1.5.

1024 1.81 B126; unstratified. Handle and shoulder fragment. Convex-curved body with 2 spiral trails; simple lower attachment of angular rod, perhaps from chain handle, applied over trails. Dim (body) 19x15, WT 1, handle section 4x3.

- 1025 LWC73 K533; Period 1 or 2. Handle fragment. Angular rod handle with simple lower attachment and broken edge retaining fragment of side, perhaps from chain handle.
- 1026 COC79 902 L226; Period 2. Handle fragment. Green-tinged. Curved oval-sectioned rod handle with return trail from (missing) upper attachment. Present length approx 35, handle section (excluding trail) 5x4.
- 1030 1.81 G3260 L984; Period 5. Shoulder fragment. Convex-curved body curving up to neck. Parts of 3 vertical ribs running onto neck. Dim 28x17, WT 2.5.
- Blue/green*
- 1032 BKC76 V81; unstratified. Rim fragment. Out-bent rim, edge rolled in. Pinched trail applied to part of rim edge. PH (excluding trail) approx 20, RD approx 90, WT 1.5.
- 1033 1.81 W89 F88; Period 1 or 2. Rim, neck and handle fragment. Rim bent out, up, in and flattened; cylindrical neck; folded upper attachment from ribbon handle on neck and underside of rim. PH 47, RD 26, neck thickness 1.
- 1034 LWC72 J1204; Building 2, Period 2 make-up. Two rim and 1 neck fragments of jug. Rim edge rolled out, up, in and flattened; cylindrical neck. Trail from handle attachment on rim. PH 41, RD 32, neck thickness 1.5.
- 1036 GBS85 A2357 L252. GBS84 A1666 L112; Period (1 or) 2. Two rim fragments. Rim bent out and down, up and in; cylindrical neck; scars from handle attachment on rim edge. PH 14, RD 45, WT 1.5.
- 1037 1.81 K122 & K159 F121; Period 3c. One rim and neck and 1 neck fragment of spouted jug. Pinched-in spout, rim edge fire-rounded; cylindrical neck. Vertical ribs in shallow relief fading on lower neck. PH 45, WT 2.
- 1038 1.81 E432 F297; Period 8. Rim fragment of spouted jug. Pinched-in spout, rim edge fire-rounded, PH 20, WT 1.
- 1039 LWC71 B100 F55; 12th-15th centuries. Rim fragment of spouted jug. Part of pinched-in pouring spout, rim edge fire-rounded with horizontal fold below. PH 14, WT 1.5.
- 1040 1.81 B802 F243; Period 4/5. Rim fragment of spouted jug. Funnel mouth with pulled-up spout, rim edge rolled in. Dim 41x28, WT 2.
- 1041 1.81 B766 L137; Building 112, Room 69; Period 4b. Rim fragment of spouted jug. Description as 1040. Dim 33x19, WT 2.5.
- 1042 LWC73 K390 F209; medieval and later. Rim fragment of spouted jug. Funnel mouth with slightly in-curved rim, edge fire-rounded. Three spiral trails below rim edge. PH 18, WT 1.5.
- 1043 1.81 B911 L100; Period 4. Rim fragment of spouted jug. Funnel mouth, rim edge fire-rounded; neck beginning to curve out to body. PH 22, WT 1.5.
- 1044 1.81 H462 L3; Period 6. Rim fragment of spouted jug? Asymmetrical funnel mouth, rim edge rolled in. PH 23, WT 2.5.
- 1045 BKC75 N48 F13; Period 6+. Three rim and handle fragments. Out-bent rim, edge rolled in; cylindrical neck; folded upper handle attachment. PH 17, RD 35, neck thickness 1.5.
- 1047 1.81 H338 L283; Period 5. Rim and handle fragment. Description as 1045.
- 1048 1.81 B6; modern. Rim and handle fragment. Rim bent out, up and in, inner edge missing; curved ribbon handle with folded upper attachment and thumb rest. RD approx 30-35, handle section 11x3.5.
- 1049 1.81 G496 F293; Period 6. Rim and handle fragment. Curved ribbon handle with broken upper attachment with thumb rest retaining small part of rim with rolled edge. Handle section 18x3.
- 1050 CPS73 275 L22/L57; Period 6. Rim and handle fragment. Out-bent rim, edge rolled in; D-sectioned rod handle with broken folded upper attachment. Dim 17x15, handle section 8x5.5.
- 1051 1.81 H624; unstratified within Periods 1-6. Rim fragment. Rim rolled out, up and in; pinched trail, probably from handle attachment, on top of rim. Dim 13x7, WT 1.5.
- 1052 BKC75 H338 L12; Building 59, Period 5b demolition. Rim and handle fragment. Handle pale green. Funnel mouth, rim edge fire-rounded. Ribbon handle with rounded rib at each side; folded upper attachment with pinched looped thumb-rest. PH (excluding loop) 19, RD 65, WT 2.
- 1053 BKC76 N339; unstratified. Rim and handle fragment. Slightly out-bent rim with fire-rounded edge, thick horizontal trail below. Folded and looped upper attachment of ribbon handle with central indentation forming 2 ribs applied to rim edge and trail. Dim 28x16.
- 1054 1.81 H626; unstratified within Periods 1-6. Neck and handle fragment. Cylindrical neck; curved D-sectioned rod handle with folded upper attachment and thumb-rest, return trail from attachment forms prominent rib on upper part of handle. Handle section 10x5.5, WT 2.
- 1055 BKC75 J39 L1; modern. Handle fragment. Pinched thumb rest. Width 21.
- 1056 BKC75 J176 F32; Period 5c/6. Handle fragment from upper loop of looped and folded ribbon handle attachment.
- 1058 BKC76 T200; unstratified. Handle fragment. Upper part of angular ribbon handle; broken folded upper attachment; transverse tooling-marks. Handle section 36x8.
- 1063 LWC72 K275; Building 14 make-up, Period 3 make-up. Neck and handle fragment. Part of folded upper attachment of rim retaining part of neck. Handle section 33x10.
- 1066 MID78 A50 F15; post-medieval. Neck and handle fragment. Description as 1063. Handle section 30x2.
- 1067 CPS73 827 L111; Building 154, Period 4. Neck and handle fragment. Description as 1063. Handle section 19x4.
- 1068 1.81 B2434 F651; Building 77, Room 1/2, Period 2. Complete handle, with parts of neck and side in 2 joining fragments. Curved ribbon handle with slight central indentation; folded upper attachment retaining small part of cylindrical neck; simple lower attachment convex-curved body. Height approx 55, handle section 13x2.5, WT 1.5.
- 1069 LWC71 B410 F139; Period 5. Handle and shoulder fragment. Angular ribbon handle with rounded change of angle; simple lower attachment; convex-curved shoulder. PH approx 45, handle section 12x2.5, WT 1.
- 1070 BKC75 H12 L2; post-Roman. Handle and neck fragment. Small part of narrow cylindrical neck; curved ribbon handle arching over and down to simple folded upper attachment. Handle section (max) 22x3.5.
- 1071 LWC72 M115; Rampart 1a (mid 2nd century). Two handle and body fragments. Ribbon handle; simple lower attachment; straight-sided body. PH approx 42, handle section 23x2.5, WT 1.
- 1075 BKC74 E1141 F322; E1118 L337; Building 37, Period 1b. Two handle and 1 handle and body fragments of jug. Convex-curved body. Curved ribbon handle centrally indented on upper part to produce side ribs; simple lower attachment. Handle section 20x2.
- 1076 BKC76 V932 L11; late Period 5 (c AD 300). Handle fragment. Upper handle indented like 1075 with broken tooled upper-handle attachment. Handle section 9x2.5.
- 1078 1.81 G2306 L1814; Period 3. Two joining handle fragments. Straight ribbon handle; simple lower attachment. Present length 76; handle section 10x5.

All other jugs: catalogue

- 1079 1.81 E633 L27; Period 3. Handle and shoulder fragment. Straight ribbon handle with central indentation; simple lower attachment; convex-curved side deliberately broken around edge of handle. Present length approx 50, handle section 9x3.5.
- 1080 1.81 E777 F560; Period 3. Handle and side fragment. Angular ribbon handle with central indentation; asymmetrical lower attachment with 4 small prongs of varying thickness. Present length approx 70, handle section 15x3.
- 1081 GBS84 A812 F121; Period 3. Handle fragment. Straight ribbon handle centrally indented. Present length 53, handle section 17x4.
- 1082 BKC75 J123; Periods 3 to 6. Handle fragment. Narrow angular ribbon handle with central wide rib and edge ribs in low rounded relief. Present length 18, handle section 11x4.
- 1083 BKC75 H298 F94 & 167; Period 6. Handle and shoulder fragment. Horizontal shoulder; side sloping out. Short angular ribbon handle with pronounced side ribs; claw lower attachment. Height of handle 39, handle section 13x4.
- 1084 1.81 A539 L196; Period 3. Handle and shoulder fragment of jug or bottle. Straight ribbon handle with side ribs becoming more pronounced towards base; simple lower attachment with rounded extension on either side. Pale green convex-curved shoulder curving to side. Present length approx 40, handle section 15x3.
- 1085 BKC75 H175 F77; Period 5c. Handle and shoulder fragment of jug. Convex-curved shoulder. Straight ribbon handle with narrow side ribs; simple lower attachment. Dim 43x40, handle section 16x4.
- 1088 GBS84 A696 F62; post-Roman. Handle fragment. Curved ribbon handle with 1 pronounced rib. Handle section 16x9.
- 1089 BKC74 E1189 L368; Building 37, Period 1b. Two handle and body fragments of jug or bottle. Convex-curved body possibly grozed around edge of handle attachment. Angular ribbon handle with 3 rounded ribs; broken folded upper attachment retaining fragment of neck; simple lower attachment. Height of handle approx 54, handle section 29x5.
- 1115** BKC76 V73 L22; late Period 5. Two handle and body fragments. Convex-curved body. Oval-sectioned curved rod handle with simple lower attachment. Handle-length 43, handle section 7x5.
- 1118** BKC76 N526 L84; Building 64, Phase 1, Period 5b1. Lower handle and body fragment. Description as **1115** with lower attachment showing deep tooled impression. Handle section 10x6.
- 1119 BKC76 N387 L23; Period 6. Lower body and handle fragment. Description as 1118, outer edge of handle attachment missing. Handle section 7x6.
- 1120 1.81 G167 L167; Period 5b. Handle and body fragment. Straight rod handle with ridge extending down exterior; simple lower attachment at junction of neck and body; 3 fine trails on upper body. Handle section 8x5, WT 1.5.
- 1121 BKC75 N32 L3; Period 6. Handle fragment. Straight oval-sectioned rod handle curving over and down to upper attachment (missing apart from small part of return trail). Present length 47, handle section 9x5.
- 1122 1.81 E10 F9; Period 7. Handle fragment. Curved oval-sectioned rod handle with return trail from broken upper attachment. Handle section 5x4.
- 1123 BUC78 H467 G526; Period 2. Handle and shoulder fragment. Oval-section straight rod handle; simple lower attachment. PH 40, handle section 6x5.
- 1124 BKC75 J224 F13; Period 5b. Handle fragment of jug or cup. Oval-sectioned rod handle with cut-out loop and change of angle above. Present length 44, handle section 7x4.
- 1125 BKC76 V82 L5; late Period 5. Rim, handle and shoulder fragment. Curved oval-sectioned rod handle; simple folded upper attachment with thick return trail retaining fragment of rim with fire-rounded edge; simple lower attachment; convex-curved shoulder. PH approx 60-65, handle section 10x7.
- 1126 BUC77 C1608 G430; Period 2. Handle fragment. Ribbon handle with central division producing 2 pronounced ribs; upper attachment folded up and down to form thumb-rest; scar from attachment to rim. Handle section 16x6.
- 1127 BUC77 E784 F139; post-medieval. Complete handle with fragment of shoulder. Thick, curved, oval-sectioned handle; broken folded upper attachment with scar from attachment to neck; simple lower attachment. Height of handle approx 50, handle section 14x8.
- 1128 BKC76 V595 L72; Period 4. Handle fragment. Curved oval-sectioned rod handle curving over and down to (missing) folded upper attachment. Thick pinched trail applied to handle, all but 1 of pinched projections now missing, possibly grozed. Present length 55, handle section (excluding trail) 15x7.
- 1129 1.81 B688 L133; Building 113, Room 1; Period 4. Handle and body fragment. Lower attachment of 1 side of chain handle; oval-sectioned strand with simple lower attachment and broken at first junction with second strand; convex-curved side. Dim (of side) 34x22, WT 1.
- 1130 1.81 B103 F51; post-Roman. Handle and body fragment. Lower attachment of 1 side of chain handle; oval-sectioned strand with simple lower attachment; convex-curved body with parts of 2 diagonal ribs in shallow relief. Dim (of side) 27x21, WT 1.
- 1131 BKC75 J150 L1; modern. Handle and body fragment. Lower attachment of 1 side of chain handle; oval-sectioned strand with simple lower attachment; convex-curved body deliberately broken around edge of attachment. Dim (of side) 20x20, WT 1.5.
- 1132 BKC74 E946 F259; Period 3b. Handle and shoulder fragment. Convex-curved body. Part of straight ribbon handle with wide side rib and part of second rib; simple lower attachment. Reused with possible deliberate removal of second rib, body deliberately broken away and tip of handle attachment faceted to produce sharper edge now worn. Dim 40x14.
- 1133 BKC76 V812 F248; Period 2. Handle and shoulder fragment. Convex-curved body. Edge of ribbon handle and side prong of lower handle attachment. Grazing on edge of handle and on body around edge of attachment. Dim 45x17.
- 1134 BKC76 V1033; Period 2 to 4. Grozed handle fragment. Description as 1133.
- 1138 LWC72 J381; Period 4b destruction. Grozed handle fragment. Description as 1133.
- 1139 BUC77 E408 L16; 5th century. Grozed handle fragment. Description as 1133.
- 1140 MRC71 52 L123; Flavian-Trajanic. Grozed handle fragment. Description as 1133.
- 1158 1.81 B1381 L336; Period 2/3. Part of lower handle attachment and body of jug? Part of handle attachment with pinched projection; side deliberately broken around edge. Dim 34x22.

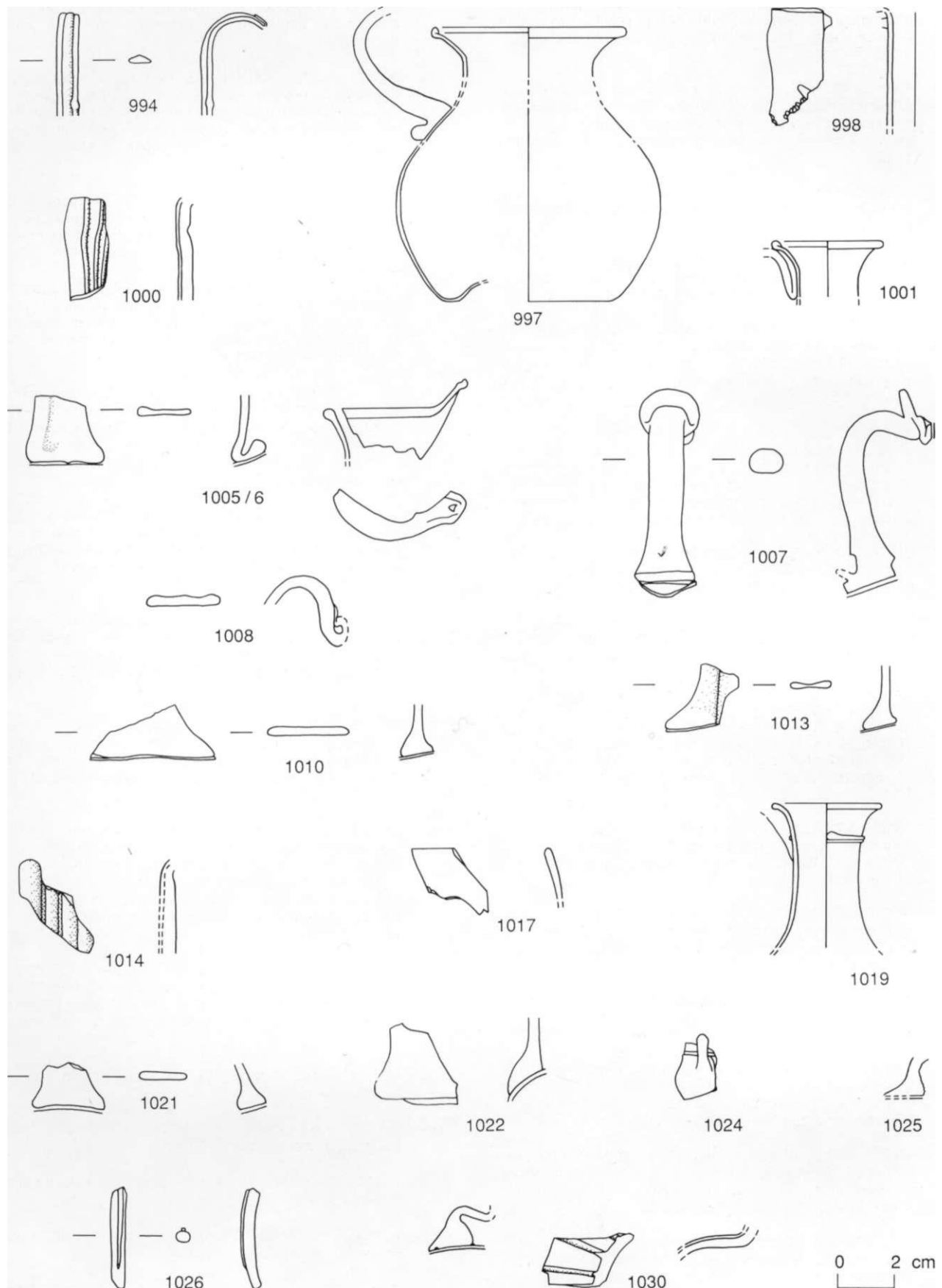


Fig 8.8 Jug rim and handle fragments. 1:2. [Pages 130-41]

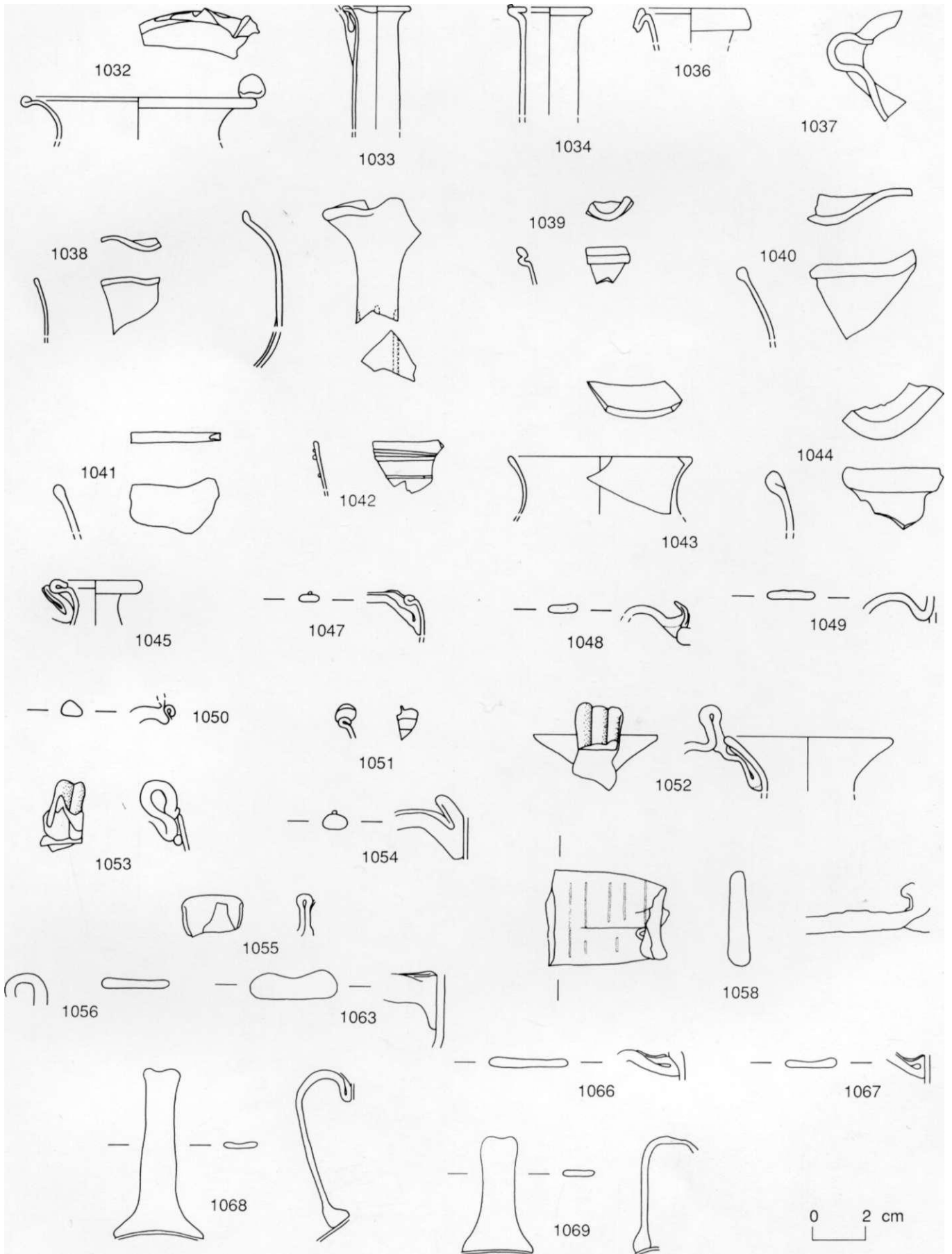


Fig 8.9 Jug rim and handle fragments. [Pages 130-41]

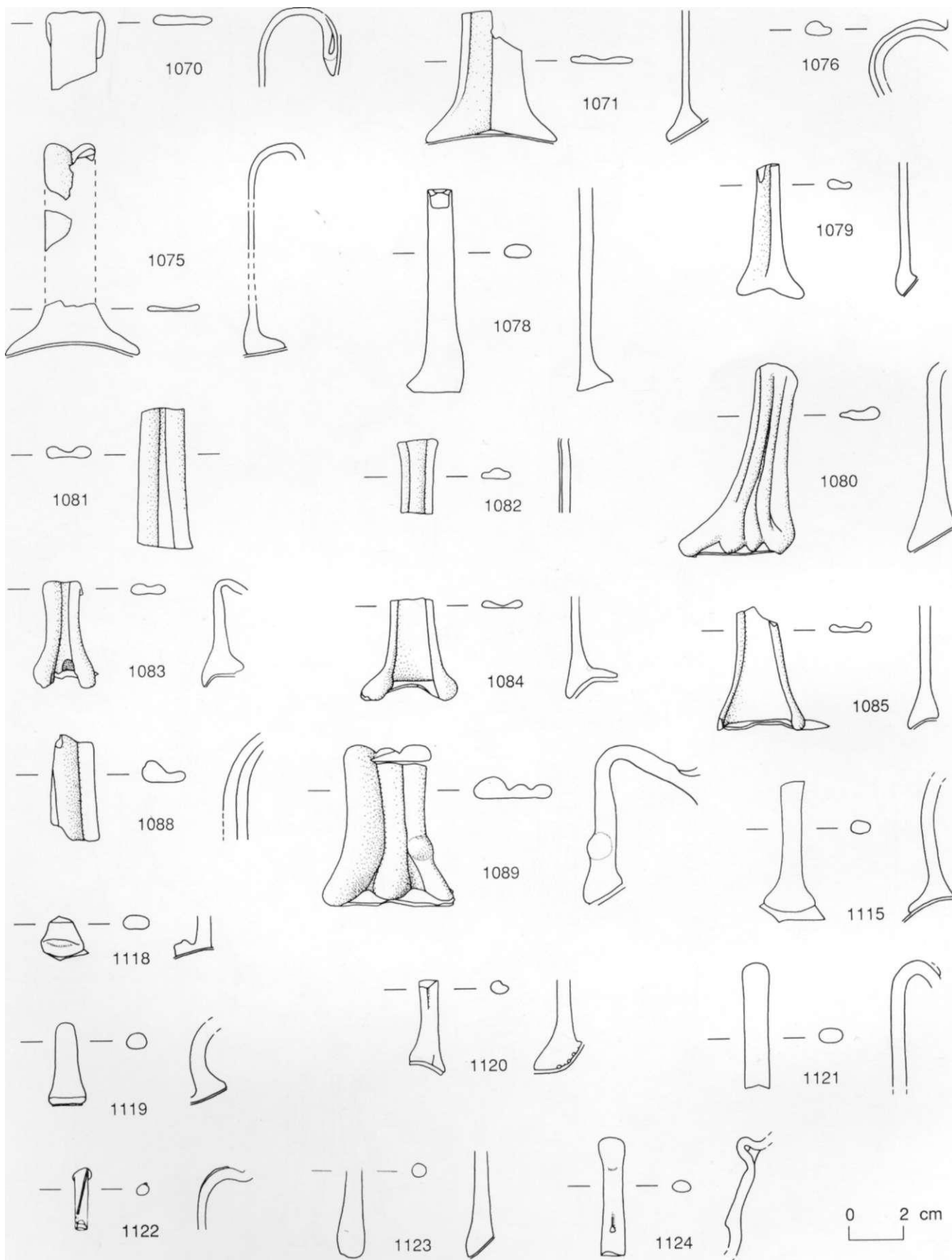


Fig 8.10 Jug handle fragments. 1:2. [Pages 137-42]

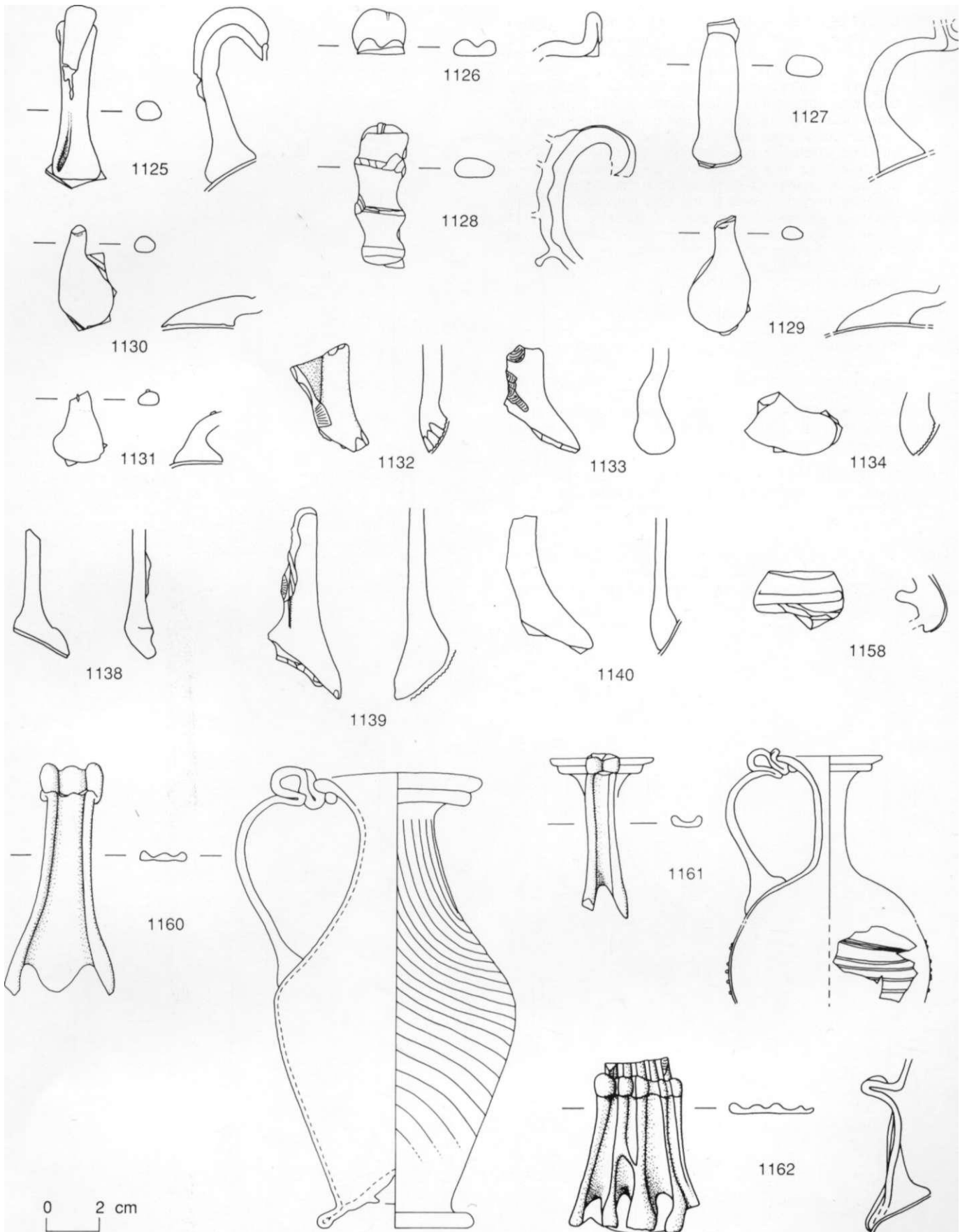
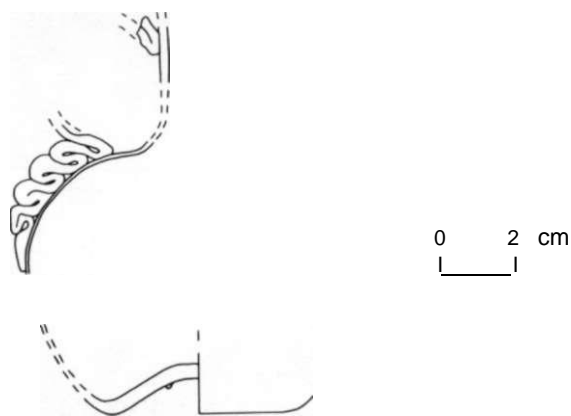


Fig 8.11 Jug handle fragments and late funnel-mouthed jugs. 1:2. [Pages 134-40, 142 & 147]

Late Roman green

1160 BUC77 B1180 G180 SF414; Period 2. Complete carinated jug. Pale greenish colourless. Optic-blown. Wide oval funnel mouth with fire-rounded edge; thick horizontal trail applied to underside of rim. Neck sloping out slightly to diagonal shoulder curving into slightly convex-curved lower body which tapers into base; pushed-in base forming foot with tubular ring at bottom; central domed kick. Prominent circular pontil scar with part of cylinder of glass still attached which has been roughly smoothed off. Curved handle with 3 prominent ribs, claw lower attachment placed just above change of angle on body, looped and folded upper attachment joined to trail and rim edge. Diagonal shallow optic-blown ribs on neck and upper body dying out below change of angle to lower body; bubbles elongated parallel to ribs in ribbed area. Height 168, height from base to shoulder (approx) 85, RD 64x59, BD 59, pontil-scar diameter (inner) 12 and (outer) 20.



1161 BUC76 B47 L1; modern/post-Roman. Rim, neck, handle and upper body of globular jug in 35 fragments. Pale green. Wide funnel mouth with fire-rounded edge; thick horizontal trail applied to underside of rim; cylindrical neck; convex-curved globular upper body. Curved handle with prominent rib on either edge; claw lower attachment on shoulder; looped and folded upper attachment joined to trail and rim edge. Body decorated with fine spiral trails. PH (rim to base of handle) 62, RD 40, WT 1.

1162 BUC77 E362 L1; modern. Handle and shoulder fragment. Pale greenish colourless. Ribbon handle with 5 prominent ribs and cut-out fold; claw lower attachment. Dim 66x49.

1164 BUC76 A262; A269 G15; Period 2. Approximately 700 rim, neck, handle, body and base fragments (parts of rim, neck, handle and probably body missing). Green-tinged

Fig 8.12 Small globular jug with rod handle. 1:2. [Page 137]

colourless. Slightly out-bent rim, edge rolled in; cylindrical neck; globular body with domed concave base; circular pontil scar. Oval-sectioned curved rod handle applied to shoulder with oval attachment elaborated by a series of 4 tightly-folded S-shaped folds below; stump of upper attachment on neck. BD 40-45, neck diameter (outer) 18, neck thickness 3, WT 1-1.5, handle section 8x4.5, pontil-scar diameter 18.

CHAPTER 9: Flasks and unguent bottles

Amphorisks (1165-1169; see also 1036)

[Fig 9.1]

Fragments **1165-1169** may have come from large two-handled vessels commonly called amphorisks (Isings Form 15). Such vessels have a folded rim which is frequently bent out and down and then up to give a slightly collared effect, a wide cylindrical neck curving smoothly into an ovoid body, and an open pushed-in base ring or simple concave base. The curved handles are applied to the upper body and attached to the neck and lower edge of the rim. A very common type of handle is one which has a pronounced wide central rib, but handles with edge ribs, and very occasionally plain ribbon or rod handles, were also used on these vessels. Where a handle with a central rib has been used, the lower attachment is frequently drawn out into a claw, the central prong of which may be pinched. Several of the different combinations of rim and handle forms are illustrated by examples found in a pre-Boudican Neronian rubbish pit at Sheepen (Charlesworth 1985a, 136, mf 3:F8 nos 54-6, mf 3:F9 no 85, figs 81, 82 & 83).

Amphorisks were made in both blue/green glass and the strong colours typical of the early-to-mid 1st century. Those from Sheepen, for example, were deep blue and blue/green, and fragments from amber examples were also found on that site (*ibid*, mf 3:F8 nos 61 & 64). Opaque glass was also used occasionally, as in the blue pair from a mid-to-late 1st-century cremation at Trier (Goethert-Polaschek 1977, 225 nos 1349-50, Tafn II, 7/80 & 72), but these are rare. Polychrome examples were generally made by the technique of marvering opaque white, yellow or red blobs into a contrasting ground colour as on the examples from Grave 48 in the Liverpool unten cemetery, Muralto (white on yellow glass; Simonett 1941, 109 no 1, Abb 90, Taf 11,4,2), and Grave 2 in the Branca cemetery also at Muralto (white on greenish glass; *ibid*, 115 no 15, Abb 95, Taf 11,3,1; 4,1; Biaggio Simona 1991, 209-213 no 176.2.233, fig 30, tav 45). These graves date to the second quarter and first half of the 1st century respectively (Berger 1960, table facing 92). White marvered decoration was also sometimes applied in the form of horizontal trails combed into a feather-like pattern (Simonett 1941, 194, Taf 10.2). Amphorisks with mould-blown bodies are also known at Vindonissa (Berger 1960, 41 no 88, Tafn 5 & 20.79), and elsewhere.

Amphorisks in deep blue, yellow/brown and blue/green glass have been tentatively identified amongst the assemblages from Balcerne Lane (**1169**), Lion

Walk (**1168**), and Culver Street (**1165-1167**); and, as noted above (pp 137-8), one from the Gilberd School (**1036**) might also come from a vessel of this sort. In most of these cases the identification is not certain, as it is based on small fragments of rim and neck (**1166**) or of curved handle with a pronounced central rib (**1165, 1168 & 1169**), and the identification is more secure only for **1167**, where a larger amount of neck and handle survives. It is possible that some of the pushed-in base fragments **955-993** may be from amphorisks, but none retain sufficient of the body for such an identification to be made with any confidence.

Amphorisks were in use during the early and middle part of the 1st century. Examples from Romano-British sites include those from the pre-Boudican pit at Sheepen mentioned above, three or four from a fort at Brandon, Herefordshire which was occupied about AD 55-60 (Price 1987c, 74-6 nos 4-7, fig 15.2-3), at least two from the late Neronian site at Kingsholm, Gloucester (Price & Cool 1985, 44, 48 no 36, & 50 nos 54 & 55, figs 18 & 19), one from a pre-Flavian context at Southwark (Townend & Hinton 1978, 151 no 11, fig 60), and one from a context dated to c AD 75 at Exeter (Charlesworth 1979a, 228 no 30, fig 71). They do not appear to have continued in use beyond the late Neronian/early Flavian period. Of the examples tentatively identified in this assemblage, two are pre-Boudican (**1168**; Lion Walk Site J, Period 2, AD c 49/50-60/1, and **1169**; Balcerne Lane Site V, Period 2, AD c 49/55-60/1), as is also the possible rim fragment **1036** from the Gilberd School (Period 1 or 2, AD c 44-60/1). The examples from Culver Street are either unstratified (**1165**) or from a variety of contexts post-dating AD 75 (Site B, Periods 3/4, 4 & 4/5, c AD 75-350+).

Amphorisks are widespread in the western provinces and are also occasionally found elsewhere in the Mediterranean world, as for example one from a chambered tomb in use during the second half of the 1st century at Knossos, Crete (Carington Smith 1982, 293 no 21, fig 4, pi 37c & d), but it is difficult to establish how common they were. As Charlesworth noted in connection with the unusual, slender-necked example from Exeter (1979a, 228), these vessels are often thin-walled and fragile, so it is frequently difficult to identify them on domestic sites as the fragments are not often diagnostic. At Sheepen, a minimum of seven was recognised (Charlesworth 1985a, mf 3:F8 nos 54-67, mf 3:F9 no 85), which is almost as many as the examples previously recorded from all of Roman Britain.

Amphorisks
Deep blue

1165 1.81 E774; unstratified. Handle fragment. Curved ribbon handle with prominent rounded central rib. Section (excluding rib) 22x5.

Dark yellow/brown

1166 1.81 B921 L100; Period 4. Rim and neck fragment. Rim bent out, up and in, edge missing; cylindrical neck. PH 21, RD 60, WT2.

1167 1.81 B939 L210; Period 3/4: B428 L42; Period 4. B680 L25; Period 4/5. Three joining neck and handle fragments. Cylindrical neck; ribbon handle with prominent rounded central rib and edge ribs curved over and down to folded upper attachment at neck and (missing rim). WT 3, handle section 22x10.

Blue/green

1168 LWC72 J1132 F375; Building 8; Period 2. Handle fragment. Curved ribbon handle with broken fold from upper attachment; central rounded rib. Handle section 19x7.

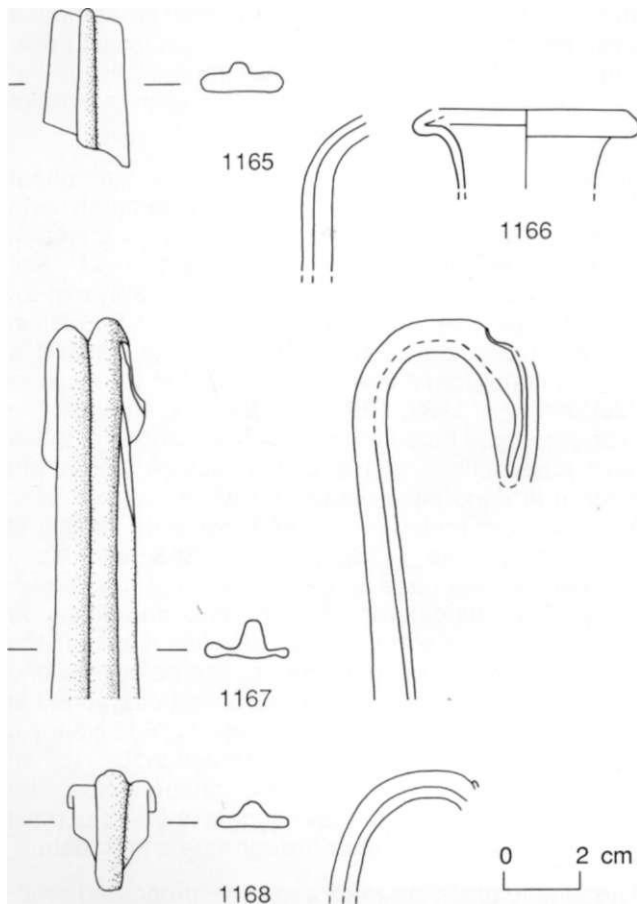


Fig 9.1 Amphorisks. 1:2. [Pages 148-9]

Flasks with sheared rims (1170-1171)

[Fig 9.2]

The complete rim, neck and part of the body of a blue/green flask was found at Maldon Road (1170). It has a funnel mouth with a sheared rim, and a narrow cylindrical neck with a marked constriction at its base.

The side slopes out and the vessel obviously had a wide body, though its precise shape cannot be ascertained. This type of rim and neck was used on tubular unguent bottles in common use during the mid 1st century (1210-1242). Fragment 1170 is closely related to these bottles and was probably contemporary with them, ie of pre- or early Flavian date. Flasks with this sort of rim formation are less common than the smaller unguent bottles with the same rim shape, and they tend to have an inverted conical body with concave base, like the one from Grave 33, the Liverpool Unten cemetery, Muralto (Simonett 1941, 95 no 23, Abb 79, Taf 12.8.1). Fragment 1170 thus appears to be quite unusual in form.

A similar funnel mouth with sheared rim edge (1171) was found at the Gilbert School, but as none of the body is preserved it is not possible to say if it too came from a wide-bodied flask or from the more normal tubular- or conical-bodied varieties. It was found in a context dated to c AD 100/125-250/75 (Period 3b), but clearly predates that period.

Flasks with sheared rims
Blue/green

1170 MRC71 F85 148. Building 160; Flavian to early 2nd century, contaminated (but Roman). Complete rim, neck and part of body, also 3 small body fragments. Out-turned rim, edge sheared; cylindrical neck with bulge beneath rim and pronounced constriction and tooling-marks at base; body sloping out shallowly. PH 104, length of rim and neck 94, RD 28x26, WT 1.5.

1171 GBS85 B162 L6; Period 3b. Rim fragment. Out-turned rim, edge sheared; cylindrical neck. PH 17, RD 30, WT 2.

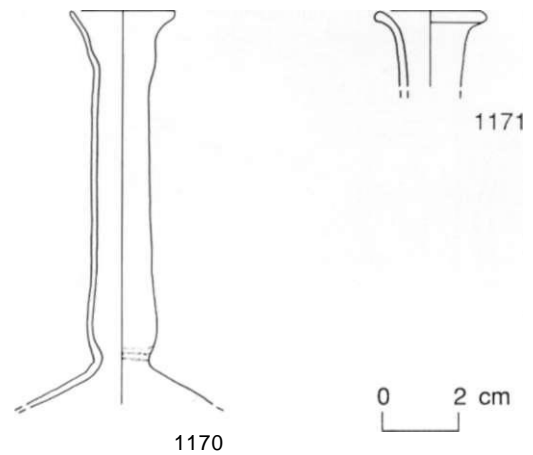


Fig 9.2 Flasks with sheared rims. 1:2.

Flasks with funnel mouths and rolled rims (1172-1175)

[Fig 9.3]

Four blue/green flasks with funnel mouths and short cylindrical necks are represented by the fragments found at Balcerne Lane (1173) and Culver Street

(1172, 1174 & 1175). On all of them the rim edge is rolled in and there are tooling-marks at the neck/body junction which, in the case of 1172 and to a lesser extent 1173, have resulted in a constriction. No indication of the body shape survives for any of these vessels, although several convex-curved body fragments were found with 1172, which suggests that it had a globular or ovoid body. However, as none of these join 1172 it is not certain that they came from the same vessel. None of the fragments 1172-1175 preserve the complete circumference of the rim, so it is possible that they had handles and thus were jugs rather than flasks. Funnel-mouthed jugs, however, tend not to have tooling-marks or constrictions at the base of their necks, so it seems more likely that 1172-1175 came from flasks, since this feature is frequently encountered on other types of flasks.

It is surprisingly difficult to find other flasks which combine the same rim and mouth formation with a relatively short neck. The possibility thus arises that 1172-1175 could have been idiosyncratic products of a local glass-house. They appear to have been in use during the late 1st or 2nd century, because 1175 was found at Culver Street in a context dated to c AD 65/80-150 (Site G, Period 3d), and 1174 in one of AD 60/1-c 150/200 (Site M, Period 3). The other two were found in contexts which post-dated AD 100 but which were not closely dated (1172, Culver Street Site B, Period 4/5, c AD 100-350+ and 1173, Balcerne Lane Site V, Period 5, c AD 100-300).

Flasks with funnel mouths and rolled rims
Blue/green

- 1172 1.81 B680 L25; Period 4/5. Rim and neck fragment. Funnel mouth, rim edge rolled in; cylindrical neck with constriction at base. Also 7 convex-curved body fragments possibly from same vessel. PH 65, RD 45, WT 3.

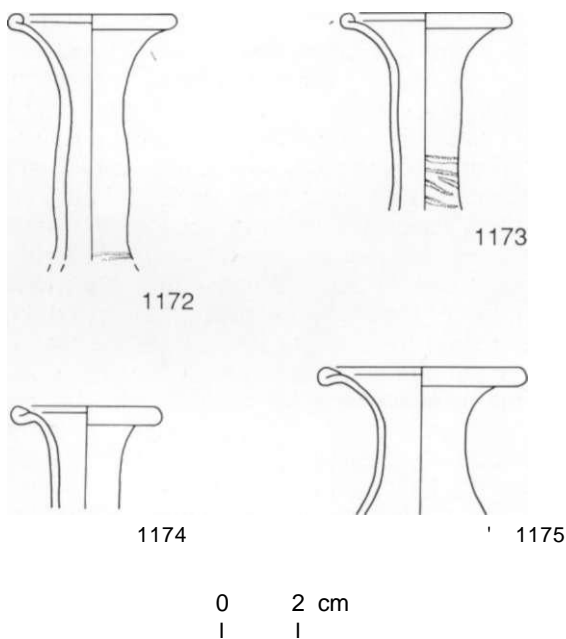


Fig 9.3 Flasks with funnel mouths and rolled rims. 1:2.
[Pages 149-50]

- 1173 BKC76 V301 L29; Period 5. Rim and neck fragment. Funnel mouth, rim edge rolled in; cylindrical neck with much diagonal tooling at neck/shoulder junction. PH 53, RD approx 40, WT 2.
- 1174 1.81 M353 L351; Period 3. Rim fragment. Funnel mouth, rim edge rolled out, up and in; cylindrical neck. PH 28, RD approx 40, WT 2.
- 1175 1.81 G4260 L4241; Period 3d. Rim, neck and body fragment. Funnel mouth, rim edge rolled in; short cylindrical neck with tooling-marks curving out to body. PH 39, RD 55, WT 2.

Ovoid flasks (1176)

[Fig 9.4]

The ovoid flask 1176 has a folded and flattened rim, a cylindrical neck with a slight constriction at its base, and a concave kicked base. It is made of green-tinged colourless glass and is almost complete, lacking only part of the rim and neck and small fragments from the body. It was found as a grave offering in a Roman inhumation at Maldon Road.

Broadly similar ovoid flasks were in use throughout the Roman period in colourless, blue/green and greenish glass. A blue/green example from Sheepen from a pre-Boudican context (Harden 1947, 304 no 83, pi 88), a colourless one from a probably mid-to-late 2nd-century inhumation at Infirmary Fields, Chester (Newstead 1914, 126 pi 31, fig 1), and a greenish one from a late Roman burial at Cirencester (McWhirr *et al* 1982, 132 fig 81.356) are amongst the examples to be noted from Roman Britain. All of these have constrictions at the bases of their necks but differ in rim and base details, for while the examples from Chester and Cirencester have wide rims and kicked bases like 1176, that from Sheepen has a shallow concave base and a narrow rim with a triangular profile. The differences in the rims and bases do seem to have a chronological significance, with the triangular-profiled rim going out of use before the end of the 1st century and the kicked base being found in 2nd-century or later flasks. The flask 1176 is clearly a later example, from both its occurrence in the Roman inhumation and the formation of its rim and base. The green-tinged colourless glass suggests that it is most likely to have been of later 3rd- or 4th-century date.

This simple utilitarian form was widespread and probably much more common than is generally apparent from the assemblages of domestic sites. It is difficult to identify from the type of fragments found on such sites as none of the features are very diagnostic, and fragments of its rim, base, etc could as easily have come from other forms of jugs or flasks. In the glass from these excavations, for example, the rim and neck fragments 1262-1451 and the concave base fragments 1556-1653 fall into this category. It is salutary to reflect that had 1176 not been placed as a grave offering and thus preserved virtually complete, this common flask form could not have been identified amongst this very large assemblage.

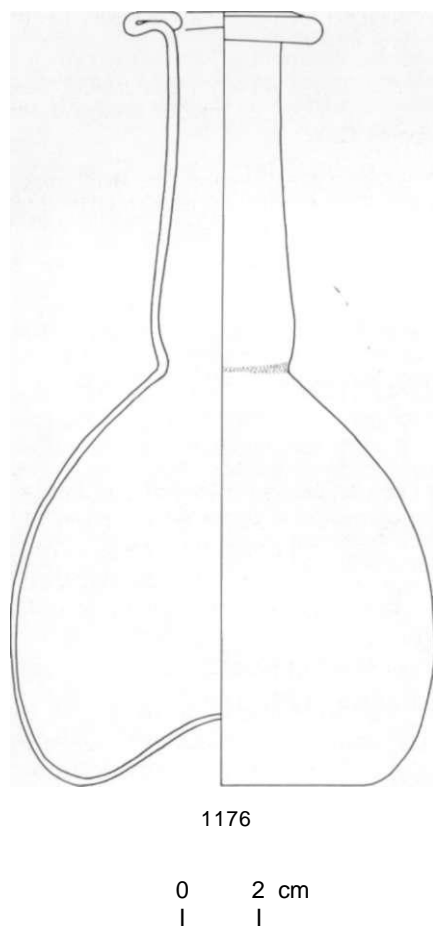


Fig 9.4 Ovoid flask. 1:2. [Pages 150-51]

Ovoid flask
Colourless

- 1176 MRC71 10 L15 F8; Roman grave, 3rd-4th centuries. Ovoid flask in 31 fragments lacking only part of rim and neck and small parts of body. Green-tinged. Rim bent, out, up, in and flattened; cylindrical neck with slight bulge above neck/body junction; ovoid body with deeply indented concave base. Base shows wear but no evidence of pontil or post-technique scars. H 205, RD 50, body diameter 115, BD 71, WT 2.

Miscellaneous flasks with folded or rolled rims (1177-1181)

[Fig 9.5]

As well as ovoid flasks such as **1176**, there were various other types of flasks which also had folded rims and cylindrical necks. The smaller forms are conventionally termed 'unguent bottles' and will be discussed below. Larger forms of flasks with this rim and neck form include types with constricted cylindrical bodies, such as those found in a pit at Richborough filled by AD 85 (Bushe-Fox 1949, 158 no 366, pi 67) and at Long Wyre Street, Colchester (CM, 549.28); an

indented conical-bodied form, like the one found in a late Roman inhumation at Swainswick, Bath (Scarth 1864, 96, pi 45); and a variety of two-handled flask (*diota*, or Isings Form 129) like that from Bishopsbourne, Kent (Bell 1847-8, 48 figs 1 & 2; Thorpe 1935, pi 5). It is clear that on flasks, as opposed to jugs, folded rims and cylindrical necks continued to be commonly used throughout the Roman period. In this assemblage, several rim and neck fragments (**1178**, **1179** & **1181**) are both sufficiently large to show that they came from flasks rather than unguent bottles, and sufficiently complete to show that they did not have handles and thus were not jugs. However, it is not easy to identify securely the precise forms, as in only one case (**1178**) is any part of the body preserved.

The flask **1181** is blue/green, and has a relatively wide neck and a rim which has been bent out and in with a triangular profile. There are tooling-marks over the lower part of the neck but no constriction, and the neck expands out smoothly to the body. It seems likely that it could have come from an early flask with an ovoid body of the type discussed above, such as the example from a pre-Boudican context at Sheepen (Harden 1947, 304 no 83, pi 88). These do not always have constrictions at the base of the neck, as may be seen from the pair with horizontal wheel-cut lines on their bodies from a Neronian cremation at the same site (Charlesworth 1985a, mf 1:A8 nos (b) & (c), fig 17). The fragments of **1181** were found in various contexts post-dating AD 60/1 at Lion Walk (Site J, Periods 3/4a & b, AD 60/1 -c 300), and the rim formation suggests that it is most likely to have come from a mid 1st-century vessel.

An unusual form is represented by **1178**. It is blue/green and has a wide out-turned rim with edge rolled in rather than bent out, up and in to give the full folded effect, a narrow cylindrical neck which slopes out very slightly to produce a bulge above the constriction at the base of the neck, and a very wide and only slightly convex-curved upper body. It does not appear to be precisely paralleled, but there are various possibilities for its original form. It could have been a variant of an ovoid-bodied flask in which case, unless it had a very large body, it may have been of squashed spherical shape. Alternatively it might have been a large example of a discoid unguent bottle (see **1243-1250**). A third possibility is that it came from an ovoid flask which narrowed towards its base (Isings Form 72) such as the one from a Tiberian context at Vindonissa (Berger 1960, 76 no 191, Taf 12 & 20.73). This form may have been represented at Sheepen by a rim, neck and upper body fragment (Charlesworth 1985a, mf 3:F7 no 53, fig 81). However, the rims on this form of flask have a small triangular profile and so **1178** differs from them in this respect. Fragment **1178** was found in a context dated to c AD 150-400+ (Balkerne Lane Site J, Periods 5b/5c/6). Its blue/green colour suggests it was made during the 1st to 3rd centuries, but apart from this it is not possible to suggest a more closely-dated period of use. The rim and neck fragment **1179** and the rim fragment **1180** are very similar

to 1178. Fragment 1179 almost certainly came from a flask, but 1180 is too fragmentary to say whether it came from a flask or a jug. Fragment 1180 was found at Culver Street and again is from a context that was not closely dated (Site B, Period 3/4, c AD 65/75-275/325), and so cannot be of any help when trying to date 1178 more closely.

One complete colourless cylindrical neck fragment comes from a post-Roman context at Culver Street (1177). The rim is not preserved but it seems likely, from the outward curve and small fragment of attached glass, to have come from a vessel with a folded rim. It is probably from a Roman flask or unguent bottle, but its form cannot be identified.

Miscellaneous flasks with folded or rolled rims

Colourless

1177 1.81 B131 F73; early medieval. Complete neck. Narrow cylindrical neck constricted at base and out-bent at top with small fragment of attached glass probably from the missing folded rim. Length 75, neck diameter 13, WT 2.

Blue/green

1178 BKC75 J183 F41; Periods 5b/5c/6. Twenty-five rim, neck and body fragments of wide-bodied flask. Short funnel mouth, rim edge rolled in; long narrow cylindrical neck with tooled constriction at neck/shoulder junction; wide slightly concave shoulder curving out to body. PH 145, length of rim and neck 110, RD 38, WT 1.

1179 Balkerne Gardens, 1977 (a watching brief). X Series 151. Rim and neck fragment lacking only approx one third of rim-edge circumference. Wide horizontal rim, edge rolled in; thick straight-sided neck expanding out to junction with body; tooling-marks at base of neck. PH 89, RD 40, WT 4.5.

1180 1.81 B1449 L267; Building 112, Room 4; Period 3/4. Rim fragment. Rim out-bent almost horizontally, edge partially rounded and partially rolled-in. RD 45, WT 2.

1181 LWC72 J887 J911 F220; Building 3. J718 F220; Period 3. LWC72 J805; Building 20, Room 5 floor, Period 4a & b. Seven rim, neck and body fragments. Rim edge neatly rolled out, up, in and flattened to form small lip of varying thickness; cylindrical neck with tooling-marks on lower part; slightly convex-curved body sloping out diagonally. PH 70, RD approx 32, WT 2.

Mercury flasks (1182-1183)

[Fig 9.6]

Two Mercury flasks (Isings Form 84) are represented by 1182 and 1183. These are made in colourless or greenish glass with folded rims, long cylindrical necks and tall narrow bodies of square or occasionally hexagonal section. The bodies were blown in a mould, and because of this it was possible to provide them with raised moulded patterns on both their bases and sides, though the latter is less common than the former. The base patterns include a figure, representing Mercury according to his attributes, surrounded by letters in each corner (Stern 1977, 64-72). The letters vary, for example one from Geich, Kreis Duren is marked GFHI (or L) (Gerhards 1959, 414 Abb 42), another from Hochscheid, Kreis Bernkastel-Wittlich has CMHR (Goethert-Polaschek 1977, 183 no 1142, Taf 63), and one from Koln has the letters MGHI (Fremersdorf 1961, 61).

The base patterns have given rise to the collective name of Mercury flasks for all these vessels, but many other base patterns and plain bases also occur. Other base patterns include combinations of letters and other figures such as the figure of Fortuna with the name *Evhodia* on a flask from Vise, Liege (Vanderhoeven 1961, 104 no 115, pi 27), and a pair of cockerels with the same name on one from the burial with the internally-decorated sarcophagus at Simpelfeld (Isings 1957, 101). Kisa notes various additional designs (1908, 926-30 nos 18-42 & 940-43 nos 13-29). Simple circular mouldings with and without raised dots in the corners were also employed; see for example those from Quatremares, Seine Maritime (Sennequier 1985, 105-7 nos 168-71). Moulded decoration on the sides is much rarer and generally takes the form of a pattern resembling a palm branch, as on one from a

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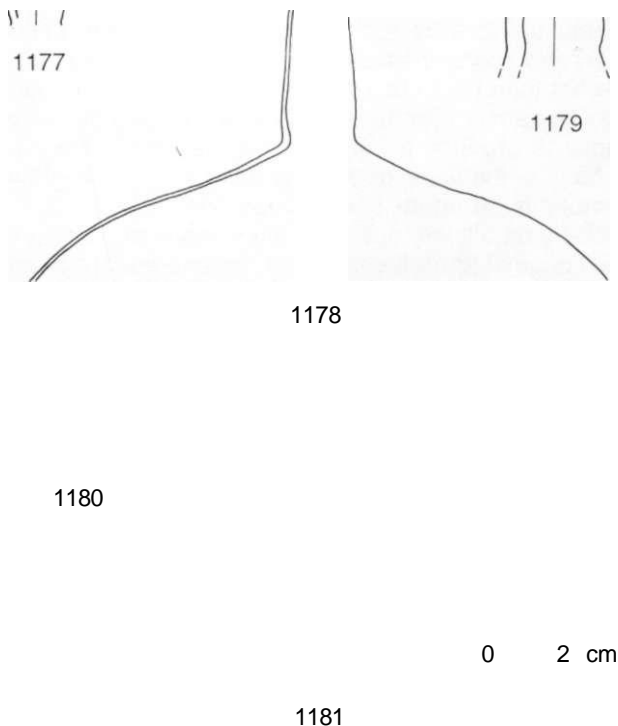


Fig 9.5 Miscellaneous flasks with folded or rolled rims. 1:2. [Pages 151-2]

4th-century grave at Aachener Strasse, Trier (Goethert-Polaschek 1977, 183 no 1141, Taf 24.260b). A thunderbolt motif is also known (Isings 1957, 101).

These flasks are primarily of late 2nd- and 3rd-century date. Isings records one of probably Flavian date from a grave at St Remy (*ibid*, 100), but this is quite exceptional. They appear to come into general use towards the end of the 2nd century. Examples found in graves which have a *terminus post quem* provided by coins include those from Rheims with a coin of Commodus (AD 180-193) (Kisa 1908, 783); from Gelsdorf where the latest coins were those of Julia Moesia (AD 218-222) (Isings 1957, 101); and from Koln-Zollstock where the latest coin was one of Severus Alexander (AD 222-235) (Fremersdorf 1937, 194, Taf 42.2). The form remained in use during the 3rd century, as a few are found in late 3rd- or 4th-century graves, such as the examples already noted from Aachener Strasse, Trier and one from Weiden with coins which included those of Maximilian (AD 293-309) (Kisa 1908, 785), but it does not commonly occur in 4th-century contexts. Two of the flasks found in the later graves (those from Trier and Weiden) have base patterns that consist of the letters FIRM/HILAR/ETYLAE, which may be read as the names *Firmus*, *Hilarus* and *Hylas*. These late occurrences may only be fortuitous; on the other hand, they may indicate that the bottles with *Firmus* bases were later than those of the classic Mercury type with a figure accompanied by letters. Of the two from the 1971-85 Colchester excavations, **1182** is most securely identified as coming from a Mercury flask. It is a side fragment of pale green glass which retains part of a raised branching design, and obviously came from one of the rarer forms with a palm-branch pattern decoration on the sides. It was found in a post-Roman context at Balckerne Lane. The other example (**1183**) is colourless and again came from a post-Roman context, in this case at Middleborough. It consists of two body and base fragments, one of which retains the edge of a moulding of unidentifiable form on the base.

Mercury flasks are found in the western provinces. They are most numerous in north Gaul and the Rhineland, but also occur in southern Gaul, Italy and Pannonia; see for example those from Aquileia (Calvi 1968, 57-9 nos 142-3, tav B.5) and Brigetio (Barkoczi 1966-7, 72, 85 no 10, Abb 27.1). In Britain they have not often been recorded; virtually intact examples have been found at Infirmary Fields, Chester with an inhumation of probable mid-to-late 2nd-century date (Newstead 1914, 126 pi 31, fig 2), and at Ospringe, Kent where there were possibly two from the same cremation (Whiting 1926, 126 no 151; Whiting *et al* 1931, pi 17.151). Fragmentary examples have also been recovered at Fishbourne (Harden & Price 1971, 358 no 87, fig 142); Church Street, York (Charlesworth 1976b, 17 no 44, fig 13); possibly at Cirencester (Charlesworth 1982a, mf D14); and at Catterick (Site 433), Piercebridge and Blake Street, York (all unpublished).

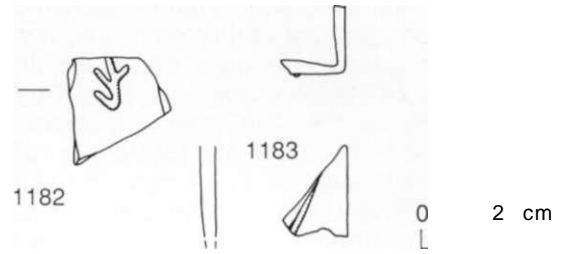


Fig 9.6 Mercury flasks. 1:2. [Pages 152-3]

Mercury flasks

Pale green

1182 BKC73-6 A30 L1; post-Roman. Body fragment. Flat side with raised design in low relief; a central bar with 2 bars running off diagonally to one side and a third to the other. Dim 30x25, WT 3-5.

Colourless

1183 MID78 E2918 L409; Building 76, Phase 1 Period 1. Two body and base fragments. Straight side; flat base with raised moulding. Dim 32x34, WT 3.

Spherical flasks with cracked-off rims

(1184-1187)

[Fig 9.7]

A minimum of four spherical flasks of Isings Form 103 are represented by rim and neck fragments from Culver Street (**1184 & 1186-1187**) and Balckerne Lane (**1185**), and a grozed neck fragment with abraded band (**1282**) from Butt Road may also have come from such a vessel. These flasks have cylindrical necks with cracked-off edges that were sometimes ground and sometimes left rough. The necks are constricted at the junction with the spherical body and the bases are shallowly concave. The range of sizes of these flasks is quite large, the smaller vessels being considerably less than half the height of the larger vessels; compare for example one which is 100 mm high from a grave at Josefstrasse, Bonn (Haberey 1961, 327 no 17, Taf 63.1 Abb 7.1) with another which is 280 mm high from Luxemburger Strasse, Koln (Fremersdorf & Polonyi-Fremersdorf 1984, 39 no 99). The normal decoration is abrasion or wheel-cutting in horizontal bands arranged at intervals down the body, but some flasks are also left plain. Examples of both can be seen amongst the grave goods with a cremation burial at Jacobwullesheim, Kreis Duren (Haberey 1959a, 418 Abb 43.7-9).

Other kinds of decoration are much less common but include wheel-cut and abraded geometric patterns on the body, as on one from a cremation burial probably dating to the second half of the 3rd century at St Severin, Koln (Fremersdorf 1926, 300 Abb 12.3), and slightly diagonal ribs, as on a vessel found with a

Spherical flasks with cracked-off rims

late Roman inhumation at Alington Avenue, Dorchester (unpublished). Rarest of all are the examples with abraded or painted figured decoration. The former category includes the flasks decorated with scenes of the town and harbour at Puteoli and Baiae, such as the one from Populonia, Etruria (Harden *et al* 1987, 208-9 no 116; Painter 1975), and the latter flasks such as those from Gut Durrffenthal bei Zulpich (Kisa 1908, 817 Abb 849) and Aachener Strasse, Koln (Fremersdorf 1942, 46, Taf 8 & 1967, 189, Taf 271), which have scenes of chariot racing and a hunt respectively. A few flasks of this sort have abraded inscriptions, such as the one from Mainz with the words FELIX VIVAS (von Pfeffer *et al* 1960, 45 no 197). These vessels are usually made in colourless, greenish colourless or blue/green glass. Strongly-coloured glass was occasionally used for the rare painted examples, such as the one from Durrffenthal which was made in deep red glass.

This type of flask was in use during the 3rd century. An example from a 3rd-century burial in Koln has already been mentioned, and others in graves at St Matthias, Trier are dated by pottery to the second half of the 3rd century (Goethert-Polaschek 1977, 150 nos 902 & 904, Taf 15. 165b & 168b). Examples were also found with a child inhumation at Josefstrasse, Bonn which contained seven coins, the latest of which were five belonging to the period AD 238-253 (Haberey 1961, 327 no 17, Taf 63.1 Abb 7.1). The coins from the grave at Bonn suggest that deposition may have taken place early in the second half of the 3rd century, making this one of the earliest dated occurrences of this form of flask. Although the grave at Jacobwullesheim, Kreis Duren noted above contained three of these flasks and two coins of Antoninus Pius (AD 145-61), this does not provide conclusive evidence that the flasks came into use earlier, as the group also contained three cylindrical funnel-mouthed bottles (see **2246**) which are unlikely to predate the later 3rd century. The evidence thus appears to indicate that flasks of Isings Form 103 came into use about the middle of the 3rd century.

These vessels must have continued in use into the 4th century as they are not infrequent finds in graves of that date. Where these 4th-century burials can be more closely dated by the other grave goods, they usually belong to the first half of the century as, for example, burials from Trier (Goethert-Polaschek 1977, 151, nos 905 & 907, Tafn 18.185c & 59) and Andernach (Isings 1957, 122).

Two of the pieces from the 1971-85 Colchester excavations were blue/green (**1184-1185**), and two were made in greenish colourless bubbly glass (**1186-1187**). In only one case (**1186**) was the complete length of the neck preserved, and that indicated that the flask had been a small one, while the rim diameters of the others suggest that they came from larger flasks. Fragment **1184** retains an abraded band below the rim but all the others are plain. In the case of **1186**, all of the neck was obviously undecorated, but in that of **1185** and **1187** the vessels could have

been decorated on the lower part of the neck. Fragment **1185** came from a context belonging to the second half of the 3rd century (Balkerne Lane Site H, Period 5c, c AD 250-300), while **1184** and **1186** came from more broadly dated contexts in the 3rd and early 4th centuries (Culver Street Site H, Period 5).

These flasks were common in the Rhineland and north Gaul. In addition to the examples already mentioned from those areas, an example from Rennes, Ille-et-Vilaine (Bousquet 1971, 235, fig 1) may also be noted. They also occur further south and east. In Italy there are examples from Aquileia (Calvi 1968, 146, 150 nos 309-310, tav N2), and those with scenes of Puteoli and Baiae must be of Italian origin. The form also occurs in Pannonia (Barkoczi 1988, 144, Taf 27), and at least eleven were found at Dura-Europos (Clairmont 1963, 113-14 nos 543-54, pi 12).

Examples have not often been noted from Roman Britain, perhaps because they usually occur as small fragments. Three complete or nearly complete examples are known which all belong to the smaller end of the size range. In addition to the colourless ribbed example from Alington Avenue, Dorchester, there is a blue/green undecorated flask which is an earlier find from Colchester (Price 1888, 73 no 940; CM, JOS 940), and a wheel-cut colourless example from York (Harden 1962, 141, pi 67.HG 33). A fragmentary colourless wheel-cut example has been found at Shakenoak (Harden 1968a, 78 no 21, fig 26.8), and there are also neck fragments from Greyhound Yard, Dorchester (Cool & Price 1993, 164 no 107, fig 86) and Catterick (unpublished).

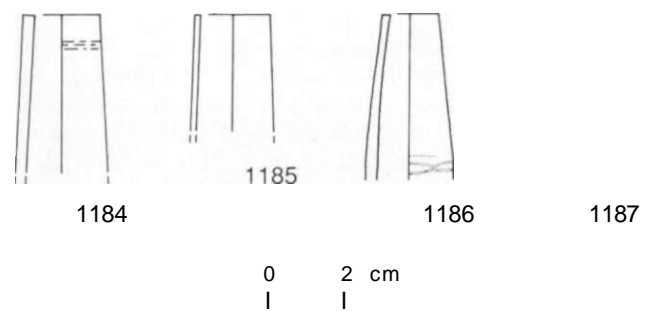


Fig 9.7 Spherical flasks with cracked-off rims. 1:2. [Pages 153-5]

Spherical flasks with cracked-off rims Blue/green

- 1184 1.81 G585 L982; Period 5. G1 L1; Period 6. Two joining rim and 1 neck fragments. Vertical rim, edge knocked-off and ground; cylindrical neck. Abraded band below rim. PH 42, RD 20, WT 3.
- 1185 BKC75 H111 F33; Period 5c. Two rim fragments. Cylindrical neck, edge cracked-off but not ground. PH 30, RD 20, WT 1.5.

Late Roman green

- 1186 1.81 G1464 L762; Period 5. Rim fragment. Light green. Vertical rim, edge cracked-off and not ground; cylindrical neck with tooling-marks at base. PH 44, RD approx 15, WT 2.

1187 1.81 B126; unstratified. Rim fragment. Greenish colourless. Vertical rim, edge cracked-off and ground; cylindrical neck. PH 40, RD 21, WT 3.5.

Indented flasks (1188-1189)

[Fig 9.8]

Vessels **1188-1189** are indented flasks of an unusual form. The flask **1188** from Grave 693 at Butt Road is complete; it has a funnel mouth with a fire-rounded edge, a tapering neck, a truncated conical body with five deep oval indents, and a concave base with a central kick and trailed base ring; the shoulder and the inside of the rim have abraded bands. The flask **1189** is incomplete; it is very similar to **1188**, though it does not appear to have any abraded decoration. Both examples are made of colourless glass which in the case of **1188** is green-tinged.

The only other example of this type so far recognised is the lower body and base fragment of one from Rougier Street, York (unpublished). The closest parallel for these uncommon flasks seems to be an apparently undecorated example of approximately the same size, found in a late Roman grave at Vermand (Eck 1891, pi 7.2). This type of flask also has some affinities with a group from the 4th century found in the Rhineland (Isings Form 114b). Common features shared by the two types are abraded decoration, an indented body and a trailed base ring. Isings Form 114b differs from the Colchester flasks in having a more ovoid body, a wide cylindrical neck and an open cut-out roll forming a ridge on the shoulder.

The indented flasks found at Colchester were obviously in use by the late 3rd century, as **1188** was found in a grave at Butt Road dated to c AD 280-300/320 (Period 1, Phase 2). The fragments numbered **1189** come from a 4th-century context but cannot be more closely dated (Balkerne Lane Site N, Period 6, c AD 300-400+).

These flasks are thus broadly contemporary with Isings Form 114b, examples of which have also been found in early 4th-century graves; for example, one at Klingelputz, Koln had two coins of Constantine I (AD 307-337) amongst its grave goods (Busch & Binsfeld 1971, 134 Abb 5.4).

Indented flasks

Colourless

1188 BUC79 H1039 G693; Period 1. Indented flask in 62 fragments. Green-tinged. Funnel mouth and neck, rim edge fire-rounded; wide convex-curved shoulder above truncated conical body which tapers into concave base with central kick; very thick trailed base ring with post-technique scars. Lower body decorated with 5 deep oval indentations which show sharp central imprint of tool used to push them in. Shoulder and inside of rim have abraded bands. Height approx 160, RD 71, BD 57, WT 1.

1189 BKC75 N90; Period 6. Eight rim, body and base fragments. Funnel mouth, rim edge fire-rounded; convex-curved body curving into broken base with trailed base ring at edge. Deep elongated oval indentations on body. PH (rim) 41 and (base) 42, RD 65, WT 1.5.

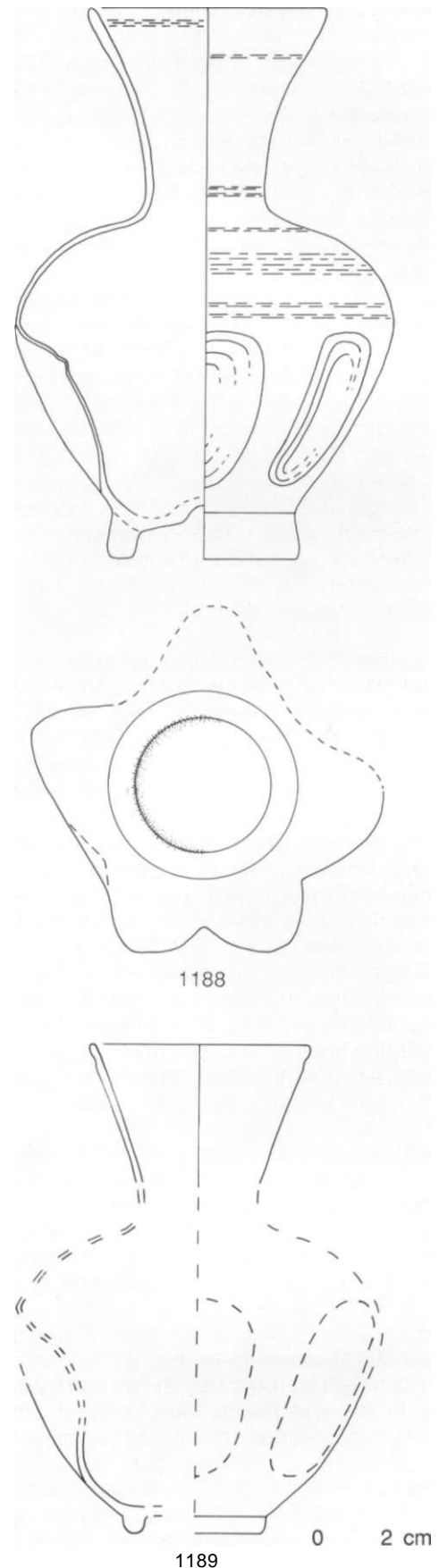


Fig 9.8 Indented flasks. 1:2.

Bath flasks (1190-1209)

[Fig 9.9; Table 9.1]

All the fragments **1190-1209** are probably from blue/green bath flasks (Isings Form 61). The majority of bath flasks have folded and flattened rims, short cylindrical necks, globular bodies, concave bases and two handles occupying the space between the shoulder and the rim. These handles are in the form of looped eyelets and are often called 'dolphin handles'. A classic example of a bath flask combining all of these standard features is the one found in an Antonine pit at Corbridge (Richmond & Gillam 1952, 259-60, pi 8). These vessels were used for carrying oils on visits to the baths (hence the name), and examples retaining metal suspension chains threaded through the handles have sometimes been found; see for example one from the Guildhall Museum collection (Harden 1970a, 8 no 21), and an unusual four-handled specimen from Pompeii (Ward-Perkins & Claridge 1977, 232 no 231). Other examples from Britain which retain the attachments from such chains include the vessel from Corbridge noted above and a fragmentary bath flask from Berkeley Street, Gloucester (unpublished).

Vessels of this basic form were made in both metal and glass, and have a long history. Polychrome core-made examples were in use in the 6th and 5th centuries BC (Harden 1981, 89). On present evidence, the form does not seem to occur as a blown-glass vessel before the later Neronian period, but thereafter it was common during the later 1st and 2nd centuries. Its use continued until the late 2nd and early 3rd centuries, as is demonstrated by the presence of examples in graves of that date, such as the cremation at Laurenzberg, Kreis Julich (Follman & Piepers 1963, 543 no 5, Abb 28) and St Severin, Koln (Fremersdorf 1926, 292 Abb 1.4). The large number of fragments found in the *frigidarium* drain deposit at the legionary baths at Caerleon, which was accumulating between AD 160 and 230, also illustrate their abundance at this date (Allen 1986a, 104-7 nos 32-42, fig 41 & nos 52-6, fig 42 pi 3e).

Bath flasks may have continued in use into the mid 3rd century. Fragments of one were found in the cemetery at Brougham, Cumbria which is dated to between AD 220/30 and 270/80 (unpublished). However, there is little evidence that they were at all common by the end of the 3rd century.

Some bath flasks differ from the standard shape described above in details of their rim and handle formation. The form also shows variety in the colour of the glass and the decoration used. Some of these variants appear to have chronological significance.

In addition to the standard folded and flattened rim, a rim form with a small triangular profile was also used. This appears only on 1st-century bath flasks; it occurs for example on the deep blue bath flask with opaque white marvered spots found near Richborough, probably in association with a samian cup dated to

AD 80-90 (Harden *et al* 1968, 58 no 70), on a blue/green example from a cremation burial at Sheepen (Charlesworth 1985a, mf 1:A9 no (c), fig 18.3), on a colourless example with wheel-cut lines from a Flavian context at Berkeley Street, Gloucester (unpublished), and on a green example from a late 1st-century water channel at Southwark (Townend & Hinton 1978, 462 no 135 fig 207).

Another variation which may have chronological or workshop significance is the formation of the handles. The most frequently-encountered method of formation, and the one seen on the majority of the vessels from the 1971-85 Colchester excavations (**1190, 1191, 1194 & 1197-1200**), was to apply a trail of glass to the shoulder, trail it up the neck and the underside of the rim and loop it back to the shoulder with the return trail extending up towards the rim. The four Neronian or Flavian bath flasks with triangular-profiled rims differ from this pattern. In the case of the Sheepen bath flask, the trailing process is reversed as it also is on **1195**. On the Southwark flask the handle is applied to the shoulder and looped over to the neck; and on the flask from Richborough the handles are applied to the shoulders and do not touch the neck or rim, while on the flask from Gloucester the handle is looped down directly from the neck and does not touch the rim. This range of treatment of handles on early bath flasks may be the result of variations in the practice of different glass-makers.

Variations in form also occur on bath flasks found in later 2nd- or 3rd-century contexts in the Rhineland and elsewhere in the north-western provinces. These include flasks with funnel mouths, cylindrical necks with knocked-off rim edges, discoid bodies and base rings (see for example those from Koln; Fremersdorf & Polonyi-Fremersdorf 1984, 105-9 nos 234-43). So far, however, none of these late variants have been found in Britain although another, the rare ring-shaped form with hollow tubular body, is known from an example found in a late inhumation grave at York (Harden 1962, 140, fig 88 H.324.6).

Most bath flasks were made of blue/green glass; colourless examples were always in the minority, as is well illustrated by the examples from the *frigidarium* drain deposit at Caerleon. There 58 rim and handle, 11 base and 102 body fragments from blue/green bath flasks were found, while only four colourless vessels could be recognised (Allen 1986a, 104-7 nos 32-42 & 52-6, figs 41-2 pi 3e). The colourless examples are often decorated with wheel-cutting both in the form of simple linear patterns and more complex linear- and facet-cut patterns. The facet-cut bath flasks were in use in the late 2nd and earlier 3rd centuries (Harden & Price 1971, 342; Allen 1986a, 108). Examples with simple linear-cutting were contemporary with them, as the occurrence of three in the drain deposit at Caerleon demonstrates well (*ibid*, 109 nos 52-5 fig 42), but the one noted above from a Flavian context at Berkeley Street, Gloucester shows that the simpler form of decoration was also in use earlier. Bath flasks appear only very rarely to have

been made in the strong monochrome and polychrome colours typical of the early and mid 1st century. A deep blue one with opaque white decoration from near Richborough has already been noted but this appears to be unique, though a dark blue body with opaque white and yellow splashes from Carmarthen (unpublished) may also have come from a bath flask.

Bath flasks of both blue/green and colourless glass were sometimes decorated with spiral self-coloured trails; see for example the one from Exeter (Charlesworth 1979a, 228 no 35, fig 71). These appear to be more common than the wheel-cut examples, but they are still rare in comparison with the undecorated blue/green vessels. They were clearly in use during the later 2nd and 3rd centuries, as is shown by their presence in such deposits as that of the Caerleon *frigidarium* drain (Allen 1986a, 108-9 no 56, fig 42), and in Grave XLII at Ospringe (Whiting *et al* 1931, pi 16.46) which also contained a pottery flanged-neck flask of late 2nd- or early 3rd-century date (Pollard 1988, 117 fig 44). However, when trailed bath flasks came into use has not been established.

Though these variously formed and coloured variants have been dealt with in some detail, it must be stressed that virtually all bath flasks are blue/green and of the standard form, and with one exception it is not usually possible to date these more closely within the late Neronian to 3rd-century period. The exception concerns the small thin-walled flasks which may have been a 2nd-century development (Allen 1986a, 104-5, nos 32-4, 37-8, fig 41). These thin-walled examples probably continued in use into the 3rd century, since the one from the mid 3rd-century cemetery at Brougham noted above was of this variety.

The occurrence of bath flasks from the various sites is shown in Table 9.1, where a minimum of fifteen vessels is recorded from six sites. The fragment from the Cups Hotel (**1206**) is unusual and consists

of the tooled crest of a lower handle attachment; its identification as a bath flask is tentative as it might have come from an inkwell. A more accurate minimum vessel estimate is thus fourteen vessels from five sites.

All of the examples from the 1971-85 Colchester excavations are blue/green and none retains any evidence that they were decorated. None of the rim, neck or base fragments came from the small thin-walled variety, though the variant is known at Colchester from an earlier excavation at Sheepen (CM, 45.1973) and the handle fragment **1204** may also have come from such a vessel. It is thus not possible to provide an independent date for any of these vessels within the Neronian to 3rd-century period. Nor are the contexts they were found in very helpful for dating the fragments. None of them came from contexts that predate AD 100, and only the handle fragment **1203** came from a relatively closely-dated context (Lion Walk Site J, Period 4a make-up, c AD 150-200).

Several fragments, however, are worthy of special note. Fragments **1197** from Lion Walk and **1198** from Culver Street both differ from the standard form in having relatively long necks and rims which are very slightly funnel-shaped and have rolled-in edges. They both have horizontal tooling-marks inside the handles and they may be the products of the same glass-making tradition. Fragment **1198** was unstratified, but **1197** was found in the rampart deposit at Lion Walk (Site M, Rampart 1e) of late Roman date but which contained much Antonine pottery. There is one other long-necked fragment (**1194**) in the assemblage, the glass of which is very bubbly and full of impurities, and compared with most bath flasks it is very carelessly made. This piece is of such poor quality that it may perhaps have been a local product, for it seems unlikely that it would have been acceptable as anything other than sub-standard and is unlikely to have been an article of trade.

Bath flasks were in use in both the western and eastern provinces. In Roman Britain they are widespread, but tend only to occur as individual examples on ordinary domestic sites such as at Caerwent (Boon 1972-3, 114 no 7 fig 1), Rapsley villa, Ewhurst in Surrey (Hanworth 1968, 35 no 16 fig 14), and Verulamium (Charlesworth 1984a, 169 no 274, fig 68.127). By contrast, fragments can occur in large numbers in contexts where the detritus from baths accumulated. The large numbers in the *frigidarium* drain at Caerleon have already been mentioned, and the form was also well represented in the Roman sewer at Church Street, York which was associated with the legionary baths there (Charlesworth 1976b, 15-16 nos 32-42 fig 12). Fragments from possibly three bath flasks have been recovered from the site of the legionary baths at Exeter, though they are not stratigraphically associated with it (Charlesworth 1979a, 228 nos 35-6, fig 71). A similar situation has been recorded at the bath-house site at Catterick (Site 433, unpublished).

Table 9.1 Distribution of bath flasks, tubular unguent bottles and truncated conical unguent bottles. [Pages 157, 159 & 161]

SITE	bath flasks		tubular unguent bottles		truncated conical unguent bottles	
	Frs	EMN	Frs	EMN	Frs	EMN
1.81	6	4	14	10	4	3
BKC	9	5	10	6	3	2
LWC	3	3	4	3	1	1
GBS	1	1	6	6	-	-
BUC	3	1	-	-	-	-
CPS	1	1	1	1	-	-
Totals	23	15	35	26	8	6

Bath flasks

It is, therefore, most interesting to note that three of the minimum of fourteen bath flasks (**1192, 1195 & 1199**) found during these excavations at Colchester were from the material dumped on the allotments at Balcerne Lane (Site V) about AD 300. This relatively large number may suggest that at least some of this material was derived from the vicinity of a baths or the clearing-out of a drain deposit.

*Bath flasks
Blue/green*

- 1190 1.81 B1847 F550; post-Roman. Complete rim, neck, 2 handles and part of shoulder. Rim bent out, up, in and flattened; cylindrical neck; horizontal convex-curved shoulder. Dolphin handle either side of neck, applied to shoulder trailed up neck and underside of rim, looped down to shoulder and return trail taken back up to rim. PH 26, RD approx 31, WT 3.
- 1191 BKC75 J61 L1; modern. Rim, neck, handle and shoulder fragment. Rim bent out, up, in and flattened with deep tooling-marks on underside; cylindrical neck; shoulder sloping out. One dolphin handle applied to shoulder, trailed up neck and underside of rim and looped down; small fragment only of second handle remains. PH 28, RD 35, WT 4.
- 1192 BKC76 V658 L11; late Period 5 (c AD 300). Rim, neck and handle fragment. Rim bent out, up, in and flattened with

part of edge extending down inside cylindrical neck; part of dolphin handle applied to underside of rim and neck. Underside of rim distorted by folds. PH 16, RD approx 30.

- 1193 GBS84 A318 F27; Period 3b. Rim fragment. Rim bent out, up, in and flattened with inner edge projecting down inside cylindrical neck; small fragment from handle on rim edge. PH 10, RD 30, WT 2.
- 1194 BUC77 C1672 G442; Period 2. Three rim, neck, shoulder and handle fragments. Rim bent out and down, up, in and flattened; cylindrical neck with constriction above wide convex-curved shoulders; 2 dolphin handles trailed up shoulder and neck, looped back to shoulder with return trail running up handle to neck. PH 48, RD 46, WT 2.5.
- 1195 BKC76 V1113 L146; late Period 5 (c AD 300). Rim, neck, handle and shoulder fragment. Out-turned rim, edge rolled up and in; neck curving into convex-curved shoulder. Dolphin handle applied to shoulder, trailed up neck and underside of rim and looped down. PH approx 30, WT 2.
- 1197 LWC72 M95; Rampart 1e, late Roman. Rim, neck, shoulder and handle fragment. Slightly funnel-shaped mouth, edge rolled in; cylindrical neck constricted at junction with convex-curved shoulder; dolphin handle attached to shoulder, neck and underside of rim, looped down to shoulder and back to rim. Horizontal tooling-marks inside handle. PH 40, RD approx 40, WT 2.5.
- 1198 1.81 B916; unstratified. Rim, neck, shoulder and handle fragment. Description as 1197.

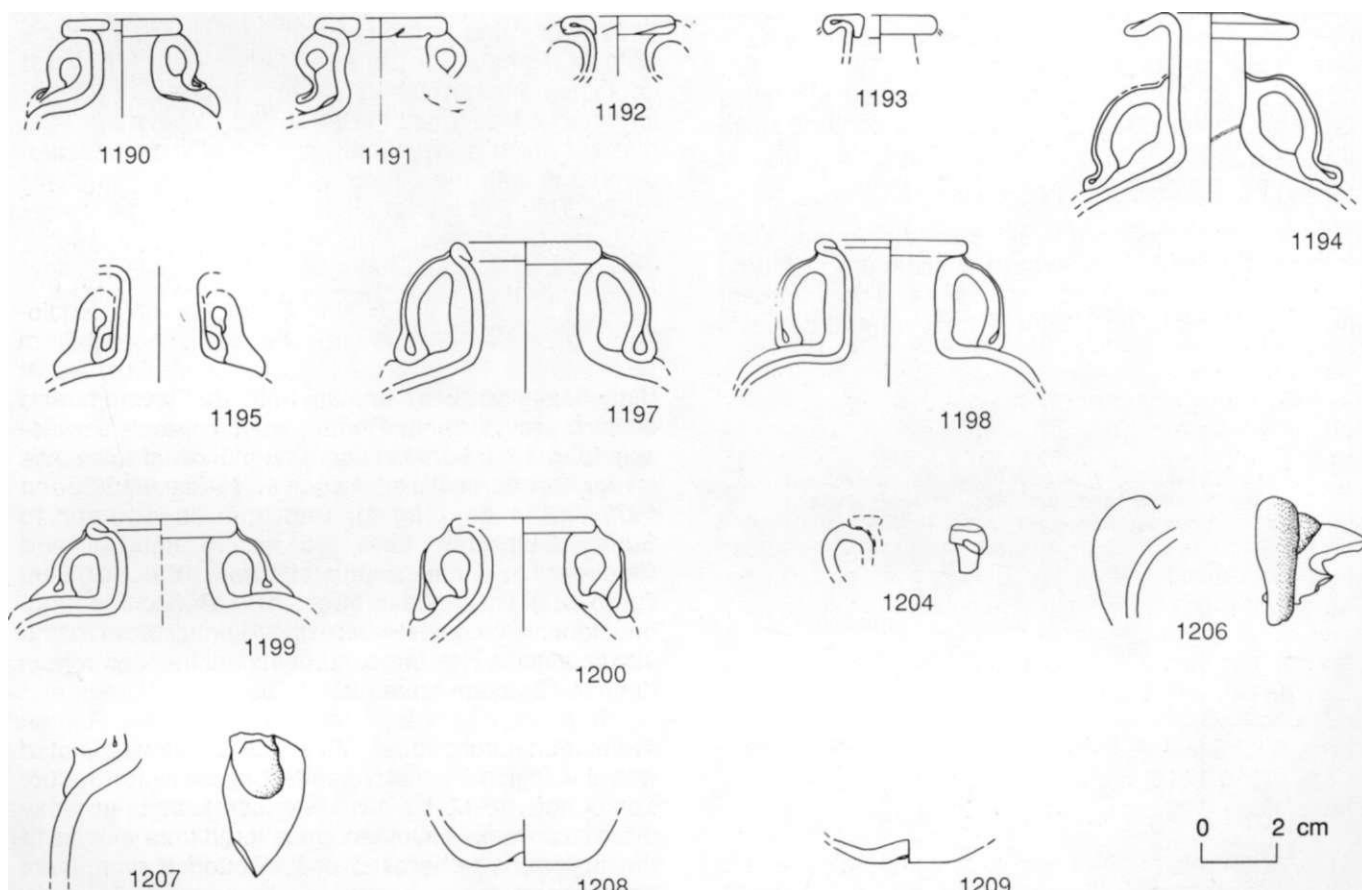


Fig 9.9 Bath flasks. 1:2. [Pages 156-9]

- 1199 BKC76 V1052; late Period 5 (c AD 300). Rim, neck, handle and shoulder fragment. Rim bent out, up and in; cylindrical neck; convex-curved shoulder; dolphin handle applied to shoulder, trailed up neck and underside of rim and looped down. PH 28, RD approx 30, WT 2.
- 1200 BKC75 M10; Periods 5 or 6 or modern. Rim, neck, handle and shoulder fragment. Rim bent out, edge missing; cylindrical neck; convex-curved shoulder. Dolphin handle applied to neck, trailed down then back up and down to shoulder. PH approx 30, neck diameter (outer) 22, WT 3.
- 1204 1.81 D1631 F1492; Period 4. Upper part of dolphin handle.
- 1206 CPS73 105 F43; Period 5. Shoulder and handle fragment. Convex-curved shoulder; broken lower handle attachment applied to shoulder and tooled to crest, probably from looped handle. Dim 34x20, WT 3.
- 1207 1.81 C100 L8; Period 4. Body and handle fragment of bath flask or jug? Convex-curved body; rounded lower handle attachment possibly with some pinched decoration. Dim 41x22, WT 5.
- 1208 BKC75 N1 L1; modern. Lower body and base fragment of bath flask? Convex-curved side sloping into concave base with small central kick. Oval pontil scar. PH 12, BD approx 25, WT 3.
- 1209 1.81 G230 L177; Period 5. Base fragment of bath flask? Side curving into small concave base with additional glass left by pontil-iron. BD approx 20, WT 3.

Tubular unguent bottles (1210-1242)

[Figs 9.10-9.11; Table 9.1]

Tubular unguent bottles (Isings Form 8) were the commonest type of unguent bottle found during these excavations. They have slightly out-turned rims with sheared edges, cylindrical necks, a constriction or tooling-marks at the junction with the tubular body, and a convex base; see for example the complete bottles found with cremation burials of Neronian and late Flavian date at Winchester (Collis 1978, 85 fig 30.20 & 102, fig 42.49). The body may sometimes take on a more conical appearance when the base has been flattened (Isings Form 28a). Very occasionally tubular unguent bottles of this form have rim edges which are bent out and rolled in, as on one from York (Harden 1962, 137 fig 89 H.G. 231). Examples of these appear to be much rarer than those with sheared rims, but it is difficult to make a close estimate of their relative frequency as these vessels are most often recognised from parts of the lower body and base. This is because the thickness of the body increases markedly towards the base, resulting in very characteristic base fragments when they break. This assemblage illustrates the phenomenon well, as the fragments assigned to this form consist of eleven which came from the rim to upper body (**1210-1216**) as opposed to twenty-four from the lower body and base (**1217-1242**).

Tubular unguent bottles are most commonly made in blue/green glass. Yellowish green and the stronger colours such as yellow/brown, deep blue and purple were also used, but these appear to be much rarer in Roman Britain than blue/green. This may be seen in

the assemblages recovered at Sheepen and Kingsholm, Gloucester. At Sheepen, 41 fragments from blue/green tubular unguent bottles were identified in comparison to only one each in yellow/brown, deep blue and light green glass (Harden 1947; Charlesworth 1985a; unpublished material in CM), and at Kingsholm, two out of the minimum of eighteen vessels recognised were yellow/green whereas all the others were blue/green (Price & Cool 1985, 44, 48 nos 39 & 39b, 52-4 nos 65-83, figs 19-20). The size of these unguent bottles varies, with the largest being several times longer than the smallest. In Cadra Grave 14 at Minusio, for example, twenty-five tubular unguent bottles were found, and their lengths ranged from 70 to 190 mm (Simonett 1941, 148-9 nos 2 & 17, Abb 128), while at Kingsholm the largest was 112 mm high and the smallest 55 mm (Price & Cool 1985, 52 nos 69 & 70, fig 20).

The examples found during the 1971-85 Colchester excavations are shown in Table 9.1 (p 157). All of them are blue/green, and they include examples with more conical-shaped bodies (**1237-1239 & 1242**), as well as the truly tubular shape such as **1217** and **1236**. Sufficient of the base remains on **1217-1220**, **1222**, **1223** and **1236-1238** for it to be possible to say categorically whether or not there was a pontil mark. A pontil mark was present in only one case (**1236**), so it seems highly probable that the majority of these unguent bottles had sheared rims, a rim-finishing technique which does not require the vessel to be held on a pontil-iron. A large range of sizes is represented, from **1223** with a maximum body diameter of 16 mm, to **1240** and **1241** with maximum body diameters of 34 mm and 33 mm respectively.

Tubular unguent bottles with sheared rims came into use in the early 1st century and became very numerous throughout the western Empire during the middle part of the century. They are a common find on mid 1st-century sites in Britain. Examples of Claudio-Neronian date have already been mentioned from Sheepen, as have those from the Neronian site at Kingsholm and from Neronian and late Flavian burials at Winchester. Others from dated contexts include one from a Claudio-Neronian cremation at Little Alie Street, London (RCHM *London*, 159 fig 65.28), and fragments from the fort at Mancetter occupied cAD 45-60. Their mid 1st-century date is well illustrated by the examples from the 1971-85 Colchester excavations (Fig 9.10). Five came from pre-Boudican contexts (**1220**, **1229**, **1230**, **1239 & 1241**), and over 40 percent (12 examples) came from deposits which predated c AD 100.

Tubular unguent bottles with sheared rims went out of use during the Flavian period. It is possible that the bottles with rolled rims were in use later than those with sheared rims. Convex base fragments with pontil scars, which imply rolled or fire-rounded rims, have been found on such sites as Piercebridge (unpublished) and Caister by Yarmouth (Price & Cool 1993, 150), which do not appear to have been occupied in the mid 1st century. They have also been found in

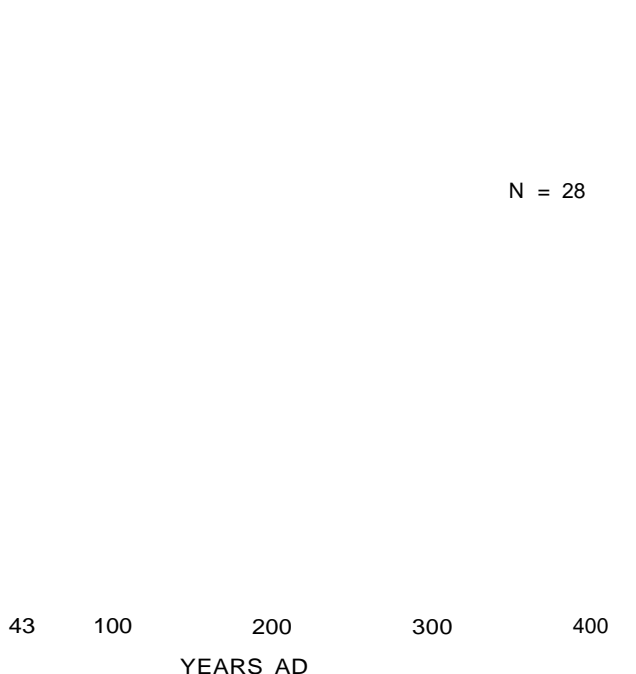


Fig 9.10 Histogram showing the dates of the fragments of tubular unguent bottles found in Roman contexts (for the method of calculating the histogram, see pp 5-6). [Page 159]

contexts dated to later periods which are unlikely to contain residual material, such as the *frigidarium* drain deposit at the legionary baths at Caerleon dated to AD 160-230 (Allen 1986a, 105 no 30, fig 41).

The relatively large numbers of tubular unguent bottles found during these excavations are to be expected, for they are a common find on mid 1st-century sites in Britain. At Colchester, the form has frequently been found in earlier excavations, especially accompanying burials (May 1930, pis 76.7; 79.29; 81.48 & 52; 82.56-7; 84.72 & 77).

Tubular unguent bottles
Blue/green

- 1210 BKC75 J384 F285; Periods ?3/4/5a. Two rim fragments. Out-turned rim, edge sheared off; cylindrical neck. PH 18, RD 25, neck thickness 1.5.
- 1212 GBS84 A1026 L47; Building 134; Period 2. Neck and upper body fragment. Out-bent rim (edge missing); cylindrical neck with tooled constriction at base; straight side sloping out. PH approx 85, present max body diameter 18, WT 1-2.5.
- 1217 1.81 G1314 L1224; Period 5. Complete base and lower body fragment. Tubular body with horizontal tooling-marks under neck base; convex base with small central flattening. PH 43, max body diameter 20, WT 1.5-2.5.
- 1219 LWC72 J925; Period 3 make-up. Lower body and base fragment. Straight side curving in to slightly flattened base. PH 22, max body diameter approx 28, WT 2.
- 1220 1.81 E1301 F900; Building 83, Room 7; Period 1. Base fragment. Convex base with small central flattening. PH 10, max body diameter 25, WT 4.
- 1221 1.81 G4086 L3624; Period 3. Lower body and base fragment. Tubular body; convex base with central flattening. PH 27, max body diameter approx 25, WT 4.

- 1222 BKC73 A10 TT1 L1; Post-Roman. Lower body and base fragment. Tubular body; convex base with small central flattening. PH 13, max body diameter 15, WT 2.
- 1223 CPS73 694 L61; Building 154 Period 4. Lower body and base fragment. Tubular body; slightly flattened base. PH 10, max body diameter 16, WT 2.
- 1236 BKC75 H89; Period 5 or 6 (embedded in late surface). Lower body and base fragment. Tubular body expanding out to convex base with pontil scar. PH 28, max body diameter 16, WT 2.
- 1237 BKC76 T248 L21; Period 3. Part of neck and complete body. Cylindrical neck with tooled constriction at base; tubular body expanding out slightly to flat base. PH 46, max body diameter 18, WT 1.
- 1238 LWC72 D253; post-Roman. Lower body and base fragment. Straight side sloping out slightly; small flat base. PH 26, max body diameter approx 28, WT 2.
- 1240 1.81 B1769 L415; Building 77 destruction, early Period 3. Lower body and base fragment. Tall conical tubular body; curving in to convex base, centre missing. PH 47, max body diameter 34, WT 2.5.
- 1241 LWC72 J974 F313; Period 1. Two lower body fragments of large bottle beginning to curve in to base. PH approx 40, max body diameter 33, WT 2.

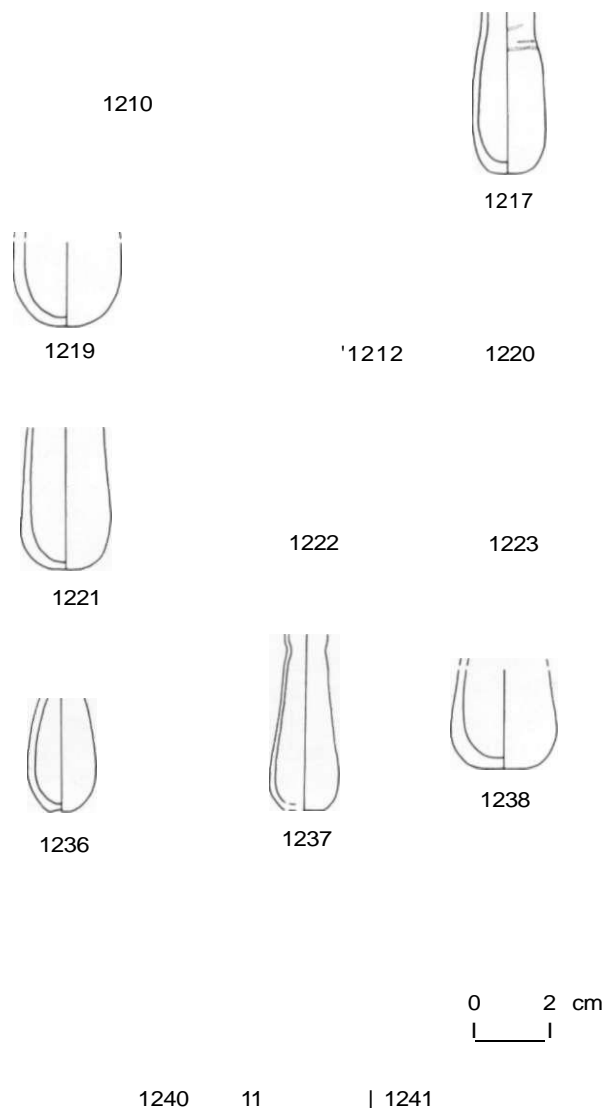


Fig 9.11 Tubular unguent bottles. 1:2. [Pages 159-60]

Truncated conical and discoid unguent bottles (1243-1250)

[Fig 9.12; Table 9.1]

Fragments **1243-1250** are all lower body and base fragments from unguent bottles with low conical or discoid bodies. These may be divided into three broad types, which should not be seen as being sharply divided from each other but rather as different points in a continuum. The first of the three types have relatively small conical bodies, long necks and out-turned rims whose edges were rolled-in or sheared-off, such as those from York (sheared rim; Harden 1962, 137 pi 66 H.G.36.1-2) and Wroxeter, found in a context dated to c AD 80-120 (rolled rim; Bushe-Fox 1914, 20 fig 11). In the other types, the body is wider and either conical or discoid. In these the wide rim is folded at the edge and the neck may either have a constriction at its base (Isings Form 82 A (2)) or curve smoothly into the body (Isings Form 82 B (2)). The necks on the wide conical unguent bottles are normally long and narrow, as on examples from York (Harden 1962, 137, fig 89. HG 16) and a later 2nd-century cremation burial at Brighton (Kelly & Dudley 1981, 86, fig 9.4). Vessels with wide short necks are also known, as on another example from York (Harden 1962, 137, fig 89 H.G. 217) and also one from the Royal Exchange, London (Wheeler 1930, 121 no 6, pi 53).

Discoid unguent bottles sometimes have moulded letters in low relief impressed on their bases. These may have related to the contents of the bottle (Price 1977c, 35-9). The inscriptions are often arranged in a ring around a central letter or figure, as on one found in an inhumation burial at Infirmary Fields, Chester which also contained a coin of Antoninus Pius (AD 138-161). This has the letters VECTIGAL PATRIMO surrounding a laurel wreath which in turn enclosed a now illegible figure (Newstead 1914, 148, fig 10; *RIB* II, 2, 122 no 2419.154). Specimens with letters arranged across the base are also known (Price 1977c, 33, figs 7 & 8). These do not appear to be common in Britain though one is known from Fishbourne (Harden & Price 1971, 359 no 86, fig 142). Previous finds of unguent bottles with impressed bases from Colchester have included a relatively common inscription CN.A.ING.V.A.V.M. surrounding the letter V (Thompson Watkins 1879, 165; see also Price 1987a, 197, note 45; *RIB* II, 2, 111 no 2419.103), and a large example with the inscription VECTIGAL PATRIMO surrounding an illegible central design (*RIB* II, 2, 122 no 2419.155).

The distribution of the pieces from these excavations is shown in Table 9.1 (p 157). The fragments tend to be too small for the precise shape of vessel to be identified, though **1243** and **1247** are likely to come from bottles with small conical bodies. Earlier finds from Colchester have included the whole range of body shapes and rim finishes (May 1930, pi 80.37; 86.93 & 90.10).

Two small fragments from Culver Street (**1245-1246**) come from thin-walled discoid unguent bottles with moulded impressions, and the possibility that they came from the same vessel cannot be ruled out. They are very similar to each other in colour and thickness, and were both found in the same building (Building 112). The smaller fragment (**1245**) retains a small leaf-shaped stop that would have been placed between letters. On the larger fragment (**1246**), the relief is so shallow that the pattern is unintelligible. It is not possible to identify the base design of the unguent bottle but, from the spacing of the elements preserved, the inscription would have been widely-spaced with leaf stops similar to the arrangement seen on the 'VECTIGAL PATRIMO' bottles.

The unguent bottle forms discussed in this section were in use for slightly different but overlapping periods. Those with small conical bodies are primarily a late 1st- or very early 2nd-century form. This is shown by the example from Wroxeter cited above, one from a drain deposit at the legionary baths at Caerleon dated to AD 80-100/110 (Allen 1986a, 100-101 no 9, fig 40), and by their occurrence in late 1st- and early 2nd-century graves at, for example, Trier (Goethert-Polaschek 1977, 119 nos 647-50, Tafn 11.1241 & 125b, 12.134e) and Tipasa (Lancel 1967, 71-2 nos 127-34). The presence of one in a later drain deposit at Caerleon, dated to AD 160-230 (Allen 1986a, 104-5 no 31, fig 41), indicates that some were still in use in the middle of the 2nd century or later.

The forms with wide bodies were in use from the end of the 1st and into the 3rd centuries, but were commonest during the 2nd century. Examples from Chester and Brighton, found with mid and late 2nd-century burials, have already been mentioned, and many other occurrences from dated contexts on Romano-British sites may be noted, such as those from mid 2nd-century burials at Chichester (Rule & Down 1971, figs 5.20.26i & 5.24.156a) and those with conical bodies from Shakenoak, Oxfordshire from a context that contained nothing datable to later than AD 140 (Harden 1971, 98 no 53, fig 43.31). Examples with discoid bodies include one from a cremation burial which also contained a late 1st-century samian vessel (Rule & Down 1971, fig 5.26.247h), and others from rubbish pits dated to c AD 155-165 at Park Street, Towcester (Price 1980a, 66 nos 14-15), to c 160-170 at Felmongers, Harlow (Price 1987a, 196 & 205 nos 27-32, fig 4), and to the last quarter of the 2nd century at Southwark (Townend & Hinton 1978, 389 no 118). All of the examples from these excavations were found in 2nd-century or later contexts, but none were closely dated.

All of these forms of conical- and discoid-bodied unguent bottles are common throughout the Empire, though the practice of impressing the bases of the discoid ones appears to have been restricted to Italy and the western provinces (Price 1987a, 196).

Truncated conical and discoid unguent bottles

Truncated conical unguent bottles

Pale green

1243 LWC71 A259 F62; Building 24, Period 4b. Lower body and base fragment of small conical unguent bottle. Slightly convex-curved body sloping out sharply and curving into flat base. PH 20, WT 3.

Blue/green

1247 BKC76 V679; late Period 5 (some modern). Body and base fragment of small conical unguent bottle. Side sloping out to slightly concave base. PH 22, body diameter 30, WT 2.

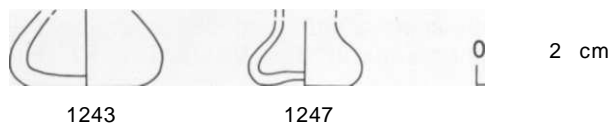


Fig 9.12 Truncated conical unguent bottles. 1:2.
[Pages 161-2]

Indented unguent bottles (1251-1253)

[Fig 9.13]

One complete greenish colourless unguent bottle (**1252**) was found in a grave at Maldon Road. It has a folded and flattened rim, a short cylindrical neck curving smoothly into the tapering conical body, and a convex base, and its sides are decorated with four elongated indents. A second example is represented by a lower body fragment from Culver Street (**1251**). It is possible that the greenish colourless rim and neck fragment **1253** from Butt Road comes from a third example; it is very similar to the upper part of **1252**, but as none of the body survives this identification must remain tentative.

Indented unguent bottles (Isings Form 83) show some variety in shape. In addition to the type represented by **1252**, there is also a variant with a longer neck, ovoid body and flatter base. This has either a slightly funnel-shaped mouth, like the example found previously at Colchester in a lead coffin (Brailsford 1958, 44 no 15, pi 12) and the one from the Railway cemetery in York in 1872 (Harden 1962, 140, fig 89.H.G.9), or a folded rim and cylindrical neck as on the bottle found with a 3rd-century inhumation at Ospringe, Kent (Whiting *et al* 1931, 31 no 321 pi 31). Indented unguent bottles with ovoid bodies and knocked-off rims, such as those from York (Harden 1962, 140, fig 88.H.324.5) and Nida-Hedderheim (Welker 1974, 130-31 no 294, Taf 18), are also known. Insufficient of **1251** remains to suggest the variant from which it came.

Isings (1957, 100) gives examples of indented unguent bottles found in contexts of 1st- to 4th-century date, but they seem principally to be a late 2nd- and 3rd-century form. In Roman Britain, an example with an ovoid bodies has been found in a grave dated to the first half of the 3rd century at Ospringe (noted above). Another ovoid-bodied

example was also found in a grave, at Brougham, Cumbria (unpublished), in a cemetery the use of which is dated to AD 220/30-260/70. The examples found with an inhumation at the Railway Station, York (Harden 1962, 84 & 140, fig 88.H.324.5) and in a lead coffin at Colchester are not closely dated, but they and **1252** must be late Roman. It is not clear to what extent, if any, vessels of this type continued in use into the 4th century.

Evidence for the use of indented unguent bottles in the mid 2nd century in Roman Britain appears to be suggested by the presence of one, very similar in shape to **1252**, in a cremation burial at Mansell Street, London (RCHM *London*, 157, fig 64.22) which is conventionally given a Hadrianic/Antonine date. It should be noted, however, that the cremation urn was a black burnished cooking jar with a narrow band of obtuse-angled lattice on the shoulder. Such jars are usually dated to the late 3rd or 4th century rather than to the Hadrianic/Antonine period (Gillam 1970, 16 Types 146-8, fig 57). Cremation burial is unusual but not unknown at such a late date, but sufficient doubts may be raised about the mid-to-late 2nd-century attribution of this burial for it not to be used as dating evidence for this type of unguent bottle.

Indented unguent bottles are widespread but not very numerous in the north-western provinces. In addition to those from Roman Britain already mentioned, there are fragmentary examples from Lullingstone, Kent (Cool & Price 1987b, 120 & 134 no 363, fig 55) and Piercebridge (unpublished), and others also occur at York (Harden 1962, 140).

Elsewhere, in the other north-western provinces, there are examples from Koln (Fremersdorf 1958b, 26, Tafn 22-3; Fremersdorf & Polonyi-Fremersdorf 1984, 56 no 135); Bonn (Follmann-Schulz 1988, 19 no 37, Taf 1); Trier (Goethert-Polaschek 1977, 122 no 668); Amiens (Morin-Jean 1913, 194, fig 257); Strasbourg (Arveiller-Dulong & Arveiller 1985, 92 & 240 no 162); and Nida-Hedderheim (Welker 1974, 130-31 nos 294-5, Taf 18). The extent to which they occurred in the rest of the Empire is not clear, but they were certainly common in Pannonia (Barkoczi 1966-7, 77 & 88 no 21, Abb 29.4 & 1988, 121 nos 228-33, Taf 18). The form was also well represented amongst the finds from Dura-Europos (Clairmont 1963, 131 Type J & 139-40 nos 727-35), though whether these should be related to the indented unguent bottles from the north-western provinces is open to question.

Indented unguent bottles

Blue/green

1251 1.81 H627; unstratified within Periods 1-6. Lower body fragment. Lower part of asymmetrical oval indentation. Dim 28x24, WT 1.5.

Late Roman green

1252 MRC71 F12 52; 3rd/4th-century inhumation. Complete bottle, rim chipped in 2 places. Pale greenish colourless. Rim bent out, up, in and flattened; cylindrical neck curving out to shoulder; conical body tapering in evenly to gently

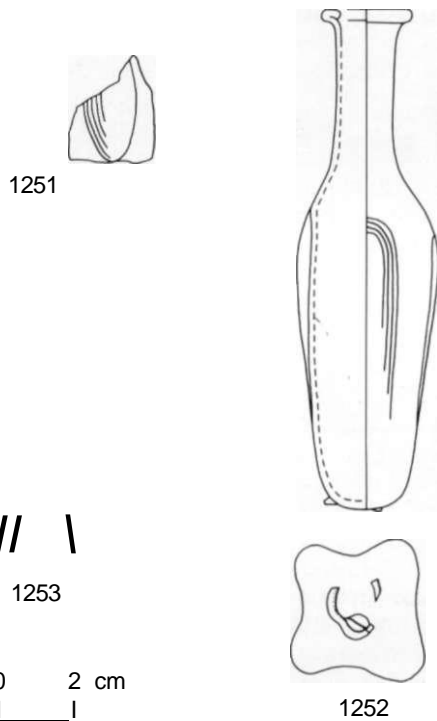


Fig 9.13 Indented unguent bottles. 1:2. [Pages 162-3]

rounded, convex base. Four elongated indentations. Oval pontil scar with part of glass cylinder still attached. Height 131, length of neck and rim approx 40, RD 24, max body diameter 45.

1253 BUC76 A90 F70; modern. Rim and neck fragment. Rim edge rolled out, up and in unevenly and flattened; cylindrical neck. PH 15, RD approx 28, neck thickness 2.

Miscellaneous unguent bottles (1254-1261)

[Fig 9.14]

In addition to the tubular, conical, discoid and indented unguent bottles already discussed, there are also fragments from unguent bottles where insufficient is preserved for the form of the vessel to be identified with any certainty.

Blue/green fragments of folded rims (1257-1258) and cylindrical necks (1259-1260) could have come from any of the unguent bottle types discussed above. The blue/green fragment 1261 is unusual in having a horizontally out-turned, rounded rim. It should perhaps be related to the unguent bottles with sheared funnel-shaped rims (see 1210-1242 above). It was found in a mid 1st- to early 3rd-century context at Culver Street (Site G, Period 3).

Of the fragments from the three colourless unguent bottles (1254-1256), there are two (1255 & 1256) which could have come from conical-bodied or discoid vessels. This is unlikely to be so in the case of 1254, as the neck of the vessel is short and narrow.

Miscellaneous unguent bottles

Colourless

1254 1.81 G3158 F2695; Period 3. Rim and neck fragment. Rim bent out, up, in and flattened; short cylindrical neck beginning to curve out to body. PH 18, RD 20, WT 2.5.

1255 LWC71 B321 F70; Period 5. Five neck and body fragments. Long cylindrical neck; wide convex-curved shoulder. Neck diameter 11, WT 1.

Blue/green

1261 1.81 G2617 F2362; Period 3. Rim fragment. Rounded rim out-bent horizontally; cylindrical neck. PH 36, RD 20, WT 1.

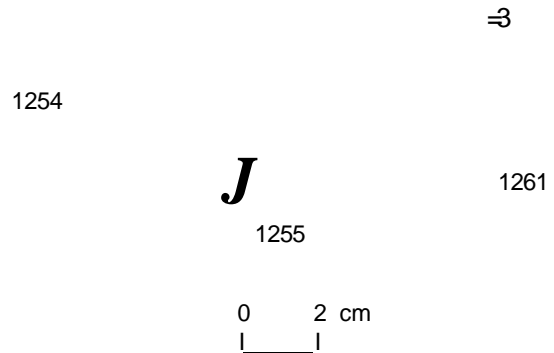


Fig 9.14 Miscellaneous unguent bottles. 1:2.

Rim, neck and shoulder fragments from jugs or flasks (1262-1451)

[Fig 9.15; Table 9.2]

There are 233 rim, neck and shoulder fragments which are not diagnostic enough to be assigned to any particular variety of jug or flask, though few need have come from any variety other than those already discussed. These fragments are summarised in Table 9.2, where it will be seen that the majority are blue/green neck and shoulder fragments.

The commonest type of rim amongst these fragments is the folded form where the edge is bent out, up and in (1266, 1271-1272, 1280 & 1291-1315). Vessel types already discussed which have this form of rim include conical and globular jugs (see 871-954, ovoid flasks (see 1176 above), Mercury flasks (see 1182-1183), bath flasks (see 1190-1209), tubular unguent bottles (see 1236), conical and discoid unguent bottles (see 1243-1250), and indented unguent bottles (see 1251-1253 above). In connection with the rim fragments 1033 and 1034, it was noted that on jugs, this rim form occurs mainly on 1st- and early 2nd-century vessels. On flasks it was used for longer. It is present on late 2nd- and 3rd-century forms such as Mercury flasks and indented unguent bottles, though it is rarely encountered on 4th-century vessels. That this is predominantly an early rather than late Roman rim form is demonstrated by the rim fragments catalogued in this section, for nine of the fifteen examples found in dated contexts predated c AD 200.

Table 9.2 Rim, neck and shoulder fragments from jugs or flasks (not closely identified). [Page 163]

	deep blue	yellow/brown	yellow/green	light green	colourless	blue/green	bubbly green
Folded rim		1	-	2	1	26	-
Rolled rim	-	-	-	-	-	17	-
Funnel mouth (rolled rim)	-	-	-	1	-	5	2
Funnel mouth (other)	-	-	-	-	1	2	1
Cylindrical neck	4	2	1	3	13	86	2
Neck and shoulder (globular)	-	1	-	3	-	42	-
Neck and shoulder (conical)	-	-	-	-	-	12	1
Shoulder	1	-	-	-	3	-	1
Totals	5	4	1	9	18	190	7

Among these folded rims are examples with small triangular profiles (**1291-1294**) and some where the edge is probably folded, but this has been done so neatly that no evidence of the process is now visible (**1293, 1302, 1312 & 1335**). Both these variants of folded rim are more likely to occur on Flavian and earlier vessels than on later ones, and of the seven fragments noted here, three were found in pre-Boudican contexts (**1291**, the Gilberd School Site B, Period 2; **1312**, Balcerne Lane Site V, Period 2; & **1335**, Culver Street Site E, early Period 2). One of the triangular-profiled fragments (**1293**) comes from a wide-mouthed vessel; the precise rim form, with slightly open fold, is reminiscent of the rims used on some amphorisks (see **1165-1169**). It is possible, therefore, that **1293** may have come from an amphorisk, as the wide cylindrical neck fragments **1262** (deep blue) and **1391-1393** (blue/green) may also have done.

Rim fragments where the edge is out-turned and rolled-in (**1316-1328**), or funnel-shaped with a rolled edge (**1273 & 1329-1330**), are also well represented. Such rims have already been noted in this assemblage in connection with the short-necked globular jugs with rod handles (see **997 & 1032** above), as well as funnel-mouthed and various other forms of flasks (see **1172-1175 & 1177-1181** above). Unlike the folded rim, this rim type appears on jugs and flasks of both early and late date.

Two fragments come from funnel-mouthed vessels with fire-rounded rim edges. One (**1334**) is blue/green and asymmetrical. It has been affected by heat, but the probability that it came from a spouted jug or funnel-mouthed jug is high. It was found in a context dated to the second half of the 3rd century at Balcerne Lane (Site G, Period 5c). The other funnel-mouthed fragment with a fire-rounded rim edge (**1447**) also came from Balcerne Lane, in a context dated to the second half of the 3rd century (Site T, Period 5c). This fragment is made of pale greenish colourless glass with a thick horizontal trail below the rim edge. It may

have come from either the late 3rd- or 4th-century form of funnel-mouthed jug (see **1160-1161**), or from the contemporary range of bottles and flasks discussed below in connection with **2257**.

The final rim fragment noted in detail (**1281**) is colourless, and comes from a funnel-mouthed vessel with a cracked-off and ground rim and an abraded band below the rim edge. This was found in a 4th-century or later context at Balcerne Lane (Site J, Period 6 or later). It possibly came from a wheel-cut globular flask with a funnel-shaped mouth and neck (Isings Form 104), similar to one with a concave base from a probable 3rd-century inhumation at the Minorities, London (Harden & Green 1978, 163-70, fig 3). These flasks are mainly found in the north-western provinces and were in use during the late 3rd and 4th centuries, though a small but significant number are now being recovered from later 1st- or 2nd-century contexts (Price 1989a, 77). The late form has not often been identified amongst assemblages from Romano-British sites. In his discussion of the flask from the Minorities, Harden noted two other flasks which might have been of this type, from Chilgrove, Sussex and Baldock, Hertfordshire (*ibid.*, 167), and to these we may add one from Goss Street, Chester (unpublished). The form is also represented amongst the earlier finds from Colchester by a small greenish colourless example without provenance (CM, 105.98), which has indented decoration on the body in addition to the abraded bands below the rim edge and on the upper body.

Little may be said of any of the neck or shoulder fragments in this section. The colourless neck fragment **1282** is decorated with an abraded band and might have come from a spherical flask with cracked-off rim (see **1184-1187** above); it has been deliberately grozed to form a small tool. This sort of reworking can also be seen on the neck fragments **1268** and **1274**. The blue/green neck fragment **1389**, from a context at Culver Street (Site G, Period 5, 3rd to early 4th century), might also have come from a

spherical flask with cracked-off rim (see **1184-1187**) as it slopes out slightly towards the constricted junction with the body, which is a feature often seen on those flasks. The glass of **1389**, however, is much thicker than is usual on flasks of that kind.

Rim, neck and shoulder fragments from jugs or flasks

Yellow/brown

- 1266 LWC72 M77; Rampart 1e, late Roman. Rim and neck fragment. Dark yellow/brown. Rim bent out, up, in and flattened; cylindrical neck. PH 26, RD 27.
- 1268 LWC72 J549; Period 4. Neck fragment. Dark yellow/ brown. Cylindrical neck with tooling at neck shoulder junction, edge below this deliberately grozed. Dim 30x17, WT 4.5.

Pale/light green

- 1271 1.81 D50 F30; Period 6. Rim fragment. Light green. Rim folded out, up, in and flattened. RD 35.
- 1273 LWC72 M125; late 1st to mid 2nd century. Rim and neck fragment. Pale green. Small funnel mouth, rim edge rolled in; cylindrical neck. PH 11, RD 30, neck thickness 2.
- 1274 LWC72 J1590 F538; Building 16; Period 3. Cylindrical neck fragment. Light green. One short side deliberately grozed to point. Dim 53x15, neck thickness 3.

Colourless

- 1280 LWC72 H22. Roman or later. Rim and neck fragment. Rim edge rolled out, up and in; cylindrical neck. PH 8, RD approx 30, neck thickness 2.
- 1281 BKC75 J213 F48; Period 5b. Rim fragment. Funnel mouth, edge cracked-off and ground. Horizontal abraded band below rim edge. PH 10, RD 40, neck thickness 1.5.
- 1282 BUC77 E390 L16; 5th century. Cylindrical neck fragment. Two faint abraded lines. Deliberately grozed to point. Dim 36x16, neck thickness 4.

Blue/green

- 1291 GBS85 B299 L36; Period 2? Rim and neck fragment. Rim edge bent out and in with triangular profile. RD 45.
- 1292 LWC72 L406; Period 4(1). Rim and neck fragment. Rim edge bent out and in with triangular profile RD approx 38.
- 1293 BKC76 V1033; Periods 2-4. Rim and neck fragment. Rim edge bent out and in with triangular profile. RD 35.
- 1294 LWC72 J810; Building 20, Phase 1, Room 6; Period 4a make-up. Rim and neck fragment. Rim edge bent out and in with triangular profile. RD 30.
- 1295 BKC73 D66a L1; Anglo-Saxon. Rim and neck fragment. Rim edge bent out, up, in and flattened; cylindrical neck. RD 50.
- 1297 LWC72 H177 F75; Anglo-Saxon? Rim and neck fragment. Rim edge bent out, up, in and flattened; cylindrical neck. RD approx 38.
- 1299 1.81 B401 F92; Period 5. Rim and neck fragment. Rim edge bent out, up, in and flattened; cylindrical neck. RD 40.
- 1301 BKC75 J296 F85; Periods 3/4/5a. Two rim and neck fragments. Rim edge bent out, up, in and flattened; cylindrical neck. RD 35.
- 1302 BKC75 J483; Periods 2-6. Rim and neck fragment. Rim edge bent out, up, in and flattened; cylindrical neck. RD 35.
- 1303 BKC76 T139 L19 & later material; Periods 3-5. Complete rim and neck fragment. Rim edge bent out, up, in and flattened; cylindrical neck. Scar on neck, possibly from handle attachment. RD 35.

- 1305 BKC76 V71; unstratified. Rim and neck fragment. Rim edge bent out, up, in and flattened; cylindrical neck. RD approx 35.

- 1311 1.81 M88 L11; Building 123 demolition, Period 4. Rim and neck fragment. Rim edge bent out, up, in and flattened; cylindrical neck. RD 25.

- 1316 1.81 A471 L180; Period 3. One rim and 3 neck and body fragments. Out-bent rim, vertical edge rolled up and in; cylindrical neck; convex-curved body sloping out. RD 40, WT 1.5.

- 1317 MID78 C1650 L215; Building 70, Roman Period 3 destruction. Rim and neck fragment. Out-bent rim, edge rolled in; cylindrical neck. RD 45.

- 1320 BKC76 V243 L46; Period 5. Rim and neck fragment. Rim edge bent out, up, in and flattened; cylindrical neck. RD 35.

- 1324 BKC76 V230 F45; Period 4. Rim and neck fragment. Rim edge bent out, up, in and flattened; cylindrical neck. RD approx 30.

- 1327 BKC76 V933 L11; late Period 5 (c AD 300). Complete rim. Out-turned rim, edge irregularly rolled in. PH 12, RD 36, neck thickness 1.5.

- 1331 MRC71 70; modern? Rim fragment. Funnel mouth with edge rolled in. RD 38.

- 1332 LWC72 J1421 F462; Building 20 Phase 1, Room 2; Period 4. Rim fragment. Funnel mouth, rim edge bent down and up. PH 8, RD approx 45, neck thickness 2.

- 1333 BUC76 B538 G109; Period 2. Rim fragment. Funnel mouth, rim edge bent down and up. RD 53.

- 1334 BKC75 G375; Period 5c. Rim and neck fragment. Asymmetrical funnel mouth with fire-rounded rim edge curving into neck. Distorted by heat. PH 36, RD 36, neck thickness 2.

- 1335 1.81 E1232 L169; Building 86/87; Period 2. Rim fragment. Rounded rim edge bent out horizontally; cylindrical neck. PH 27, RD approx 40, WT 2.

- 1389 1.81 G1795 L1660; Period 5. Neck fragment. Majority of thick-walled cylindrical neck expanding slightly towards constriction at base. Present length 74, max neck diameter 24, WT 4.

- 1390 BKC75 G208 F190; Building 57; Period 5c. Neck fragment. Majority of a similar neck in 2 joining fragments. PH 82. Max neck diameter 20, WT 2.5.

- 1400 BKC76 N311 F97; Building 64, Phase 1; Period 5b2. Neck and shoulder fragment from conical flask or jug. Cylindrical neck. Neck diameter 16.

- 1403 CPS73 94 F42; Building 155; Period 6. Neck and shoulder fragment from conical flask or jug. Cylindrical neck with tooling-marks at base. Neck diameter 22.

Late Roman green

- 1447 BKC76 T274 L9 & L67; Building 56; Period 5c cellar fill. Rim fragment of jug or bottle. Pale green-tinged colourless. Funnel mouth, edge fire-rounded. Thick trail below rim edge. RD 50.

- 1448 BKC75 J178 F39; Period 5c/6. Rim fragment. Pale greenish colourless. Funnel mouth, edge rolled in; cylindrical neck beginning to slope out to body. PH 42, RD 40, WT 2.

Rim, neck and shoulder fragments from jugs or flasks

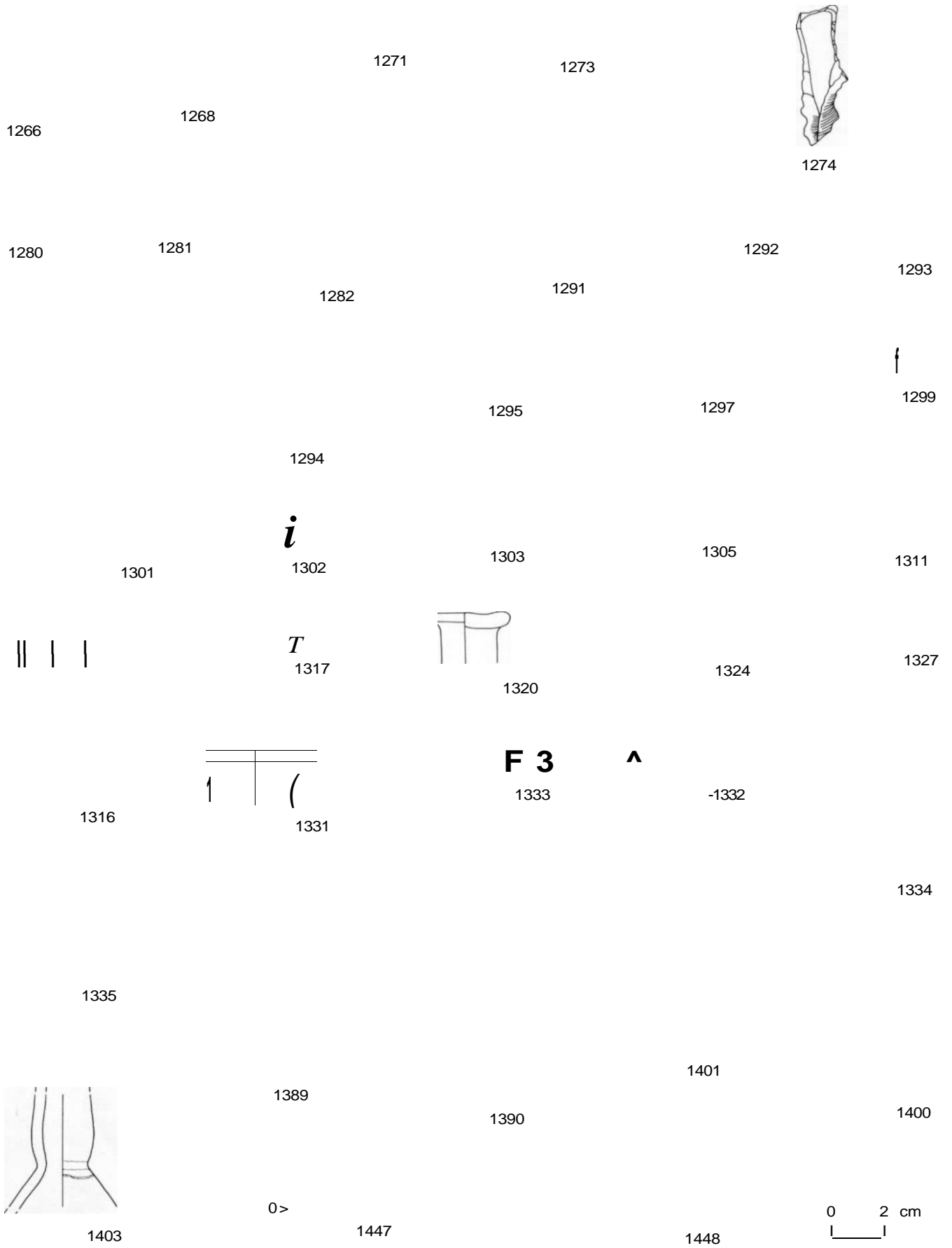


Fig 9.15 Rim, neck and shoulder fragments from jugs or flasks. 1:2. [Pages 163-5]

Chapter 10: Miscellaneous forms and body fragments

Miscellaneous bases (1452-1649)

[Figs 10.1-10.2; Tables 10.1-10.2]

Though some types of vessels have very characteristic bases, it is generally the case that a fragment from the base of a vessel is not as diagnostic as one from the rim. This is because a small number of different base types is shared by a large number of different vessel forms. It must be stressed that when it has been possible to assign a base fragment in this assemblage to a particular type of vessel, it will already have been discussed. The fragments in this section are, therefore, those for which it is not possible to make a close identification of the vessel form.

The fragments have been classified according to the method of manufacture used, and consist of bases with applied true base rings (1452-1471), applied pad bases (1472-1474), a fragment possibly from a separately-blown foot (1480), bases with pushed-in base rings (1481-1549), bases with trailed base rings (1550-1555), and flat or concave bases (1561-1649). The numbers in each category are summarised in Table 10.1.

It is probable that most of these base fragments come from vessel forms already identified. This is strongly suggested by comparing Table 10.1 with Table 10.2, which shows the base forms used on the vessel types already identified as present in this assemblage. It will be noted for example that, in both tables, bases with pushed-in base rings and concave bases are the most frequent. There are also a few bases in this section worthy of special note, as they may have come from types of vessels not otherwise identified in this assemblage.

On many of the bases with pushed-in base rings, the side of the vessel has frequently been deliberately grozed away to leave the base and base ring as a disc. The reason for this reuse is unknown. Some of the discs may have been intended for use as gaming counters. This evidence of reuse can be seen on 1488, 1488, 1491-1492, 1495-1497, 1502, 1508, 1512-1513, 1515-1518, 1521, 1526, 1530-1534, and possibly on 1537-1539. Fragments 1489, 1505 and 1506 could well have come from beakers or cups, but many of the other fragments are likely to have come from bowls or jugs.

Table 10.1 Miscellaneous base fragments by colour (quantified by catalogue entries).

Colour	applied true base ring	applied pad and separately-blown base ring	pushed-in base ring	trailed base ring	concave base
Deep blue	3	-	2	-	1
Green/blue	-	-	1	-	-
Emerald green	-	-	-	-	2
Yellow/brown	4	-	1	-	1
Yellow/green	1	1	1	-	-
'Black'	-	1	-	-	-
Light green	1	2	3	-	-
Colourless	-	-	7	1	10
Blue/green	11	5	44	1	76
4th-century green	-	-	7	1	10
Totals	20	9	69	6	94

Table 10.2 Types of bases occurring on vessel forms discussed in this volume (unguent and other bottles excluded).
[Page 169]

Vessel type	applied true base ring	applied pad or separately-blown ring	pushed-in base ring	trailed base ring	concave base
Hofheim cup	-	-	-	-	P
Abraded beaker	-	-	-	-	P
Indented beaker	-	-	P	-	P
Arcaded beaker	-	-	P	-	-
Colourless wheel-cut beaker	-	P	P	-	P
Colourless cylindrical cup	-	-	P	P	-
Hemispherical cup with fire-rounded rim	-	-	-	-	P
Hemispherical cup with cracked-off rim	-	-	-	-	P
Conical beaker with fire-rounded rim	-	-	-	-	P
Cups/beakers with fire-rounded rims	-	-	P	-	P
Tubular-rimmed bowl	P	P	-	-	P
Bowl with out-turned rim	-	-	P	-	-
Bowl with cut-out fold	-	-	P	-	-
Indented truncated conical bowl	-	-	P	-	-
Collared jar	-	-	P *	-	-
Globular and ovoid jars	-	-	-	-	P
Hat-shaped jar	-	-	-	-	P
Inkwell	-	-	-	-	P
Conical and globular jugs (Isings 52 & 55)	-	-	P *	-	P
Short-necked jug	-	-	-	-	P
Spouted jug	-	-	-	-	P
Funnel-mouthed jug	-	-	P	-	P
Ribbed colourless jug	-	-	-	P	-
Small globular jug	-	-	-	-	P
Ovoid flask	-	-	-	-	P
Spherical flask with cracked-off rim	-	-	-	-	P
Indented flask	-	-	P	-	-
Bath flask	-	-	-	-	P

Key:

*P denotes base forms present; * denotes open form.*

A more precise identification can be suggested for several of the fragments. One colourless example (**1493**) has a tubular pushed-in base ring with a circular trail and central dot applied to the underside of the base. It is very similar to the double ring bases of colourless cylindrical cups such as **465-540**, but it cannot have come from such a cup as the lower body slopes into the base ring. It may have come from a beaker like the one with indented and trailed decoration found in a 2nd-century drain deposit at Housesteads (Charlesworth 1971a, 34 no 6, fig 6) which also had a double base ring. The fragments numbered **1493** were found in a Period 2 context (early to middle 2nd century) at Middleborough, and thus represent an early example of the use of this type of base.

On **1545-1548** the base has been pushed in so that a high foot with a hollow tube at the end has been produced. From their base diameters (70 mm and 90 mm) and from the fact that they are all made of the greenish and yellowish green glass typical of the 4th century, they are likely to have come from ovoid and globular funnel-mouthed jugs such as **1160** and **1161**. This type of high pushed-in base was also used on 4th-century beakers with fire-rounded rims of the type discussed in connection with **620-629**, and it is to this type of vessel that **1549** may belong. This vessel has a narrow lower body and high pushed-in foot, and retains one rim fragment from a funnel-shaped mouth with rolled-in edge. The base fragments **1542**, from a large blue/green vessel with a similar high foot with

hollow tube at the end, but the foot is vertical instead of being out-splayed, which is unusual and unlike the 4th-century fragments. It was found in a context belonging to the second half of the 3rd century at Balkerne Lane (Period 5c).

Many of the concave base fragments probably came from the range of globular and ovoid jars represented by **765-859**, but as may be seen from Table 10.2, there is a large number of other vessel forms with this base type in this assemblage, and it is not generally possible to assign such bases to particular forms. Very few examples call for special comment. Fragment **1566** came from a blue/green cylindrical bottle, whilst the greenish bubbly **1648** and **1649** may have come from conical beakers. These were probably of the 4th-century type with fire-rounded rims, discussed in connection with **620-629**, as they have pontil scars. The type of vessel that **1583** came from cannot be identified, but it is most unusual in having a radiating pattern of grooves cut into it. This feature has been noted on a similar fragment from Piercebridge (unpublished).

Applied true base rings are the third commonest type of base represented in this section though, as may be seen from Table 10.2, they are only common on one form of vessel: the tubular-rimmed bowl (**630-692**). They also occur on other types of vessels; see for example one used on a very large plate probably from Bonn (Harden *et al* 1987, 98 no 40), but it seems very likely that many of **1452-1471** came from tubular-rimmed bowls. This is in part because: i) this form was common in this assemblage, as may be seen from Table 6.1 (p 94); ii) the base fragments were made in the same range of colours that is normal for tubular-rimmed bowls; and iii) over half of the base fragments from Roman contexts were in contexts that predate AD 150, and so were contemporary with the period when tubular-rimmed bowls were in use. Sufficient of the lower body of **1461** remains to show that it came from a ribbed vessel.

Several of the pad bases such as **1471-1473** may also have come from tubular-rimmed bowls, but others must have come from different vessel forms. Fragment **1475**, for example, came from a vessel with an ovoid or globular body, while **1478** came from a much smaller vessel than a tubular-rimmed bowl.

Fragment **1480** is made in the uncommon shade of yellow/green glass which appears black. It may have come from a beaker with a separately-blown foot although, as the diameter is rather large for that, the possibility that it came from the rim of a beaker or cup cannot be ruled out.

Trailed base rings are not common in this assemblage. Fragment **1550** cannot be closely paralleled, but it probably came from a large jug with horizontal trailed decoration; the others are not diagnostic, although two of them (**1551-1552**) may have come from the trailed variant of cylindrical cups such as **466**.

Applied true base rings

Deep blue

- 1452 BKC76 V934 L11; late Period 5. Base fragment of bowl or jug. Flat base with applied true base ring. Base ring shows post-technique scars and a high degree of wear; side grozed. PH 13, BD approx 80.
- 1454 GBS84 A48 F9; modern. Base fragment. Applied true base ring; slightly convex-curved base. Post-technique scars on base ring. Side grozed. BD 55.

Yellow/brown

- 1456 BKC75 H297 F33; Period 5c. Lower body and base fragment of bowl or jug. Dark yellow/brown. Wide lower body; flat base; applied true base ring. Lower body grozed for secondary use. PH 15, BD 70, WT 2.

Blue/green

- 1461 LWC72 J530; Building 20, Room 6; Period 4a & b. Two joining base and lower body fragments of globular ribbed bowl, jar or jug. Convex-curved, wide lower body; applied true base ring with flattened edge; slightly concave base. Optic-blown(?) vertical ribs fading out on lower body. Curved scratch-marks on interior; base ring worn. PH 17, BD 65, WT 3.
- 1462 1.81 E1224 L138; Period 2. Base fragment. Wide lower body; applied true base ring; concave base with central kick. Post-technique scars on base ring. PH 11, BD approx 120, WT 2.5.
- 1464 BKC74 E932 F248; Period 1b. Lower body and base fragment of bowl or jug. Wide convex-curved lower body sloping in shallowly; applied true base ring; flat base. Post-technique scars. PH 20, BD 85, WT 2.5.
- 1465 1.81 K116 F55; Period 3a. Base fragment. Wide lower body; applied true base ring; slightly concave base. Traces of post-technique scars on inner edge of base ring. PH 10, BD 75.
- 1470 BKC75 J183 F41; Periods 5b/5c/6. Base fragment of jar or jug. Flat base; applied true base ring. Post-technique scars. Side grozed. Wear-marks on outer edge of base ring and grozed edge. BD 48.

Applied pad bases

Pale/light green

- 1473 BKC75 J403 & J416; unstratified. Complete base of bowl or jug in 3 fragments. Light green. Wide lower body; flat base; out-splayed base ring formed from applied pad. Diagonal tooling-marks on base ring; post-technique scars; base ring worn. PH 12, BD 68x62, WT 2.

Blue/green

- 1475 BKC76 V938 L11; late Period 5. Lower body and base fragment of jug. Convex-curved lower body; applied pad base ring. PH 34, BD 90, WT 2.
- 1477 BKC74 E935 F253; Building 37; Period 1b. Lower body fragment with complete base of bowl or jug. Wide convex-curved lower body sloping shallowly to flat base with applied pad base ring; bottom of base ring flattened. Scars and small applied fragments of glass from emponfilling. PH 11, BD 45, WT 1, pontil-pad diameter 27x35.
- 1478 BKC76 V116 L16; late Period 5c (c AD 300). Lower body and base fragment of bowl or jug. Thick lower body curving into broken base with applied pad base ring. PH 11, BD 40, WT3.5.
- 1479 BKC75 J84 L5; late Period 5 (c AD 300). Lower body and base fragment of jar or jug. Convex-curved body sloping in shallowly to asymmetrically concave base with applied pad base ring. Pad of uneven thickness; base ring low and irregular. PH 11, BD approx 45, WT 2.5.

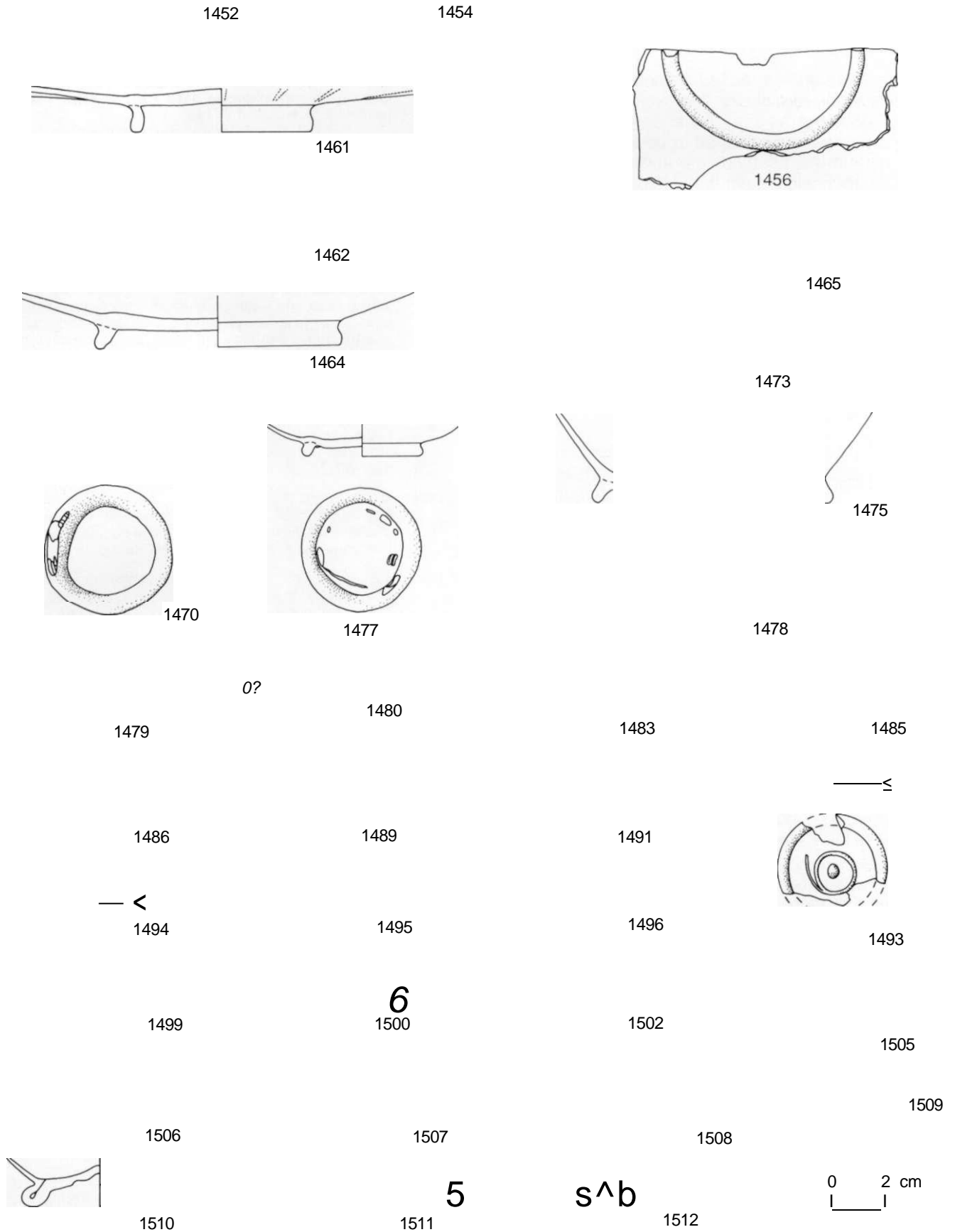


Fig 10.1 Miscellaneous bases. 1:2. [Pages 167-71]

Separately-blown bases

Yellow/green

- 1480 1.81 G2591 L2576; Period 3. Rim or separately-blown foot fragment. Very dark yellow/green appearing black. Curved 'rim', edge cracked-off and ground. Narrow wheel-cut groove close to base edge. BD 65, WT 1.

Pushed-in bases

Green/blue (peacock blue)

- 1483 BKC75 H321 L13; end of Period 5b. Base fragment of bowl. Wide convex-curved lower body; solid pushed-in base ring; flat base with central thickening on underside. Pontil scar. PH 10, BD 40, WT 2.

Yellow/green

- 1485 BKC75 J160 F34; Period 5b (end of Period 4?). Base fragment of bowl, jug or jar. Very dark yellow/green appearing black. Tubular pushed-in base ring; high concave base. Side grozed. PH 14, BD 65.

Pale/light green

- 1486 BKC76 V71; unstratified. Complete base of bowl or jug. Pale green. Lower body sloping in to tubular pushed-in base ring; concave base. Large circular pontil scar. Small lump of melted glass on base ring. PH 13, BD 50, WT 2, pontil-scar diameter 26.

Colourless

- 1489 BKC75 H14 L2; post-Roman. Complete base of beaker or bowl in 2 fragments. Side sloping in shallowly to out-splayed solid pushed-in base ring; concave base. Pontil scar. PH 7, BD 34, WT 2.
- 1491 BKC76 N543 F130; Building 65; Phase 1, Period 5ba. Base fragment of bowl. Solid pushed-in base ring; concave base mostly missing. Side grozed; base ring worn. BD 60.
- 1493 MID78 G1949 L240; unstratified. Five base fragments of bowl or beaker. Side sloping in shallowly to tubular pushed-in base ring; concave base with narrow circular trail and central blob on underside, thin end of circular trail running off to side. Pontil scar. PH 6, BD 40, WT 1.
- 1494 LWC71 B424 F147; Period 5. Two base fragments. Tubular pushed-in base ring; concave base. Deep pontil scar. Heat affected. BD approx 40.
- 1495 BKC76 N423 F75; Building 65, Phase 2, Period 5b2. Complete base of bowl or beaker. Slightly green-tinged. Tubular pushed-in base ring; concave base with central kick. Pontil scar. Side grozed. BD 44.
- 1496 LWC72 M76 & 77; Rampart 1e, late Roman. Three joining base fragments of bowl. Tubular pushed-in base ring; slightly concave base. Side grozed. BD 60.

Blue/green

- 1499 BUC76 B388 G91; Period 2. Base fragment of jug or bowl. Wide lower body sloping into solid pushed-in base ring; concave base with central kick. PH 10, BD 60, WT 1.5.
- 1500 1.81 B387 F108; Period 4. Base fragment of bowl or jug. Side sloping in to solid pushed-in base ring; base convex at outer edge with central kick. PH 11, BD 60, WT 1.5.
- 1502 BUC76 B834 L1; modern/post-Roman. Base fragment of bowl or jug. Solid pushed-in base ring; flat base (mostly missing). Side possibly deliberately grozed. Post-technique scars; base ring worn. PH 12, BD 65.
- 1505 1.81 B1999 F587; Building 112?; Period 4. Lower body and complete base fragment of small beaker or bowl. Slightly convex-curved body sloping in steeply to intermittently tubular base ring; concave base with central kick. Circular pontil scar. PH 14, BD 39, WT 1, pontil-scar diameter 10.

- 1506 BKC75 J384 F285; Periods 3/4/5a. Two lower body and base fragments of bowl or jug. Convex-curved side sloping in to tubular pushed-in base ring; high-domed concave base. PH 11, BD approx 55, WT 1.
- 1507 1.81 H225 F59; Period 5 & H462 L3; Period 6. Two lower body and base fragments of bowl or jug. Convex-curved side sloping in to tubular pushed-in base ring; base mostly missing and slightly convex at edge. Base ring worn. Lower body of 1 fragment grozed. PH 13, BD approx 55, WT 1.
- 1508 BUC76 A474 G36; Period 2. Base fragment of bowl(?). Straight side sloping in steeply to out-splayed tubular pushed-in base ring. Base missing, possibly deliberately grozed. PH 16, BD approx 75, WT 1.
- 1509 BKC75 N63 L8; Period 6. Complete base of bowl or jug. Tubular pushed-in base ring; concave base with pronounced central kick in-filled with pad of glass containing impurities. Small pontil scar. Base worn; side grozed. BD 46x43.
- 1510 BKC75 H56 F2b; modern. Lower body and base fragment of bowl or jug. Convex-curved lower body; tubular pushed-in base ring; concave base with central kick. Pontil scar. PH 18, BD 60, WT 1.
- 1511 1.81 G1359 L1050; Period 5. Base fragment of bowl or jug. Side (mostly missing) sloping in very shallowly to tubular pushed-in base ring; thick slightly concave base with central kick. Circular pontil scar. BD 80, base thickness 6.
- 1512 BKC76 N311 F97; Building 64; Period 5b2. Complete base of bowl or jug. Very irregular tubular pushed-in base ring; concave base with central kick. Oval pontil scar. Side grozed. BD 41x38, pontil-scar diameter 18x12.
- 1514 1.81 B2271 L187; Building 112, Room 3; Period 4b. Complete base of bowl or jug. Side sloping in shallowly to tubular pushed-in base ring; concave base with off-centre kick. Pontil scar. Wear on interior surfaces of kick. PH 6, BD 34, WT 1.
- 1517 BKC76 N447; Period 6? Base fragment of small beaker, bowl or jug. Side sloping into tubular pushed-in base ring; slightly concave base. Circular pontil scar; side grozed. PH 12, BD 45.
- 1519 BKC76 V81; unstratified. Base fragment of bowl or jug. Side sloping into tubular pushed-in base ring; slightly concave base. Post-technique scars. BD 65.
- 1523 BKC75 H189 F94; Period 5c. Lower body fragment with complete base of bowl or jug. Wide lower body sloping into tubular pushed-in base ring; concave base with applied pad at centre. Pontil scar. Base worn. PH 5, BD 40, WT 1.
- 1524 MID78 A3245 L532; Building 67; Phases 1 & 2, Roman Period 1. Base fragment of bowl or jug. Side sloping in shallowly to tubular (becoming solid) pushed-in base ring; concave base with central kick and externally-applied pad. Pontil scar. PH 8, BD 40, WT 1.5.
- 1525 LWC71 A251 F86; post-Roman. Four base fragments of jug. Side broken; tubular pushed-in base ring; slightly concave base with marked central thickening and small central kick. Large oval pontil scar. BD 85, WT 1, pontil-scar diameter approx 15.
- 1539 LWC71 A20 F11; post-Roman. Base fragment of jug or bowl. Tubular pushed-in base ring out-splayed so that it is almost horizontal with concave base. Side probably grozed. BD 60.
- 1540 BKC76 N240 F76; Period 6+. Base fragment of bowl or jug. Side sloping in and touching top of out-splayed tubular pushed-in base ring; slightly concave base. BD 65.
- 1542 BKC75 G328 & G369 F108; Building 55; Period 5c. Three base fragments of bowl or jug. High vertical pushed-in base ring with hollow tube at end; convex base. Side grozed. PH 18, BD 95.

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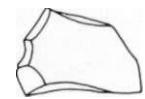
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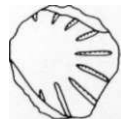
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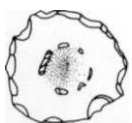
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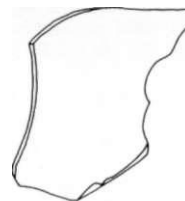
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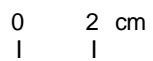


Fig 10.2 Miscellaneous bases. 1:2. [Pages 167-9 & 171-4]

Late Roman green

- 1543 BKC76 V63 & V76 L22, V658 L11; late Period 5 (c AD 300). Four base fragments of jug. Dark green. Side sloping in shallowly to tubular pushed-in base ring; concave base. Pontil scar. PH 12, BD 60, WT 1.5.
- 1545 BKC75 N61; Period 6? Base fragment of jug. Yellow/green. Side broken. Out-splayed pushed-in foot ring with hollow tube at end; high concave base. Circular pontil scar. PH approx 16, BD 70, pontil-scar diameter approx 15.
- 1548 BKC75 J69 L1; modern. Base fragment of bowl or jug. Pale greenish colourless. Narrow out-splayed pushed-in foot ring with hollow tube at end. Base broken; side grozed. BD 90.
- 1549 LWC72 K146; Roman or later. One rim and 5 base fragments of jug or flask? Pale green. Funnel mouth, rim edge rolled in; narrow lower body; pushed-in base forming out-splayed foot with tubular ring at edge; central kick. Pontil scar. PH (rim) 18 and (foot) 8, RD approx 58, BD 50, WT 1.

Bases with trailed base rings

Colourless

- 1550 LWC71 C119 F72; post-Roman. Lower body and base fragment of bowl. Wide convex-curved lower body sloping in to concave base with central kick; trailed base ring. Thick horizontal trail on lower body. Oval pontil scar. Base ring worn. PH 15, BD 60, WT 2.5, pontil-scar diameter 15x12.
- 1551 BKC75 H14 L2; post-Roman. Base fragment of bowl. Wide lower body; flat base; trailed base ring. BD approx 50, WT 1.5.
- 1553 BKC73 A158 F40; post-Roman. Base fragment of beaker or bowl. Slightly green-tinged. Side sloping in steeply to concave base with trailed base ring at edge. PH 11, BD 70, WT 2.5.

Blue/green

- 1554 1.81 D1950 L1021; Period 4. Base fragment. Convex-curved side; trailed base ring. Base missing. PH 18, BD approx 40, WT 1.5.

Late Roman green

- 1555 CPS73 597 F112; Period 5. Base fragment of beaker. Green-tinged colourless. Side curving in steeply to concave base with central kick; spiral trailed base ring. PH 7, BD 35, WT 2.

Flat and concave bases

Emerald green

- 1558 LWC73 K508; Building 15; Period 3, Period 2 destruction. Base fragment. Part of flat base with internal thickening. Broken into sub-triangular shape; 1 edge grozed. Dim 52x23.

Colourless

- 1560 1.81 B315 L31; Building 112, Room 5; Period 4c. Base fragment of jug? Side curving into shallow concave base. End of vertical rib fading out just above base. PH 6, BD 50, WT 1.
- 1561 1.81 H131 L3; Period 6. Lower body and base fragment. Vertical flattened or indented side curving into concave base. PH 17, BD approx 30, WT 4.

Blue/green

- 1564 1.81 B899 L200; Period 4. Lower body and base fragment of bowl or jug? Side curving in steeply to concave base. Edge of large vertical rib. PH 14, WT 3.
- 1565 CPS73 641 L88; Building 154; Period 4. Lower body and base fragment of bowl or flask. Side curving in to concave base with pronounced central kick. PH 14, BD approx 45, WT 3.

- 1566 1.81 E830 L49; Period 2. Complete base of flask or bottle? Cylindrical side mostly missing; shallow concave base. Base worn. BD 50, WT 2.
- 1567 1.81 B1769 L415; Building 77 destruction, early Period 3. Two lower body and base fragments of conical beaker? Side sloping in steeply to shallow concave base. PH 9, BD 40, WT 1.5.
- 1568 LWC72 J718 F220; Period 3? Base and lower body fragment of globular flask or bowl? Wide convex-curved lower body sloping in shallowly to slightly concave base without pontil scar. PH 14, BD approx 35, WT 3.
- 1569 LWC72 J1035; pre-Period 4b. Two lower body and base fragments of flask or bowl. Convex-curved lower body curving into slightly concave base. PH 17, BD approx 40, WT 3.5.
- 1570 BKC74 G40 L7; Period 5a or b. Two base fragments of bowl, jug, jar or flask. Convex-curved side sloping in to shallow concave base. PH 19, BD approx 40, WT 1.5.
- 1575 LWC71 C289 F192; Building 19; Period 4. Lower body and base fragment of globular flask? Thick convex-curved body; flat base. PH 20, BD approx 80, WT 3.5.
- 1578 COC79 831 L231; Building 141; Period 3. Lower body and base fragment of flask? Convex-curved body sloping out slightly; flat base. PH 25, BD 35-40, WT 3.
- 1583 LWC71 B173 F70; Period 5. Base fragment. Flat base with edge of side. Short wheel-cut grooves radiating out on edge of underside of base. Dim 30x29, BD approx 42, base thickness 5.5.
- 1584 BKC76 N279 F151; Period 6+. Base fragment of jug or flask. Side curving into concave base with central kick. Pontil scar. BD 75.
- 1585 BKC76 V149 F50; Period 5 or 6. Base fragment of small bowl or flask. Side curving into base with pronounced central kick. Pontil scar. BD 25, WT 3.
- 1586 BKC76 V71; unstratified. Base fragment of jug or flask. Side curving into concave base. Large off-centre pontil scar. PH 7, BD approx 35, WT 2.5.
- 1589 1.81 B2205 L631; Building 112; Period 4. Base fragment. Side curving into shallow concave base. Small part of pontil scar. BD approx 30.
- 1590 1.81 B484 L16; Building 112; Room 1, Period 4/5. Lower body and base fragment of cylindrical flask or bottle. Vertical side; concave base. Edge of pontil scar. Base worn. PH 9, BD approx 60, WT 2.
- 1593 LWC72 E38; Building 28, Phase 2; post-Roman. Lower body and base fragment of flask. Convex-curved lower body curving into concave base with marked internal thickening. Pontil scar. PH 8, BD approx 35, WT 2.
- 1594 BKC76 V84 L5; late Period 5 (c AD 300). Base fragment of bowl or flask. Side curving into base with central kick. Pontil scar. Grozed to circular shape. BD 20, present diameter 32, pontil-scar diameter 13.
- 1595 BKC75 K147 F12; Period 6. Base fragment of bowl or flask. Fragment from centre of base with small pad applied to external surface at centre. Pontil scar. Fragment now approximately square with 1 side grozed to sharp edge. Dim 25x24, pontil-scar diameter 8.
- 1617 BKC74 G47 F11; Period 5c. Concave base fragment with one side grozed to sharp edge. BD 50.
- 1636 1.81 G2718 L2677; Building 119?; Period 4. Base fragment of flask or jug. Side curving in to high domed concave base, mostly missing. BD approx 60.
- 1638 1.81 B231 & B249 F108; Period 4. Two joining lower body fragments of globular flask or jug. Convex-curved body curving in shallowly and broken at the edge of a thickened base. Dim 88x40, WT 2-6.

Late Roman green

- 1648 BKC75 N11 L1; modern. Base fragment of conical beaker or flask(?). Light green. Side sloping in steeply to high concave base. Circular pontil scar. PH 8, BD 20, WT 1.5.
- 1649 LWC72 K61 F26; post-Roman. Base fragment of beaker? Light green. Side curving in to high concave base with central kick. Circular pontil scar with small fragment of additional glass. PH 8, BD approx 22, WT 2, pontil-scar diameter 13.

Funnels (1650-1653)

[Fig 10.3]

Glass funnels (Isings Form 74) have an out-bent rim with a fire-rounded or cracked-off and ground edge, a bell-shaped body, and a narrow cylindrical spout with sheared end, as may be seen on three examples found at Luxemburger Strasse, Koln (Fremersdorf 1958b, 56, Taf 132). They are normally made in blue/green glass, but examples in strong colours have also been found (*ibid*, 56). Blue/green fragments which are almost certainly from funnels were found at Balkerne Lane (1650 & 1652) and Culver Street (1651 & 1653). The identification of 1650 is secure as it retains part of the body. The other fragments all come from spouts. These probably are parts of funnels, although the possibility that they are fragments of siphons (Isings Form 76) cannot be excluded. The siphon is a very rare vessel, with a long cylindrical spout and an expanded body which may take various forms (Calvi 1968, 95 no 242, tav 18.1).

Glass funnels were in use from the Claudian period into the late 1st century. One example from Valkenburg was found in a context dated to c AD 40-47 (van Lith 1978-79, 98 no 320a, Taf 23), and another was found at Vindonissa in a context of probable Claudio-Neronian date (Berger 1960, 225 no 225, Tafn 15 & 22.102). Examples from Pompeii have a *terminus ante quem* of AD 79, and there is one from a burial at Avennes dated to c AD 100 (Isings 1957, 92). In Britain an example from Exeter came from a context dated to c AD 65 (Charlesworth 1979a, 229 no 40, fig 71), and two have been recovered from Fingringhoe, Essex (CM, not numbered). The material from this last site was found during gravel extraction and not from archaeological excavation, but much appears to be derived from occupation during the Claudian period (for site see *VCH Essex* 131 & Willis 1990). Two funnels were also recovered from a Flavian burial at Shefford, Bedfordshire (Kennett 1970, 201).

This is a relatively rare vessel form which is found in Italy, the former Yugoslavia and southern France, as well as in the north-western provinces where an increasing number are now being recognised (van Lith 1978-79, 98-9 & 1984, 264-5). From Britain, in addition to the examples from Exeter, Fingringhoe and Shefford already noted, the form is present at Watercrock (Charlesworth 1979d, 232 no 170, fig 93), and St Mary's Abbey at York, St Albans, Wroxeter,

and Castleford, West Yorkshire (all unpublished), and possibly also at Southwark (Townend & Hinton 1978, 151 no 16).

Funnels

Blue/green

- 1650 BKC75 J234; modern. Body and spout of funnel? Wide convex-curved body; narrow tapering cylindrical spout. PH approx 59, spout-diameter 9-12, WT 1.5.
- 1651 1.81 G1869 F1864; Period 3. Two fragments of funnel spout? Tapering cylindrical tube with broken ends. Present length 50, diameter (max) 11, WT 1.
- 1652 BKC76 T294 L38; Period 5a & b. Fragment of funnel spout. Description as 1651. Present length 46, diameter (max) 10, WT 1.
- 1653 1.81 H343 L78; Period 5. Fragment of funnel spout. Description as 1651. Present length 39, diameter (max) 8, WT 1.

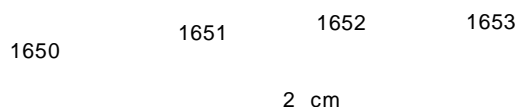


Fig 10.3 Funnels. 1:2.

Rhyta (Rhyton? 1654)

[Fig 10.4]

Drinking-horns or *rhyta* are conical vessels with lower bodies which taper to a point and curve to one side. In 1957, Isings distinguished two variants. Isings Form 73a has a broad rim, the tip of the lower body is made to resemble an animal's head with horns, and the vessel may stand on a high pad base attached at the point where the vessel curves. A typical example is that found on Corfu (Brock & Mackworth Young 1949, 89, fig 24). The other variant, Isings Form 73b, has an out-turned rim with folded edge and a short cylindrical neck. The upper body is slightly convex and the lower body tapers to an elongated point; see for example one found at Koln (Fremersdorf 1958b, 56, Taf 130).

These vessels were in use during the 1st century, mainly in the Mediterranean region. An animal-headed *rhyton* was found in a Flavian grave on Siphnos (Brock & Mackworth Young 1949, 89 no 11, pi 32.2), and examples of the plain variety (Isings Form 73b) have been found at Pompeii and in a grave dated to the second half of the 1st century at Nfmes (Isings 1957, 91; for other references see Fremersdorf 1958b, 56). A colourless wheel-cut example was

found in a pit dated to c AD 60-80 at St Swithin's House, Walbrook, London (Harden 1970a, 8 no 15; Price 1991a, 163, fig 613).

Plain *rhyta* have occasionally been found north of the Alps, but they are very rare in the north-western provinces. Apart from the examples from Koln and London, the only other example known to us is a complete blue/green example found in the West Cemetery area at Colchester (CM, 231.73).

During the excavations at Balcerne Lane a blue/green cylindrical fragment (**1654**) was found. It is slightly curved and has an oval cross-section at the wider end and is, therefore, unlikely to have come from the neck of a jug or flask. It is possible that it came from the lower body of a plain *rhyton*, but it is not sufficiently diagnostic for this to be a secure identification.

Rhyton'?

Blue/green

1654 BKC76 V81; unstratified. Body fragment of *rhyton* or *infundibulum* or neck fragment of flask. Slightly oval-sectioned, tapering curved cylinder. Present length approx 10, section 23x20-14x14, WT 1.5.

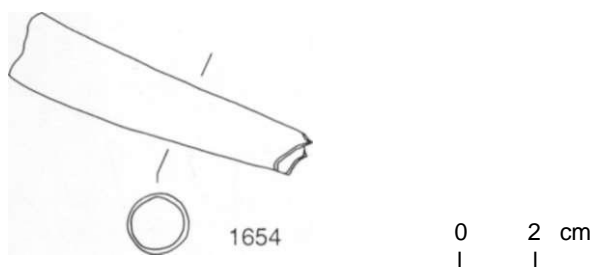


Fig 10.4 Rhyton?. 1:2. [Pages 174-5]

Miscellaneous decorated body fragments (1655-1832)

[Figs 10.5-10.6; Table 10.3]

Decorated body fragments which are not sufficiently diagnostic to indicate the precise type of vessel they came from are summarised in Table 10.3. These fragments may be divided into two broad categories. The first, into which the majority fall, consists of those with common varieties of decoration which are likely to be from vessels of the types already discussed. The second consists of a number of fragments with less common types of decoration, which may indicate the presence in the assemblage of forms that are not attested by more diagnostic pieces.

Many of the fragments with optic-blown ribs (**1655-1685**) and pinched-up ribs (**1691-1705 & 1708-1727**) fall into the first category, as they are likely to have come from tubular-rimmed bowls (**630-690**), collared rim jars (**732-764**), or globular and conical jugs (**871-954**). These forms were frequently decorated by this sort of ribbing and they are well represented in the assemblage. The colourless body fragment with the terminal of a pinched-up rib (**1707**) may belong to a hemispherical cup such as **543-550**; its thickness increases markedly below the rib and this is a feature often seen on such cups. Fragments **1772**, **1774** and **1776** all have closely-set spiral trails and are made of bubbly greenish glass. They could well have come from a 4th-century funnel-mouthed ovoid or globular jug like **1161** (p 136).

Fragments worthy of special note because their decoration includes less common features are fewer in number. The blue/green fragment **1741** has curving trails that have been drawn together. This may originally have come from a vessel where vertical trails were pinched together in a diamond pattern, as

Table 10.3 Miscellaneous decorated body fragments by colour.

Colour	optic-blown	pinched ribs	trails	indents	wheel-cut lines	abraded bands	applied blobs and rods
Deep blue	-	1	-	-	-	-	-
Yellow/brown	3	8	-	-	-	-	-
Yellow/green	4	3	-	2	-	-	-
Light green	5	13	5	1	-	1	-
Colourless	1	2	12	6 *	11	28	-
Blue/green	19	28	18	3	-	24	1
4th-century green	4	-	17	-	-	2	1
Totals	36	55	52	12	11	55	2

includes about 145 small fragments and splinters counted as 1 fragment ("1774/

Miscellaneous decorated body fragments

on a conical jug of Isings Form 55 found in a Flavian cremation at Grange Road, Winchester (Harden 1967, 238-40, fig 7.17, pi 43a). Decoration produced by pinching together trails also occurs on **1733**, where a spectacle pattern results. Such decoration occurs throughout the Roman period, but it is commonest during the late part (Price 1980b, 113).

The pale green bubbly fragment **1761** retains part of one straight trail with another V-shaped trail running into it. This may have come from a vessel decorated with two horizontal trails with a third trail zig-zagging between them. This is a type of decoration seen on 4th-century vessels and it was produced with both self-coloured trails, as on **1761**, and polychrome trails; see for example several hemispherical cups from Koln (Fremersdorf 1959, 79-80, Tafn 131-3). It has not frequently been recorded from Romano-British sites, though other fragments with self-coloured trails may be noted from Traprain Law, Lothian (Curie 1931-2, 359, fig 43), Nettleton, Somerset (Charlesworth 1982c, 153 no 24, fig 65.346), and Caistor by Norwich, Norfolk (Norwich Castle Museum).

Both fragments with applied decoration (**1837 & 1832**) are also of interest. The blue/green fragment **1837** has an applied rod and blob. It is from a context dated to c AD 150-300 (Lion Walk Site J, Period 4), but it is probably of mid 1st-century date, as such decoration occurs on vessels such as *canthari* like **253**, and is rare after that date. Fragment **1832**, found in a post-Roman context at the Cups Hotel, is of 4th-century date. It is made in green-tinged colourless glass, and a self-coloured blob has been applied and then centrally impressed. Self-coloured as well as coloured blobs were used to decorate 4th-century hemispherical cups and conical beakers (see **553-614**), and it is possible that **1832** came from a vessel of this sort. Similar body fragments with centrally-impressed self-coloured blobs have been found in 4th- or early 5th-century contexts at, for example, Frocester Court, Gloucestershire (Price 1979, 42 nos 20-21, fig 17) and Dorchester-on-Thames, Oxfordshire (Charlesworth 1984c, 155 no 14A, fig 39).

Fragment **1780** is a colourless fragment with wheel-cut decoration consisting of part of a circular groove, a straight line and an abraded band. This combination of curved and straight lines and bands occurs on some late colourless bath flasks, such as one from Koln with a funnel mouth (Fremersdorf 1967, 113, Taf 119), and on spherical flasks with cracked-off rims such as **1184-1187**; see for example one from Luxemburger Strasse, Koln (Fremersdorf 1967, 109, Taf 111). It has also been found on a hemispherical cup of Isings Form 96 from Aachener Strasse, Koln (Fremersdorf 1967, 76, Taf 45). Bath flasks, spherical flasks and hemispherical cups decorated in this manner have not yet been identified with certainty on Romano-British sites, but colourless body fragments which may have come from such vessels have been found at Verulamium (Charlesworth 1972, fig 77.47), Lullingstone (Cool & Price 1987b, 122 & 129, fig 53.337), and Blake Street, York (unpublished).

Miscellaneous decorated body fragments

Optic-blown ribs
Yellow/brown

1656 LWC72 J530; Building 20, Room 6, Period 4a or b.

Pale/light green

1664 LWC72 J964; Period 3 make-up.

Blue/green

1677 1.81 D1840 F1411; Period 4.

Late Roman green

1687 BKC75 H36 L7; Period 6.

Pinched-up ribs
Yellow/green

1695 1.81 E12 F10; Period 7.

Light/pale green

1701 LWC73 K368; Period 4b. Six fragments.

1703 1.81 G4271 L4241; Period 3d. Light green.

Colourless

1707 1.81 G3084 L1344 F701; Period 4.

Blue/green

1709 BKC76 T500; Period 1-2?

1723 GBS85 A2394; unstratified. Seven pairs of narrow spiral ribs.

Colourless

1733 BKC75 H111 F33; Period 5c. Two horizontal trails pinched together in spectacle pattern.

1735 LWC72 M92; Rampart 1e, late Roman. Two vertical trails.

1737 1.81 B790 L133; Building 113, Room 1, Period 4. Fourteen closely-set spiral trails.

Blue/green

1741 BKC76 V62 F8/F130; Period 4. Three curving trails, 2 joining in loop.

1751 LWC72 J1182 F348; Period 1. Six spiral trails.

Late Roman green

1766 CPS73 736 L102; Building 154; Period 4. Six spiral trails.

Indented decoration

Blue/green

1776 BKC75 H178 F76; Period 5c.

1777 BKC75 J373 L33; Periods 3/4/5a.

Wheel-cut lines

Colourless

1779 BKC76 V81; unstratified. Two lower body fragments. Side curving steeply in to shallow, slightly concave lower body and base edge. One wheel-cut line on lower body. Wear-scratches. Dim 50x39, WT 2.5-3.5.

1780 1.81 D1630 L1617; Period 4. Body fragment. Convex-curved side. Part of 1 circular wheel-cut groove above 1 horizontal wheel-cut groove and 4 horizontal abraded bands. Dim 26x20, WT 2.

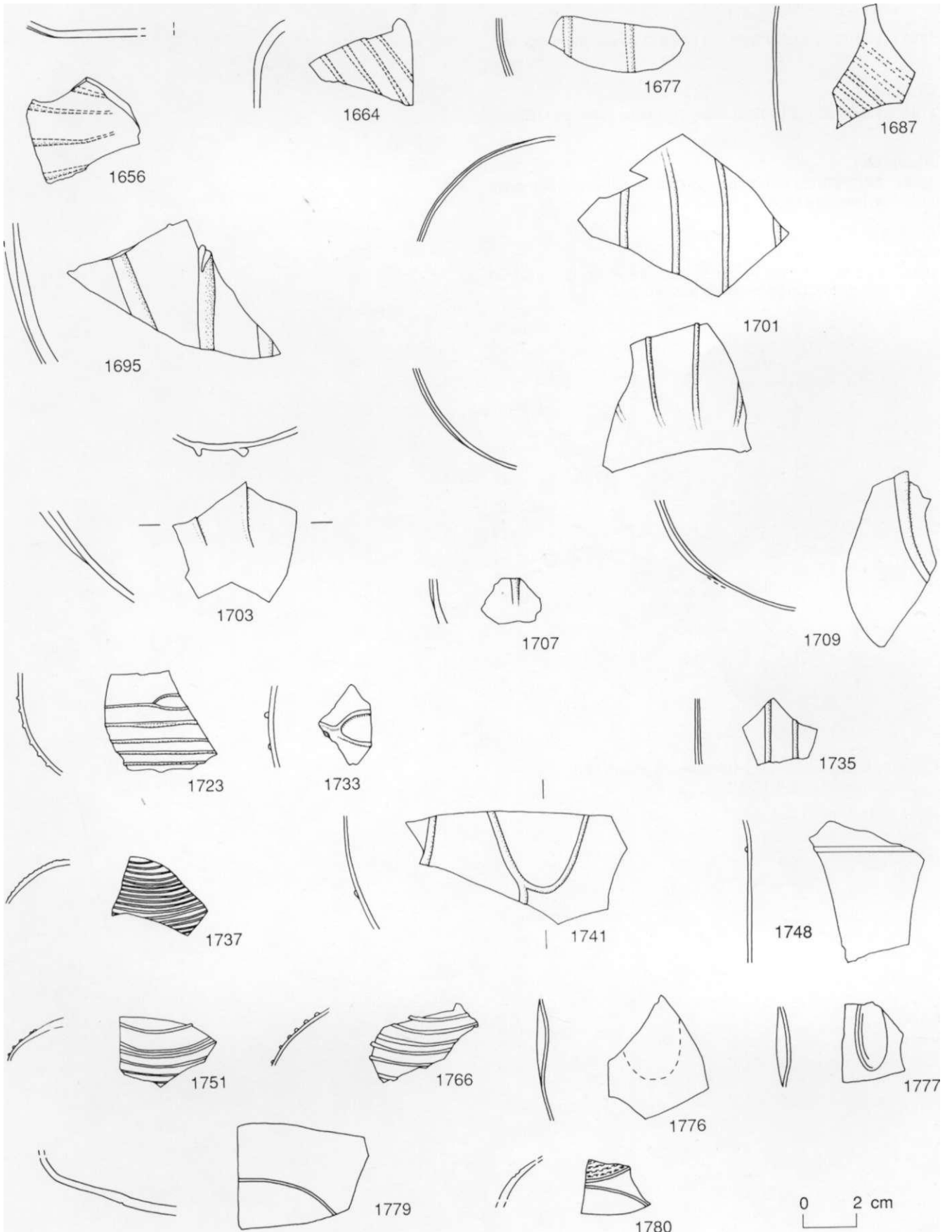


Fig 10.5 Miscellaneous decorated body fragments. 1:2. [Pages 175-6]

Miscellaneous decorated body fragments

1781 1.81 D1577 L1372; Period 4. Body fragment. Slightly convex-curved side. Four wheel-cut lines, the central 2 paired. Dim 28x23, WT 1.5.

1785 1.81 G2678 L2677; Period 3 or 4. Two and three grooves.

Abraded bands

Colourless

1797 MID78 E2733 L408; Building 76, Phase 1, Period 1. Eleven bands.

Blue/green

1808 BKC75 G388 F11; Period 5c. One set of two and one set of at least five bands.

Applied blobs

Late Roman green

1832 CPS73 419 L74; Period 5. Body fragment. Green-tinged colourless. Large oval blob applied.

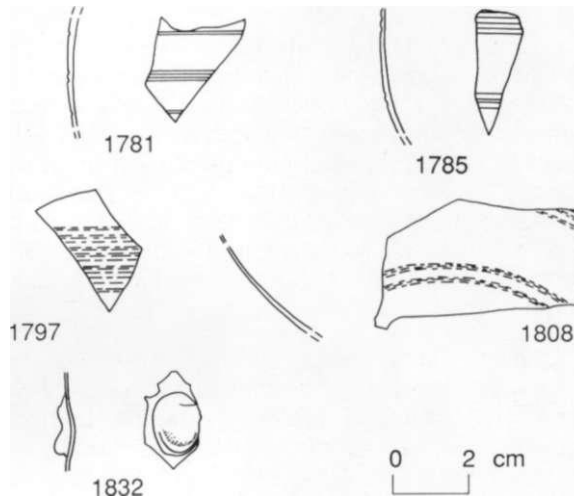


Fig 10.6 *Miscellaneous decorated body fragments. 1:2.*
[Pages 175-6 & 178]

CHAPTER 11: Bottles

Prismatic and cylindrical bottles (1834-2239)

[Figs 11.1-11.12; Table 11.1]

To judge by the numbers of fragments, the commonest types of vessels found during the Colchester excavations of 1971-85 were blue/green prismatic and cylindrical bottles. The two forms will be discussed together as only the body and base fragments can be attributed to one or the other type. The same rim, neck and handle forms are used on both, and the precise variety of bottle represented by these fragments cannot usually be identified.

These vessels were used as containers for transport and storage rather than as tablewares. The original contents are unknown, though it is generally assumed that these were of liquid or semi-liquid materials. Many show a high degree of wear, indicating that individual bottles remained in use for a considerable length of time and may have been reused to serve as containers for items other than their original contents. Some of the larger bottles were ultimately used as cinerary urns in burials, and many of these are extremely worn.

Blue/green prismatic and cylindrical bottles are widespread throughout the Empire, but they show marked regional variations. The discussion that follows deals with the varieties common in Roman Britain and the other north-western provinces.

The rims of these bottles are folded out, up and in. The diameter of the fold is, in a minority of cases, little larger than the diameter of the neck and the rim has a small triangular profile. Most bottles have wider rims, and the upper profile varies from being flat and horizontal to sloping and slightly convex. Very occasionally the rim is bent out and the edge is rolled in. The short neck is cylindrical and frequently shows horizontal tooling-marks at the junction with the horizontal shoulder. Bands of horizontal scratch-marks can sometimes be seen on the neck, as on **1855**. These appear to have been caused by the cord which would have secured the stopper, presumably made of some form of organic material.

Bottles with rectangular-sectioned and octagonal-sectioned bodies have two handles, while the other forms have one handle only. The handles are broad and angular with a simple lower attachment on the shoulder, and a folded upper attachment on the neck and underside of the rim. The commonest handle type is reeded, and has numerous narrow sharp ribs on the lower part which end in points at the lower attachment. Other known forms of handle include plain

ribbon handles, handles with two or three wide ribs and handles with several prominent ribs.

Cylindrical bottles (Isings Form 51) were free-blown. They frequently have a slight bulge below the shoulder above the cylindrical side and the bases are concave. Their body fragments are often recognisable, because the sides have many vertical scratch-marks which appear to have been caused by the repeated removal and replacement of the bottle in a container.

The bodies of the prismatic bottles were formed either by flattening the sides of a free-blown vessel or by blowing into a body mould. Those found in Britain almost invariably have mould-blown bodies, with the shoulder, neck, rim and handle being formed subsequently by free manipulation. The slightly concave bases of most prismatic bottles have mould-blown patterns in relief. Most commonly these are of concentric circles, but more complex designs, including some with letters, are also known.

The commonest variety of prismatic bottle has a square-sectioned body (square bottles). Bottles with hexagonal-sectioned bodies (hexagonal bottles) are the second most common variety, but they are much less numerous than square bottles. Isings places both of these types in Form 50. Bottles with rectangular-sectioned bodies (rectangular bottles; Isings Form 90), such as the one from the West Lodge estate, Colchester (Anon 1927, 65, pi 17), are less common, and bottles with octagonal-sectioned bodies (octagonal bottles) like those from Barrow-on-Soar, Leicestershire (Ellis 1874, 224, pi 2.5) and Glatton, Huntingdonshire (Garrod 1925, 287, figs 1 & 2) are even rarer. Bottles with triangular-sectioned bodies are very uncommon. A pair is known at Pompeii (Ward-Perkin & Claridge 1976, no 243) but records of others are scarce, although a body fragment has been found at Bewcastle (1956, BEW 56 EL, pers comm L Allason-Jones & D Welsby).

Sometimes in addition to the normal base mouldings, base fragments show very slight mouldings apparently formed from lightly-scratched marks on the base mould. The pattern of these marks suggests that they were guidelines used to set out the base design which would then be drawn in, frequently by compass. Square bottles with a base pattern of a single or two concentric circles and a central dot from Rocester, Bayford Wharf East, Lincoln and Hunter Street, Chester (all unpublished) show faint lines inscribed diagonally from corner to corner marking the centre, and a fragment from Wilderspool (Warrington Museum, 1292) with a design of at least four

concentric circles shows a similar central crossing. These light scratches suggest that the material of the mould was initially fairly soft; clay or wood may have been used.

Mould-seams cannot be seen on the finished product, so it is possible that the mould for the body and base was made in one piece. The bottle sides frequently slope in very slightly towards the base (see for example **2149**), and this might have been designed to aid extraction from a one-piece mould. It seems more likely, however, that the base moulds were made separately and that the marks of the junction between pieces of the mould were removed by fire-polishing.

Few base moulds have survived. A small group of square stone blocks with negative impressions of concentric circles which may have fitted into the square-sectioned body moulds have been noted in the western provinces (there are examples in the Romisch-Germanisches Museum, Koln, and Musee de la Civilisation Gallo-Romaine, Lyons; Foy & Sennequier 1989, 100, no 30). There is also a square plate of fired clay with negative impressions of four concentric circles around a central dot, and with L-shaped angle mouldings in each corner, from Hahnentor, Koln which has been published as a base mould (Fremersdorf 1965-6, 29, Abb A; Price 1976a, 119, fig 212). However, it appears to be more likely that it came from the base of a pottery version of a square bottle.

Bottles of these types vary greatly in size, as is demonstrated by the complete square bottles found in Colchester and preserved in the Colchester

Museums. The largest (CM, 482.P) is approximately three times the size of the smallest (CM, JOS 1179); 336 mm high by 160 mm base width as opposed to 115 mm high by 50 mm base width, and both larger and smaller examples are known from elsewhere (Charlesworth 1966, 29). The height-to-width ratio also varies, with some having a tall and others a squatter appearance. These variations in size and shape have been used to provide sub-divisions of the various forms. Isings (1957, 63-9) divided square bottles into two variants, that is, small (Form 50a) and large (Form 50b), and cylindrical bottles into two forms, the squat (Form 51a) and tall (Form 51b). These divisions have been conformed to by most subsequent writers, with the exception of Charlesworth; in her study of square bottles, she singled out a tall narrow form which had been included by Isings as part of Form 50b from the mass of all the others and did not consider there to be any marked division by size (1966, 28).

The types into which the square, hexagonal and cylindrical bottles generally fall is shown in Figures 11.1-11.4, where the height of the bottle has been plotted against its base width. These figures have been generated from a group of 183 complete bottles from Britain, northern France, Belgium, the Netherlands, and the middle and lower Rhineland. This cannot be regarded as a random sample, but it does give a good approximation of the pattern that can normally be expected. The data set is given in Appendix 2 (pp 307-8).

From Figure 11.1, it can be seen that there are basically three divisions within the forms of the square

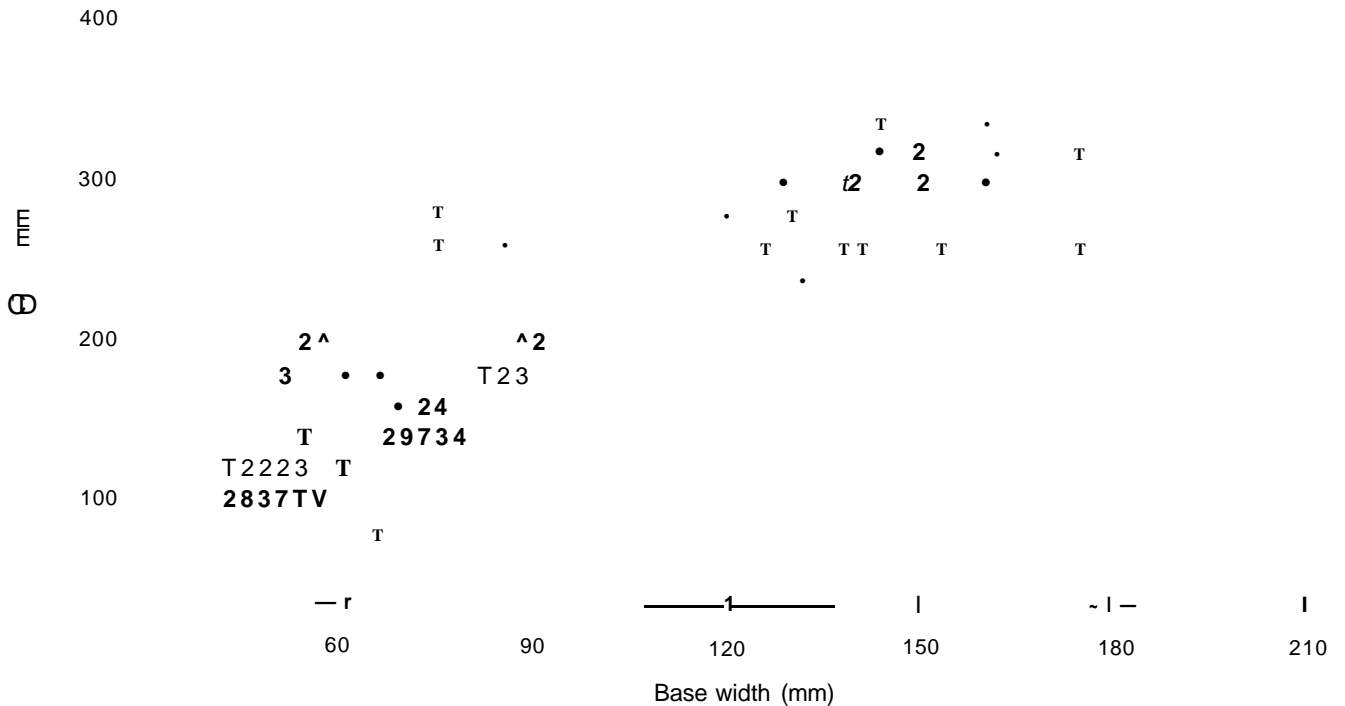


Fig 11.1 Scatter plot of height versus base width of square bottles (numerals indicate number of multiple occurrences with similar measurements). [Pages 180-81]

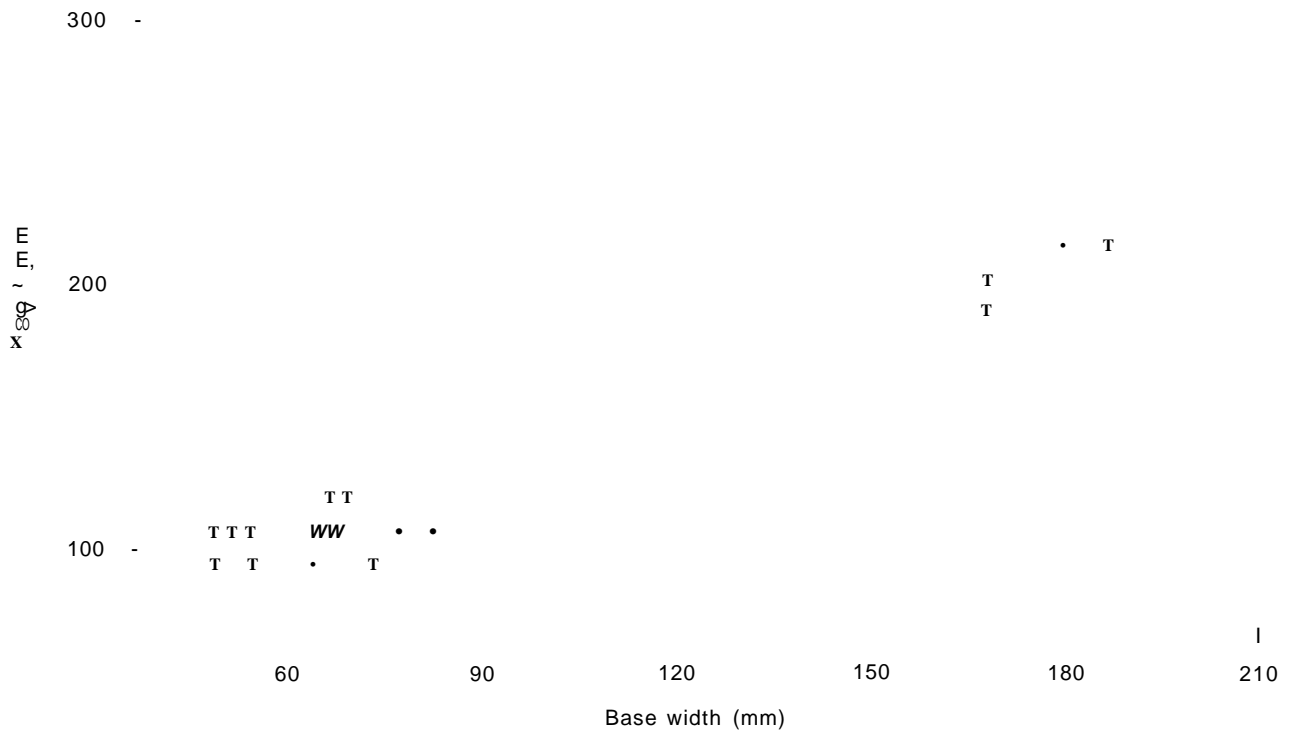


Fig 11.3 Scatter plot of height versus base width of hexagonal bottles. [Page 181]

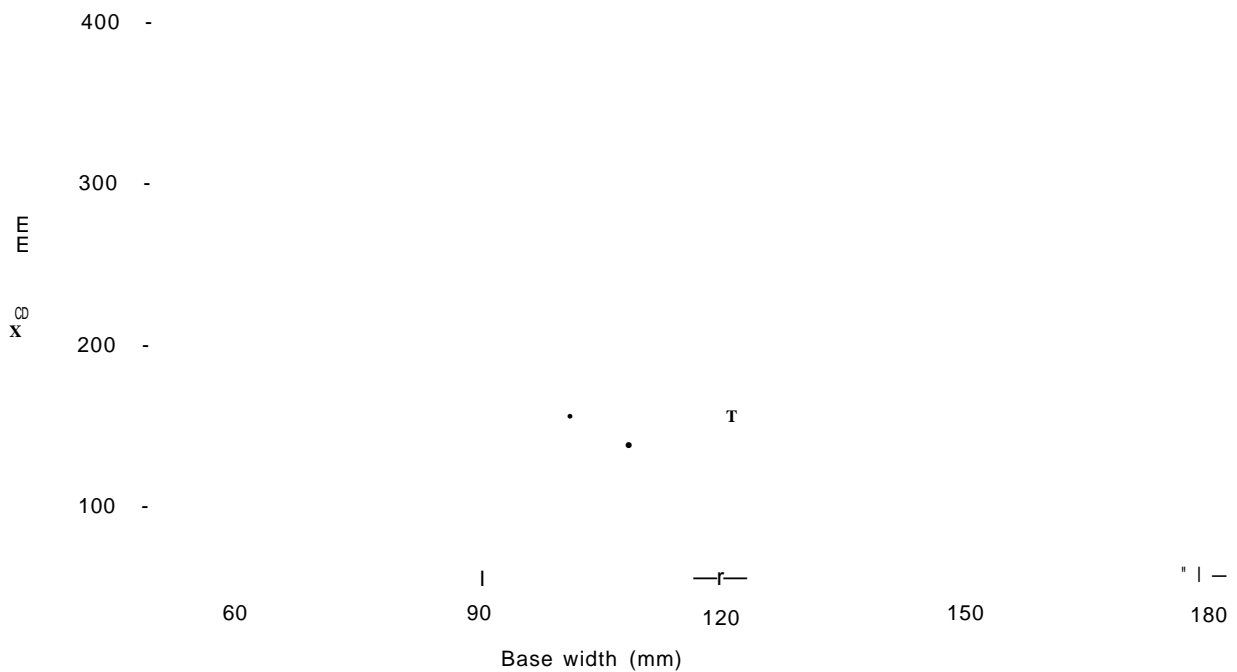


Fig 11.4 Scatter plot of height versus base width of cylindrical bottles. [Page 181]

Neronian fort at Usk (*RIB* II, 2, 111 no 2419.101) and P. Gessius Ampliatus on a group from the Pompeii area (de Franciscis 1963, 137, fig 4; Scatozza Horicht 1986, 80). More frequently, however, they are enigmatic combinations such as AF inside a Q

(Charlesworth 1966, figs 16 & 17), with the letters CCPC in the corners (*ibid*, fig 7), or SAI across the centre of the base (Price 1980a, 66 no 16, fig 16).

These base patterns are potentially a source of much

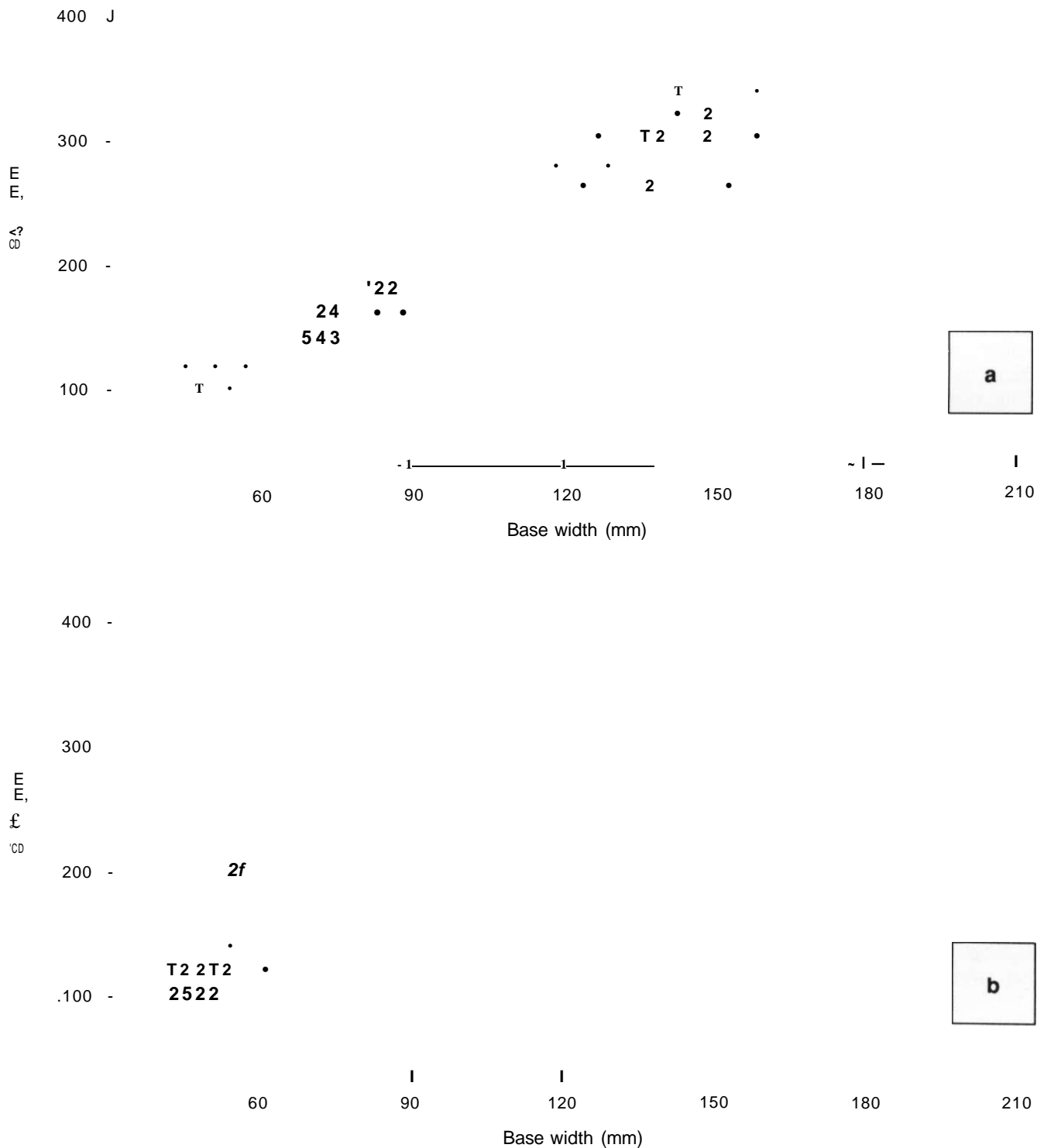


Fig 11.5a-b Scatter plot of height versus base width of square bottles (shown in Fig 11.1) showing handle types used (conventions as Fig 11.1). [Page 181]
 (a) reeded handles
 (b) plain and widely-ribbed handles

valuable information as they may have acted as some form of trademark. Details of the distributions of bottles from the same moulds or with identical patterns from different moulds have sometimes been used as evidence for trading links (Price 1978, 76).

Such information must, of course, be handled with care as the marks are as likely to relate to the original contents of the bottle as to the glass-house that produced it. The pair of rectangular bottles from Linz with the mark SENTIA SECUNDA FACIT AQ(UILEIA)

VITR(A) (Noll 1949, 27, Abb 71-3; Harden 1970b, 72, pi 4B) are most unusual, not only in giving the name of a woman as the head of an industrial establishment, but also for specifically linking the person named with the production of the bottle. Usually, as in the case of marks such as OSABIIL on the base of a hexagonal bottle from Alcester, Warwickshire which may be read as O(FFICINA) SABEL(LI) (*RIB* II, 2, 116 no 2419.128), the workshop may have been producing either the contents or the bottle.

The base patterns of these bottles have not been studied in the same depth as, for example, mould-blown glass tablewares and moulded pottery such as samian, and so comparatively little of the potential information is currently available. The identification of mould parallels is a good example of the problem. These have most frequently been recorded when they have occurred together in the same grave, as at Welwyn, Hertfordshire (Kindersley 1922, 25, fig 4; Charlesworth 1966, 39 no 68, fig 11) and Paris (Landes 1983, 44, nos 3 & 4, pi 1), or in the same pit as at Harlow (Price 1987a, 199 & 206 nos 33-4, fig 4). Mould parallels may also be identified on bottles from different sites, as on examples from Lincoln (Lincoln City Museum, 9641.06) and Catterick (unpublished), and these are potentially far more valuable. However, at present, in the absence of a systematic survey, recognition of the incidence of such cases is only possible when the designs are very distinctive.

These bottles were most common during the later 1st and 2nd centuries. At Magdalensberg, some square bottles appear to have come from Augustan contexts (Czurda-Ruth 1979, 135), but these are unique; elsewhere the earliest dated examples are Gaian or Claudian. Of these, the earliest securely-dated examples so far found are those from Cosa, with a *terminus ante quern* of AD 40-45 (Grose 1973, 45 nos 35-9, fig 5), and from the Port-Vendres II shipwreck dated to AD 41-42 (Colls *et al* 1977, 120 no 9, fig 42). Cylindrical bottles, and to a lesser extent square bottles, were found at the Claudian fort at Hofheim (Ritterling 1913, 373), and fragments from both were also recovered from the pre-Boudican levels at Sheepen (Harden 1947, 306 no 98, pi 88; Charlesworth 1985a, mf 3:F10 nos 93-5). Hexagonal bottles have been found in Claudio-Neronian contexts at Stein in the Netherlands and Tenero, Switzerland (Isings 1957, 64). Bottles are not found in large quantities on Claudian and Neronian sites. At the late Neronian site at Kingsholm, for example, bottle fragments represented only three per cent of the assemblage.

A great change takes place during the Flavian period when fragments of square, hexagonal and cylindrical bottles dominate the vessel-glass assemblages. On sites where the majority of the occupation takes place during the later 1st and 2nd centuries, it is not unusual for bottle fragments to account for more than a third of the assemblage. At Abbey Green, Chester for example, where approximately 1,300 fragments were recovered, 35 per cent were from bottles; at Annetwell Street, Carlisle the proportion was 44 per cent of an

assemblage of nearly 1,000 fragments (unpublished); and at Site 10, Caersws it was 37 per cent of an assemblage of approximately 700 fragments (Cool & Price 1989, 31). Even on sites where occupation continued long after the bottles went out of use, they will still make up a substantial amount of the assemblage. For example, on the three sites which produced the largest numbers of fragments during the 1971-85 excavations in Colchester (ie Balkerne Lane, Lion Walk and Culver Street), 22, 24 and 22 per cent respectively of the assemblages were bottle fragments. On all three sites, of course, there were substantial amounts of occupation both before and after the period when the bottles were in common use.

There are two main reasons why it is difficult to ascertain closely when the bottles went out of production. The first reason is that the volume of fragments means that problems associated with redeposition and residuality are acute. The second is that the reuse and wear-marks already noted mean that some bottles must have had a very long lifetime of use. It is probable, therefore, that the time-lag between the forms going out of production and out of use was greater than for contemporary forms of common tablewares.

During the Flavian period, cylindrical bottles were probably as common as square bottles. The relative proportion of fragments of the two kinds often varies between sites and this seems to be related to the sources of supply (Price 1985a, 308). Cylindrical bottles appear to go out of use early in the 2nd century. At Caerleon, for example, they are common in the 1st century, but during the 2nd century the bottle assemblage is dominated by fragments from square bottles (Boon 1969a, 95), and this also tends to be the pattern observed elsewhere.

It has been suggested that the majority of square bottles belong to the period c AD 70-120/30 and that production may have ceased in the western provinces by the end of Hadrian's reign (Charlesworth 1966, 30), but the volume of finds in contexts dating to the second half of the 2nd century indicates that the use of square bottles must have continued until the later 2nd if not into the early 3rd century. It is unlikely that a bottle is residual when many fragments from it are found in the same pit, and such finds have frequently been recorded from contexts dated to the second half of the 2nd century. Examples include fragments from pits also containing much samian dated to c AD 150-160 at Alcester (*RIB* II, 2, 120, no 2419.144); c AD 155-165 at Park Street, Towcester (Price 1980a, 66 no 16, fig 16); to c AD 160-170 at Felmongers, Harlow (Price 1987a, 206 nos 33-4, fig 4); and also in a pit which was open during the last quarter of the 2nd century at Thomas Street, Southwark (Townend & Hinton 1978, 389 no 116, fig 176). Square bottles are also present in graves containing samian dated to the second half of the 2nd century, for example at Bartlow, Essex (Gage Rokewode 1840, 2 no 1 & 3 no 6 & 1842, 2 no 1) and possibly at Baldock, Hertfordshire (Westell 1931, 267 nos 4656-7).

Furthermore, it is possible that square bottles were still occasionally used in the 3rd century. At the cemetery at Brougham, Cumbria where the burials date to between c AD 220/30 and 270/80, fragments from square bottles were found in graves robbed in antiquity (unpublished). Although these may have been residual from the grave fills, the possibility that they were from grave goods cannot be ruled out. Production of square bottles into the second half of the 2nd century is, therefore, very probable.

Fewer near-complete hexagonal bottles from later 2nd-century contexts on domestic sites or graves are known in Britain, but this may be the result of their being less common in general. Shepherd (1982, 228) has suggested that hexagonal bottles were in decline from the second quarter of the 2nd century; but their use into the mid 2nd century is attested by the presence of one in a grave at Girton, Cambridgeshire which also contained samian dated to the middle third of the century (Hollingworth & O'Reilly 1925, 33), and of a complete base of one in a pit at Alcester containing samian dated to cAD 150-160 (unpublished). In addition, one small example has been found in a grave at Ospringe (Whiting 1926, 144; Whiting *et al* 1931, pi 16) which also contained pottery dated to the late 2nd to early 3rd century (Pollard 1988, 117 Form 167 & 159 Form 215), and another has come from a 3rd-century grave at York (Harden 1962, 137 no H.34c, fig 88). These examples may be representative only of exceptional longevity, but they are not unique, as other small hexagonal bottles have also been found in graves dated to the second half of the 2nd century and the beginning of the 3rd century in Normandy, at Neuville-le-Pollet and Hameau d'Alventot (Sennequier 1985, 150-51 nos 235-6).

Rectangular bottles, by contrast, do not appear to have been manufactured during the 1st century. The earliest dated examples cited by Isings have 2nd-century associations (1957, 108), and examples from dated contexts in Britain belong to the mid 2nd century. One was found in the south barrow at Bartlow, which also contained samian dated to between cAD 145 and 180 (Gage Rokewode 1840, 3 no 5), and another was found in a grave at Baldock dated by pottery to c AD 150 (Westell 1931, 274 no 4818, fig 6). In addition to these whole vessels from dated contexts, there are base and body fragments from an example found at the Antonine fort at Bearsden (*RIB* II, 2, 112 no 2419.106), and a base fragment from The Park, Lincoln which was incorporated into the late 2nd- or early 3rd-century town rampart (unpublished). The difficulties of dating rectangular bottles are increased not only as a result of their relative scarcity, but also because fragments can rarely be recognised as body fragments of rectangular and square bottles are normally identical.

All of the blue/green body and base fragments from prismatic vessels in this assemblage have been identified as coming from bottles. It is possible, however, that some could have come from collared jars with square bodies (Isings Form 62) such as

those from Cirencester (Thorpe 1935, pi 2c; Charlesworth 1982a, fig 81.357). These were made in the same way as the square bottles and have similar mould-blown patterns on their bases. The rims are normally bent out and down, and are similar to those used on globular collared jars (see **732-764**). When dealing with fragments it is impossible to tell whether a body or base fragment comes from a square bottle or a square jar unless a substantial part of the rim, neck and body is preserved. The jars appear to be rare in Roman Britain, but this may in part be due to problems of identification.

During the 1971-85 Colchester excavations just under 1,500 fragments of bottles were found, representing approximately one-quarter of the total vessel-glass assemblage. Fragments occurred on every site producing Roman glass, and the distribution is shown in Table 11.1. This table also shows the minimum number of vessels represented by these fragments. The estimation of the minimum numbers was made following the procedure outlined in Chapter 1. It will be immediately apparent that this minimum number is much smaller, compared to the number of fragments, than is usual. The 221 fragments of pillar-moulded bowls, for example, represent a minimum of 81 vessels. This discrepancy is always observed. In part it is the result of the body fragments being so distinctive; they are identifiable as bottle fragments when comparable fragments from most other vessels remain unidentified. Notwithstanding this, however, the calculated minimum number must be a gross underestimate of the number of bottles represented by the surviving fragments.

As none of the bottles found during the 1971-85 Colchester excavations has preserved a complete profile, the precise types represented have been identified on only a few occasions. The fragments numbered **1836** are likely to have come from a tall narrow cylindrical bottle. Among the square bottles most of the profile of **2149** is preserved, and it obviously comes from a standard small bottle rather than a tall narrow one. The sizes of all the other square and hexagonal bottles have been estimated from their shoulder or base widths. For square bottles this means that there is no way of knowing the proportion of standard small to tall narrow bottles.

The widths of the bases which are definitely identified as coming from square bottles (**2144-2154**, **2157**, **2200**, **2201**, **2203**, & **2209**) range between 45 and 95 mm with a mean of 67 mm. The three base fragments from hexagonal bottles (**2141-2143**) have base widths of approximately 50 mm. For the base fragments from bottles where the body width can be calculated, but where it is not known if the bottle was square or hexagonal (**2155-2156**, **2161-2162**, **2169**, **2172**, **2177-2178**, **2180**, **2181**, **2189** & **2192-2193**), the size ranges from 50 to 140 mm with a mean of 83 mm. With the exception of the prismatic bottles represented by the fragments **2169** and **2180**, therefore, all the measurable fragments of square, hexagonal and undefined prismatic bottles come from

Table 11.1 Distribution of blue/green prismatic and cylindrical bottles. [Page 185]

SITE	Number of fragments	% of assemblage	EMN of hexagonal bottles	EMN of square bottles	EMN of rectangular bottles	EMN of prismatic bottles	EMN of cylindrical bottles	EMN of bottles of unknown shape	Total EMN
1.81/CUL	450	24.0	1	4	1	11	2	3	22
BKC	433	22.0	1	6	-	11	1	-	19
LWC	269	24.0	-	1	-	6	2	-	9
GBS	105	17.5	*	2	-	1	*	5	8
BUC	85	36.5	-	1	-	1	1	1	4
MID	68	40.0	1	3	-	4	1	-	9
CPS	40	16.0	-	2	-	1	1	-	4
COC	24	-	-	-	-	*	*	-	2
TSC	1	-	-	-	-	*	-	-	1
MRC	5	-	-	-	-	*	-	-	1
CGS	1	-	-	-	-	*	-	-	1
IRB	1	-	-	-	-	1	-	-	1
IRC	1	-	-	*	-	-	-	-	1
Totals	1483	-	3	19	1	36	8	9	82

The percentage of an assemblage that the bottle fragments form has only been calculated for sites where the total assemblage is more than 100 fragments.

The value for the estimated minimum number of bottles of unknown shape is calculated where the presence of more vessels is indicated by rim fragments than by base fragments.

* indicates the presence of a body fragment of a particular type of bottle on a site where the type is not indicated by rim or base fragments.

small bottles. This is also the case for the rim and upper body fragments where sufficient remains for the type of bottle to be identified (1837-1839).

Most of the fragments are relatively thick and obviously come from robust containers. A small number, however, are made of thin bubbly glass. These include the neck fragment 1917 and the base fragments 2141, 2145, 2167 and 2170. The fragments numbered 2141 came from a small hexagonal bottle whilst 2145 is part of a small square one. These are examples of the small poor-quality bottles that appear to have been quite common in Roman Britain (Price 1987a, 199). They were probably made locally in the areas in which they were found, as their quality makes it unlikely that they would have been in use for long, or have travelled far. None of these examples are closely dated, but the contexts they came from suggest that their use was centred in the 2nd century.

The diameters of the 65 rim fragments which can be measured (1834-1844, 1846-1851, 1853, 1855-1886, 1892-1898, 1903-1908 & 1910-1911) also reflect the predominance of smaller bottles. The rim diameter range is between 32 and 140 mm with a mean of 52 mm and a median of 50 mm, and there are only six examples with rim diameters of 80 mm or more (1834-1835, 1855, 1860-1861 & 1892) suggesting that they came from large prismatic or wide-mouthed cylindrical bottles.

The rim types present can be divided into three categories. The majority of fragments belong to the standard folded form (1834-1835, 1837-1853 & 1855-1900). There are also ten examples with a small triangular profile (1836 & 1903-1911), one of which occurs on the tall narrow cylindrical bottle 1836. Two very distinctive rim fragments have rims so neatly folded that the inner edge is very smooth (1901 & 1902).

As is to be expected the majority of the handle fragments are reeded (1836-1837, 1943-1944, 1946-1960, 1963-1999, 2123, & 2126). Of these 1943 occurred on a square bottle, 1867 on a hexagonal one, 1944 and 1946-1960 on undifferentiated prismatic bottles, and 1836, 2123 and 2126 on cylindrical bottles. Of the other bottle handle variants that with two wide ribs was the commonest, but it was only represented by three examples; one of these (2124) was possibly part of a cylindrical bottle, and the others (2000-2001) consisted only of handle fragments. The other forms recognised were a handle with three wide ribs on a square bottle (1838), a handle with at least three prominent ribs on a possibly cylindrical bottle (2138), a plain ribbon handle (2125), and a handle with side ribs (1840). The shapes of the bottles from which the last two came are unknown. One large cylindrical bottle had at least one dolphin or eyelet handle (2139). This is most unusual and appears to be unparalleled.

The bottle base fragments fall into three main groups, ie i) those where the complete base pattern is known with certainty (**2141-2154**), ii) those where it can be reconstructed with a reasonable degree of confidence, although additional central or corner mouldings may have existed (**2155-2163**), and iii) those where the complete pattern is not known (**2164-2219**). In the discussions which follow, wherever possible the parallels cited for the fragments are restricted to bottles of similar size from Britain.

In all three groups of fragments, patterns consisting mainly of concentric circles (**2141**, **2144-2149**, **2151**, **2156-2161** & **2164-2194**) are in the majority, as they are on virtually every Romano-British site.

The base pattern of two concentric circles occurs on two square bottles (**2144-2145**, with base widths 57 and 54 mm) and the pattern of two concentric circles combined with a small central pellet occurs on a small hexagonal bottle (**2141**, with base width 52 mm). Two other bottles in the assemblage probably also had this pattern, ie **2157** (base width approximately 90 mm), from a square bottle which might also have had a central pellet, and **2156** (base width approximately 100 mm) from a bottle of uncertain shape which may have had both a central pellet and/or angle mouldings.

The pattern of two concentric circles on small square bottles is common in Roman Britain. Examples include one from a cremation burial of the second half of the 1st century at Baldock, Hertfordshire (Westell 1931, 257 no 3217, fig 6; Charlesworth 1966, 37 no 23, with base width 52 mm), and another from a cremation burial of probable Antonine date at Skeleton Green, Hertfordshire (Charlesworth 1981a, 270 no I, fig 105.8; base width 66 mm). The combination of two circles and a central dot is also common on such bottles, for example at: Southampton in a context dated to c AD 150-170/80 (Harden 1958c, 49 no 23, fig 13; base width 60 mm); Corbridge (Charlesworth 1959a, fig 9; base width 50 mm); Hounslow, Middlesex (Jewry Wall Museum, 113.27; base width 86 mm); Bayford Wharf, Lincoln in a mid 2nd-century context (unpublished; base width 70 mm); and Hunters Walk, Chester (unpublished; base width 95 mm). The pattern also occurs on a tall narrow square bottle from Lincoln (Lincoln City Museum, 9640.06; base width 64 mm). A small hexagonal bottle from the Tower of London has two concentric circles (Shepherd 1985, 71 no 73, fig 39.12; base width 70 mm), and the same pattern occurs on the base of a large hexagonal bottle found in an inhumation at Three Nuns Bridge, Huntingdon which also contained a Hadrianic coin (*Fitzwilliam*, 38, no 67c). The combination of two circles with a central pellet on a small hexagonal bottle does not appear to have been recorded previously from Roman Britain, but has been found at Heerlen in the Netherlands (Isings 1971, 82 no 193, fig 21; base width approximately 80 mm).

Three square bottles, each with a base pattern of three concentric circles, are represented by **2146-**

2148. Fragments **2146** (base width 50 mm) and **2147** (base width approximately 48 mm) have very small central pellets; **2148** (base width approximately 50 mm) apparently does not, but the fragment is heat-affected and distorted, especially at this point. Two other bottles of uncertain body shape with this base pattern may also be represented by **2159** and **2161**. Both are unusual, **2159** because the mouldings are reflected on the interior as well as the exterior of the base, and **2161** because the mould appears to have been faulty and two of the circles merge into each other at intervals. This base pattern (without the central dot) also occurs on a large square bottle which was found on Lexden Road, Colchester (CM, 482.P). This is another common base pattern on square bottles with small base widths. Examples on which it is combined with a central dot, as on **2146-2147**, include one from a later 1st-century cremation at Baldock (Westell 1931, 256 no 3304; Charlesworth 1966, 38 no 42; base width 78 mm), another from a Hadrianic context at New Fresh Wharf, London (Shepherd 1986c, 209 no 6.1; base width 64 mm), and others from: Fishbourne (Harden & Price 1971, 364 no 102, fig 143; base width 67 mm); the Old Market Hall Site, Chester (unpublished; base width 50 mm); and Wroxeter (three examples: Rowley's House Museum no F5, with base width 80 mm; and unpublished, two examples with base widths 60 mm and 70 mm). The pattern is also known on the bases of tall narrow square bottles, for example at Silchester (Boon 1974, fig 36.10; base width approximately 65 mm) and Castleford, West Yorkshire (unpublished). The fragments found during the 1971-85 Colchester excavations are a valuable addition to the dating evidence for this base pattern. They show that small square bottles with a base pattern of three concentric circles, with or without a central pellet, must have been amongst the earliest square bottles in use in Roman Britain as two came from Boudican or earlier contexts. The fragments numbered **2147** were found in a Period 2 context at the Gilbert School, and **2148** came from the Boudican destruction debris on Balkerne Lane. Fragment **2161** is also of 1st- or early 2nd-century date as it was found in a context dating to c AD 65-125 (Culver Street Site C).

One other pattern based on three concentric circles is also represented in the assemblage. On **2151** (base width 95 mm) the circles are combined with L-shaped angle mouldings. This is one of the largest small square bottle bases found during the 1971-85 excavations in Colchester. The pattern has also been found on a small square bottle from a late 1st- or early 2nd-century cremation at Bishopgate, London (RCHM *London*, 159, fig 65.32), and on two examples of a more comparable size to **2151** which were found at Inchtuthil, where the fragment must date to c AD 83-86 (Price 1985a, 312 no 12, fig 94; base width 85 mm), and at Canterbury in a context dated to AD 70-110 (Charlesworth & Price 1987, 225 no 23, fig 89; base width approximately 85 mm). One of the square bottles in the Neronian or early Flavian burial at Niort, Deux-Sevres also had a base of similar dimensions and with this pattern (Mitard 1977, 217

no 5, fig 4). The evidence suggests, therefore, that this base pattern was in use during the later 1st century, and that **2151** was initially in use during the 1st century despite being found in a much later context (the Cups Hotel, Period 4, 2nd-4th century).

Base patterns of more than three concentric circles are not uncommon in Roman Britain, but in this assemblage only **2160** can be placed with certainty in this category. It came from a base with (probably) four concentric circles and a central pellet, perhaps similar to the square bottle which was found on an early Flavian fort at Hayton, Yorkshire (Charlesworth 1978c, 85 fig 87.4).

A category very similar to that of the concentric circle base patterns has a single circular moulding with or without a central pellet and/or angle mouldings. Fragment **2155** may be an example of a base with just one circle, but as it lacks any of its corners it may also have had angle mouldings. The shape of this bottle is unknown but it must have had a small base width, probably only a little larger than the square bottle base from Verulamium which also had a single circular moulding and a pontil scar (Charlesworth 1972, 200 no 5, fig 75.16; with base width 50 mm). In Roman Britain, bottles with this base pattern which preserve some part of the body belong to the tall narrow group of square bottles. Examples include bottles from Wroxeter (Rowley's House Museum, not numbered; with base width 54 mm), Faversham (the Royal Museum, Canterbury; with base width 63 mm), and Piercebridge (unpublished; with base width 66 mm).

The two fragments numbered **2142** (base width approximately 45-50 mm) are from a small hexagonal bottle with one circular moulding and a pellet in each corner. A virtually identical bottle base was found at Exeter (Charlesworth 1979a, 227 no 28, fig 71; with base width approximately 45 mm), and the base of a complete hexagonal bottle from a 3rd-century inhumation at York is also very similar, apart from the fact of the corner mouldings being triangular (Harden 1962, 137, fig 88. H.34.c; with base width approximately 45 mm). It is interesting to note that one of the small hexagonal bottles from Normandy, found in an early 3rd-century cremation burial, has a base pattern identical to that on the York bottle (Sennequier 1985, 150 no 235). This evidence, therefore, suggests that small hexagonal bottles with this pattern were produced during the later 2nd century.

Fragment **2143** (base width 55 mm) is from another small hexagonal bottle. Its base design, of a circular moulding inside a hexagonal one with pellets in the centre and in each corner, appears to be unparalleled. It has, however, obvious similarities with the pattern on **2142** and may also be part of the group of late small hexagonal bottles. The contexts of both **2142** and **2143** are unhelpful in establishing their period of use. The fragments numbered **2142** were found in the destruction deposits at Middleborough dated to c AD 300 and **2143** came from a context dating from AD 60/1-c 325 (Culver Street Site B, Period 3/4).

The second base with a single circular moulding is **2150** (base width 52 mm). It comes from a small square bottle, and has a pellet at the centre and a small oval ring moulding in the corner. The same pattern with solid pellets in the corners has occasionally been noted on small square bottles, for example at Xanten (Charlesworth 1984b, Taf 106.5; with base width 44 mm) and Greyhound Yard, Dorchester (Cool & Price 1993, 164 no 131, fig 87; with base width approximately 45 mm), but the use of ring mouldings in the corners makes the pattern of **2150** very unusual. It is interesting to note, therefore, that a second bottle with this design may be represented by the base fragment **2158**. This retains the central circular moulding with a central pellet and the edge of a ring moulding. The shape of the bottle is unknown but its width is likely to have been similar to that of **2150**. The two fragments are broadly contemporary. Fragment **2150** was incorporated into the 2nd-century rampart at Lion Walk, and **2158** was found in a late 1st- to early 2nd-century context at Middleborough (Roman Period 1). Ring mouldings are not common but have been found previously at Colchester, on a much larger square bottle where they are combined with three circular mouldings (CM, Jarmin Collection no 57; with base width 145 mm).

Only one base pattern (**2149**) where one or more circular mouldings frame a central motif has been identified with certainty in this assemblage, although it is possible that some of the fragments with circular mouldings where the full design is unknown, such as **2172**, **2175**, **2177**, **2189**, **2192-2193** etc, may belong to this category. Fragment **2149** (base width 86 mm) is a large part of a square bottle with a base design of a diagonal cross surrounded by two concentric circles. The pattern of one circle enclosing a cross has been recorded quite frequently from Romano-British sites (Charlesworth 1966, 34; Allen 1986b, 106), but a cross enclosed by two circles appears to be rarer. An earlier find from Colchester has this design and is of a comparable size to **2149** (CM, Rowland 31; base width 80 mm). Other examples from Roman Britain come from square bottles smaller than **2149**. For example, one from Cirencester was 46 mm wide (Charlesworth 1982a, mf D12 no 293), and one from Brunswick Road, Gloucester was 70 mm wide (unpublished).

The other square bottles in the assemblage, with base patterns which can be reconstructed completely and which are based on circular designs, are **2153**, which has a complex net pattern radiating out from a circular moulding with central pellet, and **2154**, with a pattern of a small circle and pellet centrally and an arc based on each side at the edges. A base fragment similar to **2153** is known from Birdoswald (unpublished), but otherwise these patterns do not seem to have been found elsewhere in Roman Britain.

Square bottle base designs incorporating angular mouldings are much less common than those with circular mouldings. In this assemblage the complete base pattern of only one example (**2152**) is known. It

has a square moulding set diagonally and a central pellet. A similar pattern occurs on **2203**, though on this the square moulding encloses at least two concentric circles and the centre of the base is missing. An unusual feature of **2203** is that the edge of the base is raised so that it appears to be an additional moulding. Neither of these patterns appear to be paralleled in Roman Britain.

Fragment **2162** (base width approximately 55 mm) has a circular moulding inside a square one and probably came from a small square bottle. As the fragment is broken at the centre it is possible that it may also have had a small central pellet, but there is insufficient space for a larger central moulding such as the diagonal cross inside a square and circle used on the bases of bottles from Welwyn and Baldock (Charlesworth 1966, 39 nos 65 & 68, fig 11). This design has not often been recorded from Roman Britain. A fragment from the base of a larger square bottle than **2162** which has the pattern of a circle inside a square was found in a context dated to c AD 150-160 at Verulamium (Charlesworth 1972, 200 no 8, fig 75.19; base width approximately 90 mm), and this design also occurs on the base of a tall narrow square bottle from Brecon Gaer (Wheeler 1926, 249, fig 106). The base width of this is not recorded but it is probably similar to that of **2162**. Another tall narrow square bottle with this base design from Trier had a base width of 54 mm (Goethert-Polaschek 1977, 201 no 1238, Taf 67).

The base design of the fragments numbered **2200** (base width approximately 70 mm) is probably a diagonal cross inside a square moulding. This has also been found only occasionally; a base fragment from a slightly smaller square bottle found at Verulamium has this pattern, but it is not directly comparable to **2200** because the cross is small. If the central design of **2200** is a cross it must have been a large one. One is known from the Priory site at Caerleon (information from Mr G C Boon). A base from Ringstead, Northamptonshire may also have been similar to **2200**, but it too is broken and so the central design is uncertain (Charlesworth 1980, 193 no 1, fig 11).

Base fragments from two other square bottles with square mouldings similar to those of **2162** and **2200** were also found. On **2202** only the corner of the square moulding remains. On **2201** semi-circular mouldings are present on the internal corners of the square but the central designs, if any, are unknown. This pattern is also known on a fragment from the Parade Ground, Caerleon (information from Mr G C Boon).

The base fragment **2163** comes from a rectangular bottle with a base design of a circle enclosed by a lozenge. This pattern has not hitherto been recorded on rectangular bottle bases from Roman Britain but is known on two from Normandy. The pattern encloses the letter M on a bottle from Courville, Seine Maritime, and the letters SGE on one from Cany, Seine Maritime (Sennequier 1985, 157-9 nos 248-9, pi 5).

Proportionately far more rectangular bottles than square bottles found in Roman Britain have letters incorporated into their base designs. An almost-complete rectangular bottle from West Lodge, Colchester has the letters CCV with triangular bosses as stops and similar bosses in the corners (Anon 1927, 65, pi 17) and the same pattern occurs on a rectangular base fragment from Braunstone Gate, Leicester (Thorpe 1935, note to pi 2a; Jewry Wall Museum, 2409.1887). A bottle from Bearsden has the name GN ASINI MARTIAL in two rows across the base (*RIB* II, 2, 112, no 2419.106). A rectangular bottle from London has a central circular moulding and the letters CCPC in retrograde in the corners (Charlesworth 1966, fig 15). One of the two rectangular bottles found at Bartlow had the letters CF on either side of a circle (Gage Rokewode 1840, 3, no 5) and a small fragment from a rectangular base found at The Park, Lincoln preserves the letter C (unpublished). The corners of **2163** are not preserved and it is possible that there were additional mouldings on them.

The other base fragments are too fragmentary for their patterns to be reconstructed, and only a small number are worthy of detailed comment. The majority have parts of one or more circular mouldings (**2156-2157, 2160 & 2164-2194**). Most are likely to have come from bases with concentric circle patterns, though some may come from bottles which have a central pattern surrounded by one or more circles as in the case of **2149**. Others retain parts of angle mouldings similar to those on bases already discussed, such as the pellets on **2206** and **2207** and the possible L-shaped moulding of **2208**. A different type of angle moulding is represented on **2209** where the tip of a narrow point is preserved.

Four fragments (**2196-2199**) retain parts of letters. The best preserved is **2196** which has part of the letter followed by a small triangular stop inside a curved moulding. This combination is less common than that where a C is used as an angle moulding outside circular mouldings, as on the tall narrow bottle from Carrawburgh (Allason-Jones & McKay 1985, 39, no 131). It has been recorded at Silchester where the letters CAC separated by small stops occur inside a stemmed curving outline (Boon 1974, fig 36.12). A square bottle base pattern with two concentric circles and the letters CCV arranged across the middle in the spaces between the circles and in the central space is recorded from Colchester (Allen 1983, Form G2 no 22) and Bartlow (Gage Rokewode 1842, 3 no 1). So little of the other three fragments is preserved that it is not possible to identify the letters with certainty, let alone suggest the patterns from which they came.

Fragment **2204** comes from the central part of a base with a pattern of probably four petal shapes, of which parts of three remain, radiating out from a central circle. Bases with this pattern have not often been recorded from Roman Britain, though it does occur on two square bottles from Corbridge (Charlesworth 1959a, fig 9), one where the outer points of the petals

extend as a straight moulding to the corners of the bottle, and the other where the design is enclosed in a circular moulding. The pattern is also known inside a square moulding at Silchester (information from Mr G C Boon), and in combination with a central pellet on a fragment from Wilderspool (Warrington Museum, 595 00).

Fragment **2205** is very small with a branching pattern, which may have come from some form of foliage design. These are very rare on square bottles from Roman Britain and the other north-western provinces, but they are not uncommon on those from southern Europe. A fragment retaining a laurel wreath around a central circular moulding with a pellet in the corner was found at Princess Street, Chester (Newstead & Droop 1940, 34, fig 9), and a thin-walled fragment from Springhead, Kent has a laurel wreath design with bulbous leaves surrounding a linear moulding, with spikes branching off from both sides (Charlesworth 1958, 105 no 2, fig 10). In both of these, however, the branches are regularly-paired rather than alternate as on **2205**. In this respect **2205** has more similarities with the pattern on a square base from Torre de Palma, Portugal which has a design like a fir tree inside a circular moulding and pellets in each corner (Alarcao 1975, 49 no 36), and similar palm-frond motifs noted on several bottles from Spain (Price 1981b, 345-6 & 364-5). A similar branching pattern may have been present on a tree-like moulding on the base of a small square bottle found in Colchester (CM, Joslin 1179), but this is uncertain because the relevant area is obscured by a pontil mark.

Study of the base designs suggests that, though the presence of tall narrow square bottles in this assemblage cannot be identified with certainty because of the paucity of reconstructable profiles, it is very likely that they were present. Fragments **2144-2146**, **2155** and **2162**, for example, all have base designs used on tall narrow bottles elsewhere and base widths which would be appropriate to this form.

Approximately 60 per cent (751 fragments) of this bottle assemblage was found in stratified Roman contexts. Their distribution through time is shown in Figure 11.6. Allowing for the distorting effects of the Boudican uprising (less than 5 per cent of the fragments were found securely stratified in pre-Boudican contexts), the histogram shows an increase in the number of fragments entering the archaeological record during the Flavian period. Figure 11.6 does not suggest that the main period of use ended about c AD 130 (see p 184). Fragments apparently continue to enter the archaeological record throughout the 2nd and 3rd centuries, and no marked decrease is noted until the 4th century. Although some of the 3rd-century fragments may be the result of redeposition and residuality, it is hard to avoid the conclusion that square bottles continued to be used to the end of the 2nd and possibly into the 3rd century.

The majority of the fragments found in contexts pre-dating c AD 80 are not very diagnostic, but some

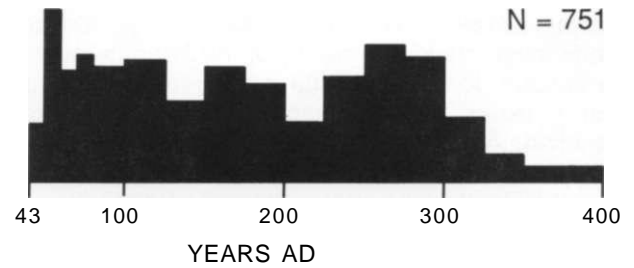


Fig 11.6 Histogram showing the dates of the fragments of blue/green prismatic and cylindrical bottles found in Roman contexts (for the method of calculating the histogram, see pp 5-6).

points do emerge. Given the overall rarity of plain ribbon and ribbed handles in the assemblage, they are disproportionately well-represented amongst this material (**1840**, **2002**, **2007** & **2138**). Fragments from reeded handles, by contrast, are conspicuous by their absence. As noted above in the case of square bottles, plain and ribbed handles occur mainly on small examples. Very few of the fragments from early contexts in this assemblage give any indication of the size of the bottle, but amongst those that do, small bottles (**1840**, **1842** & **2147-2148**) outnumber the larger examples (**1843** & **1874**). It appears that many of the earliest square bottles were small. The early examples from Cosa and the Port-Vendres II shipwreck had base widths of approximately 40 and 47 mm respectively, and the assemblage of bottles from the Neronian site at Usk (unpublished) also contains several small bottles.

If, as seems possible, the increase in the number of bottle fragments observed during the Flavian period is associated with the increased use of larger bottles, this may be due to changes in the contents. Small bottles of the type often found on early sites were designed to hold relatively small quantities of liquid substances, as the necks are narrow and the removal of any other type of contents would have been difficult. Many of the large bottles, however, are of such a size that when full they must have been very heavy and the routine removal of the contents by pouring seems unlikely, especially as it would in many cases have been difficult to grip the handle firmly because of its size and position. The large bottles often have wide rims and necks, and it would be possible to insert and remove solid items such as fruits very easily. It is a plausible interpretation that when these bottles were first introduced, they were used to transport small quantities of liquids, and that the appreciation that similar bottles in a greater range of sizes were ideal for storing and transporting many different types of goods, both liquid and solid, came some time later. This hypothesis may explain the observed sudden increase in the level of their use. The function of these bottles will be further considered in Chapter 13 (see p 222).

With one exception, the rim fragments from early contexts are all of the common folded form. The exception (**1905**) has a small triangular profile. Evidence from other sites suggests that rims with small triangular profiles and folded rims where the fold has been melted together, as in **1901-1902**, were used mainly on early bottles. Both forms occurred at Sheepen (CM, 1933-4 excavations), and at Asciburgium, where occupation ceased in c AD 83-85, they were also very common (van Lith 1984, 251, variant 1c).

Blue/green prismatic and cylindrical bottles

Upper body fragments

- 1834 1.81 E1; unstratified. Two joining rim and neck fragments of large bottle or jar. Rim edge bent out, up, in and flattened; wide cylindrical neck. PH 45, RD 120, neck thickness 4.
- 1836 1.81 C199 F56; Period 3. Rim, neck, handle and shoulder fragment and 7 body fragments (several joining) of cylindrical bottle. Rim bent out, up, in and flattened with small triangular profile; narrow cylindrical neck with tooling-marks at base; straight horizontal shoulder curving over to side. Angular reeded handle with simple lower attachment and folded upper attachment joining neck. Vertical wear-scratches on side with pronounced bulge at top of side. PH 120, RD 45x41; handle Section 34x7, body diameter approx 110-120.
- 1837 1.81 B507 F184; Period 4. Rim, neck, shoulder, side and handle fragment and 1 body fragment of hexagonal bottle. Rim bent out, up, in and flattened; cylindrical neck tooled at base; horizontal shoulder curving over to straight side. Angular reeded handle with simple lower attachment and folded upper attachment joining neck and underside of rim. Some horizontal wear marks around lower part of neck. PH 65, RD 40, handle section 36x4, max width of body approx 90.
- 1838 BKC76 V938 L11; late Period 5 (c AD 300). Rim, neck, shoulder, handle and body fragment of square bottle. Rim edge bent out, up and in; cylindrical neck with tooling-marks and constriction at base; horizontal shoulder; straight sides. Angular ribbon handle with 2 deep depressions forming 3 ribs; folded upper attachment joined to neck; simple lower attachment. PH 60, RD 35, body width approx 60, handle section 32x6.
- 1840 1.81 B1717 L413; Building 77 destruction; early Period 3. Rim, neck, handle and shoulder fragment of bottle. Rim bent out, up and in; cylindrical neck; slightly convex-curved diagonal shoulder. Angular ribbon handle with side ribs, simple lower attachment and folded upper attachment joined to neck and underside of rim. PH 35, RD 32, handle section 25x3.
- 1841 1.81 G3631 L3355; Period 3. Rim, neck and handle fragment of bottle. Rim bent, out, up, in and flattened; narrow cylindrical neck broken at base. Folded upper attachment of handle joined at neck and underside of rim. PH 42, RD 38.
- 1842 1.81 C323 L39/43; early Period 3. Rim, neck and shoulder fragment of bottle. Rim bent out, up, in and flattened; short cylindrical neck with horizontal tooling marks at base; horizontal shoulder. Scars from upper handle attachment on neck and underside of rim. PH 25, RD 37x35.
- 1843 BKC76 T468; Period (2 or) 3. Rim, neck, shoulder and handle fragment of bottle. Rim edge bent out, up, in and flattened; cylindrical neck with stump of folded upper handle attachment and tooling marks at base; horizontal shoulder. PH 71, RD 64x58.
- 1847 BKC74 G93 F11; Period 5c. Rim, neck and handle fragment. Folded and flattened rim; cylindrical neck; part of folded handle attachment. RD 47.
- 1850 CPS73 692 L61; Building 154, Period 4. Description as 1847. RD 44x42.
- 1853 1.81 G4278 L4240; Period 3d. Rim and cylindrical neck fragment. Rim edge bent out, up and in very neatly without ridge along inner edge of mouth; cylindrical neck broken at tooled junction with shoulder; small fragment of folded handle attachment on neck. PH 48, RD 50.
- 1855 GBS84 A25 L1; post-Roman. Rim and neck fragment. Folded and flattened rim; cylindrical neck; scar from handle attachment on neck. Horizontal scratch marks on neck. RD 80.
- 1856 1.81 H13 L3; Period 6. Rim and handle fragment. Description as 1855. No wear-scratches. RD 60.
- 1857 BKC76 V71; unstratified. Description as 1856. RD 48.
- 1865 LWC72 J1632; Building 16; Period 3. Rim and neck fragment. Rim bent out, up, in and flattened; cylindrical neck, part of rim flattened inside neck. RD 60.
- 1880 LWC72 D287; Building 21; Roman. Rim and neck fragment. Rim bent irregularly out, up, in and flattened; cylindrical neck. RD 44.
- 1886 1.81 B1164 F302; Period 3. Rim and neck fragment. Rim bent out, up, in and flattened; cylindrical neck. RD 35.
- 1901 BUC77 C1045 L1; Period 1-2. Rim and neck fragment. Asymmetrical rim bent out, up, in and flattened; cylindrical neck. RD 40-50.
- 1903 1.81 B844 F260; Period 3. Rim and neck fragment. Rim bent out, up and in with triangular profile; cylindrical neck broken at base. PH 55, RD 50.
- 1905 LWC72 K246 F210; medieval*. Rim and neck fragment. Description as 1903, Possibly with scar from handle attachment. RD approx 50.
- 1907 GBS84 A1496 L111 B131; Period 2. Rim and neck fragment. Description as 1903. RD 40.
- 1908 GBS84 A131 L1; post-Roman. Rim and neck fragment. Description as 1903. RD 35.
- 1910 LWC71 B345 B23; Period 4 or 5. Rim and neck fragment. Description as 1903. RD 45.
- 1940 LWC71 B323; Periods 3 to 5. Neck and shoulder fragment. Wide cylindrical neck and narrow shoulders. Inner neck diameter approx 75.
- 1944 1.81 E314; unstratified. Shoulder and handle fragment of prismatic bottle. Reeded handle with simple lower attachment. Handle section 42x7.
- 1946 BUC77 C1739 F62; Period 1. Shoulder and handle fragment. Description as 1944. Handle section 44x5.
- 1955 MID78 A2351 F23; early medieval. Shoulder and handle fragment. Description as 1944, retaining part of neck.
- 2000 LWC71 B552 F199; Period 3. Handle and shoulder fragment. Angular ribbon handle with central depression; small part of shoulder attached. Height of handle approx 45, handle section 33x5.5.
- 2138 LWC72 J985; Building 8, Period 2 demolition. Shoulder and handle fragment of thin-walled ?cylindrical bottle. Ribbon handle with at least 3 prominent ribs; claw lower attachment; thin-walled horizontal shoulder curving over to side. PH 55.
- 2139 BKC76 V325 L11; Period 5 or post-Roman. Neck, shoulder and handle fragment of large cylindrical bottle(?). Horizontal shoulder curving up to cylindrical neck tooled at base and down to side. Ribbon handle applied to shoulder with simple attachment, curved over in small ring to base of neck and then trailed up and back. Dim 65x52mm; neck diameter (outer) approx 50.



Fig 11.7 Rim and neck fragments of prismatic and cylindrical bottles. 1:2. [Pages 179-91]

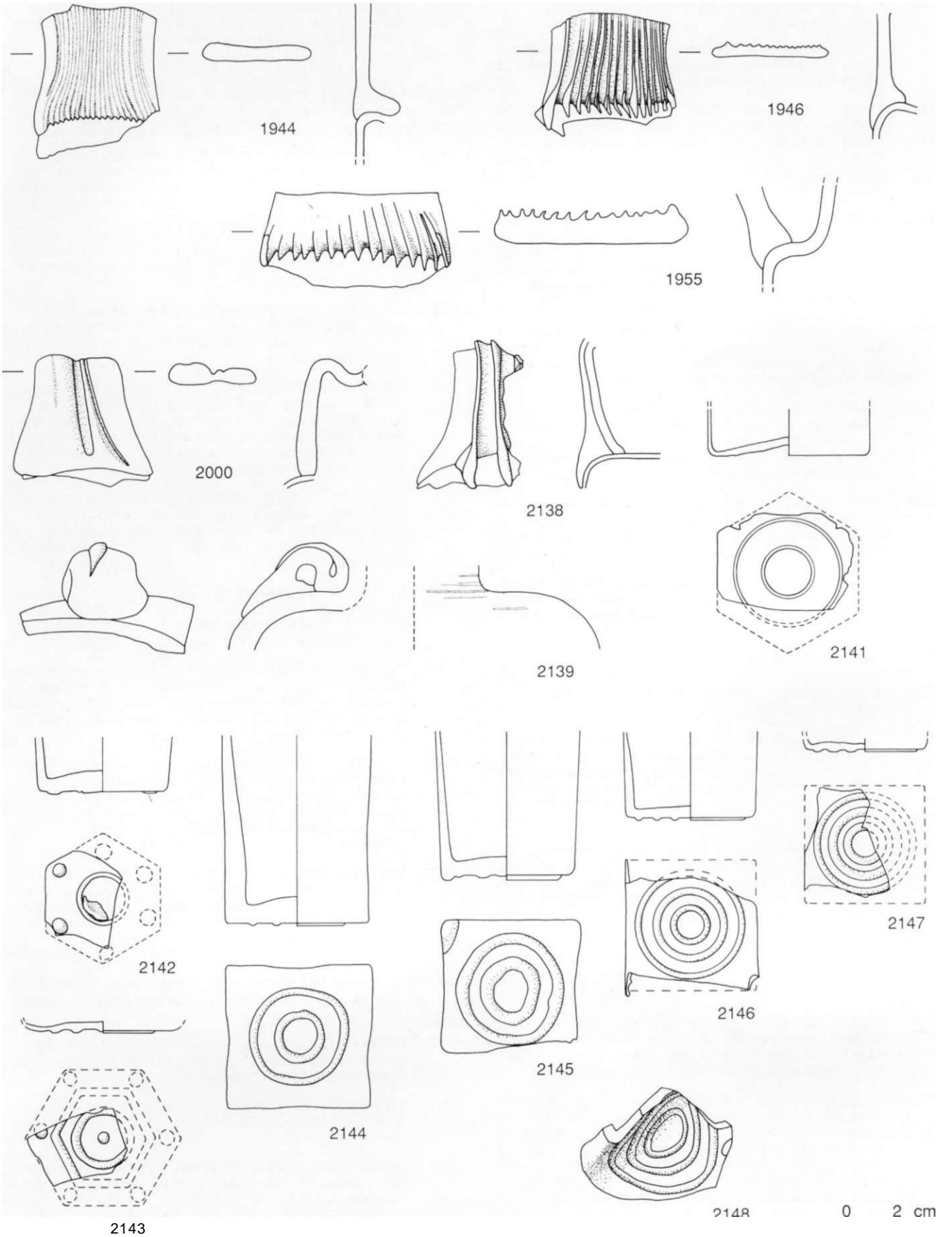


Fig 11.8 Prismatic and cylindrical bottles. 1:2. [Pages 179-91 & 194]

Prismatic and cylindrical bottles

Lower body and base fragments from prismatic bottles

Moulded bases where complete design is known

- 2141 BKC75 J102 L17, J143 L18; Period 5b (Phase 3). Eight lower body and base fragments of thin-walled hexagonal bottle. Many bubbles. Base design in shallow relief; 2 concentric circles with central dot. PH 16, BD 52, WT 1.
- 2142 MID78 A3050 L451; Building 71; Roman Period 3 destruction. One lower body and 1 base fragment of hexagonal bottle. Base design; circular pellet in each corner and small central circular moulding. Circular pontil scar. PH 22, width of side approx 23, approx diameter of bottle 50, diameter of pontil scar approx 11.
- 2143 1.81 B788 L169; Building 113?, Room 5; Period 3/4. Base fragment of hexagonal bottle. Base design; straight moulding parallel to edge with circular moulding and central dot inside, a circular dot in extant corner outside of straight edge. Dim 35x24, probable width of bottle (corner to corner) approx 60.
- 2144 BKC76 V608 L11; late Period 5/modern. Lower body and base fragment of square bottle. Base design; 2 concentric, slightly asymmetrical, circular mouldings. Base worn. PH 73, body width 57, WT 4.
- 2145 BKC76 N419 F117; Building 65, Phase 2? Period 5b2? Lower body and base fragment and 3 body fragments of thin-walled square bottle. Many bubbles; streaky weathered surfaces. Base design; 2 concentric circular mouldings. PH 57, body width 54, WT 2.
- 2146 GBS85 B223 L8; Period 3. Side and base fragment of square bottle. Base design; 3 concentric circular mouldings with very small central dot. Base worn. PH 30, width of bottle 50, diameter of outer circle 40.
- 2147 GBS85 B466 F101; Building 133, Period 2 & B361; Roman. Two joining base fragments of square bottle. Base design; 3 concentric circular mouldings with small central dot. Diameter of outer circle 37.
- 2148 BKC76 T219; Building 47, destruction debris; Period 3 end. Base fragment of square bottle. Base design; 3 concentric circular mouldings. Melted and distorted by heat. Body width originally approx 50.
- 2149 BUC77 E451 L32; Period 2. Eight shoulder, body and base fragments of square bottle. Base design: 2 concentric circular mouldings surrounding equal-armed cross; outer circle has 2 slight swellings positioned on opposite sides. Base deeply indented at one point on inner circle. PH 133, body width 86.
- 2150 LWC72 M85; Rampart 1e. Lower body and base fragment of thin-walled square bottle. Base design; circular moulding with central dot, small oval dot with central depression (O-shaped) in each of 3 remaining corners. PH 28, body width 52, WT 2.
- 2151 CPS74 944 L148; Building 154, Period 4. Base fragment of square bottle. Concave base. Base design; 3 concentric circular mouldings; L-shaped moulding in each corner. PH 31, body width approx 95.
- 2152 BKC74 E1278 L397; ?post-Roman. Lower body and base fragment of square bottle. Base design; diagonally-placed, square moulding with central dot. Large circular pontil scar. PH 40, body width 56, pontil-scar diameter 35.
- 2153 BKC75 K111; machine trench 1. Base fragment of square bottle. Base design: convex-sided square moulding with central circular moulding, 4 pairs of straight bars connect square and circle to produce 4 diamond shapes radiating out from circle, raised dot in outer edge of each diamond and in centre of circle. Circular pontil scar. Dim 67x55, pontil-scar diameter 15, width of bottle approx 60.
- 2154 1.81 G1407 L991; Period 5. Two joining base fragments of square bottle. Base design; 1 circular moulding with a small dot at centre and 4 semi-circular mouldings in middle of

base edges. Width of bottle approx 85. Moulded base fragments where complete design is almost certainly known but where the possibility of additional decoration such as corner mouldings cannot be ruled out.

Moulded base fragments where the complete design is almost certainly known but where the possibility of additional decoration such as corner mouldings cannot be ruled out

- 2155 BKC76 T67; Period 4 or 5? Base fragment. Very slightly concave base with marked internal central thickening. Base design; 1 circular moulding. Circular pontil scar. Dim 53x28, diameter of circular moulding 43, pontil-scar diameter 14, width of bottle approx 50.
- 2156 BKC76 V243 L46; Period 5. Base fragment. Base design; 2 circular mouldings. Diameter of outer circle approx 80, width of bottle approx 100.
- 2157 1.81 G1788 L1054; Period 4 or 5. Base fragment of square bottle. Base design; 2 concentric circles (centre missing). Dim 75x35, diameter of outer circle approx 70, width of bottle approx 90.
- 2158 MID79 3348 F1020; Building 67, Phase 1 & 2 Roman Period 1. Base fragment. Many bubbles. Slightly concave base. Base design: 1 circular moulding with central dot, part of small circular moulding outside of circle, possibly part of a corner moulding. Circular pontil scar. Dim 47x33, pontil-scar diameter approx 16.
- 2159 1.81 C8 F5; medieval. Concave base fragment of prismatic bottle. Base design; 3 concentric circular mouldings with large central dot. Circular mouldings and dot reflected on inner surfaces of base. Base worn. Dim 45x27, diameter of outer circle 40.
- 2160 LWC72 J1086; Building 20, Room 2 Period 4. Base fragment of prismatic bottle. Base design; central dot and at least 3 concentric circular mouldings, fragment broken at edge of possible fourth. Dim 46x34.
- 2161 1.81 C199 F56; Period 3. Base fragment of prismatic bottle probably broken just inside sides. Base design; 3 concentric moulded circles, irregular swellings join inner 2 at one point. Dim 60x26, diameter of outer circle approx 55, width of bottle approx 60-70.
- 2162 1.81 D127 F27; Period 6. Base fragment of prismatic bottle. Base design; 1 circular moulding inside prismatic moulding parallel to edge. Circular pontil scar inside circular moulding. Diameter of circular moulding approx 35, pontil-scar diameter approx 25, width of bottle approx 55.
- 2163 1.81 G56 F56; Period 6. Base fragment of probably rectangular bottle. Base design; 1 circular moulding inside a (probably) lozenge-shaped moulding. Dim 50x46, original dimensions of base approx 55x90.
- Moulded base fragments with incomplete decoration (dimension measurements refer to the amount of the base extant)*
- 2164 MID78 A3054 F932; post-medieval or modern. Base design; at least 2 wide concentric circular mouldings and raised dot with central depression. Dim 31x31.
- 2165 1.81 G4230 L4211; Period 3c. Fragment from centre of base; 2 concentric circular mouldings, inner one widest. Dim 28x20.
- 2166 LWC72 G275; Building 28, Phase 1 Period 2. Fragment from centre of base with 1 small circular moulding (diameter 11).
- 2167 BKC75 J166 F36; Period 5b. Base design; at least 2 concentric circular mouldings and central dot. Very bubbly. Dim 33x18.

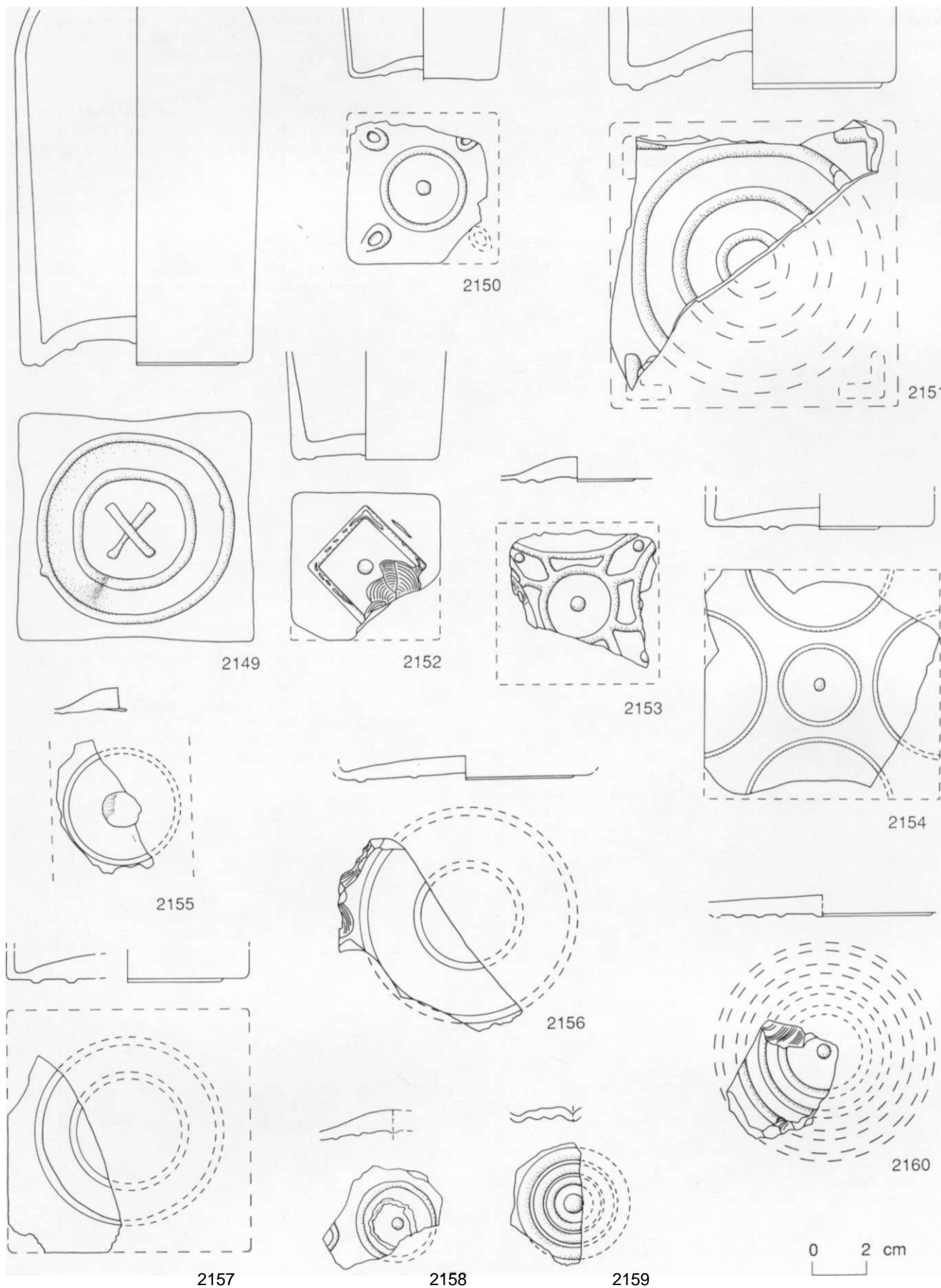


Fig 11.9 Base fragments of prismatic bottles. 1:2. [Pages 179-91 & 194]

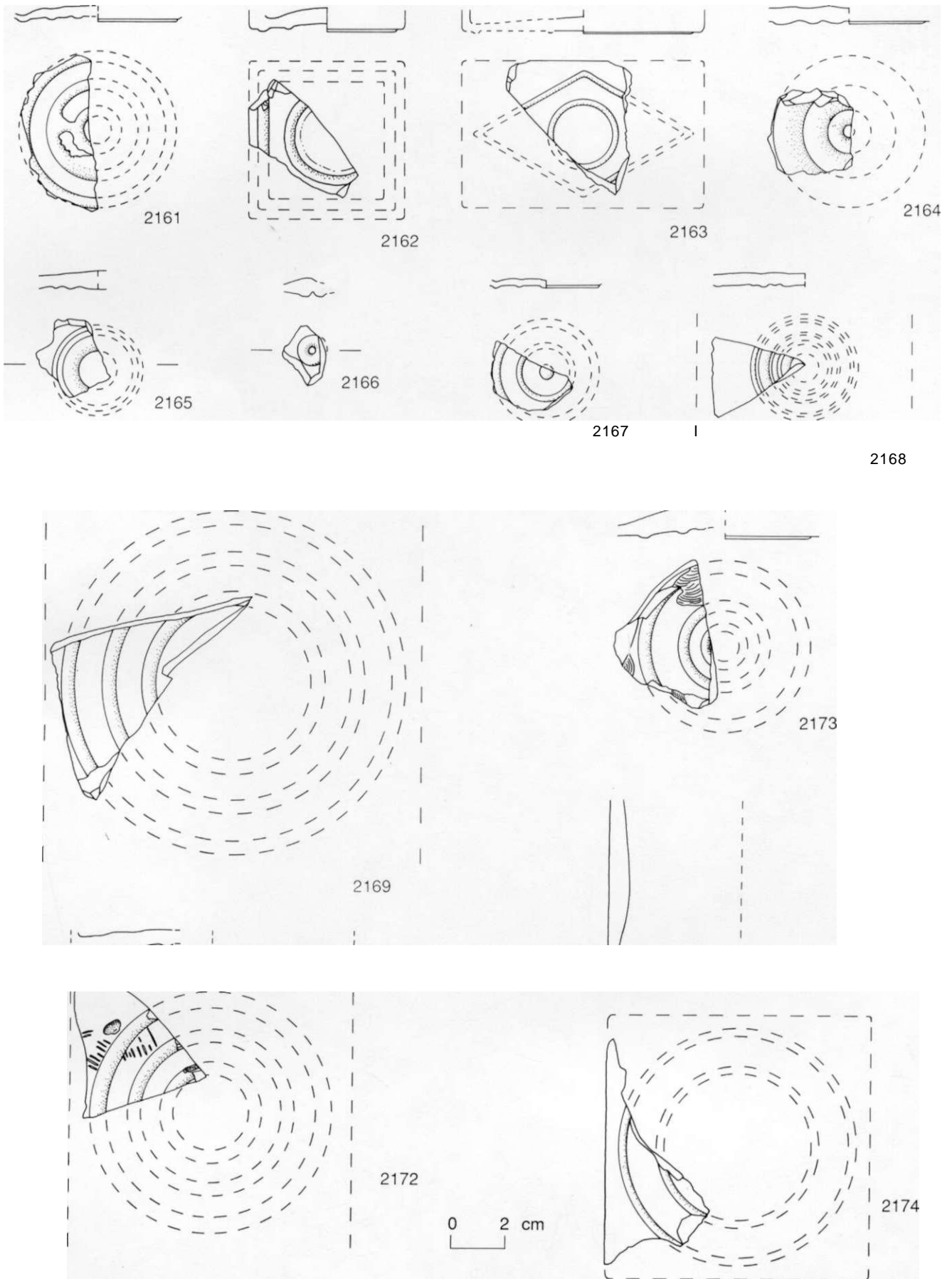


Fig 11.10 Base fragments of prismatic bottles. 1:2. [Pages 179-91, 194 & 198]

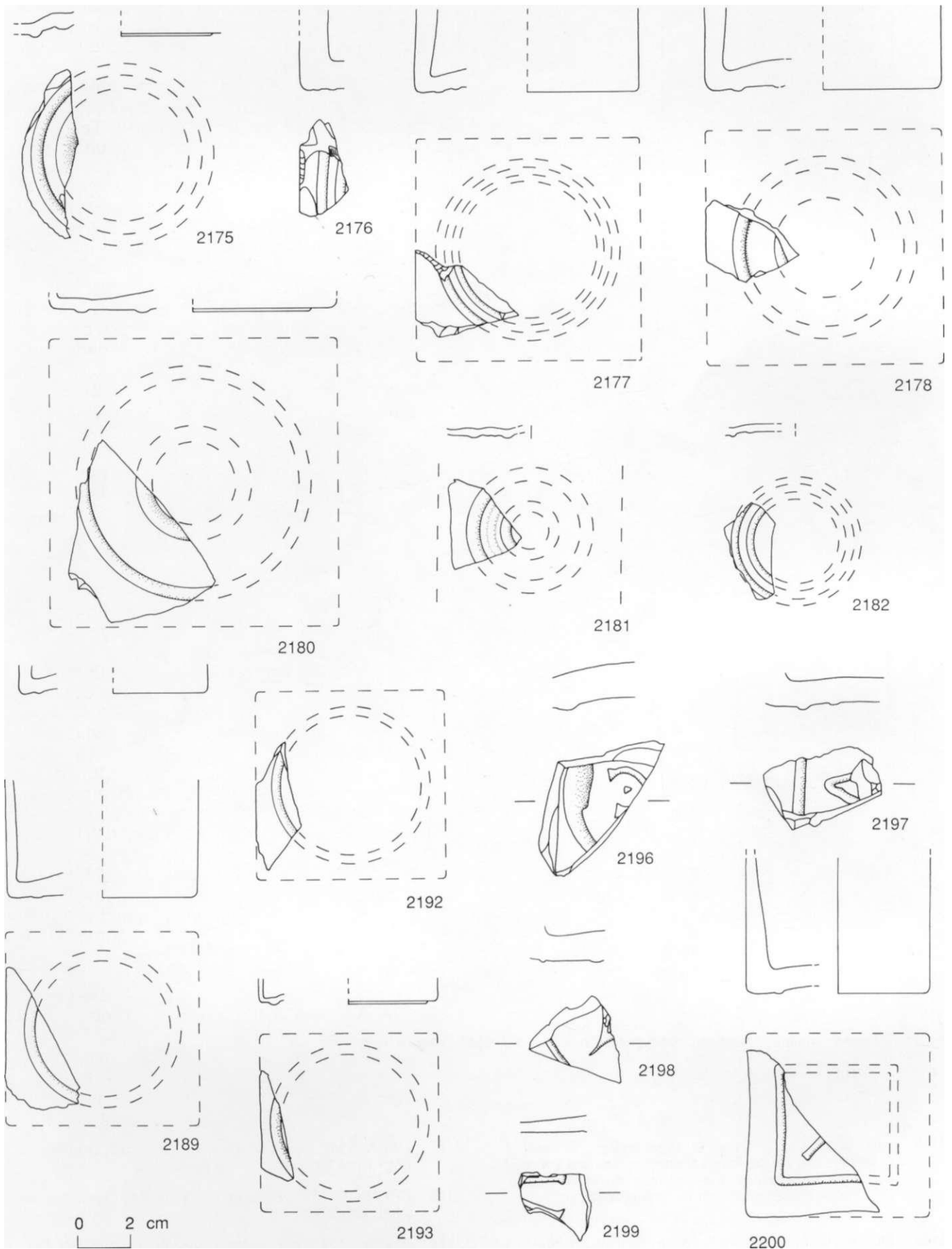


Fig 11.11 Base fragments of prismatic bottles. 1:2. [Pages 179-91 & 199]

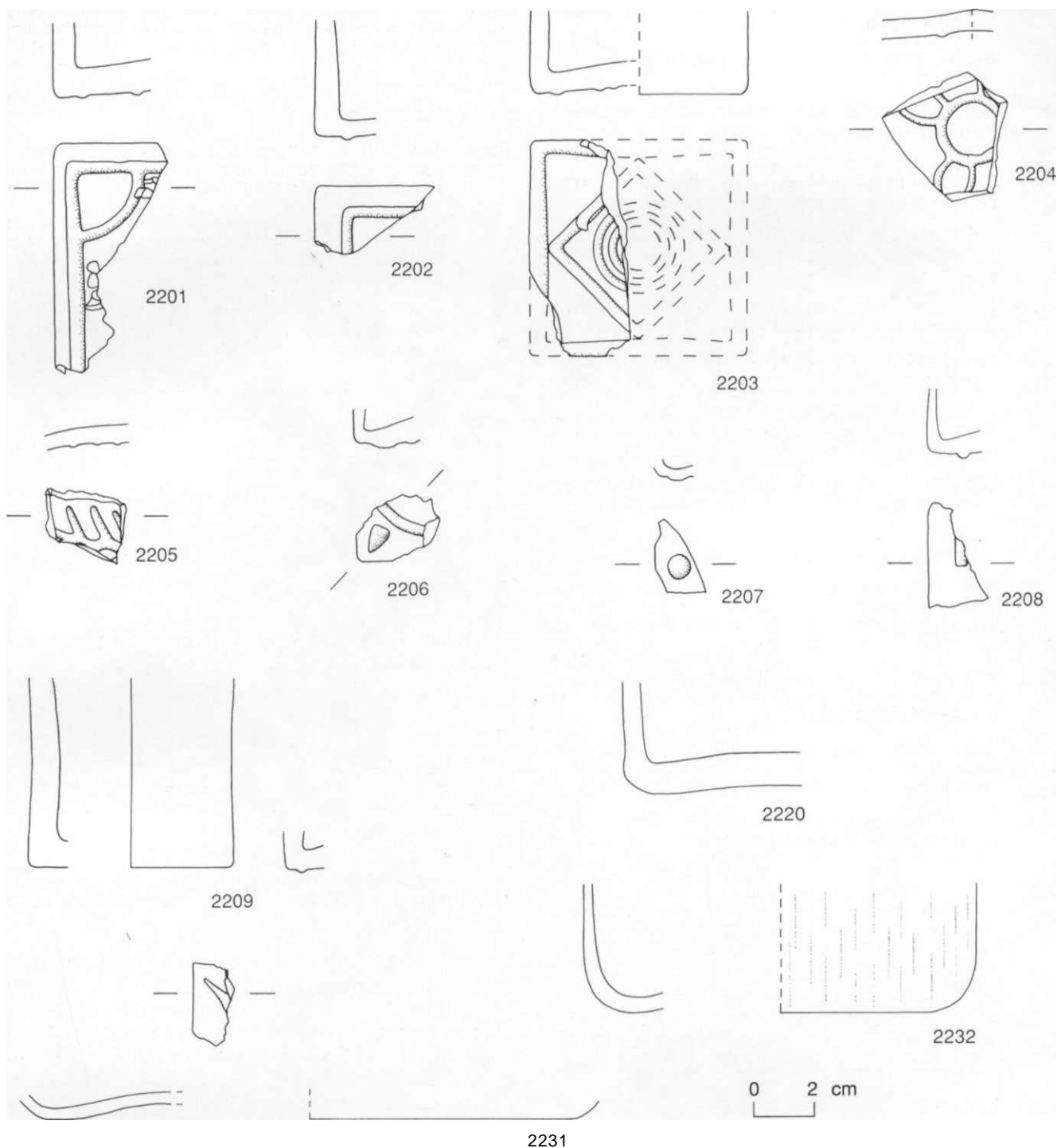


Fig 11.12 Base fragments of prismatic and cylindrical bottles. 1:2. [Pages 179-91 & 199]

- 2168 1.81 M327 F314; Period 2. Base design; at least 4 concentric circular mouldings alternating high and low relief with wide undecorated area between circles and edge. Dim 33x29. Diameter of outer circle approx 40.
- 2169 BKC76 T345; unstratified. Base design; at least 3 concentric circles. Diameter of outer circle approx 120; width of bottle approx 140.

- 2172 LWC73 K368; Period 4b. Description as 2169. Diameter of outer circle 80; width of bottle approx 105.
- 2173 CPS73 917 L144; Building 154, Period 4. Description as 2169. Dim 53x35.
- 2174 BKC76 N578 F123; Building 105, Phase 2 Period 5b1. Base design; at least 2 concentric circular mouldings. Diameter of outer moulding approx 90.

- 2175 BKC76 V743 L11; late Period 5 (c AD 300). Description as 2174. Dim 64x20.
- 2176 BKC76 V238 F54; Period 4. Description as 2174. Dim 36x17.
- 2177 BKC76 V91 L11; late Period 5 (c AD 300). Description as 2174. Diameter of outer circle approx 70; width of bottle approx 85.
- 2178 LWC73 K491 F267; medieval and later. Description as 2174. Diameter of outer circle approx 70; width of bottle approx 90.
- 2180 CPS73 826 L25; Building 154; Period 4. Description as 2174. Diameter of outer circle approx 85; width of bottle approx 110.
- 2181 1.81 G2882 L2284; Period 3 or 4. Description as 2174. Diameter of outer circle approx 40; width of bottle approx 60.
- 2182 1.81 B1008 F111; medieval. Description as 2174. Dim 36x19.
- 2189 MID78 A875 L598; late or post-Roman. Base design; at least 1 circular moulding. Diameter of outer circle approx 50, width of bottle approx 70.
- 2192 1.81 G997 F163; Period 6. Description as 2189. Diameter of outer circle approx 60; width of bottle approx 80.
- 2193 1.81 C269 F94; Period 3. Description as 2189. Diameter of outer circle approx 60; width of bottle approx 70.
- 2196 IRB72 F33. Base fragment. Concave base. Base design; circular moulding with part of seriphed letter C inside, circular moulding thickened internally opposite C. Dim 65x31. *R/B* II, 2, 124 no 2419.163.
- 2197 1.81 G177 L177; Period 5b. Base fragment of prismatic bottle. Base design; 1 curved moulding with the letter A or V inside. Dim 42x27.
- 2198 BKC76 V188 F50; Period 5 (or 6). Lower body and base fragment. Base design; narrow circular moulding close to edge, inside a ?seriphed terminal of a letter. Dim 36x26.
- 2199 LWC72 J421; Roman. Base fragment. Base design; parts of 2 large letters(?), perhaps T and 'E', apparently arranged around a raised moulding. Dim 25x24.
- 2200 MID79 3350 F1020; Building 67; Phases 1 & 2; Roman Period 1. One lower body and base fragment and 1 body fragment of square bottle. Base design; slightly concave-sided square moulding with ?diagonal cross inside, 1 arm of which survives. PH 52, body width approx 70.
- 2201 1.81 A111; post-Roman. Side and base fragment of square bottle. Base design; 1 square moulding parallel to edge with a quarter circle moulding inside 2 corners. PH 23, dim 81x39, probable width of bottle approx 85.
- 2202 CPS73 745 L104; Building 154; Period 4. Two lower body and base fragments of square bottle. Base design; square moulding parallel to edge. PH 40, dim 48x23.
- 2203 BKC76 V938 L11; late Period 5 (c AD 300). Lower body and base fragment of square bottle. Base design; diagonally-placed square moulding with 2 close-set concentric circles inside. Edge of base raised around sides. Base worn. PH 28, body width 72.
- 2204 1.81 G1588 F652; Period 5. Fragment from centre of base of prismatic bottle. Base design; circular moulding with central dot with parts of 3 petal-shaped mouldings radiating out from circle. Original design probably had 4 'petals'. Dim 38x38.
- 2205 BKC75 H338 L12 B59; demolition; end of Period 5b. Base fragment of prismatic bottle. Base design; zig-zag moulding with short diagonal bars branching off from it on alternate sides, fragment retains parts of 3 bars on each side. Dim 28x20.
- 2206 BKC74 G23 L1; modern. Lower body and base corner fragment of square bottle. Base design; circular moulding with triangular pellet outside circle in corner. Dim 31x18.
- 2207 LWC72 L275; Building 19, Room 2, Phase 3; Period 4(3). Base fragment. Base design; raised dot in corner. Dim 25x13.
- 2208 1.81 G471 F293; Period 6. Side and base fragment of square bottle. Base design; part of corner moulding, probably L-shaped. PH 23, dim 35x18.
- 2209 MID78 A2071 L214; Roman Period 3; destruction or later. Seven lower body and base fragments of square bottle. Base design; part of elongated, narrow, concave-sided pointed moulding in corner. PH 63, body width 68.
- 2220 LWC72 K318; Building 14; Period 3 make-up. Side and base fragment of large prismatic bottle. Base slightly concave and undecorated. PH 37.

Lower body and base fragments of cylindrical bottles

2231 BKC76 T220; unstratified. Base fragment of cylindrical bottle. Slightly concave base showing much wear. BD approx 170.

2232 1.81 J149 F113; Period 6. Side and base fragment of cylindrical bottle. Vertical side with vertical scratch-marks; concave base. Base worn. PH 44, BD approx 100.

Coloured abraded cylindrical bottles

(2240-2242)

[Fig 11.13]

Decoration on cylindrical bottles is rare before the later 2nd century, when tableware forms of bottles started to develop. A squat blue/green cylindrical bottle of Isings Form 51, decorated with horizontal wheel-cut lines and abraded bands, was found at Pentre Farm, Flint (Price 1989a, 79 & 82 no 24, fig 29), and two others are known from Fishbourne (unpublished), but the form is otherwise rare in the north-western provinces.

This assemblage produced three fragments of yellow/green glass from cylindrical vessels decorated with horizontal abraded bands. Two came from contexts at Culver Street that were not closely dated (**2241-2242**), and the other (**2240**) came from a context at Balcerne Lane dated to c AD 60-80 (Period 3). It is possible that these came from Hofheim cups (see **279-331**), but they all have marked vertical scratch-marks. These are typical of the wear patterns seen on blue/green cylindrical bottles (Isings Form 51) and are not normally associated with Hofheim cups. Similar fragments have been recovered at Usk and Castleford, West Yorkshire (both unpublished). It is reasonable to conclude, therefore, that they are most likely to have come from some form of decorated cylindrical bottle in use during the late Neronian and Flavian periods.

Coloured abraded cylindrical bottle

Yellow/green

2240 BKC76 T218 F98; Building 47; Period 3. Body fragment of cylindrical bottle or bowl. Pale green. Straight side curving into base. Three narrow horizontal abraded bands. Vertical scratches. Dim 58x40, WT 1.

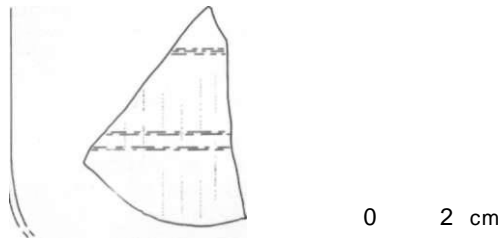


Fig 11.13 Coloured abraded cylindrical bottle. 1:2.
[Pages 199-200]

Colourless wheel-cut cylindrical bottles (2243-2244)

[Fig 11.14]

In the later 2nd century, a form of cylindrical bottle made in good-quality colourless glass came into use. This has an out-turned rim with the edges folded diagonally down and up, a short cylindrical neck, a horizontal shoulder, a cylindrical body tapering in slightly to a concave base, and one angular handle with a simple lower attachment on the shoulder and a folded attachment on the neck and underside of the rim. Most commonly the handles are reeded, as on the fragmentary example from Corbridge (Charlesworth 1959a, 54, fig 10.1), but plain ribbon handles were also used, as on the only complete example of this form known from Roman Britain, which was found at Hauxton, Cambridgeshire (Harden 1958b, 14, fig 6, pi 3b). The bodies are decorated with bands of horizontal wheel-cut or abraded lines. The use of decoration, the good-quality glass and the thinness of the walls all strongly suggest that these vessels were items of tableware rather than everyday containers used for transport and storage like the blue/green prismatic and cylindrical bottles discussed above.

In this assemblage the form has only been identified with certainty from two rim fragments, ie **2243** from Lion Walk and **2244** from Middleborough. Various other less diagnostic fragments (**2248-2251** & **2253**) could have come from either these bottles or from the other forms of cylindrical bottles discussed below.

Bottles of this colourless wheel-cut cylindrical form were in use during the later 2nd and earlier 3rd century. Examples from dated burials include four from a cremation at Luxemburger Strasse, Koln which also contained a coin of Crispina (AD 180-183) and several vessels with snake-thread decoration (Hagen 1906, 409 nos a-d, Taf 24). At Esch in the Netherlands examples were found in Tumuli IV and V (van den Hurk 1975, 78 nos IV.6-7, figs 12-13 & 1977, 103, nos V.15-16, fig 19), which are dated to the late 2nd/early 3rd century and the later part of the first half

of the 3rd century respectively. Another example was found in a burial of the first half of the 3rd century at Nida-Hedderheim (Welker 1974, 137 no 302, Taf 19). In Britain, fragments have been found in re-deposited Antonine fire material at Verulamium (Charlesworth 1984a, 170, no 288, fig 68.140) and in the late 2nd- or early 3rd-century city rampart at The Park, Lincoln (unpublished). Neither of the fragments found at Lion Walk and Middleborough is closely dated.

Fragments from this type of bottle are often found on Romano-British sites, but never in large quantities. At The Park, Lincoln where much of the glass is of late 2nd- and early 3rd-century date, only three fragments from an assemblage of approximately 500 fragments were identified as coming from colourless wheel-cut cylindrical bottles; and this is typical of the pattern usually observed. The difficulty of identifying bottles of this form from fragments is probably one reason why only small numbers are generally recorded. As fragments **2248-2251** show, many parts of this type of bottle may as easily belong to other cylindrical bottle forms, and there are similar problems with small body fragments as they could well come from cylindrical wheel-cut beakers (see **426-464**).

These colourless wheel-cut cylindrical bottles have a similar distribution in the north-western provinces to that of the contemporary colourless cylindrical cup with fire-rounded rim (see **465-540**). In addition to the ones noted above from Koln, Esch and Nida-Hedderheim, others are known at, for example: Heerlen in the Netherlands (Isings 1971, 84 no 198, fig 21), Saalburg (Fremersdorf 1939, Taf 13.8), and Bolards, Nuits-St-Georges (Joubeaux 1982, 64 no c121, pi 19).

Colourless wheel-cut cylindrical bottles Colourless

- 2243 LWC71 B253 F100; Period 5. Rim fragment. Wide rim, edge rolled out, up and in; narrow cylindrical neck; part of handle attachment on underside of rim. PH 16, RD 55, neck thickness 3.
- 2244 MID78 A1841 F554; medieval? Rim fragment. Wide funnel mouth curving down to neck; rim edge bent down and up. RD 75, neck thickness 3.5.

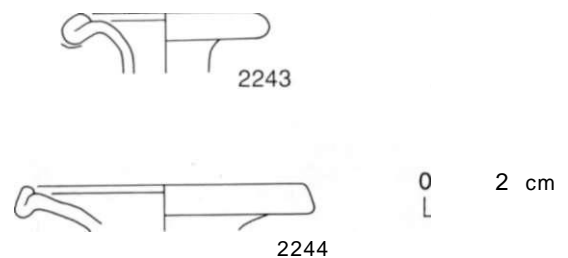


Fig 11.14 Colourless wheel-cut cylindrical bottles. 1:2.

Funnel-mouthed cylindrical bottles (2245 & 2257) and miscellaneous cylindrical bottle fragments (2247-2255)

[Fig 11.15]

In the late Roman period, two forms of funnel-mouthed tall cylindrical bottle forms and a very similar type of funnel-mouthed flask were in use contemporaneously, and it is often difficult to identify which variety a fragment comes from. The basic form is exemplified by the flask (Isings Form 102b) similar to the examples from a 4th-century inhumation at Gravel Hill, Cambridge (*Fitzwilliam*, 41 no 80a; Liversidge 1977, 16, pi 2). This has a funnel mouth with fire-rounded rim edge and a thick trail below the rim, a short cylindrical neck, a horizontal shoulder, and a cylindrical body tapering in slightly to a concave base with pontil scar. The bottle forms have either one handle (Isings Form 126) like **2257**, or two (Isings Form 127) like one from the Lankhills School cemetery, Winchester (Harden 1979b, 219 no 549, fig 27). The angular ribbon handles may be plain, ribbed or reeded. The upper arm of the handle often tends to be short and angled down the side of the funnel mouth as part of the folded upper attachment, rather than nearly horizontal as on the colourless wheel-cut cylindrical bottles discussed above.

All three varieties are made of colourless or greenish colourless glass. Some are plain and some are decorated with horizontal abrasions or wheel-cuts. Very occasionally, examples with more elaborate facet- and linear-cut decoration are found, such as on the pair of one-handled bottles from the cage-cup grave at Koln-Braunsfeld (Doppelfeld 1960-61, 17 nos 12-13, Abb 9.12-13, Taf 7.2 & 4), and on the two-handled bottle from Grave 1 at Hohensulzen, Kreis Worms (Behrens 1925-6, 75, Abb 27.3). Such bottles are, however, rare. A similar bottle from the same grave at Hohensulzen has a facet-cut and engraved Bacchic scene but this appears to be unique (Behrens 1925-6, 75, Abb 27.1 & 28; von Pfeffer *et al* 1960, 42 no 192, Abb 17).

During the excavations in Colchester between 1971 and 1985, two examples of this range of vessels were found. One was a virtually complete, greenish colourless, undecorated bottle with one reeded handle from Grave 132 at Butt Road (**2257**). The other (**2245**) came from a colourless bottle with one reeded handle. Again, some of the fragments **2248-2250** may have come from similar vessels.

All three forms came into use during the 3rd century (Isings 1957, 121 & 156-7), but were commonest during the 4th century. In Britain most of the dated examples have come from 4th-century contexts. In addition to the three flasks from Gravel Hill, Cambridge, several others have been found in late Roman burials at York (Harden 1962, 140, fig 90, HG 146.3 & 4), including one which also contained a coin of Crispus (AD 317-326) (*ibid*, fig 89, H13). The two-handled bottle from the Lankhills School

cemetery, Winchester was found in the fill of Grave 398 which is dated to c AD 370-390, but it is thought to have been redeposited there. Grave 132 at Butt Road, which contained **2257**, is dated to the second half of the 4th century, probably between c AD 360 and 380.

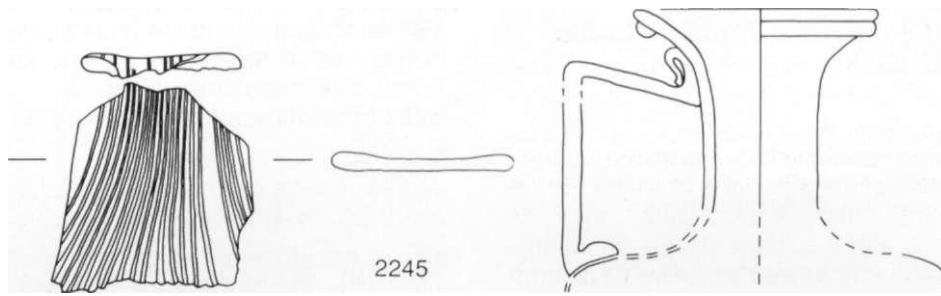
The colourless fragment **2245** came from a context dated to c AD 150-250 (Balkerne Lane, Period 5b), and is therefore an early example of the type. It is interesting to note that the handle on **2245** joins the neck at the junction with the funnel mouth, rather than running down its side. It is possible that this method of attachment is an early feature on these bottles; and that the commoner method seen on **2257** was not used until later in the 3rd century.

The flasks and the two-handled bottles were mainly in use in the north-western provinces (see for example Arveiller-Dulong & Arveiller 1985, 126 & 168; Sennequier 1985, 119 & 185). The one-handled bottles, especially those decorated with facet- and linear-cutting, appear to have a wider distribution; these have been found, for example, at Karanis, Egypt (Harden 1936b, 246 no 739, pis 9 & 19) and at Conimbriga, Portugal (Alarcao 1976, 198 & 203 no 250, pi 44). As will be evident from the examples cited above, these vessels have been found in several late Roman graves in Britain. Fragments from domestic sites, however, are rarer. The upper part of a colourless bottle with two handles attached in the same way as **2245** was found at Shakenoak (Harden 1968a, 76 no 8, fig 26.6), and the rim and upper handle attachments of another came from Gestingthorpe (Charlesworth 1985b, 66 no 318, fig 30). The same site produced a rim and upper body fragment from either a flask or a bottle (*ibid*, 66 no 313, fig 30). The upper part of a one-handled bottle is known from the Ebor brewery site, York (unpublished) and a lower body and base fragment with pontil scar from Greyhound Yard, Dorchester (Cool & Price 1993, 167 no 158, fig 88) is also likely to have come from this range. This relative scarcity probably reflects the need for a fragment to be of substantial size before a secure identification can be made, rather than rarity during the Roman period.

The assemblage also contained one rim fragment from a very thick-walled colourless funnel-mouthed bottle or jug (**2247**). The presence of a thumb-rest on the handle attachment suggests that it is most likely to have come from a jug (*cf* **1126-1127**), but because of the thickness of the fragment it has been provisionally identified as a bottle.

Funnel-mouthed cylindrical bottles and miscellaneous cylindrical bottle fragments Colourless

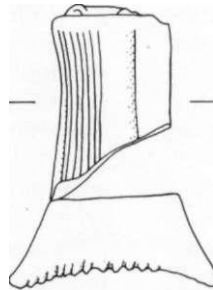
2245 BKC75 J447 F43; Period 5b. J342; Roman. Approx 15 rim, neck and handle fragments. Out-turned rim with fire-rounded edge; funnel mouth; cylindrical neck. Angular reeded ribbon handle with folded upper attachment applied to neck; simple lower attachment retaining fragments of shoulder. Thick horizontal trail applied to underside of rim. PH approx 50-55, RD 65, neck thickness 3.5.



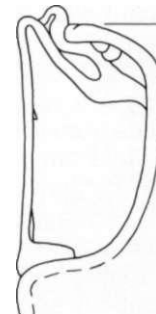
2248

2252

2253



2257



0 2 cm
└───┘



Fig 11.15 Funnel-mouthed cylindrical bottles and miscellaneous cylindrical bottle fragments. 1:2. [Pages 201-3]

- 2247 BKC75 H14 L2; post-Roman. Four joining rim and handle fragments of jug or bottle. Funnel mouth with rim edge fire-rounded. Ribbon handle; folded upper handle attachment with bent back thumb rest applied to rim edge. PH approx 30, RD approx 50, neck thickness 45.
- 2248 1.81 A149; unstratified. Post-Roman. Handle and shoulder fragment of bottle. Lower part of handle reeded in shallow relief with simple lower attachment. Shoulder possibly deliberately broken around edge of attachment. Dim (body) 44x18, WT 1.5.
- 2249 CPS73 415 F95; Period 5. Shoulder and body fragment of cylindrical bottle. Shoulder curving over to straight side. Abraded band on upper body. Dim 39x30, WT 1.
- 2251 1.81 G1 L1; Period 6. Base fragment of jug or bottle? Flat base slightly domed internally. BD 70.
- 2252 1.81 A139 F47; Period 5. Four rim and 1 neck fragments (3 joining) of bottle. Tubular horizontal rim, edge first rolled in, then bent out, up and in; thick-walled cylindrical neck. PH 29, RD approx 55, neck thickness 2.

Blue/green

- 2254 BKC75 J150 L1; modern. Rim and handle fragment of jug or bottle. Markedly out-turned rim, edge rolled in; cylindrical neck; folded upper handle attachment on underside of rim and neck. PH 13, RD 60, neck thickness 2.
- 2255 BKC75 H26 L9; Period 5c or 6. Rim and neck fragment of jug or bottle. Markedly out-turned rim, edge rolled in; cylindrical neck; fragment of handle attachment on underside of rim. PH 23, RD 55, neck thickness 3.

Late Roman green

- 2257 BUC77 B1098 G132 SF393; Period 2. One-handed cylindrical bottle broken mainly at neck and rim in 16 fragments. Small portions only of rim, neck and shoulder missing. Pale greenish colourless. Out-splayed horizontal rim with rolled-in edge; neck sloping out slightly to horizontal shoulder; straight-sided cylindrical body; concave base with central kick. Prominent ridged oval pontil scar. Angular reeded handle with simple lower attachment, folded upper attachment joined to neck and rim. Horizontal trail applied to underside of rim with ends of trail overlapping one on top of the other for approximately half the circumference. Height 232, height from base to shoulder 170, RD 74, BD 90, pontil-scar diameter (outer) 28x23 and (inner) 17x15.

Bottles with multiple compartments (2258)

[Fig 11.16]

The three fragments numbered **2258** consist of one flat base and two convex-curved body fragments which all retain part of an internal division. These almost certainly come from a blue/green double or triple bottle. These were large ovoid vessels blown as one parison and then tooled to form two or three separate internal compartments. They were not blown as two or three separate flasks which were then joined as has often been suggested (Goethert-Polaschek 1977, 224; Clairmont 1963, 128). The mouths are cylindrical or slightly funnel-shaped and the rim edges finished by being sheared or rolled in. The generally ribbed handle is applied to the neck and body, and the base is concave. Sometimes the bottles also have base rings. These variations are well illustrated by comparing the double bottle from a cremation

cemetery at Cany, Seine Maritime (Sennequier 1985, 189 no 290, pi 4) and the triple bottle from an undated burial at Trier (Goethert-Polaschek 1977, 224 no 1344, Taf 72). It is not possible to identify whether **2258** comes from a double or triple bottle.

These vessels are rare. Most of the known examples are from the western provinces, but slightly different bottles with reeded handles have been found elsewhere in the Empire, for example at Heraclion, Crete (Harden *et al* 1968, 62 no 78) and at Dura-Europos, Syria (Clairmont 1963, 128-9 nos 647-54, pi 30). Double and triple bottles appear to have been made during several periods in the Roman Empire, but precise dating of the variants is difficult as few have come from well-dated contexts. They were already being manufactured during the first half of the 1st century as a fragment from one was found at Pasaje Cobos, Tarragona, Spain in a rubbish deposit dating to the second quarter of the 1st century (Price 1981b, 581, fig 19.166). Other fragments of mid 1st-century date include those from a double bottle found in a Neronian context at Kingsholm, Gloucester (Price & Cool 1985, 44 & 54 nos 85 & 85b, fig 20), and **2258** itself, which was found in a pre-Boudican context at Culver Street (Site J, Period 1 or 2). A later 2nd-century example may be represented by a double bottle from Strasbourg which probably came from a cemetery in use after AD 150 (Arveiller-Dulong & Arveiller 1985, 54 no 70). A late form is the triple bottle with a trail around the neck and a foot ring. Examples from 4th-century contexts include one from Grave 2905 at Krefeld-Gellep dated to about the middle of the 4th century (Pirling 1967-8, 39, Abb 9.11), and part of another made in the greenish colourless bubbly glass typical of the 4th century which was found in a context dated to between AD 330 and 370 at Towcester, Northamptonshire (Price & Cool 1983, 117, 122 nos 48 & 48b, fig 47).

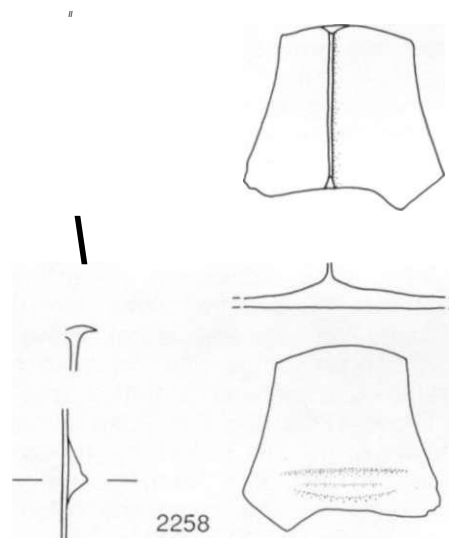


Fig 11.16 Fragments from bottle with multiple compartments. 1:2. [Pages 203-4]

Double bottles were clearly in use in the 1st century, but whether triple bottles also existed at that time or developed later is not known at present.

Bottle with multiple compartments

Blue/green

2258 1.81 J371 F364; Period 1 or 2. One base and 2 side fragments. Flat base with internal division and linear-tooled ridge at right angles to it on exterior. Convex-curved body fragments each with part of an internal wall division. Dim (base) 52x43, base thickness 2.5-6, WT 2.

Frontinus bottles (2259-2262)

[Fig 11.17]

Fragments **2259-2262** come from the type of mould-blown bottle often known as a ribbed barrel jug or Frontinus bottle. These have an out-turned rim with the edge folded or rolled in, short cylindrical neck, horizontal shoulder, cylindrical body and concave base. The body is divided into three zones. The upper and lower of these each have a series of horizontal corrugations. The central zone is nearly always plain, although a number of small examples have moulded circular pellets or a lattice pattern. These bottles normally have either one (Isings Form 89) or two (Isings Form 128) reeded, ribbed or plain angular ribbon handles. Bottles with three handles have been reported but these are very rare (Chassaing 1960, 26 footnote 3). Most of the bottles were made in blue/green or greenish colourless glass, and colourless examples are far less numerous.

The bodies of these bottles are mould-blown, with the shoulder, neck and rim being formed by free manipulation, and with separately applied handles. A pair of vertical mould-seams run down the body but do not extend across the base, indicating that the mould was made in three parts, ie two for the body and one for the base. The majority of the bases have mould-blown designs on the underside. These consist of concentric circles and frequently have letters arranged in a ring between or outside them. Most commonly these letters make up all or part of the name Frontinus, but other names such as Felix and Daccius are also found. Details of the many base-mark variants are given by Kisa (1908, 943-7) and Chassaing (1960).

During the 1971 to 1985 excavations at Colchester, one complete barrel jug and fragments from three others were found. The complete vessel (**2259**) is a pale green two-handled bottle with the base mark FRO in retrograde outside one circular moulding. This was found in Grave 174 at the Butt Road cemetery, which dates to within the last half of the 4th century and probably to c AD 360-380. Another barrel jug is probably represented by the many tiny colourless fragments found in Grave 620 (**2261**). This is an isolated Period 2 grave and thus post-dates c AD 320, but cannot be more closely dated. The other two vessels are represented by body fragments from

4th-century contexts at Balkerne Lane (**2260**; pale greenish colourless) and Lion Walk (**2262**; blue/green). It is possible that the blue/green rim fragments **2254-2256** could also have come from bottles of this type. The precise forms of the barrel jugs that **2260-2262** come from are unknown. The lower body and base of a miniature blue/green barrel jug was found previously in Colchester during the building of the Colchester Union (CM, 826.30).

One-handled barrel jugs occur in the archaeological record earlier than those with two handles. At Nijmegen examples have been found in contexts dated to c AD 100 and the Hadrianic period (Isings 1957, 107). Examples have also been found in cremation burials dated to the later 1st or early 2nd century and first half of the 2nd century respectively, at Cany and Ourville-en-Caux, Seine Maritime (Sennequier 1985, 177 no 275 & 178 no 277), and in a burial dated to the first half of the 2nd century at Wederath, Kreis Bernkastel-Wittlich (Goethert-Polaschek 1977, 203 no 1246). They are known in greater numbers in the late Roman period as they are found in 4th-century graves; see for example those from Vermand (Eck 1891, pi 6.13, 14 & 16) and Trier (Goethert-Polaschek 1977, 202 nos 1243-4, Tafn 21.232b & 25.298a).

Early examples can sometimes be differentiated from the later ones by the rim and handle forms. A bottle with a rim folded out, up, in and flattened, and with a reeded handle, is probably of 2nd-century date, whereas one with a plain ribbon handle and a more funnel-shaped rim, where the edge is bent out and rolled in (as on **2259**), is probably later. The small group of one-handled bottles in use during the mid-to-late 2nd century, with moulded decoration on their central zones, for instance, have folded and flattened rims (Welker 1974, 98-101 no 225, Taf 15; Ludowici 1908, 146, fig 22), and the same rim form occurs on early bottles from Normandy (Sennequier 1985, 177 no 275 & 178 no 277).

The two-handled form does not appear until the 4th century. It is common in 4th-century graves, and where the graves are more closely dated they tend to belong to the middle and later part of the century. Examples of graves of this date containing two-handled bottles include those at: Neumagen, Kreis Bernkastel-Wittlich (Goethert-Polaschek 1977, 234 no 1399, Taf 27); Steinfurt, Luxemburg (Namur 1850, 48, pi 2 fig 13; Wilhelm 1979, 31 no 130); Krefeld-Gellep (Pirling 1974, 78, Taf 9.1276 nos 1 & 2; Taf 41.1746 no 11a); Jakobstrasse, Koln (Haberey 1934, 277, Taf 30.2); Stephansfeld, Strasbourg (Arveiller-Dulong & Arveiller 1985, 170 no 372); Mayen (Haberey 1942, 277, Abb 17.20c); and now Grave 174 at Butt Road.

It is interesting to note that very similar base designs were used on bottles of widely differing dates. The base design on **2259** (FRO in retrograde outside a circle) found in a mid-to-late 4th-century burial, for example, also occurs on the one-handled bottle from

Ourville-en-Caux which is dated to the first half of the 2nd century (Sennequier 1985, 179 no 277). This phenomenon has not previously been considered in the interpretations of these base marks. The view generally expressed is that Frontinus was the manufacturer of the bottles (eg Charlesworth 1968, 7), and that, when the name Frontinus is linked with another such as Equa, this represents a particular workman in the glass-house signing his products (Trowbridge 1930, 347; Chassaing 1960, 101). If this is a correct interpretation it requires that the name Frontinus was associated with one particular glass-house or group of glass-houses over a period of about 250 years.

When the many variants of base marks with the name Frontinus are examined, it is very noticeable that they are scarcely ever combined with the letter F for *fecit*. The only bases with such a combination occur on a group of bottles from Normandy which read FRONT S C F (Sennequier 1985, 173-5, nos 265-7). By contrast *fecit* and its abbreviations occur frequently in combination with the less common names: for example, FELIX FECIT on bottles from Nijmegen (Isings 1957, 107), Worms (Kisa 1908, 943, no 35) and Faversham (Harden *et al* 1968, 62, no 79); DACCIUS F on bottles from Neuville-le-Pollet and Rouen (Sennequier 1985, 181, nos 278-9); and EQVALVPIO FEC on bottles from Koln (Fremersdorf 1961, 59, Taf 117).

Following these observations it is difficult to resolve the status of the basal inscriptions, though it is worth considering whether the name could be associated with the contents rather than the manufacturer (see back, p 183). In either case it is difficult to find a parallel for the recurrent use of a name in this manner in the Roman world for a period of more than 200 years.

In Britain the base mark on 2259 (FRO in retrograde outside a circle) has also been found on a base fragment from Colliton Park, Dorchester (Dorset County Museum, Dorchester), though these two bottles were not blown in the same mould. The only other complete two-handled bottle to have been discovered from Roman Britain, from a late Roman grave at Bex Hill, Milton-next-Sittingbourne, Kent and had the base mark FRONI (Payne 1874, 168, fig 2; Thorpe 1935, pi 2b). A one-handled bottle from a grave in the cemetery to the east of the city walls at London had the base mark FRONT SEXTIN (Barber *et al* 1990, 9, pi 4a). Other examples of Frontinus base marks found in Britain include the letters FRO between two concentric circles on a base fragment from Silchester (Boon 1974, fig 36.13) and the same letters outside of a circle on one without provenance in the British Museum (Department of Prehistoric and Romano-British Antiquities; not from Dorchester-on-Thames as stated in Price & Cool 1983, 117). Incomplete fragments from Frontinus bases include a fragment from a mid 4th-century context at the Alchester Road suburb, Towcester with parts of the letters RO outside two circles (Price & Cool 1983, 124 no 60, fig 48), and examples from Greyhound Yard, Dorchester, Dorset

(Cool & Price 1993, 164 no 135, fig 87) and the General Accident site, York (unpublished) with the letters FR in retrograde inside a circle, and probably one from the Cattle Market, Chichester (Price & Cool 1989, 135, fig 19.3 no 56) which may have had 'R' and 'O' separated by a stop. Another base mark known from Britain is FELIX FECIT, which was used on the base of the one-handled bottle from Faversham (Harden *et al* 1968, 62 no 79).

In Britain most barrel-jug fragments have come from late Roman contexts, but their use during the late 1st or 2nd century is suggested by the FELIX FECIT bottle from Faversham, which is likely to be an early example similar to the bottle at Nijmegen dated to c AD 100, and a blue/green base fragment probably from this variety of bottle which was found in a context dated to c AD 150-200 at Canterbury (Charlesworth & Price 1987a, 225 no 25). The number of blue/green body fragments from these bottles found also suggest that the bottles were in use in Britain prior to the 4th century, as blue/green glass becomes less common after the 3rd century.

Barrel jugs were in use in northern France, the Rhineland and Britain, and they are only occasionally found as far south as central France. The discovery of a one-handled bottle with the base mark FROTI at Olviya, near Nikolaev on the north coast of the Black Sea is, therefore, a most extraordinary and unique find (Kunina 1981). This is recorded as having been an accidental discovery in 1911, and there are no indications of the circumstances of the find, or even if it reached Olviya during the Roman period.

Since the publication of a distribution map showing the concentration in the north-west provinces (Price 1978, fig 61), it has become apparent that barrel jugs are much more common in Romano-Britain than was previously thought. Examples from Colchester, Dorchester, Bex Hill, Faversham, Canterbury, Chichester, Silchester, Towcester, and York have already been mentioned. Examples may also be cited from: Park Street, Verulamium (Harden 1945, 71 no 20, fig 11); Lullingstone (Middleton 1952, 67 no 68, fig 16); Shakenoak (Harden 1968a, 78 no 23); Caerwent (Boon 1972-3, 112 no 6, fig 1); Manchester (Price 1974b, 133 no 89, fig 48); Chew Park, Somerset (Harden 1977b, 288 no 3, fig 113); Frocester Court, Gloucestershire (Price 1979, 45); Chilgrove, Sussex (Down 1979, 163 no 4, fig 56); Wycomb, Gloucestershire (Price 1980c, 51 no 21); Barnsley Park, Gloucestershire (Price 1982b, 183 no 45); Gestingthorpe, Essex (Charlesworth 1985b, 66 no 322, fig 30); Chesterholm (Price 1985e, 213 no 51, fig 78); Coventina's Well, Carrawburgh (Allason-Jones & McKay 1985, 39 no 133); Gloucester (Price & Cool 1986, 54 no 38, fig 26); Poundbury, Dorset (Charlesworth & Price 1987b, 109 no 5, fig 78); and Caister by Yarmouth (Price & Cool 1993, 147 nos 122-6, fig 132). There are also examples from: Catterick Bridge, Catterick; Abbey Green, Chester; Claydon Pike, Gloucestershire; Corfe, Dorset; Piercebridge; Winchester; and possibly

Frontinus bottles

The Park, Lincoln (all unpublished). There is also a most unusual bottle which appears to be a free-blown imitation of a two-handled barrel jug with the corrugations replaced by horizontal trails. This was found at Dorchester-on-Thames in the same 4th-century deposit which contained the barrel jug base fragments mentioned above (Harden 1939, 293 no (j); Charlesworth 1968, fig 4).

Frontinus bottles
Late Roman green

2259 BUC77 B1103 G174 SF394; Period 2. Complete two-handled ribbed barrel jug. Pale green. Mould-blown. Markedly out-splayed almost horizontal rim with edge rolled in and flattened; cylindrical neck; horizontal shoulder; cylindrical body with 4 ribs on upper body and 5 ribs on

lower body, central area plain; concave base with central kick. One circular moulding on base with letters FRO in retrograde between it and edge of base. Prominent oval pontil scar with part of cylinder of glass still attached. Two handles each with 5 prominent ribs, claw lower attachment joined to shoulder, folded upper attachment joined to underside of rim and rim edge. Height 182, height from base to shoulder 136, RD 60, BD 81, pontil-scar diameter (outer) 25x22 and (inner) 17x15. RIB II, 2, 114 no 2419.117.

2260 BKC74 E281 L447; Period 6. E360 L433; post-Roman. Two body fragments. Pale greenish colourless. Very slightly convex-curved cylindrical body bending out sharply at top and bottom. Body diameter approx 100-110, PH 55.

Blue/green

2262 LWC72 L232; Building 19, Passage 1, Phase 2 Period 4b. Body fragment of ?ribbed barrel jug. Cylindrical body with parts of 2 horizontal ribs. Dim 12x10, WT 1.

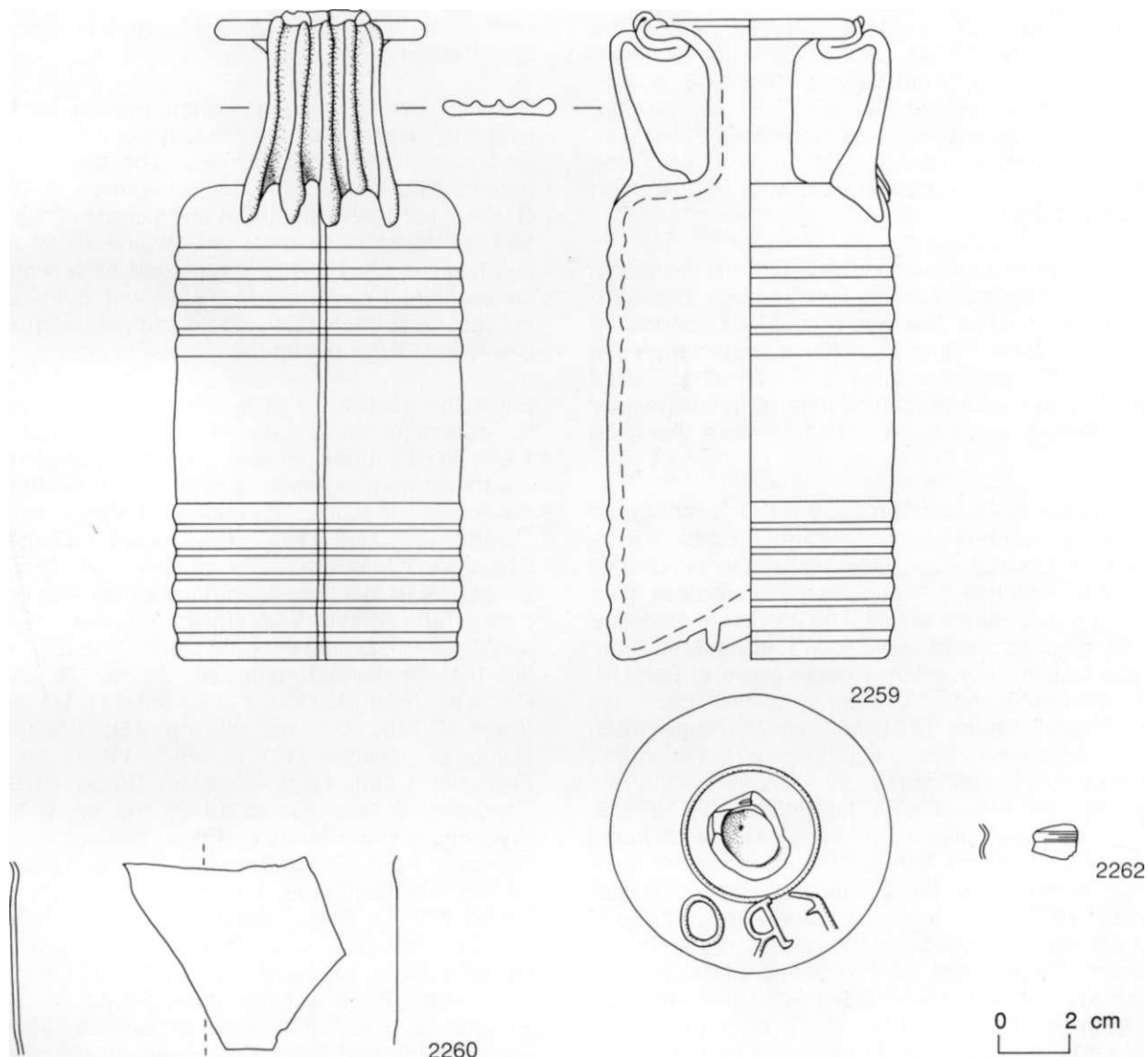


Fig 11.17 Frontinus bottles. 1:2. [Pages 204-6]

Dolphin-handled bottles (2263-2264)

[Fig 11.18]

Two forms of dolphin-handled bottles are known. The commonest (Isings Form 100a) is free-blown and has a cylindrical neck with a cracked-off rim, a horizontal shoulder, a cylindrical body and a concave base without a pontil scar. A pair of loop handles is attached to the lower part of the neck and shoulder. The trails for these were either applied to the shoulder first and then trailed up the neck before being looped down to the shoulder; or they were applied to the neck, trailed down and across the shoulder and looped up to the neck. The handles may be narrow, with the upper part ridged or rounded. The neck and the body are decorated with abraded bands. The mould-blown variety has the same form of rim, neck, shoulder and handles formed by free manipulation. The body has been blown into a six-sided body mould and has a slightly concave base which sometimes has a pattern of pellets in relief in the corners. The body is decorated with diagonal corrugations. These bottles are normally made in colourless glass or the greenish colourless bubbly glass typical of the 4th century. A pair of colourless cylindrical bottles from a grave at Ferriere Haut Clocher, Eure (Musée d'Evreux) has turquoise handles, but this is most unusual.

At Colchester two greenish colourless fragments from this variety of bottle were found at Balkerne Lane. Fragment **2263** is from a post-Roman context and consists of one handle retaining part of the neck and shoulder, and there is no indication of whether it came from a cylindrical or a hexagonal-bodied bottle. Fragment **2264** is from a 4th-century context (Period 6) and is a flat-sided fragment with diagonal corrugations from a hexagonal-bodied bottle.

Isings (1957, 119) dates the introduction of the cylindrical form of dolphin-handled bottle to the late 2nd or early 3rd century, but Harden (1979b, 220) places it not earlier than the mid 3rd century. A few examples are known from 3rd-century contexts. In addition to the examples quoted by Isings from Rheinzabern and Andernach which are dated to cAD 250 and the second half of the 3rd century respectively, a complete example from a grave at Strasbourg-Königshoffen dated to the second half of the 3rd century (Arveiller-Dulong & Arveiller 1985, 119 no 216) and a handle fragment from a 3rd-century ditch fill at Chew Park, Somerset (Harden 1977b, 289 no 5, fig 113) have also been noted. The majority of dated examples, however, come from 4th-century contexts. At Kattenburg, Köln one was found in a grave which also contained a coin of Constantius Chlorus (AD 293-305) (Hagen 1906, 425, Taf 25 no 60f) and another came from a grave at Krefeld-Gellep dated to the middle of the 4th century at the earliest (Pirling 1974, 79, Taf 34.8). In Britain, three examples were found at the Lankhills School cemetery, Winchester, two in graves dated to cAD 310-350 and 350-370 respectively on the grounds of vertical stratigraphy (Harden 1979b, 220, fig 27.20-21). The form thus appears to have come

into use during the second half of the 3rd century and to have been most common in the 4th century.

It is more difficult to date the hexagonal-bodied bottles as these are far less numerous, and few have been recovered from dated contexts. It is likely that they were in use contemporaneously with the cylindrical form. The two found at Krefeld-Gellep, for example, both came from graves dated to the first half of the 4th century (Pirling 1974, 79, Tafn 40.9a-b, 103.5).

Cylindrical dolphin-handled bottles occur in the north-western provinces. They have been found at Bouille-Courdault in the Vendée (Gendron 1974, 40 & 44) and Solduno, Locarno (Donati 1988, 180 no 134.76.31 & 249; Carazzetti & Biaggio Simona 1988, 125 no 157), but are more common in north-east France and the Rhineland (Morin-Jean 1913, 57; Arveiller-Dulong & Arveiller 1985, 119). The hexagonal-bodied bottles, though rarer, have a similar distribution. In addition to the examples from Krefeld-Gellep, ones from Köln (Fremersdorf & Polonyi-Fremersdorf 1984, 93-4 nos 208-10) and Boulogne (Morin-Jean 1913, fig 58) are known. About 50 examples of dolphin-handled bottles have been found at Köln (Harden *et al* 1987, 202).

The cylindrical form of the dolphin-handled bottle is the most frequently recognised one in Britain. In addition to the examples from the Lankhills school cemetery, complete or virtually complete examples have been found at Ospringe (Whiting *et al* 1931, 59 no 448, pi 38), York (Harden 1962, 141, fig 89 no H.G. 182), Gravel Hill Farm, Cambridge (*Fitzwilliam*, 41, no 80b), and Lullingstone (Cool & Price 1987b, 121 & 137 no 382, fig 56). Fragments from the hexagonal-bodied form have been identified from several sites. At both Barnsley Park, Gloucestershire (Price 1982b, 183 nos 46-7, fig 60) and Caister by Yarmouth (Price & Cool 1993, 147 nos 126-7, fig 132), fragments from at least two examples were found; the form has also been recognised at Greyhound Yard, Dorchester (Cool & Price 1993, 166 no 159, fig 88), Claydon Pike, Gloucestershire (unpublished), and at Empingham, Leicestershire (Leicester University, EPN71 EO90538 100365). The upper parts of dolphin-handled bottles are often found on late Roman sites in Britain though never in large numbers. It is likely that the majority of

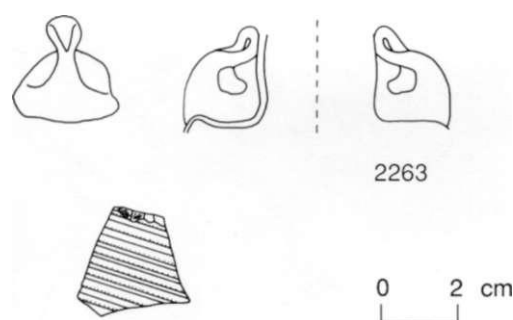


Fig 11.18 Dolphin-handled bottles. 1:2. [Pages 207-8]

Dolphin-handled bottles

these came from the cylindrical form though this can be verified only occasionally. Body fragments from the cylindrical form are virtually identical with those from funnel-mouthed cylindrical bottles and flasks, so it is not possible to identify the presence of cylindrical dolphin-handled bottles merely from body fragments.

Dolphin-handled bottles

Late Roman green

- 2263 BKC74 E217 L55; post-Roman. Neck; shoulder and handle fragment. Pale greenish colourless. Cylindrical neck; narrow horizontal shoulder curving over to body. Dolphin handle trailed down neck, over shoulder and back up to neck. Dim 26x23, WT 2.
- 2264 BKC75 N32 L3; Period 6. Body fragment of bottle? Pale greenish colourless. Flat side with narrow mould-blown corrugations. Dim 28x28, WT 2.

Chapter 12: Waste

Glass waste from production processes (2265-2274)

[Fig 12.1]

During the 1971-85 Colchester excavations, many heat-affected and melted glass fragments were found. In virtually all cases, this melting is accidental and is not connected in any way with manufacturing processes. The Boudican rising is an obvious occasion when much glass must have been affected by heat, and the deposits associated with the clearing of sites after this event often contain melted glass. A small number of blue/green fragments, however, are clearly associated with the production of glass vessels and objects (for a preliminary note, see *CAR 6*, 118).

Evidence for glass-blowing is provided by the moile fragments **2265** and **2266**. The latter is part of a cylindrical moile of the type found in many assemblages of glass-blowing waste, including Sheepen (Allen 1983, 773), the Tower of London (Bayley & Shepherd 1985, 73), and Mancetter, Leicester and Wroxeter (Price & Cool 1991, 25). Where the original end or 'rim' of one of these moiles is preserved, it may have either a triangular profile apparently produced through compression, or be irregularly-sheared with the edge occasionally turned in, as in **2266**. These moiles are the waste which remains on the blowing-iron after the vessel has been removed. Fragment **2266** was found in a ditch on Balkerne Lane and is not closely dated within the 2nd to 4th centuries.

Fragment **2265** is from a lid-like moile. The upper portion is cylindrical, and the lower portion wide and convex-curved with cracked-off lower edge. This was the part of the paraison immediately above the vessel which was cracked-off after the paraison was annealed, and the lower edge of **2266** represents the line along which the rim was cracked-off. A vessel from St Matthias, Trier, which was published as a flask with hemispherical body (Goethert-Polaschek 1977, 153 no 617, Taf 59), may instead be a hemispherical cup from which a moile of this kind has never been detached. The diameter of the lower edge of **2265** is approximately 80 mm, suggesting that it is likely to have been detached from a cup or beaker. It was found at Culver Street (Site G) in a context dating to the later 1st century or to the first half of the 2nd century (Period 3d; c AD 65/80-150).

Moiles of this form have been recognised much less frequently than cylindrical moiles, probably because large parts need to be preserved before they can be identified. This will occur rarely as normally such pieces would have been reused as cullet. In Britain,

the only other examples which are securely identified are those of Neronian/early Flavian date found at Watling Street, London (Shepherd 1986a, 37, 142, fig 14.7-8). Similar moiles were found at Merida, apparently in association with glass-working tools and broken vessels (Price 1973, 81, fig 4), and at Trier one was found with an inhumation burial belonging to the first half of the 4th century (Goethert-Polaschek 1977, 252 no 1485, Taf 16.176d).

Fragments **2267** (Culver Street) and **2268** (Balkerne Lane) are the type of distorted and folded fragments often found in assemblages of waste from glass-blowing sites, but they are not sufficiently diagnostic to indicate whether they were associated with the production of vessels or objects.

Fragments **2271-2273** are lengths of rods with slightly irregular right-hand twists which are broken at one end and expanded at the other. The expanded ends have concave fractures on the outer faces, and, in the case of **2272**, impurities embedded in the fracture. Fragment **2270** appears to be from the side of a similar expanded end which retains traces of the twisting. It is possible that these fragments are associated with the production of twisted rods. If the expanded end was the part of the rod attached to a fixed point while the rest of it was drawn out and twisted, **2270-2273** would be examples of the waste left after the main part of the rod had been detached. Alternatively, they may be the waste products from a quite different glass-forming process. All of the fragments were found on Site H at Culver Street where they were unstratified, apart from **2271** which derived from a context dated to c AD 225-275/325. Similar fragments formed part of the glass-blowing waste assemblage found at Wroxeter, and an isolated example is known from Churchgate, Leicester (Price & Cool 1991, 25).

The last piece which may have been associated with the production of vessels or objects is **2269**. This has a triangular outline and is almost 20 mm thick. It has one smooth and glossy surface and one pitted surface, like cast window glass, and it is possible that it was made in the same way, by pouring molten glass into a tray. It is possible that **2269** is part of a glass 'ingot' produced as a result of the initial glass-melting and forming processes, and intended for subsequent re-melting prior to making vessels or objects. The identification must remain tentative, however, as such items have rarely been found.

To what extent this small number of fragments indicates that production was taking place at Culver Street and Balkerne Lane is open to question. The presence of one moile fragment at each site is

Glass waste from production processes

extremely flimsy evidence on which to postulate the location of a glass-blowing industry, but the concentration of twisted waste fragments on Site H at Culver Street hints that some kind of production was taking place there. It should be emphasised, however, that the quantities of glass waste being dealt with are very small, and could easily have been incorporated into rubbish dumped at some distance from production sites. This is what appears to have happened, for example, in the case of the glass-blowing waste found at the Tower of London, where it had been incorporated into the rampart of the city wall (Bayley & Shepherd 1985, 72).

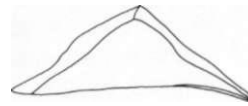
Glass waste from production processes

Blue/green

2265 1.81 G2881 L2874; Period 3d. Three joining fragments of moile. Lower part of cylindrical neck with slight tooling-marks at base; wide horizontal 'shoulder' curving over to side. Lower edge cracked-off. Outer neck diameter approx 30, diameter at cracked-off edge approx 80, WT 1-3.



2266 BKC73 D224; Period 5/6 ditch. Cylindrical moile fragment. Out-turned 'rim', edge irregularly-sheared; straight-sided body sloping out slightly. PH 32, 'rim' diameter approx 30, WT 1.5.



2267 1.81 H627; unstratified. Fragment of glass-working waste? Broken lower end of hollow tube with solid base retaining fragment from wall to which it was applied. Dim 21x16, WT 1.5-4.



2268 BKC76 T306; Periods 5a & b. Distorted and folded fragment, 1 edge heat-rounded. Dim 23x16.

2269 1.81 D596 L247; Period 4; demolition of Building 123. Fragment of glass 'ingot'. One surface smooth and glossy, other surfaces pitted. Dim 65x22, thickness 18.

2270 1.81 H624; unstratified. Twisted waste. Edge of terminal of rod; lower surface concave; upper surface convex and retaining edge of twisting. Dim 26x14, thickness 8.

2271 1.81 H225 F59; Period 5. Twisted waste. Part of rod with right-hand twist; one end broken, other broken across flat, heat-affected top. Streaky green impurities. Length 35, rod section 9.

2272 1.81 H624; unstratified. Twisted waste. Description as 2271, but top of rod concave. Length 27, rod section 9.

2273 1.81 H627; unstratified. Twisted waste. Description as 2271, but broken at beginning of expansion. Length 21, rod section 8.

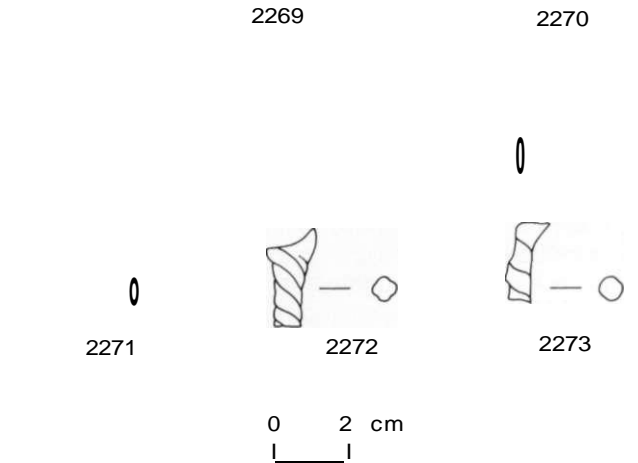


Fig 12.1 Waste fragments. 1:2. [Pages 209-210]

CHAPTER 13: An overview of the glass vessels from Colchester

Introduction

Following the detailed discussions of the vessel types found during the recent Colchester excavations, it will be useful to review the forms securely identified as having been in use during the Roman period in Colchester. The review includes both the material from the 1971-85 excavations and that from earlier excavations in the town and its environs. Taken together, the two groups form a series that, in many respects, is typical of the glass in use in Roman Britain generally, and reflects the changing composition of the assemblages with time. In one respect, however, the glass from Colchester is exceptional, as the mid 1st-century assemblage is unrivalled in Britain. The assemblage will be summarised in two ways. In the first part, individual forms will be reviewed chronologically, so that a picture can be built up of the forms in use contemporaneously. In the second part, the individual forms will be grouped into classes according to criteria derived from a consideration of likely function, and these will be examined to see if the ways in which glass vessels were used changed with time.

Chronological overview

[Figs 13.1-13.7]

As far as is possible, the forms will be examined chronologically to draw attention to those in use at the same time. There are problems in attempting to do this. As with all archaeological finds, it is generally possible to identify the period when the use of a particular form was at its peak. It is less easy to pinpoint when a form was first introduced, or when it went out of common use. Another problem is that not all varieties of vessels remained current for similar periods of time. As will become apparent in the following sections, forms that may be identified as tablewares had much shorter life spans than those likely to have been containers. This is almost certainly the result of tablewares being more subject to changes in fashion. A container form evolves to serve a particular purpose, namely to contain a particular material or range of materials. There will be no need for the shape to change once a satisfactory form has been developed until conditions alter. This may be either because the material is being packaged in a different type of container, or because it is no longer used. Due to problems of this sort, it is not possible to present a clear-cut picture of what was in use at any one time, and overlap between the periods is inevitable.

The Roman period at Colchester has been divided

into shorter units of time, according to the accepted dating of the glass itself, as set out in the preceding chapters. The boundaries mark points at which common forms of tablewares appear to have been replaced. For ease of comprehension, calendar dates have been given to these boundaries, though the periods are best viewed as overlapping rather than being abruptly divided from each other. Due to the special circumstances at Colchester, an additional period from the conquest in AD 43 to the Boudican uprising in AD 60/1 has been defined. This period has firm historical boundaries which the glass types frequently cross. Seven 'glass' periods are defined as follows:

Period 1: AD c 43-60/1

Period 2: AD 60/1 -c 100

Period 3: c AD 100-170

Period 4: c AD 170-230

Period 5: c AD 230-300

Period 6: c AD 300-350

Period 7: c AD 350-400+

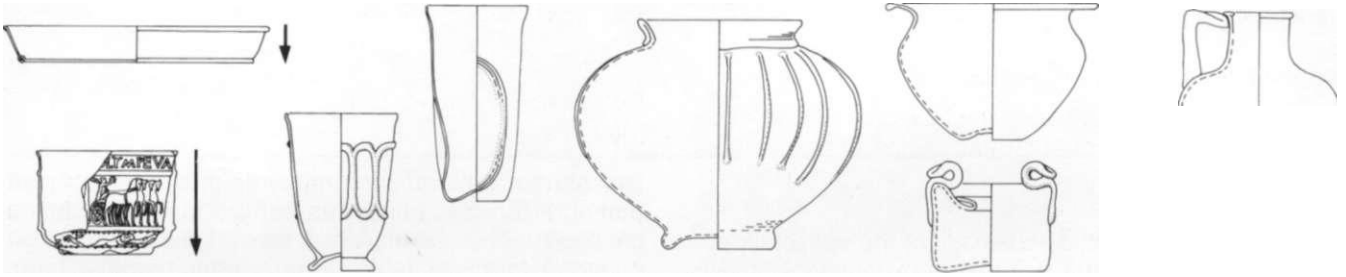
Within each period, the vessels in use are separated into three divisions in an attempt to distinguish between forms going out of use, forms at their peak and forms introduced during the period. In the figures which illustrate each period, the forms at the top of the figure are those first appearing during that time though the peak of their life span is later. Forms in common use are placed in the centre of the figure, and those at the bottom are forms whose peak has passed. In the normal course of events a form will appear first at the top of the figure and then, on figures illustrating successive periods, move downwards. Due to the varying life spans, individual types will progress through this sequence at varying rates. If the form is illustrated with a downward arrow by the side of it, this indicates that during the course of that period, it passes into the next stage. In some cases where a form is not securely dated, it may appear only in the peak section and not in either of the sections dealing with the introduction or decline of types.

Period 1: AD c 43-60/1

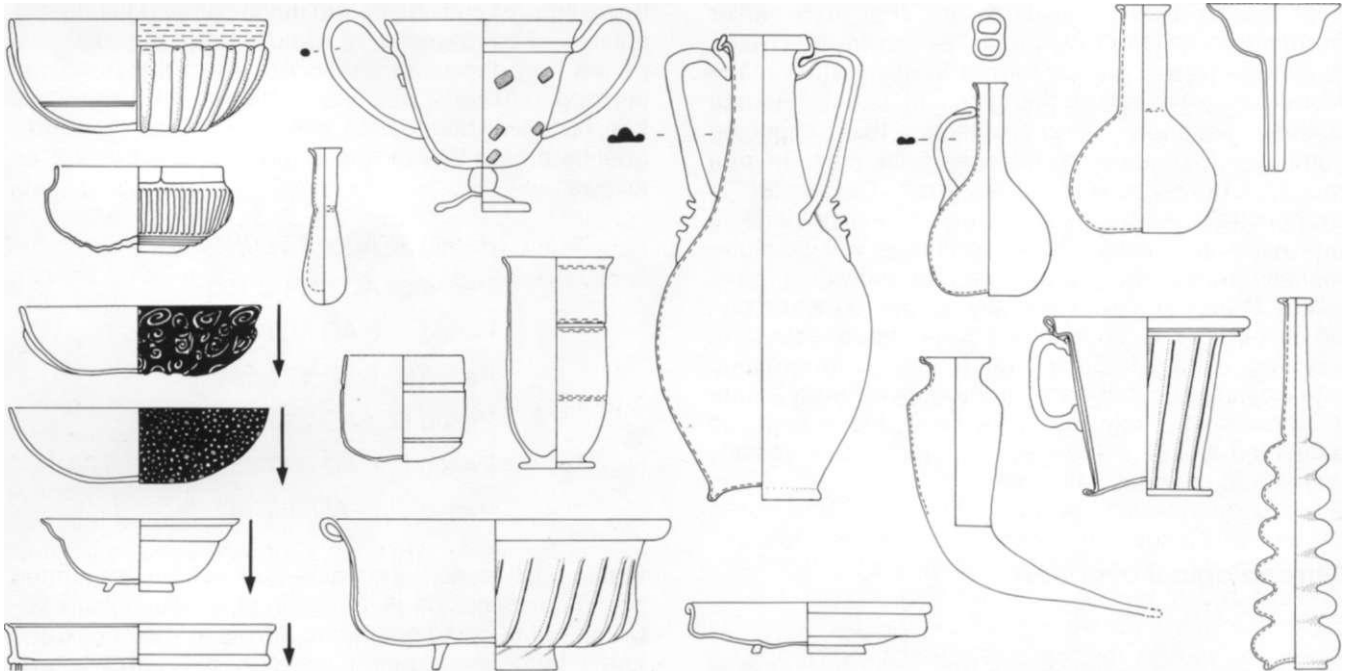
[Fig 13.1]

During the first half of the the 1st century AD, glass industries experienced a period of great diversity and vigour. The technique of blowing glass, discovered in the previous century, reached maturity, and glass

FORMS INTRODUCED DURING THE PERIOD



FORMS AT THE PEAK OF THEIR USE DURING THE PERIOD



FORMS IN DECLINE DURING THE PERIOD

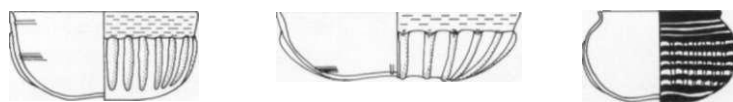


Fig 13.1 Period 1: AD c 43-60/1. 1:5. [Pages 211-13]

vessels ceased to be luxury items. For the first time glass was used to make everyday tablewares and utilitarian containers, and with this development there came an explosion in the number of forms available. At the same time the longer-established industries were still producing pillar-moulded bowls and other forms by cast techniques. As a prestige site in a newly-won province, Colchester received a very wide cross-section of the forms available during the period between the conquest and the Boudican uprising. A characteristic feature of this period is the high proportion of brightly-coloured vessels. Blue/green

vessels form the majority of the assemblage, but there are many polychrome and strongly-coloured monochrome vessels as well. This is the period when many of the blown polychrome techniques are most popular, including cased vessels, vessels with applied coloured blobs and trails marvered smooth before complete inflation, vessels with blobs applied after blowing and left in relief, and, rarest of all, vessels with painted decoration.

In addition to the forms discussed below, the assemblage from Colchester also includes examples of

strip-mosaic and *reticella* cast bowls. These have not been included in the tripartite division of introduction, peak and decline as their floruit had passed before the conquest and they may be regarded as heirlooms.

Forms introduced during Period 1

The most notable form coming into use during this period, and moving into its peak period of use by the later part of it, was the mould-blown sports cup. Other forms which were introduced at this time but which do not peak until the next period include indented and arcaded beakers, shallow cylindrical dishes with tubular rims and bases, jars with collared and with fire-rounded rims, inkwells, small square bottles, and cylindrical bottles.

Forms at the peak of their use during Period 1

This period sees the widest range of pillar-moulded bowl variants in use. Polychrome, strongly-coloured monochrome and blue/green examples were all common, though the first two categories had started to decline by the end of the period. The widest range of other cast forms is also in use at this time. These include polychrome and strongly-coloured monochrome shallow convex and carinated bowls, and the range of cast strongly-coloured monochrome vessels with sharply-defined profiles (Grose 1989, 254). The majority of these were in decline by the end of the period and others, such as the constricted curvilinear cups of Isings Form 2, were probably already in decline by the time of the conquest.

Mould-blown vessels at their peak during this period include hemispherical ribbed cups and, by the later part, sports cups. The commonest free-blown drinking-vessel was the Hofheim cup. The related tall beaker form with wheel-cut decoration was less common, as was the stemmed beaker or *cantharus*. The latter had probably gone into decline by the end of the period. Other relatively common types of tableware include tubular-rimmed bowls in both deep and shallow forms, cylindrical dishes with tubular rims and bases, amphorisks, and jugs with moulded medallions at the base of their handles. Flasks appear to have been the commonest variety of containers and include forms with sheared rims, ovoid flasks with rims folded to form a small triangular profile, and flasks with constricted bodies. The commonest unguent bottle was the tubular form with sheared rim.

Uncommon forms which appear to have been at their peak at this time include *modioli*, *rhyta* and funnels. Bottles with multiple compartments and flasks with constricted cylindrical bodies were also in use.

Forms in decline during Period 1

Some forms that went into decline during the period have been discussed in the previous section. Several variants of pillar-moulded bowls present at Colchester appear to have been almost at the end of their floruits by the time of the conquest. These include the very pale green, almost decolourised bowls, bowls with wheel-cut lines around the inside of the rim, shallow

bowls of Isings Form 3C, and possibly also the very rare variant without ribs on the exterior. Small ribbed cups with opaque white marvered trails (*zarte Rippenschalen*) were also in decline.

Period 2: AD 60/1 -c 100

[Fig 13.2]

During this period the already relatively small proportion of vessels in use made by casting techniques declines further until by the end of the century the proportion is negligible. Mould-blown beakers and cups also disappear by the end of the century. The most fundamental change in the composition of the vessel-glass assemblage, however, is connected with the colour of the glass. During this period, brightly-coloured monochrome and polychrome vessels decline markedly and instead colourless glass came into favour. True colourless glass is very rare before AD 60/1, but an increasing amount of colourless beakers, cups and bowls is found shortly after. The watershed between brightly-coloured glass and colourless glass occurs about AD 65-70. After this date most brightly-coloured vessels became much less common and they all but disappeared by the end of the century.

Forms introduced during Period 2

The manufacture of cast vessels had almost ceased by AD 60, with the exception of blue/green pillar-moulded bowls and bowls with wide rims and foot rings. The latter form made in colourless glass is the last new cast variety to be made, and came into use during this period. New forms of mould-blown vessels include colourless beakers with indents, and colourless and lightly-tinted vessels with foliage designs. In Britain, mould-blown almond-knobbed beakers came into use early in this period and became relatively common. The form has not been recorded at Colchester, though an unusual mould-blown amphorisk, which is very likely to be contemporary because it is decorated with a similar almond-knobbed pattern, was found in 19th-century excavations.

All of the other new forms are free-blown. Facet-cut beakers with externally-ground surfaces start to be manufactured from very early in this period, and rapidly become one of the dominant drinking-vessel forms of the Flavian period. Other externally ground vessels which came into use at this time include the much rarer form of beaker with relief decoration, and cups, beakers and bowls with ground-out ribs. Colourless cylindrical wheel-cut beakers appear towards the end of the century. Globular and conical jugs of Isings Forms 52 and 55 first appeared early in the late Neronian period and thereafter rapidly became very popular; by the late 1st century they were the most common form of jug in use. Spouted jugs occurred for the first time at Colchester in the form of a variant with a pinched-in spout and a handle attachment decorated with pinched projections. Bath flasks first appeared at the beginning of this period and very

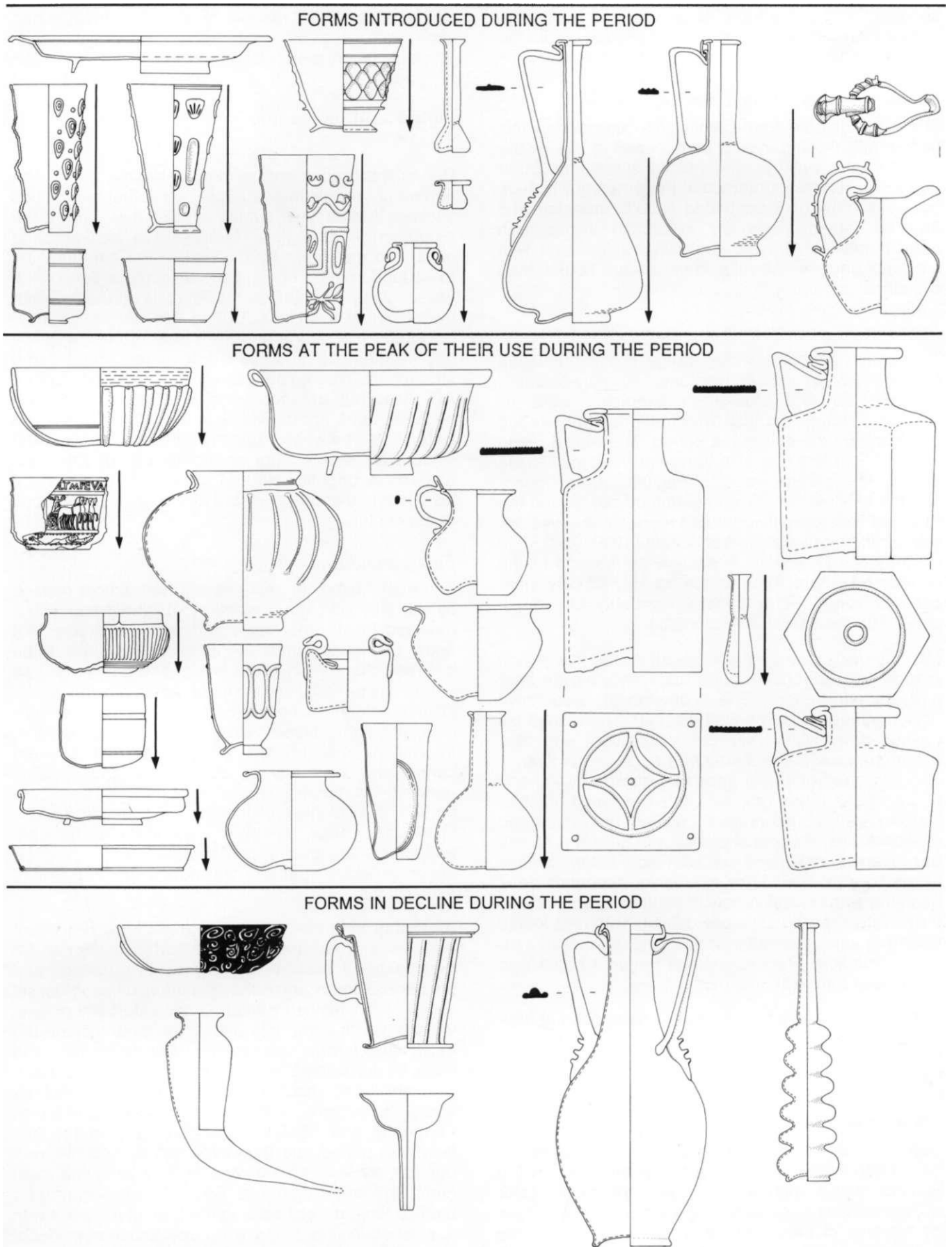


Fig 13.2 Period 2: AD 60/1-c 100. 1:5. [Pages 213-15]

rapidly became extensively used. Other new container forms include small hat-shaped jars, funnel-mouthed jars and, towards the end of the period, conical unguent bottles.

Forms at the peak of their use during Period 2

Several forms at the peak of their use in the pre-Boudican period continued to be very popular in the earlier part of this period but all disappeared from use by the end of it. These include blue/green pillar-moulded bowls, mould-blown hemispherical ribbed cups and sports cups, Hofheim cups, and tubular unguent bottles with sheared rims. A similar pattern is likely for shallow tubular-rimmed bowls, but the deep form was still very popular at the end of the century. Shallow cylindrical dishes with tubular rims and bases were also still in use.

This period sees the use of a wide variety of drinking-vessels. Indented and arcaded beakers which were introduced during the pre-Boudican period continue and, in the case of the indented variety, become common. Facet-cut beakers, as noted in the previous section, became very popular, and other forms present include beakers with wide stepped rims.

The range of jars include collared-rim jars, jars with fire-rounded rims, and jars with out-turned folded rims. Of the last mentioned, examples with complex folding patterns appear to have been commonest at this date. Inkwells were also present. As noted above, the most common jugs of this period were globular and conical jugs of Isings Forms 52 and 55, but another form of jug at its peak at this point and present at Colchester is the short-necked globular jug. The varieties of flasks in use continue to include examples with sheared rims and ovoid flasks with concave bases. On the latter, folded rims with a small triangular profile were replaced by larger folded and flattened rims. Another form of flask in use during this time has a funnel mouth with a rolled rim.

Blue/green square, hexagonal and cylindrical bottles are current throughout this period, increasing in volume towards the end of the century. One form of bottle that might have been at its peak during the Flavian period is a lightly-tinted cylindrical bottle decorated with abraded bands.

Forms in decline during Period 2

The decline of polychrome and strongly-coloured monochrome pillar-moulded bowls becomes marked early in this period. Other forms in the final stages of their floruits at this time include amphorisks, jugs with medallions at the bases of their handles, *modioli*, *rhyta*, funnels, and probably flasks with cylindrical constricted bodies.

Period 3: c AD 100-170

[Fig 13.3]

By the beginning of this period virtually all of the vessels, with the exception of prismatic bottles, are

free blown. The palette of glass colours became more restricted. Most of the bright colours no longer occur and only blue/green, colourless and lightly-tinted glasses are used. The period as a whole sees the diversification of existing forms rather than the introduction of many new ones.

Forms introduced during Period 3

The practice of facet-cutting colourless vessels without grinding all of the exterior to shape developed during the late 1st century or first half of the 2nd century, and at Colchester occurs on facet- and linear-cut hemispherical cups. Other tablewares introduced during this period were bowls with wide stepped rims and, at the very end of the period, colourless cylindrical cups with fire-rounded rims and double ring bases. Discoid unguent bottles came into use at the end of the previous period or the very beginning of this and rapidly became common. Blue/green rectangular bottles also developed during this time.

Forms at the peak of their use during Period 3

The only variety of cast vessel still in relatively common use is the colourless bowl with wide rim and foot ring. The wide range of different types of drinking-vessels disappeared and colourless wheel-cut beakers became dominant. These had first appeared at the end of the previous period. The earliest examples were cylindrical, and by the middle of the century a wide range of different body shapes had developed. Other drinking-vessels in use were ribbed cups and beakers with externally ground surfaces and some indented beakers with funnel mouths.

Deep tubular-rimmed bowls continued in use through much of this period but disappeared towards the end of it, and this pattern is repeated by conical jugs of Isings Form 55. By contrast, collared jars and globular jugs of Isings Form 52, went out of use earlier in the period. The spouted jug variant with a pinched-in spout and a handle attachment decorated with pinched projections has also disappeared by the end of the period.

Container forms which were in use in the previous period and which continued to be current in this one include jars with out-turned folded rims, hat-shaped jars, conical unguent bottles, flasks with funnel mouths and rolled rims, ovoid flasks with folded rims, bath flasks, and blue/green square and hexagonal bottles. Jars with fire-rounded rims, by contrast, apparently disappeared within this period. New container forms include funnel-mouthed jars, jars with vertical necks, and thin-walled small bath flasks.

Forms in decline during Period 3

Facet-cut beakers and the majority of other Flavian drinking-vessels are the most conspicuous forms to disappear in this period. Blue/green cylindrical bottles were also out of use by the middle part of it.

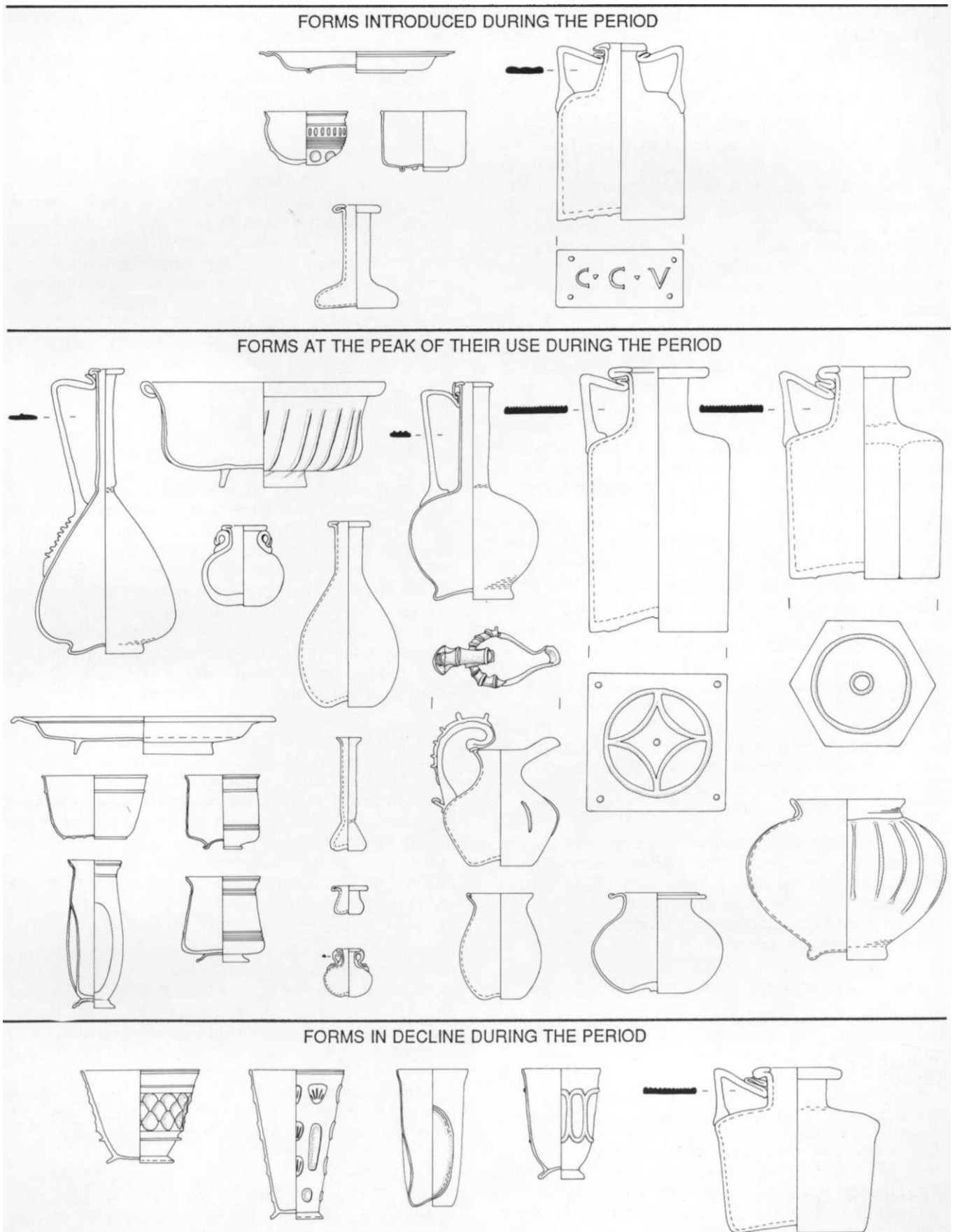


Fig 13.3 Period 3: c AD 100-170. 1:5. [Page 215]

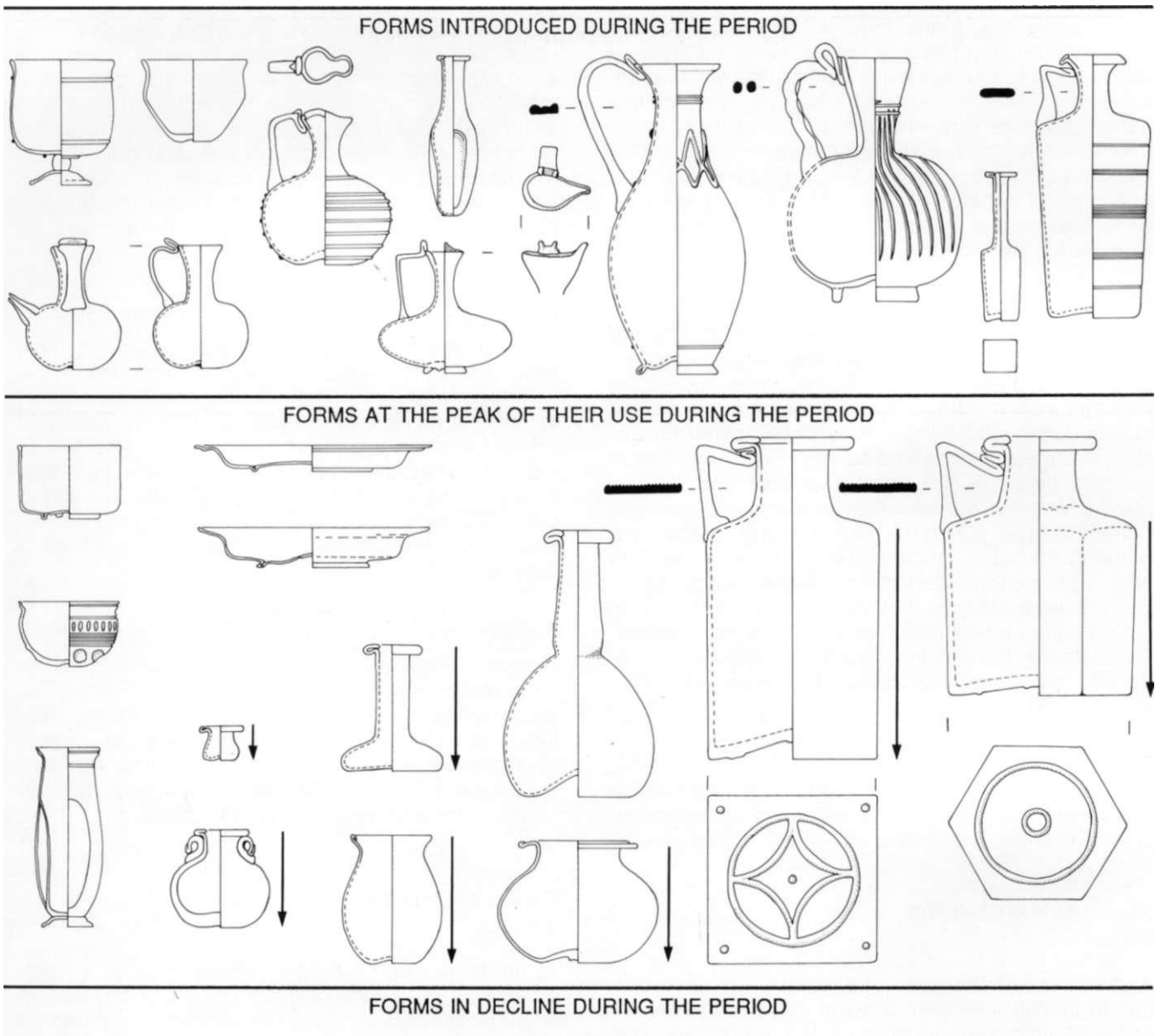


Fig 13.4 Period 4: c AD 170-230. 1:5. [Pages 217-18]

Period 4: c AD 170-230
[Fig 13.4]

After the relative stagnation of the previous period, this one saw a wide range of new forms in common use. The last few cast vessels disappear and all of the assemblage is blown. The palette of colours remains much the same as it had been in the previous period, although there was a small amount of polychrome glass in the form of vessels with snake-thread decoration and, much less commonly, painted scenes. A

notable change during this period is the use of colourless glass for a wider variety of vessels. Previously, colourless glass had been used primarily for drinking-vessels and bowls, but from this period it was also used for jugs, flasks and bottles.

Forms introduced during Period 4

A large number of forms introduced early in this period are also at their peak during it. These forms include stemmed beakers and flasks, spouted jugs with

Chronological overview: Period 4

pronounced pinched-in spouts, spouted jugs with pulled-up spouts, funnel-mouthed jugs with globular and ovoid bodies, Mercury bottles, indented unguent bottles, and colourless cylindrical bottles with wheel-cut decoration. One form which developed during this period, but had a main flourish at a later time, is the hemispherical cup with fire-rounded rim. Ribbed colourless globular jugs and funnel-mouthed jugs with body spouts (tettines or biberons) may have a similar pattern of use. It is also possible that one-handed Frontinus bottles were in use by this period.

Forms at the peak of their use during Period 4

The dominant vessel form during this period is the colourless cylindrical cup with fire-rounded rim and double ring base which appeared at the end of the previous period. Other drinking-vessel forms in use include facet- and linear-cut cups and some colourless indented cups and beakers. Bowls with wide stepped rims are still present at this time, as are plates. Many of the container forms of the previous period continue during this period, though many were probably in decline by the end of it. These include jars with out-turned and folded rims, funnel-mouthed jars, jars with vertical necks, hat-shaped unguent jars, discoid unguent bottles, bath-flasks and prismatic bottles. Ovoid flasks with folded rims continued to be produced, but during this period the base was often sharply kicked.

Forms in decline during Period 4

Colourless wheel-cut beakers disappear very early in this period when they are superseded by cylindrical cups with fire-rounded rims and double ring bases.

Period 5: c AD 230-300

[Fig 13.5]

As with many other types of artefacts, it is often difficult to identify precisely or even closely when forms came into and went out of use in the 3rd century. This is unfortunate as the glass vessels and the glass used to make them present a very different picture by the end of the century from that at the beginning. During this period the palette of glass colours lost the polychrome elements that had made a brief appearance in the previous period. Blue/green, colourless and lightly-tinted greenish glass were used to make the majority of the vessels that can be attributed to the 3rd century, but by its end the type of glass that was to dominate the 4th century (lightly-tinted greenish and bubbly) had already developed.

Forms introduced during Period 5

Several different drinking-vessel forms came into use during this period, including two varieties of hemispherical cup decorated with new styles of facet-cutting. These are cups with geometric patterns and the less common style where circular facets are arranged in rows above each other. Another very uncommon form possibly of this date is the pear-shaped beaker or jar reminiscent of colour-coated

beakers. At the very end of this period, hemispherical cups and conical beakers, both with cracked-off rims, appeared. Two forms of flasks are also introduced during this period. The earlier to emerge, and by far the commoner of the two, is the spherical flask with cylindrical cracked-off rim. The other form is the funnel-mouthed indented flask with foot ring. During the later part of this period, cylindrical bottles and flasks and globular jugs, all with funnel mouths and thick trails below the rim edge, and cylindrical bottles with dolphin handles, became common.

Forms at the peak of their use during Period 5

The commonest drinking-vessel appears to have been the hemispherical cup with fire-rounded rim. A variety of small bowl with horizontal rim is also present at this time. Ribbed colourless globular jugs and funnel-mouthed jugs with body spouts (tettines or biberons) may also have been in use at this time; indented unguent bottles and ovoid flasks with kicked bases certainly were. The presence of one-handed Frontinus bottles in the assemblage is likely but not proven.

Forms in decline during Period 5

Colourless cylindrical cups with double ring bases were still current at the beginning of this period but probably went into decline soon after. Linear- and facet-cut cups, stemmed beakers and flasks, colourless cylindrical wheel-cut bottles, spouted jugs and the related funnel-mouthed forms, and most Mercury bottles, also disappeared during this time.

Period 6: c AD 300-350

[Fig 13.6]

At the beginning of the 4th century there is a major change in the palette of glass colours used. Colourless and blue/green glass, which had dominated for the previous two centuries or more, became much rarer. Instead, the majority of vessels were made of lightly-tinted glass which ranged in colour from greenish colourless to light green and yellowish-green. This glass is frequently characterised by being full of tiny bubbles. Elsewhere in Britain, a small amount of polychrome glass is present in the form of vessels with applied coloured blobs, but these have not been recorded at Colchester.

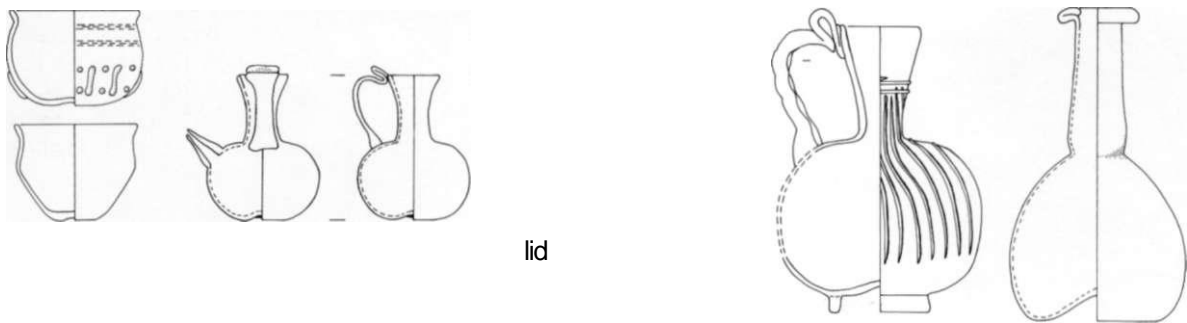
Forms introduced during Period 6

One of the typical jug forms of the 4th century is the carinated funnel-mouthed jug with a thick trail below the rim edge. It developed during this period and rapidly became very popular. Segmented bowls with cracked-off rims also appeared for the first time early in the 4th century. Other forms that may first appear at this time include beakers with high pushed-in feet, indented truncated conical bowls, two-handed Frontinus bottles, and two-handed spherical flasks of Isings Form 129.

FORMS INTRODUCED DURING THE PERIOD



FORMS AT THE PEAK OF THEIR USE DURING THE PERIOD



FORMS IN DECLINE DURING THE PERIOD



Fig 13.5 Period 5: c AD 230-300. 1:5. [Page 218]

Forms at the peak of their use during Period 6

The dominant drinking-vessels are hemispherical cups and conical beakers with cracked-off rims. Similar cups and beakers with fire-rounded rims were certainly in use by the later part of the period. The pear-shaped beaker or jar may still have been current. The principal form of jug has a variety of body shapes but can be characterised by its funnel mouth with a thick trail below the rim edge and also, generally, by a high pushed-in base ring. Spherical flasks with cracked-off rims, funnel-mouthed cylindrical bottles and flasks, and dolphin-handled bottles are still widely used in this period, though the first-mentioned form of

flask may have been in decline by the end of it. It is likely that the unusual form of dolphin-handled bottle with a ribbed hexagonal body developed during the first half of the 4th century. Indented unguent bottles and ovoid flasks with kicked bases may still have been in use.

Forms in decline during Period 6

The funnel-mouthed indented flasks and the cups with geometric facet-cutting and with circular facets in rows were present early in this period but probably disappeared by its end.

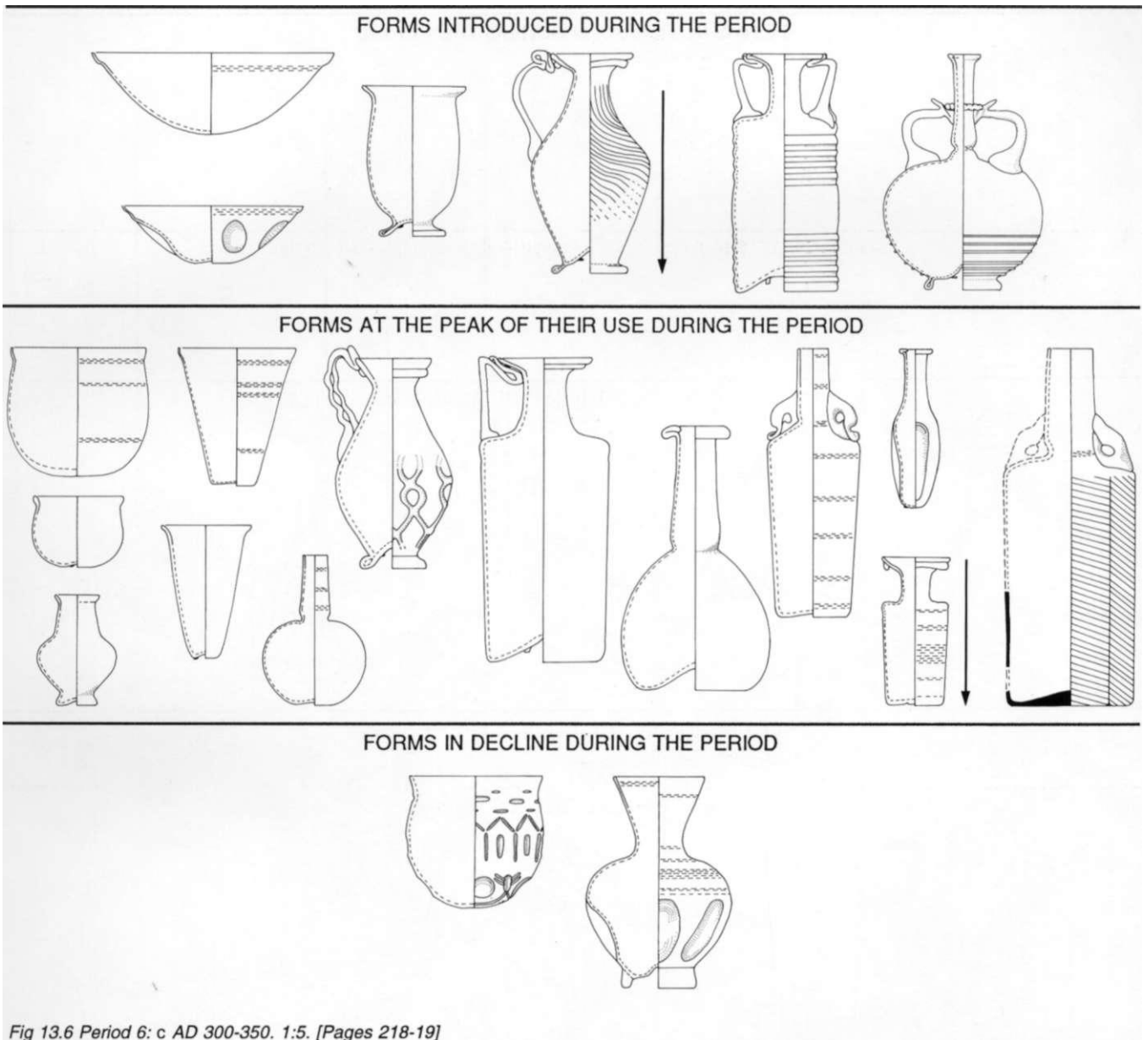


Fig 13.6 Period 6: c AD 300-350. 1:5. [Pages 218-19]

Period 7: c AD 350-400+
[Fig 13.7]

Knowledge of the forms still current during the last part of the 4th century is made difficult because it is hard to identify when vessels in use during the earlier part of the century decline and disappear. Vessels of this date continue to be made from greenish colourless bubbly glass, but it is probable that a higher proportion than before were made in the stronger yellowish green shades.

Forms introduced during Period 7

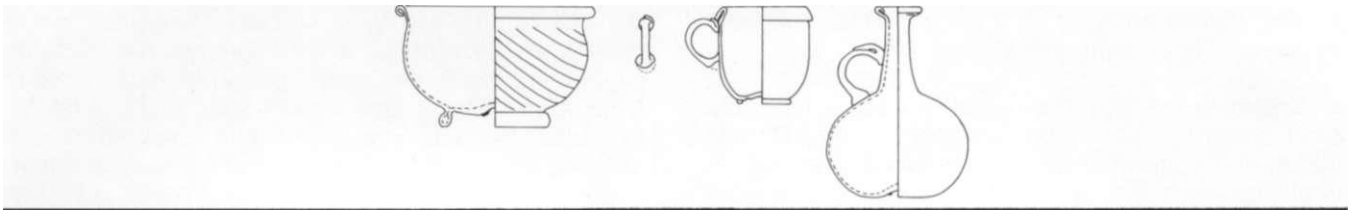
Tubular-rimmed bowls with shallow diagonal ribbing, tubular-rimmed handled cups, and small globular jugs with funnel mouths and rod handles all

appeared for the first time during the later 4th century.

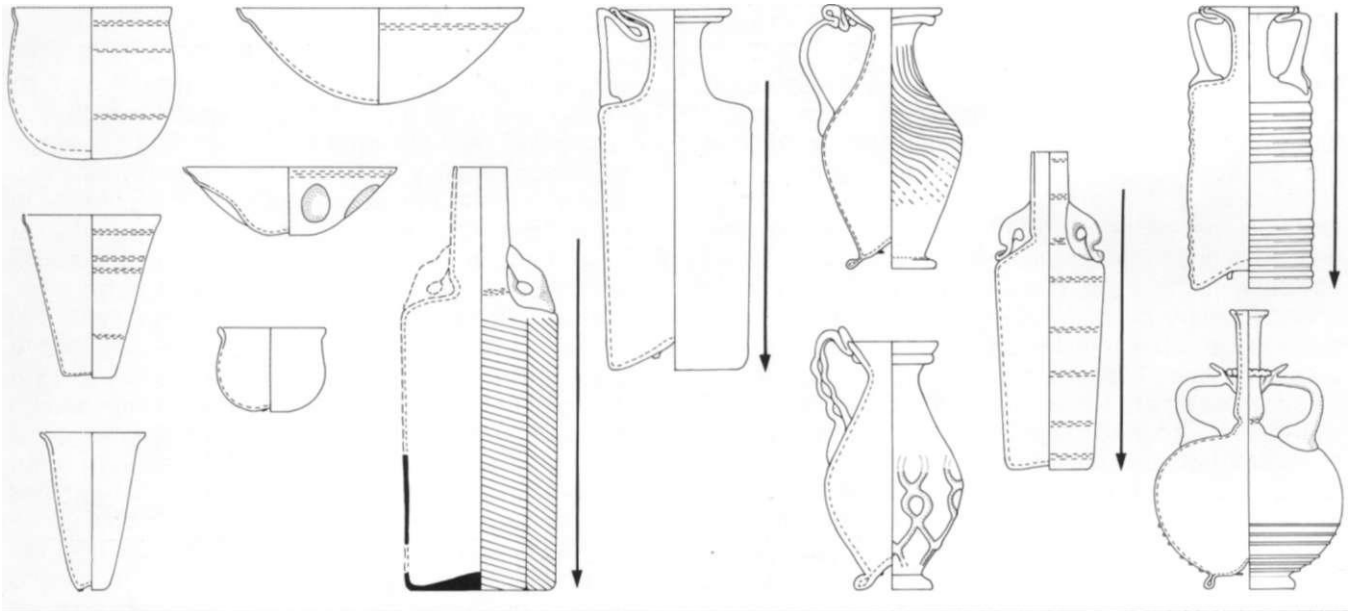
Forms at the peak of their use during Period 7

Hemispherical cups and conical beakers with cracked-off rims continued in use throughout the period, and it is probable that similar forms but with fire-rounded rims became more common as the century progressed. Segmental bowls continued in use, and during this period indented truncated conical bowls and two-handled spherical flasks were at their peak. The principal form of jug continued to be funnel-mouthed with a thick trail below the rim edge and a high pushed-in base ring. Frontinus bottles, funnel-mouthed cylindrical bottles and dolphin-handled bottles were used in the earlier part of this period but seem likely to have disappeared by the end of it.

FORMS INTRODUCED DURING THE PERIOD



FORMS AT THE PEAK OF THEIR USE DURING THE PERIOD



FORMS IN DECLINE DURING THE PERIOD

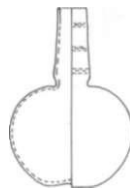


Fig 13.7 Period 7: c AD 350-400+. 1:5. [Pages 220-21]

Forms in decline during Period 7

Spherical flasks with vertical necks probably disappeared early in this period.

Overview of function

[Table 13.1]

The most interesting question to ask about most artefacts, and frequently the most difficult to answer, is what were they used for. This question is rarely asked about glass vessels in any formal way, yet studying the material from this point of view can cast interesting light on the society that was using it. Admittedly, there are problems in attempting to assign

function to the individual types of vessels because of the dearth of contemporary references. The ancient literature contains many references to the use of glass vessels, but these rarely take the form of precise descriptions that would allow function to be assigned to particular types. Pictorial depictions also have to be used with caution. The best occur in wall paintings where, for example, large bowls appear on the screen walls of the second Pompeian style (Ling 1991, 27, fig 25; Naumann-Steckner 1991, 87) and a more varied suite of vessels occurs in the still-life elements of the fourth Pompeian style (Ling 1991, 156, figs 162 & 167; Naumann-Steckner 1991, 94). The vessels are present in the paintings, however, because the artists appear to have liked the visual contrasts that were possible when glass vessels were depicted. They may

Overview of function

not be any more reliable an indication of how the vessels were used than 17th-century still-life paintings (such as Haak 1984, figs 230-36) are a reliable guide to the appearance of the dining-tables of contemporary Dutch men and women.

In assigning function it is useful first to consider the uses recorded for glass vessels in the Roman literature. These may be summarised as vessels for drinking, vessels for serving wine, vessels for displaying food at the table, vessels for preserving and storing food, and vessels for storing perfumes, medicines and wine (Trowbridge 1930, 155ff). These functions obviously fall into two categories, that is, tablewares and containers. Thus the vessels that exist must be considered in the light of these two basic functions which to a certain extent dictate the shape of the vessel.

Drinking-vessels need to be open vessels; the rims can be slightly curved in or out or vertical, but they obviously cannot be markedly curved, elaborately folded or very wide. Vessels for serving food also need to be open, but here the rim formation is not critical because it does not have to go in the mouth. The easiest way to serve liquid is from a closed vessel with either a pouring-spout or a long constricted neck to control the flow. It is possible to use open vessels to serve liquid, as the modern punch-bowl shows, but to be successful the vessel needs to be large in order to hold sufficient servings of the liquid and deep enough to be used in conjunction with a ladle. If a vessel is intended to be used for storage, it is reasonable to suppose that it can be easily provided with a lid or stopper to keep the contents uncontaminated and secure. Some form of closed vessel is best for this, the basic type depending on whether the contents are to be liquid or solid. Liquids can be stored in vessels with long constricted necks, whereas solids clearly require wider-necked vessels. If the assumption is made that containers are likely to be more utilitarian than tablewares, it can be suggested that they are more likely to be made of naturally-coloured glass than of deliberately de-colourised or coloured glass, and that decoration will be unlikely.

Using these criteria it is possible to group individual types or forms of vessels into classes likely to be associated with different functions. To a certain extent this has already been done in choosing to divide the material into broad vessel categories. In Chapter 1 the definition of the seven major divisions of vessels used in this volume was given (pp 8-9). Cups, beakers and bowls were defined as open vessels, and jars, jugs, flasks and bottles as closed vessels. Cups and beakers were considered to be drinking-vessels, and bowls were thought unlikely to serve this purpose because of their size and/or rim formation. Bowls are more likely to have been connected with the serving and presentation of food, though a notable exception here may be indented truncated conical bowls which could have served as drinking-vessels. None of the glass-bowl forms found seem large or deep enough to

have served as a serving-bowl for liquids. Many of the vessels identified as jugs are either deliberately coloured or de-colourised and/or decorated. It seems reasonable, therefore, to consider that they were tablewares. Most of the jars, by contrast, are made of blue/green glass and were probably undecorated. Notable exceptions are ribbed collared jars of Isings Form 67c, which are often both decorated and deliberately coloured, and a small number of other brightly-coloured individual examples. These are likely to be tablewares, whereas the rest of the jar forms should probably be seen as containers, most likely for solids or semi-solids.

Assigning function to flasks and bottles is not so straightforward but has to be considered for each type individually. Thus blue/green prismatic and cylindrical bottles are certainly containers. Indeed they may illustrate one of the rare occasions when it is possible to connect a description in the literature with a particular vessel form. In *De Rei Rustics* (12.4-5), Columella discusses the types of vessel that need to be available for storing preserves and specifies that these can be made of earthenware or glass. He goes on to give advice on shape: 'Great care ought to be taken in the making of these vessels that they have a wide mouth and that they are of the same width right down to the bottom and not shaped like wine jars, so that, when the preserved food is removed for use, what remains may be pressed with equal weight to the bottom, since the food is kept fresh when it does not float on the surface but is always covered by liquid.' With the wide range of neck-aperture size seen in the blue/green bottles, some could have been used in this way to store solids, and some with narrower necks would have been suitable for liquids. Frontinus bottles by contrast would only have been suitable for use as liquid containers. Wheel-cut cylindrical bottles, funnel-mouthed bottles and dolphin-handled bottles, on the other hand, seem more likely to be tablewares because they are decorated and sometimes de-colourised. Ovoid flasks, bath-flasks, and the small flasks termed unguent bottles in this report are all likely to be containers, whereas amphorisks, spherical flasks with cracked-off rims, and indented flasks are more likely to be tablewares because of their colour or decoration.

The vessel types found at Colchester can thus be assigned to one of six basic classes. These are: drinking-vessels, vessels associated with the presentation of food at table, vessels associated with the serving of liquid at table, vessel forms that could have been associated with the storage of both solid and liquid substances, and vessels that could only have been used for the storage of liquids. The unusual types of vessel that fit into none of these categories, such as inkwells and *modioli*, constitute class six.

Table 13.1 represents an attempt to summarise the resulting information and to give a clear picture of the forms that contributed significantly to the overall assemblage at any one period. The main vessel forms identified in each of the seven periods defined on

Table 13.1 Numbers of vessel forms grouped by likely function in use during the Roman period at Colchester. [Pages 222-3]

Period	drinking-vessels	food-presentation vessels	liquid-serving vessels	storage vessels for liquid or solid	storage vessels for liquid	other	Total number of forms
1 AD c 43-60/1	5	5	3	-	5	2	20
2 AD 60/1-c 100	6	5	4	3	5	1	24
3 c AD 100-170	3	2	4	5	5	-	19
4 cAD 170-230	4	2	3	5	5	-	19
5 c AD 230-300	2	1	4	-	3	-	10
6 c AD 300-350	4	1	5	-	1	-	11
7 c AD 350-400+	4	2	4	-	1	1	12

page 211 have been assigned to one of the six classes. In order to provide the clearest picture, the vessel forms considered are those that have been identified on pages 211-21 as being either at the peak of their use or as being introduced within the period and then becoming rapidly more popular. The table shows the number of different forms in each class for each period. For the purpose of this table, different variants of the same basic type have been counted as one form. Thus all pillar-moulded bowls are regarded as one form, and all colourless wheel-cut beakers as another.

The first thing that is very noticeable about this table is that there are far fewer individual forms present from the mid 3rd century onwards. As already noted, 3rd-century material is often difficult to identify, so it is possible that some forms such as blue/green bottles, jars and bath flasks may have continued in use into Period 5. The total number of forms could, therefore, be increased during the mid-to-late 3rd century, but the 4th-century figures do accurately reflect the smaller range of vessels in use. The second striking feature is the apparent absence of vessels suitable for the storage of solids or liquids (wide-mouthed bottles and jars) from Periods 1 and 5-7. As already noted, their presence could be extended into Period 5. Equally, because the table only considers forms at the peak of their use, it is possible that individual examples of vessel forms for the storage of solids or

liquids may have been present in Period 1. Even with these caveats, however, this class of vessel does appear to have a more limited life than the other classes.

It will also be apparent that the number of forms in each class does not remain constant through time, and this does not appear to be the result of the overall decline in numbers of forms in use from Period 5. If that were so, a decline in the numbers in each class proportionate to the overall decline could be expected. In Periods 1 and 2, for example, individual forms of vessels associated with the presentation and serving of food comprise approximately a quarter of all the forms, whereas from Period 3 onwards, they represent only a tenth. Similarly, in Periods 6 and 7, vessels associated with the serving of liquids comprise a much higher proportion than they did in the earlier periods.

The diversity of a class measured by the number of different forms in it does not have a direct bearing on how important that class was at a particular time. That has to be judged by the abundance of individual vessels assignable to that class at that period. What the patterns seen in Table 13.1 do suggest, however, is that the functions which glass vessels served may have varied with time. In Chapter 15 this will be examined in more detail in the light of the numbers of vessels recovered during the excavations.

CHAPTER 14: The origins of the glass vessels in use in Roman Colchester

Introduction

The identification of the places of manufacture of the Roman glass vessels found at Colchester would be useful, as this would add to our knowledge of the town's trading connections and our understanding of its economy. Unfortunately, identifying the origin of any Roman glass vessel is a difficult, if not impossible, task. Relatively few glass-houses have been found, given the number of vessels in use, and it is frequently difficult to recognise the forms being made even at a glass-working site itself. This is because any vessel which becomes spoilt during manufacture will, under most circumstances, be re-melted and used as cullet. The situation is thus very different from that at a pottery kiln, where all the spoilt vessels have to be thrown away. Pottery wasters remain at the site and can thus be used to identify the products of the kiln; most types of Roman pottery can be studied in relation to a known point of origin. This is not an option available in the study of Roman glass. Nor is it possible to invoke the help of chemical analysis to help provenance glass. As will be apparent from Appendix 1 (pp 261-306), the chemistry of glass is very complex, and at present there is no satisfactory way of relating a particular composition to a particular area. The other types of evidence available to investigate the Roman glass industry fall into three broad categories. These are: information from literary and epigraphic sources, information from the vessel types themselves, and the evidence from glass-working sites. Taken together, they can suggest the pattern of supply to a site.

The evidence from literary sources

There are two types of evidence from literary and epigraphic sources which may be termed direct and indirect. The direct sources are those in classical texts and on inscriptions which specifically mention glass-making centres; the indirect sources are the majority of the words and names on glass vessels themselves which may refer to the makers or provide abbreviations of the names of possible places of manufacture. Neither is very informative.

The references to manufacturing sites in classical sources are meagre and imprecise. From a passage in Strabo it is clear that the manufacture of glass vessels in Rome was established during the Augustan period: and at Rome, also, it is said that many discoveries are made both for producing the colours and for facility in manufacture, as, for example, in the case of glassware, where one can buy a glass beaker

or drinking-cup for a copper...' (*Geography* 16.2.25). The same author also refers to glass-makers at Alexandria (*Geography* 16.7.56). Pliny, writing in the late Neronian or early Flavian period, refers to glass-making at Sidon in the Lebanon, Campania, Spain and Gaul (*Natural History* 36.193-4). The Flavian poet Martial refers several times in a more general way to glass vessels being products of the Nile (*Epigrams* 11.11, 12.7, & 14.115; see also Trowbridge 1930, 128-9). The only reference to the import of glass into Britain is made by Strabo (*Geography* 4.5.3).

There are no references in classical literature to manufacture in Germany or Britain. Epigraphic sources are also of little help. The only evidence of this type in the western provinces is the tombstone of Julius Alexander found at Lyons dated to c AD 200. This describes him as a citizen of Carthage and *opifici artis vitriae* (*CIL* 13.1.1.2000; Foy & Sennequier 1989, 61 no 8).

In the preceding chapters, reference has been made to the practice of moulding or impressing names, or letters which could stand for names, onto the bottom of unguent and other bottles. These names and letters presumably refer to the manufacturer of the vessel or its contents. The inclusion of a place as well as a name, such as the base-mark reading 'of Paulinos the Antiochean' in Greek characters on a square bottle of unknown provenance (Barag 1987, 109, figs 1-3), is rare. The rectangular bottles found at Linz, which record that they were made by Sentia Secunda of Aquileia, are exceptional, not only in giving the place of manufacture of the vessels but in specifying on one example that Sentia Secunda was the manufacturer (Harden 1970b, 73, pi 4B; Noll 1949, 29, figs 71-3).

The copy of Diocletian's price edict of AD 301, which is in an inscription at Aphrodisias, retains a section which deals with glass. This refers to *Vitri Alexandrini*, which is the most expensive, and *Vitri Iudaici*. Barag's interpretation (1987, 115) that these are generic names for different types of glass, possibly referring to colourless and naturally coloured, is more persuasive than Charlesworth's assertion (1973b, 108-9) that the glass referred to came from Alexandria and Judea.

It has been argued that some letter combinations on prismatic bottles are abbreviations of the names of their places of manufacture. Köln has been suggested as the origin of bottles with the letters CCAA, on the grounds that the full name of the city was *Colonia Claudia Ara Agrippinensium* (Fremersdorf 1965-6, 29, Taf 10.2). Similarly, Colchester itself has been suggested as the source of bottles with the letters CCV,

on the assumption that the full name of the town was *Colonia Claudia Victricensis* (Price 1978, 70). The latter attribution has, however, been questioned recently as the title *Claudia* is not directly attested as part of the name of the town, and instead it is suggested that the letters may stand for an abbreviation of the *tria nomina* of an individual (*RIB* II, 2, 110 no 2419.96). (See Painter 1963 for a discussion of the various forms of the name of the colony.)

The evidence of the vessels

A fruitful avenue of investigation is the study of the distribution of all examples of the vessel types found in Britain, including those found elsewhere in the Empire, as this can reveal changing patterns of supply. As with all studies based on the distribution of artefacts, it will be distorted by the varying levels of archaeological activity in different areas, but as a broad picture it is informative.

The most obvious difference is between the vessels in use during the Claudio-Neronian period and those in use by the Trajanic period. The early vessels frequently have very wide distributions; pillar-moulded bowls and Hofheim cups illustrate this very well. The former are found throughout the Empire and beyond, and the latter come from sites as widely separated as Inchtuthill and Masada. Other forms have a slightly more restricted distribution. Cylindrical circus cups, for example, are found only in the western and north-western provinces. Some of the forms introduced during the late Neronian period also have very wide distributions, most notably facet-cut beakers and cast colourless bowls, but as the century progresses many of the new forms have far more restricted distributions and are concentrated in the area of Britain, the Rhineland, Belgium and northern France. This pattern of distribution in the north-western provinces then continues throughout the rest of the Roman period for most vessels found in Britain. The difference between the two basic distributions will be appreciated if comparison is made between the distribution maps in Price 1978 and Rutti 1988. (Additional vessels could now be added to the maps of the former, but the broad pattern is still correct.) The early patterns are shown by painted Hofheim cups (Rutti 1988, Abb 32) and by cylindrical mould-blown sports cups (Price 1978, fig 54). The later pattern is indicated by various 2nd-century or later cups, bowls and bottles (Price 1978, figs 58-61).

These patterns are consistent with a model in which Britain and the other north-western provinces are first supplied with glass vessels from the Mediterranean area, but establish their own industries by the end of the 1st century. The source of many of the early vessels is likely to have been Italy itself, as the end of the 1st century BC and the early decades of the 1st century AD was a period in which Italy was at the peak of its manufacturing output (Potter 1987, 161). The locations of most of the glass-houses are unknown although, if it is accepted that a

concentration of a type is likely to occur close to its manufacturing-centre, many of the different forms of early blown polychrome glass and some of the mould-blown vessels may have had their sources in the region of northern Italy and Switzerland, perhaps at Aquileia, or elsewhere. Glass-houses were clearly established north and west of the Alps in the early-to-mid 1st century. It is not known if these were permanent establishments or, as has been suggested to explain the distribution of certain types of mould-blown vessels (p 43), the result of itinerant glass-blowers visiting different centres of population. This expansion of the glass industry to the north forms part of a more widespread change that is probably best documented in the pottery supply. The pre-eminence of Italy as a supplier of finished goods to the provinces declined as the industries supplying the lucrative frontier areas moved closer to their markets.

The majority of the vessels found in Britain are very similar to those from the Rhineland, Belgium, and northern France, and it is only rarely possible to tell, on typology alone, where a vessel was made within the north-western provinces. Sometimes a group of vessels is so distinctive that it is possible to suggest that they came from the same source. One example of this phenomenon is the group of small square bottles with the base mark of a diagonal cross with pellets. One such vessel was found at Colchester. They were in use during the mid 2nd century and have all been found in the Essex, Middlesex and Kent area, suggesting a trading pattern covering a relatively small area (Price 1987a, 197 figs 4.33-4). In the same way, a few very distinctive types are found which appear to have few if any parallels in the other north-western provinces, and it seems reasonable to suggest that they are of British origin. Two late 4th-century vessel types are examples of this. One is the small globular jug with rod handle represented here by **1164**, and the other is the small handled cup represented at Colchester by a grave find (May 1930, 280, pi 87; Hull Grave 96).

It seems unlikely that many glass vessels were imported from sources beyond the north-western provinces after the 1st century, except as personal possessions. Each region of the Empire developed its own distinctive styles of vessels, which can be identified relatively easily when they appear in the assemblages from another region. In Britain, examples include fragments from Piercebridge and The Park, Lincoln (both unpublished), which are from vessels with the form of snake-thread decoration that is not characteristic of the north-western provinces, and for which an eastern origin has been claimed (Barag 1969), but such discoveries are very rare. In the archaeological literature, polychrome glass of the 1st century and good-quality colourless glass of 2nd- or 3rd-century date found on British sites are sometimes claimed to be of Alexandrian origin (see for example Harden 1970b, 48 and Charlesworth 1982b, 183 no 1, fig 32). There seem to be no good grounds for such claims, and such statements should be viewed with great caution.

The evidence of glass-working sites

A growing body of evidence from glass-working sites in Britain now makes it possible to start developing a model of how the industry might have functioned in Britain, though it must be stressed again that it is not possible to attribute particular vessels to particular sources.

Waste, which includes moiles and is thus associated with the blowing of vessels (Price & Cool 1991), has been found at London (Bayley & Shepherd 1985, 72; Shepherd 1986a, 142 & 144 notes 53-4), and Mancetter, Leicester, Wroxeter and Worcester (all unpublished). At Colchester, similar material has been found at Sheepen (Harden 1970b, 51 note 39; Allen 1983, 772) and in the town centre (2265-2274). The material from Mancetter and Blue Boar Lane, Leicester was *in situ*, as it was found associated with a furnace and, though furnaces were not found at Wroxeter or at Sheepen, it is likely that the material was found close to the glass-blowing site in each case. The other groups of material were not directly associated with furnaces and had been redeposited. Two early discoveries of glass furnaces are recorded at the Fleet Ditch, London by John Conyers in the 17th century (Burnby 1984, 68), and at Castor, Water Newton (Artis 1828, pi 25.4-5) which was originally interpreted as an oven for glazing pottery. Other sites which have produced evidence for glass-working though not necessarily for glass-blowing include Coppergate, York (prepared frit and crucible fragments; Bayley 1987, 249 & 254), the General Accident site, Tanner Row, York (partially-melted cullet; unpublished), Silchester (furnace and crucible fragments; Boon 1974, 280), Verulamium (crucibles; Frere 1984, 107 nos 3-5, fig 46) and Caistor by Norwich (tank furnace; Atkinson 1932, 109-110, pi 5A). Furnaces have also been recorded at Wilderspool (May 1904, 37-58), but their status is open to question as none are recorded as being directly associated with melted glass, though the glass assemblage does contain very bubbly base fragments which might be from wasters and material that might be partially-melted cullet.

The earliest of the glass-blowing assemblages is that from Watling Street in the City of London, where a group of body fragments thought to be cullet and waste fragments, including cylindrical and lid-like moiles (see 2265-2266), was found in a pit together with a group of Neronian/early Flavian pottery. The pit was sealed below the make-up of Flavian buildings and is thus securely dated to the early Flavian period (Shepherd 1986a, 142-3). Another early industry is indicated by the redeposited lid-like moile found at Culver Street (2265), as it was found in a context dated to c AD 65/80-150. The stratigraphic position of the furnace at Mancetter indicated that it was of mid 2nd-century date or later, but typologically the cullet suggested that activity was unlikely to be much later than the mid 2nd century. A re-assessment of the Verulamium crucibles by Bayley (1991, 5) suggests

they are of mid 2nd-century date. A group of furnace material, pot-metal and cylindrical moiles from the innermost ward of the Tower of London was found incorporated in the internal rampart of the city wall dated to c AD 200 (Bayley & Shepherd 1985, 72). The earliest evidence of glass-blowing at Worcester was stratified in a context dated to between AD 120 and 240, but the activity is likely to have taken place towards the end of that period, as 3rd-century forms of black burnished flanged bowls were utilised as crucibles. The dating of the context in which the waste from Leicester was found is most likely to be of later 3rd-century date.

Physical evidence for the production of glass vessels in Britain therefore stretches from the early Flavian period to at least the late 3rd century. At present the number of groups of material is still relatively small, but sufficient to suggest that the manufacture of glass vessels may have been widespread throughout Britain. At all the sites, the majority of production appears to be in blue/green glass, but at each place there is some evidence that colourless glass was also being worked. This indicates that the British industries were not only concerned with the production of utilitarian containers but also with tablewares. Only at Mancetter were wasters found which could suggest which vessel forms were being made. These included jars with collared rims, jars with funnel mouths, and some form of vessel with a foot ring. At Leicester, a type of waste thought to be associated with the production of vessels with handles formed a significant proportion of the assemblage (see **2271-2273**), suggesting the manufacture of jugs or bottles. Lid-like moiles are associated with the production of cups, beakers or bowls, which suggests that these were amongst the products of the industries creating the waste found at Culver Street in Colchester and Watling Street, London.

It is noticeable that the glass furnaces so far recorded in Roman Britain are often located amongst the working-sites of other high-temperature industries. At Mancetter, Castor and Sheepen the furnaces were in areas of pottery kilns, and the waste at Worcester was found in an area where iron-working was being carried out on a large scale. This is probably not fortuitous. Glass production needs good supplies of raw materials and fuel, and access to a market, and the two last-mentioned factors will certainly have been available at most sites of pottery production. Study of the glass-working assemblages found in Britain suggests that the main raw material being used was probably cullet. Access to a market for the finished goods would also have provided a conduit by which the glass-blowers could have obtained their raw material. It is thus possible to suggest a model for the production of glass vessels in Roman Britain, which includes many small-scale industries associated with pottery industries each with its own local markets, rather than glass industries located close to supplies of sand suitable for glass production.

The supply of glass vessels to Colchester

It is clear from the discussions in the previous sections that the sources of supply to Colchester must have varied during the Roman period. Clearly, at the time of the conquest and for the succeeding two or three decades, the bulk of the vessels will have originated in the Mediterranean area. As the northern industries developed, during the 1st century, a higher proportion of the vessels came from these regional sources. On the evidence from Watling Street, London, at least one glass-production centre was active in Britain by the early Flavian period, and the evidence of the Culver Street *moile* (2265) suggests that another was active in Colchester itself by the late 1st or early 2nd century. By early in the 2nd century at the latest, therefore, it is likely that Colchester would have been supplied with glass produced by local centres, by centres further afield in the province, and almost certainly by imports from the Rhineland, Belgium, and the northern France area.

It is not known how early in the 1st century vessels were made at Colchester, but the conditions existed for the demand for a glass-making industry to have been present at an early stage. The establishment of early pottery industries to satisfy large military contracts is well attested, and was probably done under official control. At Colchester this included the production of fine-ware beakers as well as more utilitarian vessels. At a legionary fortress there would also have been a considerable demand for glass vessels. While not suggesting that official glass-houses were established in the same way as legionary potteries appear to have been, it is however possible to envisage that a legionary fortress with other high-temperature industries taking place in the vicinity would have been an attractive location for a glass-worker. Two of the pre-requisites defined in the previous section as being

essential for the establishment of an industry, that is, fuel and a market, would have been present. The third, ie raw materials, would have presented a greater problem as a regular supply of cullet is unlikely to have been organised at that stage, but use might have been made of glass ingots (*cf* 2269). In Chapter 3 it was suggested that one model for the production of early mould-blown glass was for itinerant glass-blowers travelling with their moulds to different centres to satisfy local or regional needs. If this occurred, Colchester in the pre-Boudican period would have been one of the most attractive places in the new province for a glass-blower to establish himself.

It will also be clear, from the discussions in the previous sections, that identifying the proportion of the vessel-glass assemblage which was imported as opposed to locally made at any one time is a matter of conjecture and guess-work, as is identification of the origin of the imports. It may well be that the proportion of vessels from British sources increased during the later Roman period as a fully developed economy was established. The much better-documented supply of pottery vessels certainly followed this pattern (Millett 1990, 159-64). The import of vessels from continental glass-houses throughout the 2nd to 4th centuries is indicated by the discovery in Britain of distinctive forms which have their greatest concentrations elsewhere. These include the snake-thread vessels of the later 2nd and early 3rd century, Frontinus bottles of the 3rd and 4th centuries, and the mid 4th-century bowls with various distinctive forms of figure-cutting. The production centres of vessels appear to have varied. The middle and lower Rhineland can be accepted as the source of such varieties as snake-thread glass and the late figure-cut bowls, but Frontinus bottles and several other late imports seem more likely to have come from northern France and Belgium (Price 1978, 74-7).

CHAPTER 15: The vessel-glass assemblages from the sites

Introduction

To conclude this study of the vessel glass from the 1971-85 excavations at Colchester, the assemblages recovered at each site have been summarised to facilitate future synthesis and comparison with other categories of finds from the same sites. Such summaries will also make it possible to examine in more detail the suggestion, made on page 223, that the functions of the vessels differed through time. Detailed comparisons of the vessel-glass assemblages between the sites and different parts of individual sites have not been attempted here, as this will best be done within the context of the total finds assemblage.

Tables 1.2 (p 10) and 1.4 (p 11) in Chapter 1 summarise the fragments of each colour and manufacturing method according to the site and the date of the contexts from which they came. Table 1.4 immediately highlights a problem which limits the questions that may be asked of these assemblages. In columns 1-8, fragments from vessels that are likely to have gone out of use by very early in the 2nd century are listed, yet it can be seen that these were frequently recovered from contexts of later 2nd-, 3rd- or 4th-century date. Table 1.2 shows that the assemblages from Culver Street, Balcerne Lane, Lion Walk and the Gilbert School all have relatively large numbers of fragments from vessels in use during the earliest years of the occupation (rows 1, 2, 4, 5, 7 and 8), and in theory it should be possible to examine the assemblages to see if they reflect the different status of each site, which include centurial quarters of the First Cohort at Culver Street, barrack blocks at Lion Walk and the Gilbert School, and workshops and evidence of iron working at Balcerne Lane. In practice this is not possible as less than one per cent of the total assemblage was stratified in military contexts, and this does not provide a sound enough foundation for the construction of hypotheses about the differences between the vessels used by the military and the early colonists on the same site, let alone between the military occupations of the different sites. This is unfortunate, as there are tantalising hints that the status of the sites may have been reflected in the glass assemblage. For example, during the whole campaign of excavations, fragments from only four polychrome cast vessels (other than pillar-moulded bowls) were found (189-192). Three of these were found at Culver Street, one (189) in a Period 1 or 2 context in Barrack Block 3 which, it has been suggested, may have been the quarters of the *primus pilus* (CAR 6, 24), and another (192) in a context of similar date in another of the centurial blocks. The concentration of these vessels on such a high status site may be a coincidence, but this seems unlikely.

From Table 1.2 it will be clear that the excavations at Long Wyre Street, Trinity Street, Castle Gardens, Maldon Road, and on the line of the Inner Relief Road, all produced small assemblages. These will not be considered in any detail here apart from the vessels found as grave goods. The assemblages from the larger sites, with the exception of Butt Road, are each summarised by two tables. Tables 15.1, 15.3, 15.5, 15.7, 15.9 and 15.11 each show the number of fragments from each site found in stratified contexts according to colour and manufacturing methods. Given the nature of the phasing at Butt Road, such a table for that site would add little to the information about the site contained in Table 1.2 and therefore it has been omitted.

The remaining tables (Tables 15.2, 15.4, 15.6, 15.8, 15.10 & 15.12) summarise the assemblages from the same sites according to the dates when the vessels represented would have been in use. The tables follow the pattern established on pages 221-3 where the different individual forms of vessels are allocated to a class according to likely function. In these tables, however, only one row has been allocated to the 4th century, because relatively little 4th-century material was recovered, and because the dates of the contexts rarely distinguish between the early and late 4th century. In drawing up these tables, the aim has been to provide a standardised method of summarising assemblages so that the broad profiles of each can be identified and compared. They make no claim to reflect with great precision the composition of the vessel assemblage in use at any one time.

The tables have been constructed with the aid of the site stratigraphy and the likely life span of each form as defined on pages 211-21. The method of calculating the tables for all forms of vessels other than blue/green bottles is as follows. For each form in an assemblage, the minimum number of vessels represented is calculated (see p 9) and the dates of the contexts in which these were found are inspected. If the fragments came from contexts of dates that fall within the accepted life-span of the form, the minimum numbers are allocated to the periods of use according to the date of the contexts. This will generally not account for all the minimum numbers of a prolific form because of the amount of residuality in the assemblage. The additional vessels are allocated to the different periods according to the proportions established by the fragments that were found in non-residual contexts. If all examples of the form are clearly residual, the minimum numbers are split between the periods at which the form was thought to be at the peak of its use. If this covers two or more periods and there are insufficient examples to place in each, then they are allocated by working progressively

backwards from the latest likely period of use. Blue/green bottles are dealt with differently because their fragments are so numerous. For these, the proportions of fragments found in each period during which they were in use is established and the minimum numbers allocated in proportion.

For comparison, a similar table has been prepared for the assemblage from Butt Road (Table 15.13), though the attribution of the forms has had to rely entirely on the suggested life spans as the stratigraphy does not make any useful contribution.

The domestic sites

[Tables 15.1-15.12]

From the tables it is very obvious that the profiles of the assemblages from Balkerne Lane (Table 15.2), Culver Street (Table 15.4), and Lion Walk (Table 15.6) are

very similar. In all three sites, vessels of each of the six periods can be identified with a very strong presence of mid 1st-century forms and a decline in overall numbers identified from the later 2nd century onwards. There are some small differences to which attention may be drawn, as they may eventually prove to be significant or explicable when judged alongside other categories of finds. It is noticeable, for example, that 1st-century containers are not so well-represented on Balkerne Lane as they are on the other two sites. At Balkerne Lane they comprise 3.8 per cent of the total number of vessels tabulated as opposed to 7 per cent and 9.5 per cent at Lion Walk and Culver Street respectively.

The occurrence of 4th-century material at the sites is also interesting. Lion Walk is the only site where houses appear to have continued in occupation into the 4th century. The houses at Balkerne Lane, by contrast, were demolished in c AD 300 (CAR 3, 18-19), and those at Culver Street between c AD 275 and 325

Table 15.1 Fragments from Roman contexts at Balkerne Lane (for details of site periods, see pp 3-5).

Site period	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1a		-	-		-	-				-	-			-
1b	3			1			1	1	2			27	1	
1	1	-	-	-	-	-	-	1	-	1	-	7	-	-
2	11	-	-	3	3	-	5	2	-	1	3	18	3	-
3	8	1	4	1	3	-	4	2	3	8	1	52	14	-
4a	1	-	-	1	1	-	-	-	-	1	-	14	2	-
4b	1	-	-	-	1	-	-	-	-	1	-	3	1	-
4c	1	-	-	-	-	-	-	-	-	2	1	5	4	-
4d	-	-	-	-	1	-	-	-	-	-	-	-	-	-
4	9	2	2	1	4	-	1	7	-	7	3	43	22	-
5a	3	-	1	-	2	-	1	13	2	10	-	60	13	-
5b	-	12	1	-	1	1	-	18	1	7	49	181	62	-
5c	5	-	-	4	2	-	1	3	2	8	12	140	90	9
5	2	2	-	1	1	-	-	6	2	5	8	40	42	1
6	3	2	-	-	3	-	2	4	4	3	30	145	46	20

Key:

1 — pillar-moulded bowl	6 — green/blue (peacock)	11 — colourless
2 — cast	7 — emerald green	12 — blue/green (vessel)
3 — mould-blown	8 — yellow/brown	13 — blue/green (bottle)
4 — blown polychrome	9 — yellow/green	14 — late greenish colourless
5 — deep blue	10 — pale green	

Table 15.2 Distribution of vessels by function and glass period (p 211) at Balkerne Lane.

Glass period	drinking-vessels	vessels for serving food	vessels for serving liquid	containers for solids or liquids	containers for liquids	other
1	9	21	5	1	-	2
2	16	26	10	1	6	1
3	8	17	6	7	2	-
4	13	-	3	15	1	-
5	1	1	7	14	6	-
6	8	-	6	-	1	-

The domestic sites

Table 15.3 Fragments from Roman contexts at Culver Street (for details of site periods, see pp 3-5).

Site period	1	2	3	4	5	6	7	8	9	10	11	12	13
Site A	1	-	-	-	-	-	-	-	-	-	3	-	-
	2	-	-	-	-	-	-	-	-	-	6	-	-
	3	-	-	-	-	-	-	-	-	-	13	23	-
	4	-	-	-	-	-	-	-	-	-	1	2	-
	5	-	-	-	-	-	-	-	-	5	-	2	-
Sites B/C/J	1	-	-	-	-	-	-	-	-	4	1	-	-
	2	6	17	-	-	-	-	-	-	-	-	-	-
early	3	7	2	-	-	1	3	-	3	-	38	2	-
	3	6	-	4	-	1	9	4	2	3	65	41	-
	4a	3	-	-	-	-	3	-	1	3	20	10	-
	4b	-	-	-	-	-	-	-	1	4	14	21	-
	4c	-	-	-	-	-	-	-	-	5	4	1	-
	4	3	-	-	-	-	7	1	5	19	47	26	2
late	4	-	-	-	-	-	-	-	-	1	3	-	-
	5	-	-	1	-	-	2	-	2	5	17	9	1
Sites D/M	2	1	-	-	-	-	-	-	-	1	2	1	-
	3	5	-	-	-	-	2	-	1	-	11	1	-
	4	4	2	-	-	4	1	-	3	12	34	17	2
	5	-	-	-	-	-	1	-	-	-	4	1	-
Site E	1	2	-	-	-	1	-	-	1	-	5	-	-
	2	5	-	-	-	-	-	1	-	-	51	4	-
	3a	4	-	-	-	1	1	-	3	-	15	2	-
	3b	-	-	-	-	-	-	-	-	-	1	-	-
	3	6	-	-	-	-	1	-	1	-	16	3	2
	4	-	-	-	-	-	-	-	-	-	1	-	-
	5	1	-	-	-	-	-	-	-	-	3	2	-
Sites G/H	1	-	-	-	-	-	-	-	-	-	1	-	-
	2	-	-	-	-	-	-	-	-	-	7	2	-
	3a-b	-	-	-	-	-	-	-	-	1	-	1	-
	3c	-	-	-	-	-	-	-	-	-	1	1	-
	3d	1	1	-	-	6	-	1	7	7	21	12	-
	3	2	4	2	1	-	3	3	6	11	52	32	1
	4	1	-	1	-	1	2	-	5	31	34	35	2
	5	1	1	1	1	-	2	2	5	62	146	73	6
Site K	3a	1	-	-	-	-	-	-	-	-	3	5	-
	3b	1	-	-	-	-	-	-	-	-	5	3	-
	3c	-	-	-	-	1	-	-	-	-	5	-	-
	3	1	-	-	1	-	-	-	-	-	12	2	-
Site W	2	-	-	-	-	-	-	-	-	-	2	-	-
	4	-	-	-	-	-	-	-	-	-	1	-	-

Key:

1 — pillar-moulded bowls	6 — emerald green	10 — colourless
2 — cast	7 — yellow/brown	11 — blue/green (vessel)
3 — mould-blown vessels	8 — yellow/green	12 — blue/green (bottle)
4 — polychrome blown	9 — light green	13 — late greenish colourless
5 — deep blue		

Table 15.4 Distribution of vessels by function and glass period (p 211) at Culver Street.

Glass period	drinking-vessels	vessels for serving food	vessels for serving liquid	container for solids or liquids	containers for liquids	oth(
1	9	15	6	1	5	-
2	22	31	9	9	6	1
3	8	11	7	14	3	-
4	6	-	4	17	3	-
5	10	-	7	5	6	-
6	8	-	2	-	-	-

Table 15.5 Fragments from Roman contexts at Lion Walk (for details of site periods, see pp 3-5).

Site period	1	2	3	4	5	6	7	8	9	10	11	12	13
Sites A/R	1			1			-	-		-	-	3	-
	2	5			1		-	-		-	7	2	-
	3	-	-				-	-		-	1	2	-
	4		-				-		1	1	-	-	-
Site B	1	4	-	-	-	-					2	-	-
	2	-	-				-	1		-	-	1	-
	3	-		12			-	-		-	2	2	-
	4	2	-				-	-		-	5	2	-
	5	-	-				2		1	12	24	25	-
Sites C/Q	1	-	-	-	-	-	-		1	-	-	-	-
	3a	-	-				-	-		-	-	2	-
	3b	1	-				1	-		1	17	7	-
	4	-	2	-	-	2	-	1		3	1	9	7
Sites K/T	2	-	-	-	-	-	-	-		1	9	2	-
	3	-	-		1	1	-	1	1	1	13	7	-
	4a-b	1	-				12		1	1	9	7	2
Sites J/H/P	1	5					-		1	-	14	1	-
	2	6	1	-	-	1	-	5	7	1	54	16	-
	3	1	2	-	1	-	2		3	43	30	5	-
	4a		4							2	28	15	-
	4b	2	-				2		3	3	33	13	-
	4	1	5				7		2	23	26	54	1
	5	-	-				-	-		3	-	1	-
Site L	1	-	-					-		-	1	-	-
	2	-	-			1	-	-		-	-	-	-
	3a	-	-		2		1		1	-	4	-	-
	3b	1	-				-	-		-	3	3	-
	4a	-	-				-	-		-	1	2	-
	4b	-	-				-	-		-	2	3	-
	4(1)	-	-				-	-		-	-	2	-
	4(2)	-	-				-	-	1	1	1	1	-
	4(3)	-	-				-	-		6	1	5	-
	4	-	-				-	-	1	-	-	-	-
Site M	Street 1		-	-	-	-	-			-	4	-	-
	Street 2	-	-				1	-		15	2	-	-
	Street 3	-	-				-	-		-	3	-	-
	Rampart 1a	1	3	-	-	-	1	1		22	14	14	-

Key:

- | | | |
|--------------------------|-------------------|-------------------------------|
| 1 — pillar-moulded bowls | 6 — emerald green | 10 — colourless |
| 2 — cast | 7 — yellow/brown | 11 — blue/green (vessel) |
| 3 — mould-blown | 8 — yellow/green | 12 — blue/green (bottle) |
| 4 — blown polychrome | 9 — pale green | 13 — late greenish colourless |
| 5 — deep blue | | |

Table 15.6 Distribution of vessels by function and glass period (p 211) at Lion Walk.

Glass period	drinking-vessels	vessels for serving food	vessels for serving liquid	containers for solids or liquids	containers for liquids	other
1	6	18	7	2	2	-
2	12	7	7	3	3	1
3	4	14	4	5	2	-
4	7	3	2	7	3	-
5	1	1	3	4	-	-
6	12	-	-	-	1	-

The domestic sites

(CAR 6, 33). Fourth-century vessels occur at all three sites, but in smaller quantities at Culver Street (4 per cent) than at Lion Walk (9 per cent) and Balcerne Lane (7 per cent). This pattern can also be seen in the quantities of fragments made in the greenish bubbly glass of the 4th century from the three sites, as shown in Table 1.2 (p 10). At Culver Street these make up two per cent of the assemblage, whereas at the other two sites the figure is between four and five per cent. The coins also reflect 4th-century activity at Balcerne Lane (CAR 4, 7) after the demolition of the houses, probably connected with the temples and pit digging and dumping, so the presence of 4th-century glass vessels there in quantities comparable to that at Lion Walk is not surprising. What is interesting is the difference in composition of the two 4th-century assemblages. At Balcerne Lane, almost as many vessels connected with serving liquid as drinking-vessels have been found. At Lion Walk the former are absent and this is unlikely to be due to any special circumstances surrounding these excavations. Indeed, it seems reasonable to view the assemblages from Lion Walk as the standard against which others from Colchester can be viewed. N Crummy (CAR 4, 7) has stated that the coin histogram for the site can be regarded as being fairly representative of the residential areas within the walls, given the way it was dug. Reece (CAR 4, 22) has defined Lion Walk as '... a remarkably well-behaved site as judged by coin loss..'

Viewed from the perspective of the presence or absence of individual vessels types of the 1st to the 3rd centuries, the three assemblages are also very similar. This is shown by the many tables in Chapters 2-11 illustrating the distribution of common forms across the various sites. Minor variations include the small concentration of cast polychrome vessels at Culver Street discussed above and the paucity of 1st-century mould-blown vessels at Lion Walk. At Balcerne Lane, Culver Street, and the Gilberd School, the minimum number of such vessels form between 2.5 per cent and 4 per cent (4, 8 and 4 vessels respectively) of the complete assemblage quantified by minimum numbers and in each case the mid 1st-century forms including sports cups were recovered. At Lion Walk, by contrast, only one example (0.6 per cent of the assemblage) was found and this was a colourless Flavian form.

Turning in more detail to the assemblage from the Gilberd School (Table 15.8), a different picture emerges. The 1st-century material is comparable to that from the three larger sites, but with a marked decline from the end of the 1st century. This picture emerges even though the quantity of vessels for Periods 4 and 5 is likely to have been artificially inflated. At this site the stratigraphy provides no help in assigning long-lived container forms during the 2nd and 3rd centuries. In the table they have been allocated proportionately according to the method outlined

Table 15.7 Fragments from Roman contexts at the Gilberd School (for details of site periods, see pp 3-5).

Site period	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	2	-	-	1	-	-	-	1	-	-	-	10	1	-
2	6	-	-	2	-	2	4	2	1	-	-	56	11	-
3a	6	4	-	7	5	1	-	2	-	11	10	48	12	-
3b	2	-	-	-	-	-	-	1	-	2	5	32	10	-
3	2	-	2	-	1	1	-	6	1	1	-	65	20	2
4	1	1	-	-	-	-	-	1	3	4	-	11	7	1

Key:

- | | | |
|-------------------------|-------------------|-------------------------------|
| 1 — pillar-moulded bowl | 6 — deep blue | 11 — colourless |
| 2 — cast | 7 — emerald green | 12 — blue/green (vessel) |
| 3 — mould-blown | 8 — yellow/brown | 13 — blue/green (bottle) |
| 4 — blown polychrome | 9 — yellow/green | 14 — late greenish colourless |
| 5 — purple | 10 — light green | |

Table 15.8 Distribution of vessels by function and glass period (p 211) at the Gilberd School.

Glass period	drinking-vessels	vessels for serving food	vessels for serving liquid	containers for solids or liquids	containers for liquids	other
1	11	12	4	2	4	-
2	13	13	3	3	2	-
3	-	4	4	2	-	-
4	1	-	-	3	-	-
5	-	-	2	5	-	-
6	-	1	-	-	1	-

Table 15.9 Fragments from Roman contexts at Middleborough
(for details of site periods, see pp 3-5).

Site period	1	2	3	4	5
1	-	-	1	9	4
2	-	-	8	4	6
3	2	1	9	6	9

Key:
1 — pillar-moulded bowl **4** — blue/green (vessel)
2 — yellow/brown **5** — blue/green (bottle)
3 — colourless

Table 15.10 Distribution of vessels by function and glass period (p 211) at Middleborough.

Glass period	drinking-vessels	vessels for serving food	vessels for serving liquid	containers for solids or liquids	containers for liquids	other
1	-		-	-	-	-
2		2				
3	3	3	1	4	3	
4	3	-	-	3	-	-
5	5	-	1	5	1	-
6	1	-	-	-	-	-

Table 15.11 Fragments from Roman contexts at the Cups Hotel (for details of site periods, see pp 3-5).

Site period	1	2	3	4	5	6	7	8	9
1	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-
3	-	-	-	-	-	-	3	2	1
4	2	1	1	1	1	12	20	23	22

Key:
1 — pillar-moulded bowl **4** — emerald green **7** — blue/green (vessel)
2 — blown polychrome **5** — yellow/brown **8** — blue/green (bottle)
3 — deep blue **6** — colourless **9** — 4th-century green

Table 15.12 Distribution of vessels by function and glass period (p 211) at the Cups Hotel.

Glass period	drinking-vessels	vessels for serving food	vessels for serving liquid	containers for solids or liquids	containers for liquids	other
1						
2		3		1	1	-
3	1	3		1		
4	3			1		
5	4		1	2		
6	8		1		1	

above, but this automatically weights the distribution towards the later part of the life span of a form. If the more closely-dated forms from this site are studied, a picture emerges of very little use of glass vessels on this site after the Flavian period.

Middleborough (Table 15.10) has virtually no glass that must belong to the 1st or 4th centuries, and the majority of the vessels belong to the 2nd or 3rd century. At the Cups Hotel (Table 15.12), by contrast, 4th-century material is strongly represented and indeed this is the only site where more 4th-century vessels can be identified than vessels for each of the earlier periods. A similar situation is revealed by the non-sepulchral fragments recovered at Butt Road (Table 15.13), although, as already noted, this table has to be viewed with caution because of the lack of pre 4th-century phasing to help guide the allocation of the vessels. As will be seen from Tables 15.12 and 15.13, the 4th-century assemblages at these sites are again dominated by drinking-vessels and thus presents a similar pattern to that at Lion Walk. This serves to emphasise again the unusual nature of the 4th-century assemblage from Balcerne Lane.

The cemeteries

[Tables 15.13-15.14]

The late Roman cemeteries at Butt Road and Maldon Road and in St John's Abbey grounds each had graves that contained deliberately-deposited glass vessels as shown in Table 15.14 (CAR 9, 25, 50-51, 152-4, 243-4, 268, table 8.2). As may be seen from Table 15.14, the types of vessels deposited varied, but the majority were either for serving or for storing liquids. Both vessels found at Maldon Road were utilitarian flasks, while at Butt Road they were bottles (2257, 2259 & 2261), jugs, and a decorated flask (1188) obviously intended for use at table. Drinking-vessels were rare. Two were recovered at Butt Road (553 & 617); the function of the other small open vessel (693) found in that cemetery is uncertain as the horizontal out-turned rim would make this an ungainly vessel to drink out of, and it seems more likely to have been associated with the presentation of food. The function of the unusual pear-shaped vessel from St John's Abbey grounds is unclear, as it could have served as a small flask or as a beaker.

Normally only one vessel was deposited, but three graves have two vessels in each. In Grave 320 the forms of the vessels are unknown because the glass is so badly shattered, but in the other two graves the association is of a drinking-vessel and a vessel for serving liquid at table. In the case of Grave 180, this is a jug, and in that of Grave 693, a decorated flask. The preponderance of vessels for serving or storing liquid in these graves is interesting, given that it is the opposite of the situation that prevails on sites with 4th-century material in the town (see Tables 15.6, 15.8 & 15.12), and amongst the non-sepulchral finds from Butt Road itself (Table 15.13), where in each case drinking-vessels dominate.

Few large, late Roman cemeteries have been excavated in Britain, and so it is difficult to judge whether deposition of the type seen in the Colchester cemeteries is common elsewhere. The only late Romano-British cemetery in Britain that has been fully published is that at Lankhills School, Winchester, and there the types of vessels deposited are approximately evenly divided between drinking-vessels and those for the serving and storing of liquids (Clarke 1979, Grave nos 35, 38, 63, 81, 136, 236, 322, 329, 333, 337, 347, 351-2, 369, 385, 390 & 396). Other large cemeteries where glass vessels were deposited are either known through early and unsystematic finds such as the cemeteries at York (Harden 1962, 140-41), or are still undergoing post-excavation analysis such as the east cemetery in London (Barber *et al* 1990).

In the Colchester cemeteries, relatively few graves contained glass vessels. At Butt Road, for example, eight graves had glass vessels representing only slightly more than 1 per cent of the 685 excavated. A similar pattern is seen at the Lankhills School cemetery. There a slightly higher percentage of graves had glass vessels (approximately 4 per cent), but this still appeared to be the exception rather than the rule. Unlike the situation at Butt Road, no grave at that cemetery had more than one glass vessel, and generally it appears to be very rare in Britain for more than one or two glass vessels to be deposited in a late Roman grave. The discovery of five or six glass beakers with an inhumation at Welford Pastures, Warwickshire (unpublished) is very exceptional and seems to have been connected with an unusual burial

Table 15.13 Distribution of vessels by function and glass period (p 211) at Butt Road.

Glass period	drinking-vessels	vessels for serving food	vessels for serving liquid	containers for solids or liquids	containers for liquids	other
1	-	1	-	-	1	-
2	-	3	3	2	-	-
3	-	1	4	2	-	-
4	-	-	1	2	-	-
5	-	-	1	4	1	-
6	6	-	1	-	2	-

Table 15.14 Glass vessels found with graves at Butt Road (BUC), St John's Abbey grounds (1972; IRB) and Maldon Road (MRC): catalogue numbers in bold.

Site and context	Catalogue number	drinking-vessels	vessels for serving food	vessels for serving liquid	containers for liquid	unidentified	CAR 9 page refs
BUC Grave 15	1164	-	-	1	-	-	153
BUC Grave 100	693	-	1	-	-	-	50-51
BUC Grave 132	2257	-	-	-	1	?	153-4
BUC Grave 174	2259	-	-	-	1	-	154
BUC Grave 180	553	1	-	-	-	-	154
	1160	-	-	1	-	-	
BUC Grave 320	-	-	-	-	-	2	154
BUC Grave 620	2261	-	-	-	1	-	154
BUC Grave 693	617	1	-	-	-	-	25
	1188	?	-	1	-	-	
IRB F78	860	-	1	-	-	-	213
MRC F8	1176	-	-	-	1	-	243
MRC F12	1252	-	-	-	1	-	243-4

rite. As will be clear from the detailed discussions of the individual vessels, most of the forms found in the Colchester graves have also been found in late Roman graves elsewhere in Britain. Whether any significance can be attached to the deposition of one form or class of vessel in a grave rather than another, can only be judged within the context of the grave itself and is thus beyond the scope of this volume.

The pattern of glass use

[Table 15.15]

In Chapter 13, the likely function of the vessels was examined, and the forms in use in Colchester were summarised according to function and date. From this, various patterns emerged suggesting that the primary functions of glass vessels may have changed with time. Having summarised the assemblages from the sites, it is now possible to investigate this suggestion further by examining the actual numbers of vessels which may be assigned to each class at each period. Table 15.15 is the result of amalgamating Tables 15.2, 15.4, 15.6, 15.8, 15.10 and 15.12, and expressing the minimum number of vessels attributed to each class for each period as a percentage of the total minimum number of vessels for each period. The data have been standardised in this way because, for various reasons unconnected with the way in which vessels were actually used on the sites during the Roman periods, higher totals can be expected in some periods rather than others. The Boudican uprising and the destruction deposits associated with it have the effect of inflating

the volume of finds for Periods 2 and 3. The differing ways in which the sites were dug (CAR 4, 7-11) also affects the volume of finds for different periods.

If the way in which glass vessels were used remained fairly constant throughout the Roman period, it could be expected that the proportions within each class would remain fairly constant from period to period. However, as may be seen from Table 15.15, this is not so. Drinking-vessels dominate 4th-century assemblages in a way in which they have never done previously. Vessels associated with the serving of food rapidly become unimportant from the mid 2nd century onwards, and containers for solids and liquids are at their peak during the 2nd and 3rd centuries. The proportion of the latter class in Period 5 is probably over-estimated because of the difficulties in pin-pointing when they went out of use, and the decline will probably have taken place sometime before the end of the 3rd century. The picture which emerges from this indicates that the functions which glass vessels served, altered, and that there was increasing specialisation with time.

This pattern emerges from the study of the glass vessels in just one Romano-British town, and as such it must be treated with caution until similar work has been carried out with assemblages from other sites. Nonetheless, work by van Lith and Randsborg (1985, 463), based on a variety of site types across the western Empire, suggested a broadly similar pattern. They argued that the pattern might reflect changes in the level of production but this offers no explanation of why

The pattern of glass use

Table 15.15 Distribution of vessels by function and glass period (in percentages) at Balkerne Lane, Culver Street, Lion Walk, the Gilbert School, Middleborough, and the Cups Hotel.

Glass period	drinking-vessels %	vessels for serving food %	vessels for serving liquid %	containers for solids or liquids %	containers for liquids %	total minimum numbers
1	25.0	47.1	15.7	4.3	7.9	140
2	30.2	39.4	14.2	8.2	8.7	209
3	16.9	36.6	15.5	23.3	7.7	142
4	33.7	3.1	9.2	46.9	7.1	98
5	22.8	2.2	22.8	38.0	14.1	92
6	72.5	2.0	17.3	0.0	7.8	51

the demand, which is ultimately responsible for the level of production, should alter. The explanation is more likely to be found within the changed social and economic conditions of the later Roman period. In Britain, the 3rd century saw much greater self-sufficiency and a decline in the import of such items as olive oil, wine and fish sauce (Millett 1990, 162-3). In Roman Britain, the changing functions of glass vessels should be viewed against such a background. Does the decline in the use of glass containers during the 3rd century reflect a change in people's eating habits?

Were they perhaps associated with a type of cuisine that fell from favour as time progressed? The answers to such questions cannot be answered by the study of glass vessels alone, as these were not used in isolation, but must be seen as one facet of a total Roman vessel assemblage. This also contained pottery, metal and, though they survive less frequently, wood, leather and horn vessels. An understanding of the changing functions that glass vessels served is only going to emerge when they are studied as part of this total assemblage.

ABBREVIATIONS

AML	Ancient Monuments Laboratory of EH
<i>Antiq J</i>	<i>Antiquaries Journal</i>
Arch	<i>Archaeologia</i> (Soc Ants London)
Arch Aeliana	<i>Archaeologia Aeliana</i>
Arch Cambrensis	<i>Archaeologia Cambrensis</i>
Arch Cantiana	<i>Archaeologia Cantiana</i>
Archaeol J	<i>The Archaeological Journal</i>
BAR	<i>British Archaeological Report</i>
CAR	<i>Colchester Archaeological Report</i>
CAR 2	Nina Crummy, <i>The Roman small finds from excavations in Colchester, 1971-9, 1983</i>
CAR 3	Philip Crummy, <i>Excavations at Lion Walk, Balkeerne Lane, and Middleborough, Colchester, Essex, 1984</i>
CAR 4	Nina Crummy (ed), <i>The coins from excavations in Colchester, 1971-9, 1987</i>
CAR 5	Nina Crummy, <i>The post-Roman small finds from excavations in Colchester, 1971-85, 1988</i>
CAR 6	Philip Crummy, <i>Excavations at Culver Street, the Gilbert School, and miscellaneous sites in Colchester, 1971-85, 1992</i>
CAR 7	John Cotter, <i>The post-Roman pottery from excavations in Colchester, 1971-85, forthcoming</i>
CAR 9	Nina Crummy, Philip Crummy, and Carl Crossan, <i>Excavations of Roman and later cemeteries, churches and monastic sites in Colchester 1971-88, 1993</i>
CAR 10	Robin Symonds & Sue Wade, with Paul Bidwell & Alexandra Croom (eds), <i>The Roman pottery from excavations in Colchester, 1971-85, forthcoming</i>
CAR 12	Rosemary Luff, <i>Animal bones from excavations in Colchester, 1971-85, 1993</i>
CBA	Council for British Archaeology
CIL	<i>Corpus Inscriptionum Latinarum</i>
CM	Colchester Museums
EAA	<i>East Anglian Archaeology</i>
EAH	<i>Essex Archaeology and History</i>
EH	English Heritage
Fitzwilliam	<i>Glass at the Fitzwilliam Museum</i> (Cambridge)
GDV	Germanische Denkmaler der Volkerwanderunkzeit
Kofler-Truniger	<i>Ancient Glass formerly the Kofler-Truniger Collection; Christie, Manson & Woods Ltd Sale catalogue: Tuesday 5th March, Wednesday 6th March 1985, London</i>
RIB II, 2	R G Collingwood & R P Wright, <i>The Roman Inscriptions of Britain, volume II, Instrumentum Domesticum, Fascicule 2: weights, gold vessel, silver vessels, bronze vessels, lead vessels, pewter vessels, shale vessels, glass vessels, spoons</i> , ed by S S Frere & R S O Tomlin, Stroud (1991)
RCHM London	Royal Commission on Historical Monuments, London
RRCSAL	Reports of the Research Committee of the Society of Antiquaries of London
TEAS	<i>Transactions of the Essex Archaeological Society</i>
Trier	<i>Trier Kaiserresidenz und Bischofssitz</i> (Rheinischen Landesmuseums Trier Ausstellung 4 Mai-10 November 1984), Bonn, 1984
VCH	<i>Victoria History of the Counties of England</i>

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59	61	71	73	74	78	1321	1322	1324	1325	1326	1327
81	88	91	92	93	94	1328	1329	1334	1336	1337	1338
103	107	110	113	119	120	1339	1340	1341	1342	1343	1344
121	122	123	124	125	128	1345	1346	1347	1348	1349	1350
129	130	131	132	133	148	1351	1352	1353	1382	1390	1394
155	156	157	158	159	160	1395	1400	1401	1402	1405	1411
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194	202	207	210	212	213	1420	1421	1422	1423	1424	1425
214	217	220	227	232	237	1426	1427	1428	1429	1430	1447
238	241	245	246	253	256	1448	1452	1453	1454	1456	1458
257	264	265	266	267	268	1464	1467	1470	1471	1472	1473
269	270	272	277	281	284	1474	1475	1477	1478	1479	1483
288	290	291	297	298	308	1485	1486	1488	1489	1490	1491
310	320	321	322	323	329	1492	1495	1497	1498	1504	1506
334	335	342	346	353	354	1509	1510	1512	1516	1517	1518
366	367	368	386	389	401	1519	1523	1527	1528	1531	1532
405	421	427	429	434	436	1533	1534	1540	1541	1542	1543
438	440	443	444	451	452	1544	1545	1546	1548	1551	1552
453	454	455	467	469	470	1553	1563	1570	1572	1584	1585
471	475	477	481	482	489	1586	1594	1595	1596	1597	1598
492	501	505	506	507	508	1599	1600	1608	1609	1610	1611
516	519	524	526	548	551	1612	1617	1618	1619	1620	1621
570	577	578	581	589	590	1622	1623	1640	1641	1643	1644
591	592	593	594	595	596	1645	1648	1650	1652	1654	1658
618	621	624	625	626	627	1662	1663	1667	1668	1669	1670
628	630	632	633	634	637	1671	1672	1687	1688	1692	1693
638	641	644	646	650	651	1698	1699	1700	1708	1708	1709
655	659	661	666	668	669	1710	1711	1712	1713	1728	1729
677	682	684	685	687	688	1730	1731	1733	1741	1742	1743
689	691	702	707	708	709	1744	1745	1746	1747	1748	1749
711	713	716	720	725	732	1750	1759	1760	1761	1762	1763
733	734	738	740	741	742	1768	1769	1771	1772	1776	1777
743	744	745	748	751	756	1779	1789	1790	1791	1792	1793
768	770	772	774	776	778	1808	1809	1810	1811	1838	1839
784	790	797	798	799	810	1843	1844	1847	1848	1849	1852
821	822	823	832	834	835	1857	1860	1863	1864	1869	1877
837	838	848	849	850	852	1881	1882	1883	1892	1893	1904
853	854	855	858	859	864	1909	1918	1919	1929	1930	1931
871	872	873	878	879	883	1932	1933	1943	1945	1947	1948
888	889	892	895	898	899	1949	1950	1951	1952	1953	1954
906	909	911	912	915	917	1973	1974	1975	1976	1977	1978
918	921	924	928	933	934	1991	2002	2003	2004	2005	2014
939	942	943	945	946	947	2015	2018	2019	2020	2021	2022
948	952	953	954	962	966	2023	2024	2025	2026	2027	2032
968	969	972	974	979	980	2033	2034	2035	2053	2054	2055
984	986	988	997	1003	1004	2056	2057	2058	2059	2060	2061
1007	1008	1009	1010	1011	1013	2062	2063	2064	2065	2066	2067
1015	1032	1035	1045	1046	1052	2068	2069	2070	2071	2072	2073
1053	1055	1056	1058	1059	1060	2074	2075	2076	2077	2078	2079
1061	1062	1070	1073	1074	1075	2123	2124	2125	2127	2128	2129
1076	1082	1083	1085	1086	1089	2130	2131	2139	2140	2141	2144
1091	1101	1102	1103	1105	1106	2145	2148	2152	2153	2155	2156
1107	1108	1109	1110	1115	1116	2167	2169	2170	2171	2174	2175
1118	1119	1121	1124	1125	1128	2176	2177	2184	2198	2199	2203
1131	1132	1133	1134	1135	1136	2205	2206	2210	2213	2231	2233
1137	1145	1146	1147	1169	1173	2234	2235	2240	2245	2247	2254
1178	1180	1182	1185	1189	1191	2255	2256	2260	2263	2264	
1192	1195	1196	1199	1200	1201						
1208	1210	1222	1224	1225	1226						
1227	1228	1236	1237	1247	1248						
1249	1262	1263	1264	1265	1269						
Butt Road						39	83	90	201	275	560
						561	579	580	585	586	599

1850	1922	1994	2029	2151	2173
2180	2202	2217	2249		

The Gilberd School

6b	10	11	25	27	28
44	44	46	48	50	69
116	117	118	145	146	147
181	182	183	184	190	200
218	218	222	225	234	243
248	249	258	259	260	262
282	285	287	292	293	294
296	300	301	302	303	307
316	338	340	341	343	344
348	352	361	362	363	364
365	380	381	382	383	384
385	390	393	464	515	525
635	645	648	657	658	675
680	692	701	739	749	752
753	754	755	763	802	809
811	816	820	825	828	865
875	876	877	880	887	894
900	904	916	925	950	951
957	958	960	963	965	976
985	1012	1022	1036	1081	1088
1093	1094	1114	1144	1155	1156
1171	1193	1212	1215	1218	1234
1235	1239	1260	1270	1291	1381
1391	1404	1410	1445	1446	1451
1468	1469	1559	1571	1592	1684
1685	1697	1723	1724	1725	1726
1727	1770	1788	1833	1846	1854
1855	1874	1875	1885	1898	1907
1908	1914	1927	1928	1938	1939
1960	1999	2013	2030	2031	2050
2051	2052	2121	2122	2146	2147
2183	2211	2212	2229	2239	2246

Inner Relief Road B

2196

Inner Relief Road C

1942

Lion Walk

6a	9	12	16	23	30
33	36	37	42	53	54
70	72	75	82	89	104
114	115	127	127	134	135
149	150	166	167	168	169
193	195	196	203	204	205
206	208	215	216	219	224
226	230	250	255	271	273
279	283	289	295	311	312
317	318	332	333	336	337
350	369	370	371	372	373
374	375	388	391	398	399
409	410	412	417	422	426
428	435	441	446	456	457
458	473	479	493	496	502
509	510	523	527	537	543
558	564	567	568	582	583
584	597	598	622	636	639
649	660	667	670	671	679
681	686	700	704	705	706
709	710	712	714	715	721
722	724	726	730	731	736
737	747	750	760	762	781
783	785	786	788	793	794

796	808	814	824	826	831
856	866	867	874	874	882
884	886	897	907	920	927
929	932	935	944	970	983
989	995	998	1001	1002	1014
1021	1023	1025	1034	1039	1042
1057	1063	1064	1065	1069	1071
1072	1087	1092	1099	1111	1138
1148	1149	1150	1157	1168	1181
1197	1202	1203	1219	1238	1241
1243	1255	1257	1266	1268	1273
1274	1275	1276	1277	1279	1280
1288	1289	1290	1292	1294	1297
1300	1306	1332	1354	1383	1384
1385	1392	1396	1417	1431	1432
1433	1434	1435	1436	1455	1461
1476	1481	1494	1496	1515	1525
1536	1539	1549	1550	1556	1557
1558	1568	1569	1574	1575	1579
1580	1581	1582	1583	1587	1588
1593	1601	1613	1614	1624	1625
1649	1655	1656	1657	1659	1664
1665	1673	1674	1689	1694	1701
1702	1706	1714	1732	1734	1735
1751	1752	1753	1754	1755	1764
1765	1773	1778	1794	1795	1796
1831	1851	1859	1865	1866	1870
1871	1872	1876	1878	1880	1887
1888	1897	1899	1905	1910	1911
1912	1915	1917	1920	1934	1935
1936	1940	1941	1961	1962	1963
1964	1979	1992	1993	2000	2017
2028	2080	2081	2082	2083	2084
2085	2086	2087	2088	2089	2090
2091	2126	2132	2133	2134	2135
2138	2150	2160	2166	2172	2178
2185	2186	2187	2188	2195	2207
2214	2220	2221	2222	2223	2236
2237	2243	2262			

Long Wyre Street

65	394	845	1026	1104	1578
1628	2007				

Maldon Road

111	881	1140	1170	1331	1861
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Middleborough

8	57	407	420	431	432
445	459	460	461	468	484
486	487	488	500	511	616
663	673	690	801	812	842
930	1005	1006	1066	1100	1117
1183	1307	1317	1357	1386	1493
1520	1521	1524	1535	1538	1602
1627	1666	1715	1797	1798	1799
1812	1889	1896	1921	1955	1956
2006	2037	2038	2098	2099	2100
2101	2102	2103	2104	2142	2158
2164	2189	2190	2191	2200	2209
2224	2244				

St Helena's School

4 1098

Trinity Street

1603

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Appendix 1:

Ancient Monuments Laboratory-
Report 53/90

COMPOSITIONAL ANALYSIS OF ROMAN
GLASS FROM COLCHESTER, ESSEX.

M P Heyworth & M J Baxter & H Cool

AML reports are interim reports which make available the results of specialist investigations in advance of full publication. They are not subject to external refereeing and their conclusions may sometimes have to be modified in the light of archaeological information that was not available at the time of the investigation. Readers are therefore asked to consult the author before citing the report in any publication and to consult the final excavation report when available.

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COMPOSITIONAL ANALYSIS OF ROMAN
GLASS FROM COLCHESTER, ESSEX.

M P Heyworth & M J Baxter & H Cool

Summary

The composition of a group of colourless glasses from Colchester was analysed by inductively coupled plasma spectrometry. The analysed glasses represented several typological groups of tableware which can be dated from the mid 1st to the late 2nd century AD. The samples were chosen to investigate any compositional differences between the groups. The compositional data was examined using a variety of statistical methods which were known from previous studies to be appropriate for application to glass compositional data. The statistical analysis showed that whilst all the glass was of the same basic soda-lime-silica composition, suggesting that it came from the same production tradition, there was a lot of compositional variation within the typological groups. Despite this variation there were some differences between the typological groups, though they were not compositionally distinct and it is therefore difficult to suggest any substantive interpretation based on the analytical data. It is suggested that the variation may be explained by either a variation in the use of raw materials through time, or that it may reflect the output of different glasshouses. Further work will be needed to elucidate any potential relationship between composition and typology.

An extension of the project is suggested to include similar vessels from other sites in England.

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COMPOSITIONAL ANALYSIS OF ROMAN GLASS FROM COLCHESTER, ESSEX

Introduction

The manufacture of colourless glass requires a high degree of quality control if the end product is to be of good quality and, in the recent past, great care has been taken with the selection of raw materials. It seems reasonable to assume that similar care would have been exercised in the Roman period. This report covers the compositional analysis of samples of colourless glass from tableware. The samples were selected from typological groups which span the period from the first appearance of good quality colourless glass as a regular item of luxury tableware in c. A.D. 60-70 to the point in the late second century when colourless glass was in common use. The majority of the vessel types analysed are common forms found throughout Roman Britain. The aims of the analysis were (i) to examine the composition of colourless Roman glass which has been little studied previously; (ii) to investigate the compositional similarity within and between the typologically established groups; and (iii) to see whether the change in the status of colourless glass from a prestige material to a more commonplace one is reflected compositionally.

The Glass

The glass analysed was all found at Colchester during excavations conducted by the Colchester Archaeological Trust between 1971 and 1985. The four different groups of glass included in the analytical programme are as follows:

<u>Vessel Type</u>	<u>Number Analysed</u>
Cast vessels	21
Facet-cut beakers and other ground vessels	15
Wheel-cut beakers	29
Cylindrical cups	53
TOTAL	118

The earliest vessels represented belong to the first two groups. Cast colourless glass was in production from c. A.D. 60-70 and continued in use into the early second century. Most of the twenty-one fragments analysed were colourless, though two had a greenish tinge. Most of the fragments came from the common variety of bowl with a wide rim and foot ring. The majority of these were plain but there were also two fragments of the much rarer facet-cut variety (nos. 209 & 211). The sample also includes some cast colourless fragments which were probably not from wide rimmed bowls, such as the handle fragment no. 210 which might have come from a cast saucepan.

The second group consists of vessels formed by grinding the exterior of a blown blank to shape. Ten of the samples came from facet-cut beakers, one came from a relief-cut beaker and four from vessels with linear ground-out decoration. This material was also in use from c. A.D. 60-70. The production of

facet-cut beakers and relief-cut beakers had probably ceased by the end of the first century, but that of the linear ground vessels may have continued into the second century.

Wheel-cut beakers form the third group. At least one variant of these had come into use by the end of the first century, but the majority belong to the first two-thirds of the second century and are most numerous during the middle third of the century. The beakers were made in a variety of shapes and the sample included 19 fragments from ones with cylindrical, ovoid and carinated bodies, and with both tubular pushed-in base rings and separately blown feet. Ten other body fragments with wheel-cut lines were also analysed although their identification as wheel-cut beakers is not secure.

The fourth group are cylindrical cups. These were in use during the final third of the second century and the first half of the third. This was the largest group of fragments analysed reflecting the very large number of these cups found at Colchester and elsewhere. These cups appear to represent the first widespread use of colourless glass as a common item of tableware.

In addition to this material two fragments of facet-cut glass which were not externally ground were initially analysed as part of the second group (nos. 414 & 417). As these fragments do not belong typologically or chronologically to this group, they have been excluded from all subsequent statistical analyses though the details of their composition are given in Table 1.

Analytical Method

The analyses were undertaken using inductively coupled plasma atomic emission spectrometry (ICPS). The ICPS technique is becoming increasingly widely used in the analysis of archaeological materials (see Heyworth *et al* 1988). It gives compositional data for a wide range of elements at the major, minor and trace levels (Thompson and Walsh 1986). This is especially important for the analysis of glass where major and some minor elements determine the general type of glass and other minor and trace elements have an important influence on its colour. In the present programme data was obtained for 32 oxides and elements: Al₂O₃, Fe₂O₃, MgO, CaO, Na₂O, K₂O, TiO₂, P₂O₅, MnO, Pb, Sb, Ba, Co, Cr, Cu, Li, Nb, Ni, Sc, Sr, V, Y, Zn, Zr, La, Ce, Nd, Sm, Eu, Dy, Yb and SiO₂. The figure for silica was obtained by difference as the silica is removed in the sample preparation procedure.

Samples for analysis were cut from the glass fragments, using a low speed diamond blade saw, and milled to a fine powder. A powdered sample of 100 mg was then evaporated to dryness with perchloric and hydrofluoric acid, and the residue dissolved in hydrochloric acid and distilled water before diluting to a standard solution strength. The sample preparation and ICPS analysis was undertaken in the Department of Geology at Royal Holloway and Bedford New College, University of London, under the supervision of Dr J.N.Walsh.

The ICPS analysis was carried out using a Philips polychromator

ICPS system calibrated for quantitative analysis with multi-element rock standards. The glass solutions were run through the system twice, the first time the majority of major, minor and trace elements were measured, and the second time the solution was diluted to 10% of its original strength to obtain the soda figures. The soda level in the glass is outside the calibration range of the instrument at the original solution strength and the dilution was necessary to maintain a linear calibration for the soda signal. Multi-element rock standards were analysed at regular intervals during the analytical run to allow for correction of any short-term fluctuations in the system. Three glass substandards were also analysed to check the ICPS calibration.

Analytical Results

One hundred and twenty fragments of glass from Colchester were analysed. The full compositional data is listed in Table 1, together with a description of the glass colour and the vessel type to which the fragment belongs.

The order in which the analyses are listed is the same order as that in which they were analysed. A batch of samples analysed by ICPS are run one after the other with a short gap between each analysis. Analytical conditions should therefore be identical for each analysis undertaken during a batch run. Any short term drift in machine conditions should be corrected by repeatedly analysing a multi-element standard during the run and correcting the other samples according to this standard. However the standard used does not include data for the rare earth elements which are present at very low levels in the solution. These elements are therefore not corrected for short-term machine drift. An analysis of the data obtained from the Colchester glass showed that some of the rare earth elements had a significant correlation with the sequence in which they were analysed (see Table 2). This effect was particularly noticeable for samarium (see Figure 1), though this element is present at levels close to the minimum detection limits for the analytical method.

It was therefore decided that any elements which correlated with the run number at a coefficient of higher than +0.4 would be ignored in any analysis of the data. This affected the elements Li, Nb, Ni, Ce, Nd, Sm, Eu, Dy, and the other rare earth elements, La and Yb, were also excluded from the data analysis as all the rare earth elements are highly correlated. Other trace elements (Co, Ni, Sc, V, Zn) that were present in the glass at very low levels and which did not vary significantly between samples were also excluded. None of these elements would have had a significant effect on the colour or working properties of the colourless glasses and it was felt that this would simplify the data analysis without any loss of information on potentially significant compositional variability.

Data Analysis

The data analysis was undertaken using the MINITAB statistical computer package. The data for all the oxides/elements was

converted to parts per million format so that all the numbers were directly comparable. The first stage of the data analysis was to simply investigate the structure of the data using single element dot plots to look for groups in the data and to identify any outliers in the data population. Eleven 'odd' analyses were identified which had unusual readings for one or more oxides/elements and these were excluded from any further data analysis (nos 209, 210, 211, 414, 417, 427, 435, 436, 463, 530, 534). Some of these specimens, such as nos 209-211, were highly distinctive and are discussed below. Others may have been contaminated at some stage of the analytical process. In all cases specimens were omitted from the statistical analysis because they would, predictably, have been identified as unusual and might have prevented the perception of structure in the bulk of the data. The single element dot plots were then repeated for the reduced data set (see Figure 2). The mean, standard deviation, maximum and minimum values were calculated for all the vessel glass and for each of the vessel glass groups individually (see Table 3). The dot plots identified two oxide/elements, manganese oxide and lead, which had particularly skewed distributions, and the mean values for each typological group suggested that these oxides/elements may be significant in discriminating between the groups. Further, more sophisticated, statistical analysis was then required to attempt to relate the levels of manganese oxide and lead to other oxides/elements within each typological group.

Multivariate statistical methods, such as cluster analysis and principal components analysis, are commonly used for compositional data and have been applied to glass analyses. These methods are usually applied to the raw, standardised or log transformed data. Recent studies have suggested that such methods may be inappropriate for compositional data of the kind used here (Aitchison 1986). The problems described by Aitchison are largely due to the fact that the total composition is constrained to sum to 100%. This invalidates some of the underlying assumptions of the methods often used, though it is not clear how far these criticisms apply to typical glass compositions given the relatively low levels of most constituents. These criticisms were taken into account when undertaking the statistical analysis of the Colchester glass data and several approaches to the data analysis were tried. Principal components analysis was carried out using both the correlation matrix of the raw data and data that had been transformed using Aitchison's approach. Correspondence analysis was also undertaken on the raw data and on the data after it had been divided through by the mean value for each oxide/element. It was then possible to compare the results of the different approaches to see if they led to any substantive differences in the interpretation of the glass data.

Exploration of the various statistical methods, including correspondence analysis (Baxter 1989; Baxter & Heyworth forthcoming), with particular reference to glass compositional data, has shown the potential of the various approaches for revealing different, though complementary, aspects of the data structure. It is therefore important to compare the results of the various analyses before a full interpretation of the data can be achieved. It is now possible to do this interactively using modern computer based statistical packages such as MINITAB.

Figures 3 to 6 show the results of the different statistical analyses. Initially a principal components analysis was undertaken using the correlation matrix of the raw data (Figure 3). This is a standard approach to the statistical analysis of compositional data, though it is subject to the Aitchison's criticism (if this is applicable to glass compositions). The data was then transformed following Aitchison's approach and a second principal components analysis carried out (Figure 4). Correspondence analysis was then undertaken firstly on the raw data (Figure 5), and secondly on data modified by dividing by the column means (Figure 6). Correspondence analysis can be viewed as a form of principal component analysis after suitable data transformation (Baxter and Heyworth forthcoming) and has been treated as such here.

Previous studies by Baxter and Heyworth (forthcoming) have shown that the methods used to produce Figures 3 and 5 could produce a similar pattern, however only twelve oxides were used in their analyses and the similarity between the methods was largely empirical. In this case, with the inclusion of the trace elements in the analysis, the methods do not produce particularly similar results. Figures 4 and 6 should show a similar pattern, for mathematical reasons, and there is some suggestion of this in the plots, particularly if Figure 6(b) is reflected about the horizontal axis.

Figures 4(a) - 6(a) suggest that Figures 4(b) - 6(b) are largely determined by values of lead and manganese oxide, both of which have skewed distributions with long tails and several extreme values relative to the main body of the data (see above). Silica and lead oxide, but not manganese oxide, influence Figure 3(b). In this last plot the effect of silica chiefly arises as a consequence of the methodological difficulties identified by Aitchison (1986). In general there are no signs that the variations shown in the Figures are significant in discriminating between the groups of glass that had been identified typologically. It would seem from these analyses that the typological groups do not form distinct compositional groups, though some distinct sub-groups within the data can be recognised which will be discussed in detail below.

Discussion

It is usually hoped that compositional analysis of ancient glasses will reveal distinct groups that may relate to date or area of origin. However analyses of glass produced within the Roman Empire has shown that these glasses were usually of a similar broad compositional type (eg Sanderson *et al* 1983). The main components of the glass were silica, soda and lime with the majority of the other oxides and elements being added to the glass batch as accidental impurities in these main ingredients. The silica, which probably entered the glass in the form of sand, was the main glass former and the soda provided the alkali flux which enabled the materials to fuse together into a glass. It is usually assumed that the source of the soda used in early glass production was either the mineral evaporite natron or plants of the genus *Salicornia*. In Roman glass low levels of potassium, phosphorus and manganese may indicate that natron was used,

though it has been suggested that plant sources may have been used which could produce similar compositional ratios in the final glass (Brill 1970). The lime (calcium oxide) content acted as a stabiliser in the glass network and reduced weathering, but it may not have been recognised as a necessary separate ingredient in ancient glass. The most likely source of lime in ancient glasses is from shell, though where high magnesia levels are present it may suggest the use of carbonate rock. In the Colchester glass it is likely that shell was the source of the lime which may have been contained in the sand.

The minor components of the glass are mostly at low levels and are likely to have entered the glass as impurities in the main ingredients. The exception to this is antimony which is significantly higher than would be expected as an impurity and is therefore likely to have been added deliberately to the glass to remove the colouration due to iron. The use of antimony as a decolouriser was widespread in Roman glasses in Europe (Sayre 1963). The addition of antimony would also have had the effect of making the glass flow more readily and reducing the number of air bubbles trapped in the matrix producing a higher quality finished product. In some samples the manganese level was significantly higher than the average level, particularly no. 456, but this supported rather than replaced the antimony as a decolouriser and may not have been deliberately added for this purpose. The manganese-containing glasses may indicate the use of cullet in the production of the vessels, ie the remelting of scraps of glass that already contained manganese.

As the glasses analysed were all of the same general composition they are likely to have originated within the same glass production tradition. However despite the lack of clear groups in the multivariate statistical analyses there were some trends in the data related to compositional differences between the typological groups which could be identified. The trends noted are largely related to the variation in levels of lead and manganese which were noted earlier. In particular all the analyses with a lead content of greater than 0.03% were in the three typologically earlier groups (cast, facet-cut or wheel-cut vessels) and most analyses with manganese oxide contents greater than 0.03% were in the wheel-cut vessel group. This leaves the later typological group, the cylindrical cups, with the most uniform composition. This trend is reflected in Figures 3(b) 6(b) where the cylindrical cups tend to cluster together in the main group of points (unfortunately due to the scale of the figures the individual points are often overlapping and impossible to identify), though they are not entirely separated from the other groups. There is much more variation within the compositions of the three earlier typological groups and this explains the greater spread of samples from these groups in Figures 3(b) - 6(b).

The cast vessels in Group 1 are not particularly distinctive compositionally from the other groups. There were some fragments within the cast vessel group which had unusually high levels of single oxides/elements in relation to the rest of the group, particularly no. 225 with a high lead content and no. 222 with a high manganese content. These may be a result of the use of different raw materials, possibly accidentally introduced into the glass batch. The fragments which were included in the cast

vessel group but which were unlikely to come from wide rimmed bowls were also compositionally distinct. The two fragments of the rare facet-cut variety, nos. 209 & 211, were very similar in composition and had particularly high lead and antimony contents in comparison to the other cast vessels. The fragment of a possible saucepan, no. 210, could be distinguished from the other cast vessels on the basis of higher magnesium, iron, titanium and manganese oxide levels which suggests either the use of cullet or, more likely, a difference in the raw materials used in its production.

The vessels from Group 2 were a mixture of those which had been facet-cut (nos. 395-406), relief-cut (no. 411) or had linear ground-out decoration (nos. 407-410). Although there was some variation with the group overall there does not seem to be any clear compositional difference between the different types of beaker. Two samples of facet-cut beaker (nos. 404 & 405) have a very similar composition, including high lead levels, yet are unlikely to come from the same vessel due to the difference in thickness between the two fragments. The two fragments have an identical style of decoration and are likely to have been produced at the same time from the same glass batch. The two fragments of facet-cut glass which were not externally ground (nos. 414 & 417) were reasonably similar to the vessels in this group, however overall the vessels within Group 2 seem to be the most variable compositionally.

The wheel-cut beakers contain several fragments which have unusually high levels of phosphorus and manganese oxide and it appears from their correlation that these may be entering the glass together which suggests the use of a plant alkali source. The fragments with wheel-cut lines that were included as part of this group cannot be distinguished from the other samples compositionally.

The cylindrical cups seem to contain two compositional groups with one group of 13 fragments having higher levels of minor elements. Overall the cylindrical cups are more consistent compositionally with no high lead levels and very few glasses containing significant levels of manganese.

Conclusion

The analysis of the data from Colchester suggests that while the glass comes from the same production tradition, there were variations in the materials being used. No clear-cut distinctions exist between the typological groups but certain interesting trends do emerge. The first three groups which correspond to the early luxury glass (Groups 1 and 2) and the early blown drinking vessels (Group 3) show the widest variation in composition, and contain the highest levels of Pb and MnO. By contrast the cylindrical cups (Group 4), which are later, tend to have a more uniform composition with no example having high levels of Pb and very few having significant levels of MnO. Two working hypotheses can be suggested as provisional explanations for this.

The first hypothesis is that the variation reflects changes in working practices over time. The first 100 years of colourless

glass production could be seen as a period of experiment when different recipes were in use, whereas by the later period the recipes had become more uniform. Alternatively the variations may reflect the different materials used by glasshouses in different parts of the Empire. It should be stressed that the precise locations of the glasshouses producing this material are not known. From the distributions of the vessel types, however, there does appear to be a major difference between Groups 1 and 2 and Group 4. The former are found throughout the Roman Empire, whereas the latter are only found in the north-west provinces. The greater variability seen in Groups 1 and 2 might therefore reflect production at glasshouses scattered over a wide geographical area probably centred on the Mediterranean. The more consistent composition of Group 4 would reflect production in the restricted geographical area of the north-west provinces. There is, of course, no reason why these two hypotheses need be mutually exclusive and elements of both might have contributed to the observed variability.

It is obvious that the chemical composition of this colourless glass is complex and that it is not easy to explain the variation archaeologically. It may be, for example, that some of the variation is due to inevitable, and uncontrollable, variation in the raw material used. On the other hand, there are some indications that such variation may be deliberately related to typology. In the cast vessels, for example, the fragments from the vessels that are most distinct typologically (nos. 209-211) are also the most distinct compositionally, and were excluded from the detailed statistical analysis because preliminary examination of the data showed them to be outliers. It should also be noted that Group 2, which is the most variable compositionally, contains a greater amount of internal typological variation than, for example, Groups 1 or 4. No clear compositional differences could be detected between the typological variants in this analysis, but it should be noted that it was often not possible to identify the precise variant a fragment came from.

These analyses have shown that there is a large amount of variability in the composition of first and second century colourless glass, but it seems that further work on such material would be valuable. Whilst it has not been possible from these analyses to establish a clear-cut link between composition and typology, there are grounds for thinking that this relationship might be elucidated by further work on carefully selected fragments. This will be particularly helpful in increasing our understanding of colourless glass production in the Roman period.

Suggestions for further work

To assist in the interpretation of the compositional trends noted in this study, it would be beneficial to investigate similar colourless glasses from other sites in Roman Britain. In a sample drawn from a larger number of sites it would be possible to select fragments of particular typological variants in a manner that is not possible in an analysis where all the material comes from one town, as here. In such an analysis it should be easier to establish if there is any relationship between typology and composition, and it might also reveal if there is any

compositional variation between fragments from the same typological variant found in different parts of the country.

We suggest that, in future, samples should be derived as follows:

Group 1 - plain and facet-cut rim fragments from cast, wide-rimmed bowls, both with and without an overhang at the edge of the rim (see for example Charlesworth 1975; Charlesworth 1974: Fig.29.1; Bushe-Fox 1914: 21, Fig. 12);

Group 2 - fragments from externally ground facet-cut beakers which can be assigned to one of the well-defined typological variants, for example those established by Oliver 1984;

Group 3 - fragments from cylindrical thin-walled beakers with pushed-in base rings (like that from Wroxeter: Bushe-Fox 1916: Pl.XXIII Fig.1), and fragments from carinated beakers with separately blown feet (like those from Harlow: Price 1987: Fig.2 nos. 8-10);

Group 4 - rim fragments from undecorated cylindrical cups from the classic Airlie type (Charlesworth 1959: Pl.I.4) and the variant with out-turned rim and trail on the upper body (Charlesworth 1959: Pl.II.1).

All of these types, with the exception of the facet-cut cast bowls, are widespread and relatively common on Romano-British sites and it should not be difficult to gather an adequate sample of each.

Acknowledgements

We would like to thank Dr J.N.Walsh of the Dept. of Geology, Royal Holloway & Bedford New College, University of London, for undertaking the ICPS analyses.

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Table 1

ICPS data

The glass samples were analysed using inductively coupled plasma atomic emission spectrometry (ICPS) and data was obtained for 31 oxides/elements. The data from each analysis is divided into the major and minor oxides (listed as oxide weight percentages), minor elements (listed as weight percentages) and trace elements (listed as parts per million). The figure for silica is obtained by subtracting the total figure of the measured oxides/elements from 100%. Consequently the sum of the concentrations, including silica, is always exactly 100%.

The data is listed together with the fragment catalogue number (taken from Cool & Price, forthcoming), fragment colour and the type of vessel to which the fragment belongs. The glass colours and vessel types are coded as follows:

Colour code

C - Colourless
G/C - Green Tinged Colourless

Vessel type

C - Cast bowl
CY - Cylindrical cup
F - Facet-cut beaker
R - Relief-cut beaker
W - Wheel-cut beaker
W? - probable wheel-cut beaker

Number		209	210	211	212	213	214
Colour		C	G/C	C	C	C	C
Vessel type		C	C	C	C	C	C
Al ₂ O ₃	(%)	1.29	2.09	1.32	1.87	1.80	2.02
Fe ₂ O ₃	(%)	.32	.56	.37	.27	.25	.28
MgO	(%)	.40	.80	.40	.44	.42	.44
CaO	(%)	3.85	6.51	3.83	5.87	5.28	4.60
Na ₂ O	(%)	18.6	20.8	17.4	19.0	18.6	17.9
K ₂ O	(%)	.68	.52	.66	.45	.43	.50
TiO ₂	(%)	.04	.13	.06	.07	.05	.06
P ₂ O ₅	(%)	.04	.06	.05	.04	.04	.04
MnO	(%)	.03	.21	.03	.01	.01	.01
Pb	(%)	.54	.01	.56	.01	.01	.01
Sb	(%)	.93	.68	1.76	.53	.34	.22
Ba	(ppm)	74	149	81	145	134	146
Co	(ppm)	6	8	5	7	7	6
Cr	(ppm)	10	20	11	13	11	10
Cu	(ppm)	22	21	26	8	8	6
Li	(ppm)	0	5	3	1	2	2
Nb	(ppm)	1	1	2	1	0	0
Ni	(ppm)	10	15	13	10	10	8
Sc	(ppm)	1	2	1	1	1	1
Sr	(ppm)	294	309	295	425	393	294
V	(ppm)	4	15	7	8	5	6
Y	(ppm)	5	8	5	7	6	6
Zn	(ppm)	15	17	20	15	12	11
Zr	(ppm)	18	77	36	38	29	39
La	(ppm)	11	13	11	12	12	12
Ce	(ppm)	14	16	14	12	11	11
Nd	(ppm)	20	21	21	19	19	19
Sm	(ppm)	2.3	3.0	2.1	1.9	1.4	1.1
Eu	(ppm)	.3	.4	.3	.3	.3	.3
Dy	(ppm)	1.1	1.6	1.1	1.1	.9	.8
Yb	(ppm)	.6	.9	.6	.6	.5	.5
SiO ₂	(%)	73.2	67.6	73.5	71.4	72.7	73.9

Number	215	216	217	218	219	220
Colour	C	C	C	C	C	C
Vessel type	C	C	C	C	C	C
Al ₂ O ₃ (%)	2.08	2.01	1.92	1.96	1.97	1.86
Fe ₂ O ₃ (%)	.43	.35	.38	.32	.27	.32
MgO (%)	.51	.49	.52	.49	.40	.48
CaO (%)	4.34	5.76	6.00	7.14	5.04	7.67
Na ₂ O (%)	18.7	20.5	20.0	19.8	18.6	18.6
K ₂ O (%)	.52	.61	.50	.44	.52	.42
TiO ₂ (%)	.12	.07	.09	.05	.05	.06
P ₂ O ₅ (%)	.05	.05	.05	.05	.04	.05
MnO (%)	.01	.01	.02	.01	.01	.01
Pb (%)	.01	.07	.12	.02	.11	.01
Sb (%)	.39	.34	.41	.46	.29	.40
Ba (ppm)	140	144	136	128	141	126
Co (ppm)	7	7	7	7	6	7
Cr (ppm)	14	11	14	12	14	12
Cu (ppm)	10	12	12	13	9	4
Li (ppm)	1	4	1	0	1	1
Nb (ppm)	0	0	0	0	0	0
Ni (ppm)	10	11	11	10	7	10
Sc (ppm)	1	1	1	1	1	1
Sr (ppm)	357	433	529	698	366	715
V (ppm)	9	6	8	5	5	6
Y (ppm)	7	7	7	7	6	7
Zn (ppm)	19	18	16	16	12	12
Zr (ppm)	62	36	52	35	32	28
La (ppm)	13	13	12	13	12	12
Ce (ppm)	12	12	12	12	10	12
Nd (ppm)	20	18	19	18	19	16
Sm (ppm)	1.2	1.4	1.4	1.4	1.0	1.4
Eu (ppm)	.3	.3	.3	.3	.3	.3
Dy (ppm)	.9	.9	1.0	1.0	.7	1.0
Yb (ppm)	.6	.6	.6	.6	.7	.7
SiO ₂ (%)	72.8	69.7	69.9	69.2	72.6	70.0

Number		221	222	223	224	225	226
Colour		G/C	C	C	C	C	C
Vessel type		C	C	C	C	C	C
Al ₂ O ₃	(%)	2.05	1.54	1.93	1.74	1.74	1.83
Fe ₂ O ₃	(%)	.32	.40	.33	.38	.51	.26
MgO	(%)	.46	.45	.44	.53	.57	.41
CaO	(%)	5.45	3.85	6.19	5.24	6.10	4.97
Na ₂ O	(%)	17.6	17.8	19.8	17.6	19.7	18.2
K ₂ O	(%)	.50	.84	.45	.91	.52	.48
TiO ₂	(%)	.07	.06	.05	.05	.09	.06
P ₂ O ₅	(%)	.05	.06	.04	.06	.05	.05
MnO	(%)	.01	.11	.01	.02	.02	.01
Pb	(%)	.00	.02	.01	.01	.34	.01
Sb	(%)	.26	.86	.37	.42	.31	.29
Ba	(ppm)	146	95	140	106	98	143
Co	(ppm)	6	6	7	6	7	6
Cr	(ppm)	11	14	11	11	17	9
Cu	(ppm)	7	25	7	10	13	6
Li	(ppm)	3	0	0	2	2	1
Nb	(ppm)	0	0	0	0	0	0
Ni	(ppm)	10	10	10	11	12	10
Sc	(ppm)	1	1	1	1	2	1
Sr	(ppm)	328	223	422	273	442	312
V	(ppm)	6	6	5	5	7	6
Y	(ppm)	8	6	7	7	7	6
Zn	(ppm)	14	14	14	14	16	12
Zr	(ppm)	40	18	37	21	33	33
La	(ppm)	18	11	12	13	13	12
Ce	(ppm)	21	10	12	13	13	10
Nd	(ppm)	21	20	18	19	19	18
Sm	(ppm)	1.9	1.1	1.4	1.3	1.5	1.0
Eu	(ppm)	.3	.3	.3	.3	.3	.3
Dy	(ppm)	1.1	.8	.9	1.0	1.1	.8
Yb	(ppm)	.6	.6	.6	.7	.7	.5
SiO ₂	(%)	73.2	74.0	70.3	73.0	70.0	73.4

Number		227	228	230	395	396	397
Colour		C	C	C	C	C	C
Vessel type		C	C	C	F	F	F
Al ₂ O ₃	(%)	1.84	1.97	1.81	1.91	2.34	1.78
Fe ₂ O ₃	(%)	.26	.26	.26	.26	.24	.18
MgO	(%)	.43	.37	.41	.34	.44	.28
CaO	(%)	5.76	5.01	4.81	4.99	7.13	4.39
Na ₂ O	(%)	18.7	17.1	16.9	17.9	14.9	16.5
K ₂ O	(%)	.45	.49	.50	.49	.62	.40
TiO ₂	(%)	.05	.06	.06	.06	.04	.03
P ₂ O ₅	(%)	.04	.04	.05	.04	.05	.03
MnO	(%)	.01	.01	.01	.01	.01	.00
Pb	(%)	.01	.02	.00	.11	.01	.06
Sb	(%)	.24	.27	.41	.43	.37	.37
Ba	(ppm)	138	144	143	144	163	123
Co	(ppm)	7	6	6	4	6	6
Cr	(ppm)	11	10	10	11	13	10
Cu	(ppm)	8	7	11	10	6	5
Li	(ppm)	1	1	1	1	1	0
Nb	(ppm)	0	0	0	0	0	0
Ni	(ppm)	8	8	11	10	10	9
Sc	(ppm)	1	1	1	1	1	1
Sr	(ppm)	417	347	306	322	386	280
V	(ppm)	5	5	7	5	4	3
Y	(ppm)	7	6	6	7	9	6
Zn	(ppm)	11	11	15	12	11	8
Zr	(ppm)	25	32	35	30	24	17
La	(ppm)	13	11	11	12	14	12
Ce	(ppm)	13	11	11	11	15	11
Nd	(ppm)	19	18	19	19	19	20
Sm	(ppm)	1.5	1.1	1.1	1.2	2.0	1.2
Eu	(ppm)	.3	.3	.3	.3	.4	.3
Dy	(ppm)	.9	.7	.8	.9	1.2	.9
Yb	(ppm)	.6	.5	.5	.6	.7	.6
SiO ₂	(%)	72.1	74.3	74.7	73.4	73.8	75.9

Number		400	401	402	403	404	405
Colour		C	C	C	C	C	C
Vessel type		F	F	F	F	F	F
Al ₂ O ₃	(%)	2.00	1.93	2.36	1.88	1.89	2.04
Fe ₂ O ₃	(%)	.37	.24	.22	.25	.20	.22
MgO	(%)	.54	.34	.46	.34	.28	.30
CaO	(%)	6.74	5.12	7.19	4.83	4.96	5.01
Na ₂ O	(%)	19.8	18.7	16.5	17.6	16.8	16.6
K ₂ O	(%)	.51	.41	.63	.41	.41	.43
TiO ₂	(%)	.07	.04	.04	.06	.03	.04
P ₂ O ₅	(%)	.06	.04	.05	.04	.04	.04
MnO	(%)	.02	.01	.01	.01	.01	.01
Pb	(%)	.01	.00	.01	.07	.43	.44
Sb	(%)	.43	.33	.37	.25	.37	.44
Ba	(ppm)	140	137	162	138	141	152
Co	(ppm)	8	6	8	6	7	5
Cr	(ppm)	13	9	13	11	10	9
Cu	(ppm)	9	4	5	8	6	7
Li	(ppm)	2	1	1	1	0	0
Nb	(ppm)	1	0	1	0	0	0
Ni	(ppm)	11	12	11	8	11	9
Sc	(ppm)	1	1	1	1	1	1
Sr	(ppm)	516	345	478	293	344	366
V	(ppm)	7	4	5	5	4	4
Y	(ppm)	7	7	8	6	6	6
Zn	(ppm)	17	9	9	15	12	13
Zr	(ppm)	39	20	17	29	22	20
La	(ppm)	13	12	13	12	12	12
Ce	(ppm)	12	12	14	13	14	11
Nd	(ppm)	18	19	19	21	20	19
Sm	(ppm)	1.6	1.4	2.3	2.1	2.1	1.4
Eu	(ppm)	.4	.4	.4	.4	.4	.4
Dy	(ppm)	1.0	.9	1.3	1.1	1.1	.9
Yb	(ppm)	.7	.6	.7	.6	.6	.5
SiO ₂	(%)	69.4	72.8	72.1	74.2	74.5	74.4

Number		406	407	408	409	410	411
Colour		C	C	C	C	C	C
Vessel type		F	F	F	F	F	R
Al ₂ O ₃	(%)	2.07	1.89	2.15	2.02	1.90	2.38
Fe ₂ O ₃	(%)	.22	.29	.37	.24	.31	.37
MgO	(%)	.33	.51	.44	.30	.48	.42
CaO	(%)	4.97	6.55	5.14	5.16	6.38	5.26
Na ₂ O	(%)	18.7	19.0	17.6	17.9	18.7	18.2
K ₂ O	(%)	.55	.49	.58	.46	.56	.51
TiO ₂	(%)	.03	.06	.06	.03	.07	.07
P ₂ O ₅	(%)	.04	.04	.05	.04	.05	.04
MnO	(%)	.01	.01	.03	.01	.01	.02
Pb	(%)	.12	.02	.01	.51	.01	.01
Sb	(%)	.55	.32	.52	.21	.33	.45
Ba	(ppm)	145	142	133	142	140	156
Co	(ppm)	5	8	6	6	8	5
Cr	(ppm)	9	13	16	13	13	17
Cu	(ppm)	6	10	6	6	9	6
Li	(ppm)	1	2	1	1	2	1
Nb	(ppm)	0	0	0	0	0	0
Ni	(ppm)	9	10	11	8	11	12
Sc	(ppm)	1	1	1	1	1	1
Sr	(ppm)	351	464	248	360	430	254
V	(ppm)	3	6	6	4	7	6
Y	(ppm)	6	7	7	7	7	7
Zn	(ppm)	10	16	13	8	18	29
Zr	(ppm)	24	28	47	21	33	43
La	(ppm)	12	12	12	12	12	12
Ce	(ppm)	11	12	12	14	12	14
Nd	(ppm)	20	18	19	20	18	19
Sm	(ppm)	1.4	1.7	1.8	2.0	1.7	2.1
Eu	(ppm)	.4	.3	.3	.3	.3	.3
Dy	(ppm)	.9	1.0	1.0	1.0	1.1	1.1
Yb	(ppm)	.6	.6	.7	.6	.7	.7
SiO ₂	(%)	72.3	70.7	73.0	73.1	71.1	72.2

Number		414	417	426	427	428	429
Colour		G/C	C	C	C	C	C
Vessel type		F	F	W	W	W	W
Al ₂ O ₃	(%)	1.94	1.27	1.85	2.28	2.24	1.80
Fe ₂ O ₃	(%)	.36	.36	.29	.50	.46	.28
MgO	(%)	.46	.43	.46	.57	.64	.47
CaO	(%)	6.08	4.90	6.88	5.84	8.35	6.36
Na ₂ O	(%)	18.6	16.8	18.6	20.3	18.7	18.1
K ₂ O	(%)	.44	.60	.47	.69	.55	.46
TiO ₂	(%)	.08	.07	.07	.12	.09	.06
P ₂ O ₅	(%)	.05	.07	.05	.11	.07	.05
MnO	(%)	.01	.02	.01	.40	.01	.01
Pb	(%)	.01	.00	.22	.05	.01	.01
Sb	(%)	.41	.77	.26	.43	.50	.33
Ba	(ppm)	127	74	140	199	148	135
Co	(ppm)	6	5	7	9	9	7
Cr	(ppm)	13	13	13	18	17	12
Cu	(ppm)	13	10	24	69	8	10
Li	(ppm)	3	1	4	5	3	3
Nb	(ppm)	1	0	1	1	0	1
Ni	(ppm)	13	8	12	19	16	10
Sc	(ppm)	1	1	1	1	2	1
Sr	(ppm)	475	289	487	401	606	441
V	(ppm)	7	7	7	18	10	7
Y	(ppm)	8	6	7	8	10	7
Zn	(ppm)	24	13	13	27	33	15
Zr	(ppm)	36	22	31	61	41	26
La	(ppm)	16	12	12	14	18	12
Ce	(ppm)	19	12	13	17	26	13
Nd	(ppm)	21	19	18	20	20	18
Sm	(ppm)	2.3	1.4	2.0	2.4	3.7	2
Eu	(ppm)	.4	.3	.4	.4	.5	
Dy	(ppm)	1.3	.9	1.2	1.6	1.7	1
Yb	(ppm)	.7	.6	.7	.8	.8	
SiO ₂	(%)	71.5	74.7	70.8	68.6	68.3	72.0

Number		430	431	432	433	435	436
Colour		C	C	C	C	C	C
Vessel type		W	W	W	W	W	W
Al ₂ O ₃	(%)	1.75	1.87	1.89	1.87	2.21	1.98
Fe ₂ O ₃	(%)	.26	.30	.30	.25	.38	.31
MgO	(%)	.39	.49	.49	.42	.51	.43
CaO	(%)	5.15	6.53	6.32	5.29	5.75	5.54
Na ₂ O	(%)	17.3	19.4	19.0	17.8	18.9	17.1
K ₂ O	(%)	.39	.52	.52	.47	.64	.75
TiO ₂	(%)	.07	.06	.06	.05	.10	.07
P ₂ O ₅	(%)	.06	.05	.05	.05	.10	.04
MnO	(%)	.01	.01	.01	.01	.42	.01
Pb	(%)	.01	.02	.02	.01	.02	.01
Sb	(%)	.31	.35	.30	.31	.38	.30
Ba	(ppm)	137	142	142	151	201	1259
Co	(ppm)	7	8	7	7	9	7
Cr	(ppm)	12	14	12	11	15	12
Cu	(ppm)	6	9	9	11	20	9
Li	(ppm)	3	2	1	2	4	2
Nb	(ppm)	0	1	0	0	2	0
Ni	(ppm)	11	14	11	11	17	12
Sc	(ppm)	1	1	1	1	1	1
Sr	(ppm)	319	435	436	363	391	350
V	(ppm)	7	7	7	5	16	7
Y	(ppm)	7	7	7	7	18	7
Zn	(ppm)	14	15	14	15	20	12
Zr	(ppm)	31	29	25	23	51	31
La	(ppm)	12	12	12	12	13	12
Ce	(ppm)	13	13	12	11	13	12
Nd	(ppm)	20	18	18	19	19	20
Sm	(ppm)	1.8	2.1	1.5	1.0	1.8	1.8
Eu	(ppm)	.3	.4	.3	.3	.3	.3
Dy	(ppm)	1.1	1.2	1.0	.8	2.4	1.1
Yb	(ppm)	.6	.7	.6	.5	2.9	.6
SiO ₂	(%)	74.2	70.3	71.0	73.4	70.5	73.3

Number		437	438	439	442	446	447
Colour		C	C	C	C	C	C
Vessel type		W	W	W	W	W	W
Al ₂ O ₃	(%)	1.99	1.94	1.66	2.01	2.46	2.10
Fe ₂ O ₃	(%)	.39	.32	.24	.37	.30	.47
MgO	(%)	.49	.46	.36	.48	.45	.60
CaO	(%)	5.94	5.97	5.99	6.04	7.91	7.13
Na ₂ O	(%)	18.4	20.2	17.9	19.2	15.4	19.8
K ₂ O	(%)	.61	.52	.41	.63	.77	.54
TiO ₂	(%)	.09	.07	.05	.08	.07	.12
P ₂ O ₅	(%)	.06	.07	.04	.06	.17	.07
MnO	(%)	.08	.27	.01	.08	.07	.10
Pb	(%)	.05	.01	.29	.05	.01	.06
Sb	(%)	.67	.24	.26	.49	.57	.77
Ba	(ppm)	146	187	128	145	182	150
Co	(ppm)	7	8	6	8	9	9
Cr	(ppm)	15	13	11	14	18	18
Cu	(ppm)	15	15	8	14	6	15
Li	(ppm)	3	4	1	1	2	5
Nb	(ppm)	0	0	0	1	0	2
Ni	(ppm)	14	13	11	11	14	15
Sc	(ppm)	1	1	1	1	1	1
Sr	(ppm)	523	389	378	529	386	556
V	(ppm)	10	11	5	9	9	13
Y	(ppm)	8	7	7	8	9	8
Zn	(ppm)	22	21	13	18	15	24
Zr	(ppm)	54	30	18	48	29	68
La	(ppm)	13	13	13	12	12	13
Ce	(ppm)	13	12	13	14	14	14
Nd	(ppm)	20	19	19	20	17	19
Sm	(ppm)	1.8	1.8	1.9	2.1	2.3	2.1
Eu	(ppm)	.3	.3	.3	.4	.4	.4
Dy	(ppm)	1.2	1.2	1.1	1.2	1.4	1.3
Yb	(ppm)	1.0	.7	.6	.7	.8	.7
SiO ₂	(%)	71.1	69.9	72.7	70.4	71.7	68.1

Number		448	449	450	451	452	453
Colour		C	C	C	C	C	C
Vessel type		W	W	W	W?	W?	W?
Al ₂ O ₃	(%)	1.74	2.09	1.98	1.80	2.18	1.89
Fe ₂ O ₃	(%)	.20	.42	.37	.29	.48	.37
MgO	(%)	.27	.51	.49	.47	.51	.46
CaO	(%)	4.16	5.94	5.99	7.20	5.42	5.17
Na ₂ O	(%)	17.3	17.6	19.0	18.0	18.2	17.1
K ₂ O	(%)	.45	.63	.61	.50	.74	.49
TiO ₂	(%)	.03	.11	.08	.07	.12	.10
P ₂ O ₅	(%)	.03	.13	.06	.05	.13	.05
MnO	(%)	.01	.27	.08	.01	.29	.01
Pb	(%)	.27	.06	.05	.23	.11	.13
Sb	(%)	.40	.56	.45	.22	.56	.33
Ba	(ppm)	129	180	143	139	182	137
Co	(ppm)	6	8	7	8	8	6
Cr	(ppm)	9	16	14	12	16	14
Cu	(ppm)	6	19	13	24	23	9
Li	(ppm)	0	4	3	2	6	3
Nb	(ppm)	0	1	0	1	0	0
Ni	(ppm)	10	15	13	13	16	12
Sc	(ppm)	1	1	1	1	1	1
Sr	(ppm)	288	407	524	521	402	368
V	(ppm)	3	16	8	8	16	8
Y	(ppm)	6	8	7	7	8	7
Zn	(ppm)	9	28	18	15	26	16
Zr	(ppm)	11	54	33	31	64	49
La	(ppm)	12	14	12	12	14	12
Ce	(ppm)	11	15	13	13	15	14
Nd	(ppm)	20	19	20	19	20	20
Sm	(ppm)	1.5	2.3	2.0	2.3	1.7	1.9
Eu	(ppm)	.3	.4	.3	.4	.4	.3
Dy	(ppm)	1.0	1.4	1.2	1.3	1.2	1.1
Yb	(ppm)	.6	.8	.7	.8	.8	.7
SiO ₂	(%)	75.1	71.6	70.8	71.1	71.2	73.8

Number	454	455	456	460	462	463
Colour	C	C	C	C	C	C
Vessel type	W?	W?	W?	W?	W?	W?
Al ₂ O ₃ (%)	2.01	2.14	2.28	1.98	1.96	2.43
Fe ₂ O ₃ (%)	.37	.39	.52	.43	.28	.29
MgO (%)	.52	.49	.59	.61	.46	.53
CaO (%)	6.08	5.57	5.09	6.96	5.39	7.56
Na ₂ O (%)	18.9	18.2	18.1	18.4	18.1	14.2
K ₂ O (%)	.59	.56	.78	.65	.57	.56
TiO ₂ (%)	.08	.08	.14	.09	.07	.07
P ₂ O ₅ (%)	.05	.06	.13	.06	.05	.15
MnO (%)	.03	.20	.61	.02	.02	1.24
Pb (%)	.04	.04	.16	.02	.01	.01
Sb (%)	.49	.38	.62	.40	.38	.01
Ba (ppm)	142	176	239	135	150	287
Co (ppm)	7	8	10	8	7	12
Cr (ppm)	14	14	20	15	13	18
Cu (ppm)	14	16	21	13	10	13
Li (ppm)	2	5	5	4	5	3
Nb (ppm)	1	0	1	1	0	1
Ni (ppm)	14	16	24	15	14	26
Sc (ppm)	1	1	2	1	1	1
Sr (ppm)	460	374	364	539	325	513
V (ppm)	9	11	20	10	8	22
Y (ppm)	7	8	8	8	7	9
Zn (ppm)	21	20	29	25	23	25
Zr (ppm)	47	48	71	52	41	32
La (ppm)	12	13	14	13	12	12
Ce (ppm)	14	15	18	15	14	15
Nd (ppm)	19	20	22	19	20	19
Sm (ppm)	2.3	2.4	2.7	2.5	2.2	2.7
Eu (ppm)	.4	.4	.4	.4	.3	.5
Dy (ppm)	1.2	1.4	1.8	1.4	1.2	2.6
Yb (ppm)	.7	.8	.9	.8	.7	1.0
SiO ₂ (%)	70.8	71.8	70.9	70.3	72.6	72.9

Number		464	466	467	469	470	471
Colour		C	C	C	C	C	C
Vessel type		W?	CY	CY	CY	CY	CY
Al ₂ O ₃	(%)	1.91	1.84	1.80	2.08	2.23	2.16
Fe ₂ O ₃	(%)	.31	.26	.28	.40	.41	.35
MgO	(%)	.48	.47	.46	.57	.60	.51
CaO	(%)	5.09	5.00	5.89	6.33	6.10	5.66
Na ₂ O	(%)	17.1	16.3	18.2	19.5	19.5	17.3
K ₂ O	(%)	.47	.44	.44	.54	.42	.44
TiO ₂	(%)	.07	.06	.06	.09	.08	.07
P ₂ O ₅	(%)	.05	.04	.04	.06	.05	.05
MnO	(%)	.01	.01	.01	.03	.01	.01
Pb	(%)	.01	.01	.01	.01	.01	.01
Sb	(%)	.33	.36	.33	.44	.34	.37
Ba	(ppm)	146	138	134	138	141	146
Co	(ppm)	7	6	7	8	8	7
Cr	(ppm)	12	12	13	14	14	14
Cu	(ppm)	5	7	8	9	8	7
Li	(ppm)	3	3	3	4	3	3
Nb	(ppm)	0	1	1	1	1	1
Ni	(ppm)	11	10	15	16	12	15
Sc	(ppm)	1	1	1	1	1	1
Sr	(ppm)	304	303	386	374	358	353
V	(ppm)	8	6	7	8	8	7
Y	(ppm)	7	7	7	8	8	7
Zn	(ppm)	18	15	15	21	25	20
Zr	(ppm)	37	27	32	51	38	36
La	(ppm)	12	12	13	13	14	13
Ce	(ppm)	14	15	14	16	16	16
Nd	(ppm)	21	20	20	21	20	20
Sm	(ppm)	2.5	2.4	2.4	2.7	2.6	2.5
Eu	(ppm)	.4	.4	.4	.4	.4	.4
Dy	(ppm)	1.2	1.2	1.2	1.4	1.4	1.3
Yb	(ppm)	.7	.7	.7	.8	.8	.8
SiO ₂	(%)	74.1	75.2	72.4	69.9	70.2	73.0

Number		472	473	474	475	476	478
Colour		C	C	C	C	C	C
Vessel type		CY	CY	CY	CY	CY	CY
Al ₂ O ₃	(%)	2.02	1.80	1.74	1.81	1.71	1.74
Fe ₂ O ₃	(%)	.33	.25	.27	.30	.22	.22
MgO	(%)	.51	.39	.42	.66	.35	.32
CaO	(%)	5.34	5.35	5.41	5.86	5.48	5.03
Na ₂ O	(%)	16.5	17.1	16.8	17.6	16.3	16.8
K ₂ O	(%)	.52	.44	.49	.40	.42	.43
TiO ₂	(%)	.07	.06	.06	.07	.06	.05
P ₂ O ₅	(%)	.05	.04	.05	.04	.05	.05
MnO	(%)	.01	.01	.01	.01	.01	.01
Pb	(%)	.01	.01	.01	.01	.01	.01
Sb	(%)	.35	.31	.31	.33	.51	.30
Ba	(ppm)	153	142	136	139	132	132
Co	(ppm)	8	6	6	7	7	6
Cr	(ppm)	12	12	11	12	10	10
Cu	(ppm)	6	6	9	9	11	5
Li	(ppm)	4	4	5	4	1	3
Nb	(ppm)	0	1	1	1	1	0
Ni	(ppm)	13	11	12	12	13	12
Sc	(ppm)	1	1	1	1	1	1
Sr	(ppm)	336	344	350	397	368	334
V	(ppm)	8	7	7	9	7	6
Y	(ppm)	7	7	7	7	7	7
Zn	(ppm)	19	20	18	19	15	12
Zr	(ppm)	35	34	32	36	31	22
La	(ppm)	12	12	12	13	12	12
Ce	(ppm)	14	16	15	14	15	15
Nd	(ppm)	20	22	21	20	20	21
Sm	(ppm)	2.3	2.8	2.6	2.8	2.5	2.8
Eu	(ppm)	.4	.4	.4	.4	.4	.5
Dy	(ppm)	1.2	1.3	1.4	1.3	1.3	1.3
Yb	(ppm)	.7	.7	.7	.7	.7	.7
SiO ₂	(%)	74.2	74.2	74.4	72.8	74.8	75.0

Number	479	480	481	483	484	485
Colour	C	C	C	C	C	C
Vessel type	CY	CY	CY	CY	CY	CY
Al ₂ O ₃ (%)	1.93	1.94	1.74	1.88	2.23	1.90
Fe ₂ O ₃ (%)	.31	.30	.25	.30	.42	.29
MgO (%)	.42	.44	.37	.40	.56	.41
CaO (%)	4.94	6.31	5.90	4.76	6.65	5.13
Na ₂ O (%)	17.6	19.5	17.8	17.3	18.7	18.2
K ₂ O (%)	.43	.57	.50	.41	.61	.45
TiO ₂ (%)	.05	.07	.06	.05	.09	.05
P ₂ O ₅ (%)	.04	.05	.05	.04	.06	.04
MnO (%)	.01	.01	.01	.01	.02	.01
Pb (%)	.01	.01	.01	.01	.01	.01
Sb (%)	.38	.39	.53	.48	.35	.31
Ba (ppm)	141	139	135	140	152	144
Co (ppm)	8	9	7	9	9	8
Cr (ppm)	11	13	12	11	14	11
Cu (ppm)	15	11	11	13	13	10
Li (ppm)	2	4	4	1	4	4
Nb (ppm)	1	1	1	1	1	1
Ni (ppm)	17	12	15	11	13	11
Sc (ppm)	1	1	1	1	1	1
Sr (ppm)	307	542	479	289	482	312
V (ppm)	6	7	7	6	10	7
Y (ppm)	6	7	7	6	8	7
Zn (ppm)	22	22	19	20	23	20
Zr (ppm)	25	32	34	22	36	20
La (ppm)	12	12	13	12	13	12
Ce (ppm)	15	15	15	14	17	15
Nd (ppm)	21	21	20	22	20	22
Sm (ppm)	2.8	2.7	2.7	2.9	3.0	2.9
Eu (ppm)	.5	.4	.4	.5	.4	.4
Dy (ppm)	1.2	1.4	1.4	1.3	1.5	1.3
Yb (ppm)	.7	.7	.7	.7	.8	.7
SiO ₂ (%)	73.8	70.3	72.7	74.3	70.2	73.1

Number		486	487	488	489	490	492
Colour		C	C	C	C	C	C
Vessel type		CY	CY	CY	CY	CY	CY
Al ₂ O ₃	(%)	1.78	1.89	1.75	1.80	1.91	1.82
Fe ₂ O ₃	(%)	.23	.30	.27	.25	.29	.23
MgO	(%)	.32	.41	.42	.36	.43	.32
CaO	(%)	4.98	5.37	6.04	5.15	5.49	5.13
Na ₂ O	(%)	18.1	17.8	19.0	17.9	19.2	18.4
K ₂ O	(%)	.45	.42	.41	.45	.48	.46
TiO ₂	(%)	.06	.07	.06	.06	.06	.06
P ₂ O ₅	(%)	.04	.04	.05	.04	.06	.04
MnO	(%)	.01	.01	.01	.01	.11	.01
Pb	(%)	.01	.01	.01	.01	.01	.01
Sb	(%)	.27	.30	.24	.18	.32	.38
Ba	(ppm)	134	144	137	142	157	137
Co	(ppm)	7	7	7	7	6	6
Cr	(ppm)	11	12	11	11	13	11
Cu	(ppm)	5	10	9	9	14	6
Li	(ppm)	4	5	3	5	5	4
Nb	(ppm)	1	1	1	1	1	1
Ni	(ppm)	11	12	15	13	12	12
Sc	(ppm)	1	1	1	1	1	1
Sr	(ppm)	318	342	373	312	349	346
V	(ppm)	7	8	7	7	9	7
Y	(ppm)	7	7	7	7	7	7
Zn	(ppm)	13	15	15	16	21	13
Zr	(ppm)	28	35	35	31	29	29
La	(ppm)	12	12	12	12	12	12
Ce	(ppm)	16	16	14	15	15	15
Nd	(ppm)	21	21	20	21	21	21
Sm	(ppm)	3.1	3.0	2.7	2.7	3.0	2.9
Eu	(ppm)	.5	.4	.4	.4	.4	.5
Dy	(ppm)	1.4	1.4	1.4	1.3	1.5	1.4
Yb	(ppm)	.7	.7	.7	.7	.7	.7
SiO ₂	(%)	73.7	73.3	71.7	73.7	71.6	73.1

Number		493	494	495	496	497	498
Colour		C	C	C	C	C	C
Vessel type		CY	CY	CY	CY	CY	CY
Al ₂ O ₃	(%)	1.90	2.03	2.11	2.11	1.96	1.78
Fe ₂ O ₃	(%)	.27	.38	.42	.39	.30	.26
MgO	(%)	.44	.51	.59	.56	.50	.42
CaO	(%)	5.48	7.02	6.53	6.18	5.58	5.48
Na ₂ O	(%)	17.9	20.0	19.0	19.1	17.9	17.9
K ₂ O	(%)	.52	.59	.53	.57	.52	.46
TiO ₂	(%)	.07	.07	.08	.07	.07	.06
P ₂ O ₅	(%)	.05	.06	.06	.05	.05	.05
MnO	(%)	.01	.02	.03	.02	.02	.01
Pb	(%)	.01	.01	.01	.01	.01	.01
Sb	(%)	.28	.40	.33	.37	.28	.36
Ba	(ppm)	154	135	138	144	152	142
Co	(ppm)	7	8	8	8	7	7
Cr	(ppm)	12	14	14	14	13	11
Cu	(ppm)	8	15	10	10	11	10
Li	(ppm)	3	4	3	3	3	3
Nb	(ppm)	1	2	2	1	1	1
Ni	(ppm)	11	16	14	16	16	12
Sc	(ppm)	1	1	1	1	1	1
Sr	(ppm)	341	553	379	425	375	353
V	(ppm)	8	8	9	8	8	8
Y	(ppm)	7	8	8	8	7	7
Zn	(ppm)	18	30	22	23	21	17
Zr	(ppm)	35	32	31	43	36	36
La	(ppm)	12	13	13	12	13	12
Ce	(ppm)	16	18	17	17	17	16
Nd	(ppm)	21	20	20	21	22	21
Sm	(ppm)	3.1	3.3	3.4	3.4	3.1	3.2
Eu	(ppm)	.4	.5	.5	.5	.4	.4
Dy	(ppm)	1.4	1.6	1.6	1.5	1.5	1.5
Yb	(ppm)	.7	.9	.9	.9	.7	.7
SiO ₂	(%)	73.0	68.8	70.2	70.5	72.7	73.1

Number	499	500	501	503	504	507
Colour	C	C	C	C	C	C
Vessel type	CY	CY	CY	CY	CY	CY
Al ₂ O ₃ (%)	2.21	2.25	1.94	1.94	2.02	1.90
Fe ₂ O ₃ (%)	.45	.43	.31	.26	.31	.26
MgO (%)	.54	.54	.44	.46	.45	.46
CaO (%)	6.87	6.77	5.35	5.07	5.98	5.04
Na ₂ O (%)	19.4	18.7	18.8	17.0	19.8	17.6
K ₂ O (%)	.57	.54	.55	.47	.58	.45
TiO ₂ (%)	.10	.09	.07	.07	.07	.07
P ₂ O ₅ (%)	.06	.06	.06	.05	.07	.04
MnO (%)	.02	.02	.14	.01	.21	.01
Pb (%)	.01	.01	.02	.01	.03	.01
Sb (%)	.41	.31	.30	.18	.40	.20
Ba (ppm)	153	150	162	150	187	149
Co (ppm)	8	8	7	7	9	6
Cr (ppm)	14	14	13	13	13	13
Cu (ppm)	15	15	24	6	18	6
Li (ppm)	4	4	7	4	8	5
Nb (ppm)	3	2	1	1	1	2
Ni (ppm)	16	15	16	17	16	14
Sc (ppm)	1	1	1	1	1	1
Sr (ppm)	479	474	347	334	382	326
V (ppm)	11	10	10	8	13	8
Y (ppm)	8	8	7	7	8	7
Zn (ppm)	26	22	28	16	30	15
Zr (ppm)	46	40	35	35	38	36
La (ppm)	13	13	13	12	13	12
Ce (ppm)	18	17	16	17	17	17
Nd (ppm)	20	21	22	22	21	22
Sm (ppm)	3.5	3.4	3.3	3.1	3.2	3.2
Eu (ppm)	.5	.5	.4	.4	.4	.5
Dy (ppm)	1.7	1.6	1.6	1.5	1.6	1.5
Yb (ppm)	.9	.9	.8	.7	.8	.7
SiO ₂ (%)	69.3	70.2	71.9	74.4	70.0	73.9

Number		508	512	513	514	515	518
Colour		C	C	C	C	C	C
Vessel type		CY	CY	CY	CY	CY	CY
Al ₂ O ₃	(%)	1.81	1.87	1.90	2.04	2.08	2.00
Fe ₂ O ₃	(%)	.27	.32	.30	.36	.36	.33
MgO	(%)	.41	.46	.43	.48	.53	.59
CaO	(%)	5.48	6.34	5.69	6.20	5.47	5.83
Na ₂ O	(%)	18.5	19.8	18.8	19.8	18.0	19.8
K ₂ O	(%)	.37	.58	.52	.56	.58	.42
TiO ₂	(%)	.07	.07	.07	.07	.08	.09
P ₂ O ₅	(%)	.05	.06	.04	.06	.06	.05
MnO	(%)	.01	.02	.09	.01	.01	.01
Pb	(%)	.01	.01	.01	.01	.01	.01
Sb	(%)	.31	.49	.42	.58	.49	.33
Ba	(ppm)	141	135	157	144	162	148
Co	(ppm)	7	8	7	8	7	8
Cr	(ppm)	12	13	13	13	13	14
Cu	(ppm)	11	19	15	15	6	10
Li	(ppm)	4	5	6	5	5	4
Nb	(ppm)	2	2	1	2	2	2
Ni	(ppm)	14	11	14	13	14	15
Sc	(ppm)	1	1	1	1	1	1
Sr	(ppm)	344	454	371	598	343	380
V	(ppm)	8	8	10	8	10	10
Y	(ppm)	7	8	7	7	7	8
Zn	(ppm)	16	27	25	25	21	18
Zr	(ppm)	34	25	36	33	46	41
La	(ppm)	12	13	13	12	13	13
Ce	(ppm)	16	16	15	17	16	16
Nd	(ppm)	21	21	22	21	22	21
Sm	(ppm)	3.2	3.1	2.9	3.5	3.1	3.2
Eu	(ppm)	.4	.5	.4	.5	.4	.4
Dy	(ppm)	1.5	1.6	1.4	1.5	1.5	1.5
Yb	(ppm)	.7	.8	.8	.8	.8	.8
SiO ₂	(%)	72.6	69.9	71.7	69.7	72.3	70.5

Number		519	520	525	526	527	528
Colour		C	C	C	C	C	C
Vessel type		CY	CY	CY	CY	CY	CY
Al ₂ O ₃	(%)	1.71	2.02	1.88	1.92	2.00	1.90
Fe ₂ O ₃	(%)	.21	.34	.26	.29	.33	.27
MgO	(%)	.36	.51	.45	.48	.46	.48
CaO	(%)	5.27	5.36	5.12	5.45	5.41	5.32
Na ₂ O	(%)	18.8	18.4	17.6	18.4	17.7	19.4
K ₂ O	(%)	.48	.54	.45	.51	.75	.47
TiO ₂	(%)	.06	.08	.07	.07	.08	.06
P ₂ O ₅	(%)	.07	.05	.05	.05	.08	.05
MnO	(%)	.01	.01	.01	.02	.01	.01
Pb	(%)	.01	.01	.01	.01	.01	.01
Sb	(%)	.63	.46	.21	.38	.54	.35
Ba	(ppm)	142	156	147	148	145	146
Co	(ppm)	7	7	7	8	8	7
Cr	(ppm)	10	12	12	12	13	12
Cu	(ppm)	13	5	6	11	7	8
Li	(ppm)	4	5	5	5	3	2
Nb	(ppm)	1	2	2	1	2	1
Ni	(ppm)	14	13	11	10	14	11
Sc	(ppm)	1	1	1	1	1	1
Sr	(ppm)	358	321	326	368	350	358
V	(ppm)	7	10	9	9	8	7
Y	(ppm)	7	7	7	7	7	7
Zn	(ppm)	26	20	14	22	18	19
Zr	(ppm)	26	42	37	38	33	22
La	(ppm)	12	12	12	13	13	12
Ce	(ppm)	16	17	17	16	17	16
Nd	(ppm)	22	22	22	22	21	22
Sm	(ppm)	3.0	3.2	3.3	3.2	3.0	3.0
Eu	(ppm)	.4	.4	.4	.4	.4	.4
Dy	(ppm)	1.5	1.5	1.5	1.5	1.5	1.4
Yb	(ppm)	.7	.8	.7	.7	.8	.7
SiO ₂	(%)	72.3	72.2	73.8	72.4	72.6	71.6

Number		529	530	531	532	534	535
Colour		C	C	C	C	C	C
Vessel type		CY	CY	CY	CY	CY	CY
Al ₂ O ₃	(%)	2.03	1.74	1.93	2.02	2.02	2.04
Fe ₂ O ₃	(%)	.30	.27	.24	.42	.38	.40
MgO	(%)	.48	.36	.37	.53	.47	.50
CaO	(%)	5.41	4.71	5.18	5.73	6.15	6.85
Na ₂ O	(%)	18.6	19.6	17.8	18.3	19.9	19.5
K ₂ O	(%)	.50	.39	.55	.62	.56	.62
TiO ₂	(%)	.07	.11	.06	.10	.09	.08
P ₂ O ₅	(%)	.05	.05	.04	.06	.08	.06
MnO	(%)	.01	.01	.01	.02	.01	.02
Pb	(%)	.01	.01	.01	.02	.01	.01
Sb	(%)	.21	1.46	.30	.39	.85	.57
Ba	(ppm)	160	154	156	141	256	140
Co	(ppm)	8	7	7	8	9	9
Cr	(ppm)	12	12	11	16	14	14
Cu	(ppm)	11	8	7	11	40	18
Li	(ppm)	3	7	5	4	5	7
Nb	(ppm)	1	5	1	1	3	3
Ni	(ppm)	13	11	14	16	17	14
Sc	(ppm)	1	1	1	1	1	1
Sr	(ppm)	327	300	341	406	596	557
V	(ppm)	8	10	8	11	10	9
Y	(ppm)	7	6	7	7	7	8
Zn	(ppm)	15	16	16	19	177	39
Zr	(ppm)	34	91	27	38	45	45
La	(ppm)	13	12	12	14	12	13
Ce	(ppm)	16	15	16	19	16	17
Nd	(ppm)	21	22	21	21	21	21
Sm	(ppm)	3.0	2.9	2.8	2.9	3.0	3.2
Eu	(ppm)	.4	.5	.4	.4	.4	.5
Dy	(ppm)	1.5	1.3	1.4	1.5	1.5	1.6
Yb	(ppm)	.8	.6	.7	.8	.8	.9
SiO ₂	(%)	72.3	71.2	73.4	71.7	69.4	69.3

Table 2

Correlations of individual oxides/elements with sequential run number throughout the analytical batch

Al ₂ O ₃	0.0989	
Fe ₂ O ₃	-0.0381	
MgO	0.0594	
CaO	0.0555	
Na ₂ O	0.0611	
K ₂ O	-0.0778	
TiO ₂	0.1973	
P ₂ O ₅	0.0921	
MnO	-0.0146	
Pb	-0.3333	
Sb	-0.0810	
Ba	0.0369	
Co	0.3492	
Cr	0.0452	
Cu	0.0224	
Li	0.6735	*
Nb	0.6477	*
Ni	0.4412	*
Sc	-0.1595	
Sr	-0.0030	
V	0.2995	
Y	0.1090	
Zn	0.3032	
Zr	0.0951	
La	0.0094	
Ce	0.5980	*
Nd	0.6925	*
Sm	0.8374	*
Eu	0.6699	*
Dy	0.6420	*
Yb	0.2181	
SiO ₂	-0.0469	

(* = correlation over +0.4)

Table 3

Simple statistics for glass vessel groups and for the combined groups (all numbers in ppm)
(after removal of outliers)

where Group 1 = Cast bowls
Group 2 = Facet-cut and relief-cut beakers
Group 3 = Wheel-cut beakers
Group 4 = Cylindrical cups
ALL = All 4 groups combined

	Group	No	MEAN	STDEV	MIN	MAX
Al ₂ O ₃	1	18	18856	1333	15400	20800
	2	15	20360	1908	17800	23800
	3	25	19756	1852	16600	24600
	4	51	19,373	1418	17100	22500
	ALL	109	19511	1625	15400	24600
Fe ₂ O ₃	1	18	3250	720	2500	5100
	2	15	2653	629	1800	3700
	3	25	3464	836	2000	5200
	4	51	3092	624	2100	4500
	ALL	109	3143	727	1800	5200
MgO	1	18	4589	519	3700	5700
	2	15	3867	875	2800	5400
	3	25	4824	779	2700	6400
	4	51	4618	769	3200	6600
	ALL	109	4557	797	2700	6600
CaO	1	18	55044	9381	38500	76700
	2	15	55880	9263	43900	71900
	3	25	60768	9534	41600	83500
	4	51	56620	5673	47600	70200
	ALL	109	57209	8012	38500	83500
Na ₂ O	1	18	186167	10365	169000	205000
	2	15	176933	12589	149000	198000
	3	25	182320	9957	154000	202000
	4	51	183078	9844	163000	200000
	ALL	109	182569	10539	149000	205000
K ₂ O	1	18	5294	1338	4200	9100
	2	15	4973	779	4000	6300
	3	25	5560	1041	3900	7800
	4	51	4998	739	3700	7500
	ALL	109	5173	954	3700	9100
TiO ₂	1	18	650	186	500	1200
	2	15	487	160	300	700
	3	25	792	247	300	1400
	4	51	694	119	500	1000
	ALL	109	681	193	300	1400

	<u>Group</u>	<u>No</u>	<u>MEAN</u>	<u>STDEV</u>	<u>MIN</u>	<u>MAX</u>
P2O5	1	18	472	67	400	600
	2	15	433	72	300	600
	3	25	680	340	300	1700
	4	51	512	93	400	800
	ALL	109	533	196	300	1700
MnO	1	18	172	235	100	1100
	2	15	120	68	0	300
	3	25	896	1412	100	6100
	4	51	228	366	100	2100
	ALL	109	357	776	0	6100
Pb	1	18	439	820	0	3400
	2	15	1213	1800	0	5100
	3	25	760	886	100	2900
	4	51	108	34	100	300
	ALL	109	464	927	0	5100
Sb	1	18	3783	1454	2200	8600
	2	15	3827	913	2100	5500
	3	25	4192	1442	2200	7700
	4	51	3639	1029	1800	6300
	ALL	109	3816	1200	1800	8600
Ba	1	18	133	16	95	146
	2	15	144	11	123	163
	3	25	153	25	128	239
	4	51	145	10	132	187
	ALL	109	145	17	95	239
Cr	1	18	12	2	9	17
	2	15	12	2	9	17
	3	25	14	3	9	20
	4	51	12	1	10	16
	ALL	109	13	2	9	20
Cu	1	18	10	5	4	25
	2	15	7	2	4	10
	3	25	13	6	5	24
	4	51	10	4	5	24
	ALL	109	10	5	4	25
Sr	1	18	404	132	223	715
	2	15	363	81	248	516
	3	25	429	87	288	606
	4	51	379	71	289	598
	ALL	109	392	90	223	715
	1	18	7	1	6	8
	2	15	7	1	6	9
	3	25	7	1	6	10
	4	51	7	0	6	8
	ALL	109	7	1	6	10

	<u>Group</u>	<u>No</u>	<u>MEAN</u>	<u>STDEV</u>	<u>MIN</u>	<u>MAX</u>
Zr	1	18	35	10	18	62
	2	15	28	9	17	47
	3	25	40	16	11	71
	4	51	34	7	20	51
	ALL	109	35	11	11	71
SiO ₂	1	18	720667	17954	692000	747000
	2	15	728600	16565	694000	759000
	3	25	715200	17064	681000	751000
	4	51	722333	16899	688000	752000
	ALL	109	721284	17315	681000	759000

Figure 1

Plot of Sumerium values during the course of the analytical batch showing an steady increase in Sumerium content

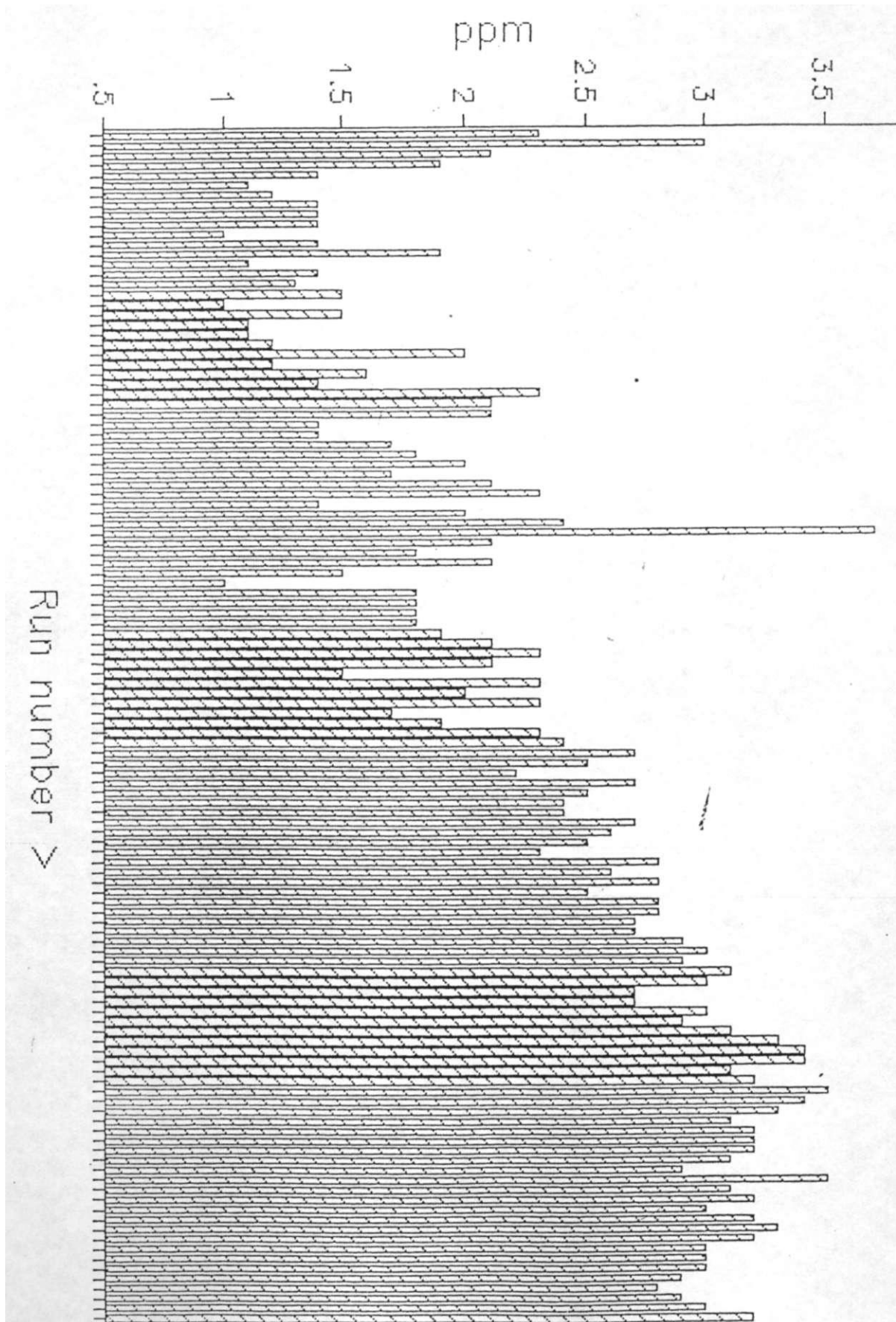
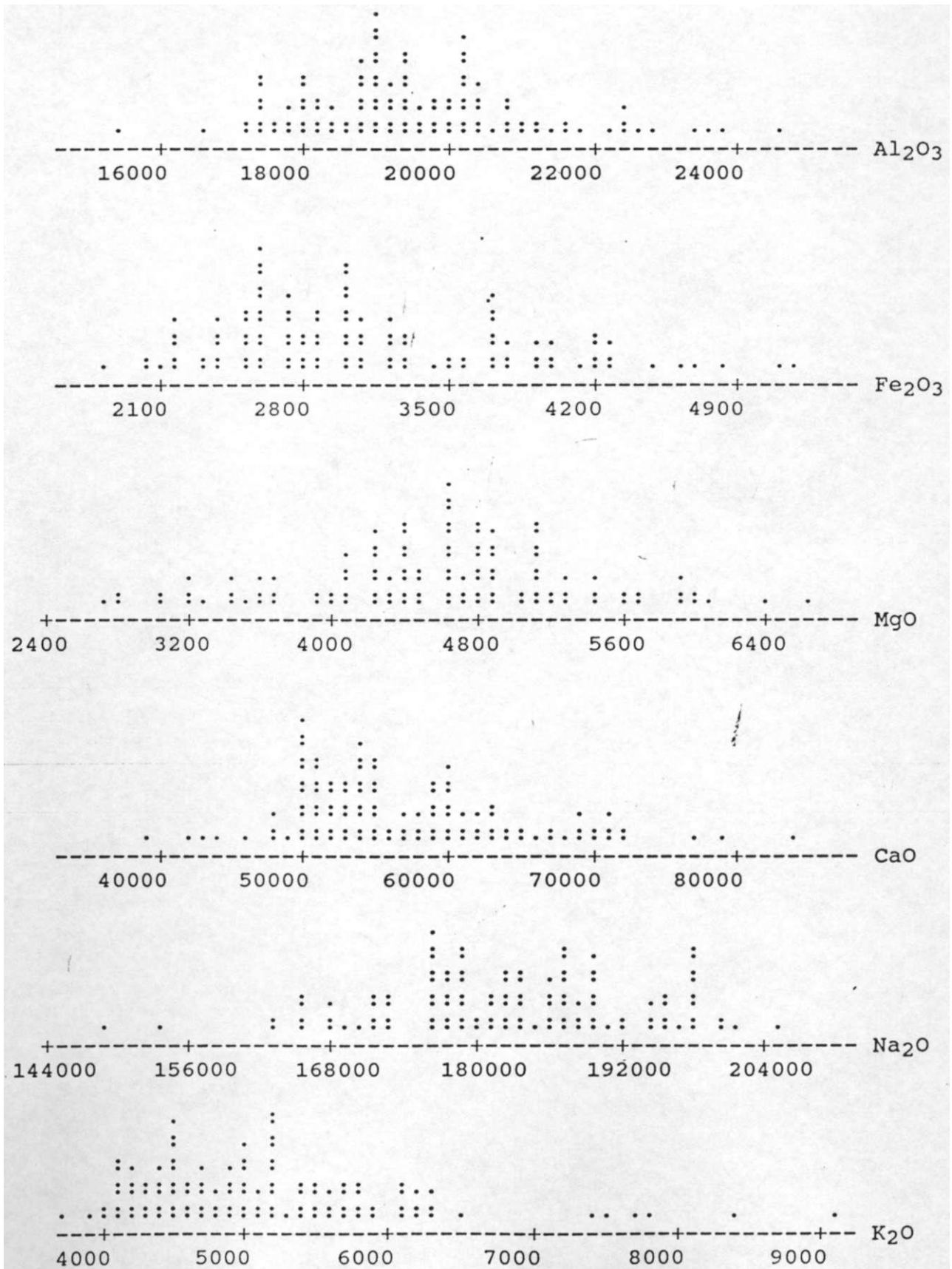
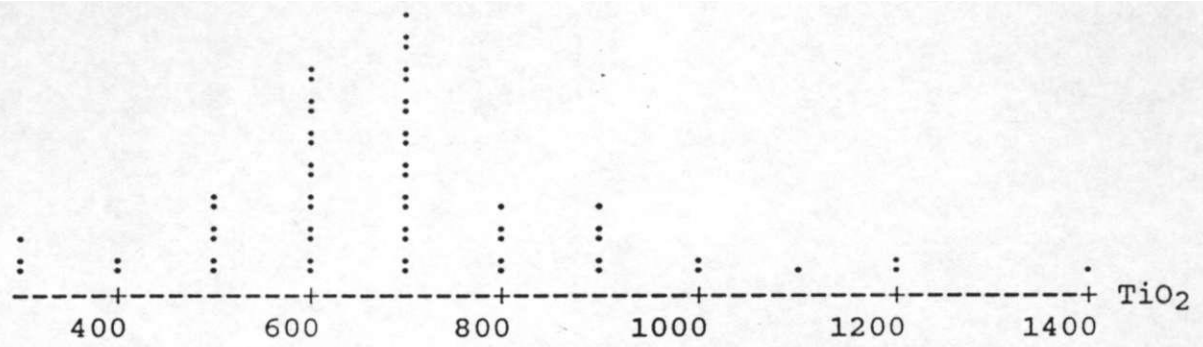


Figure 2

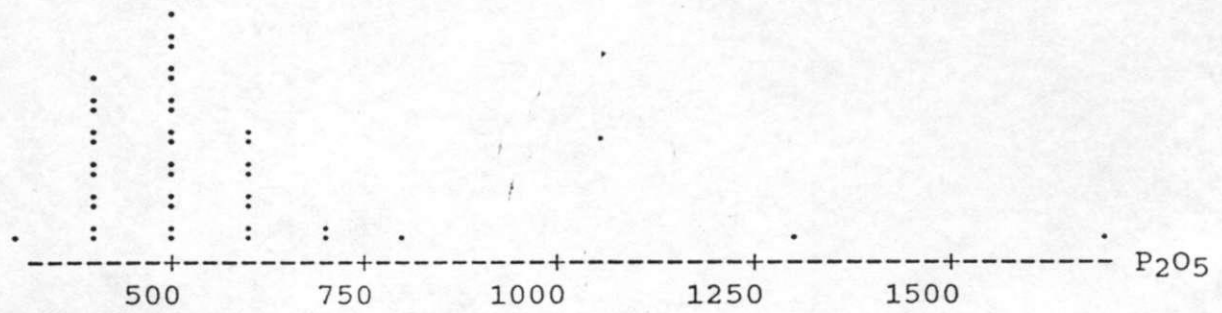
Single element dot plots for all the Colchester vessel glass data (after removal of outliers) with data quoted as parts per million



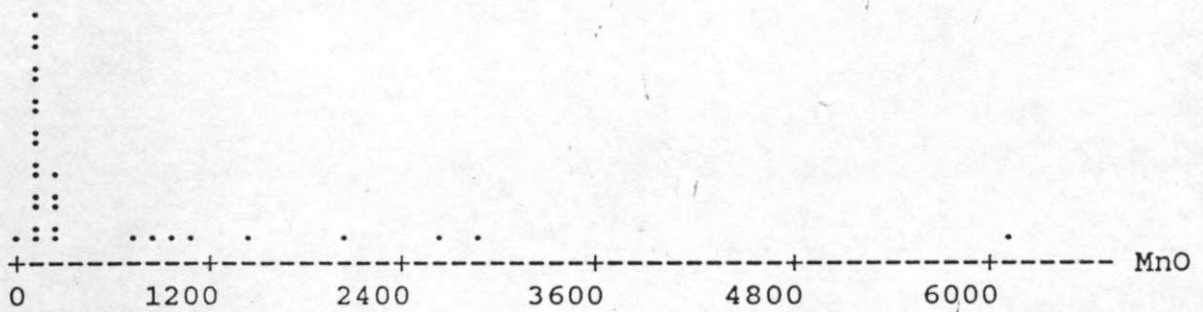
Each dot represents 2 points



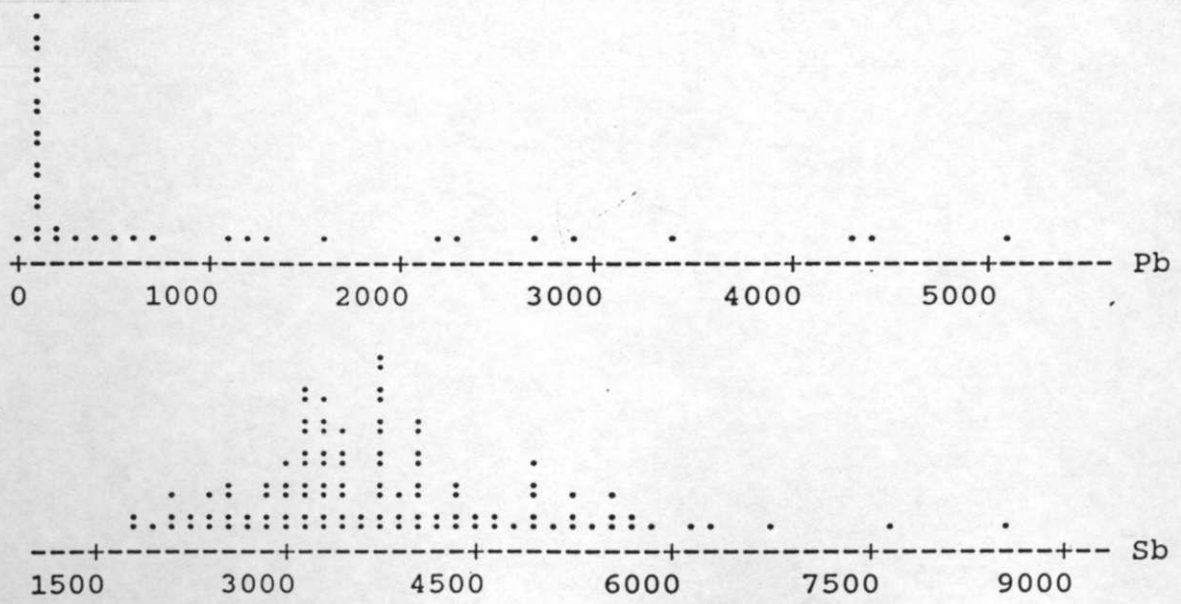
Each dot represents 3 points

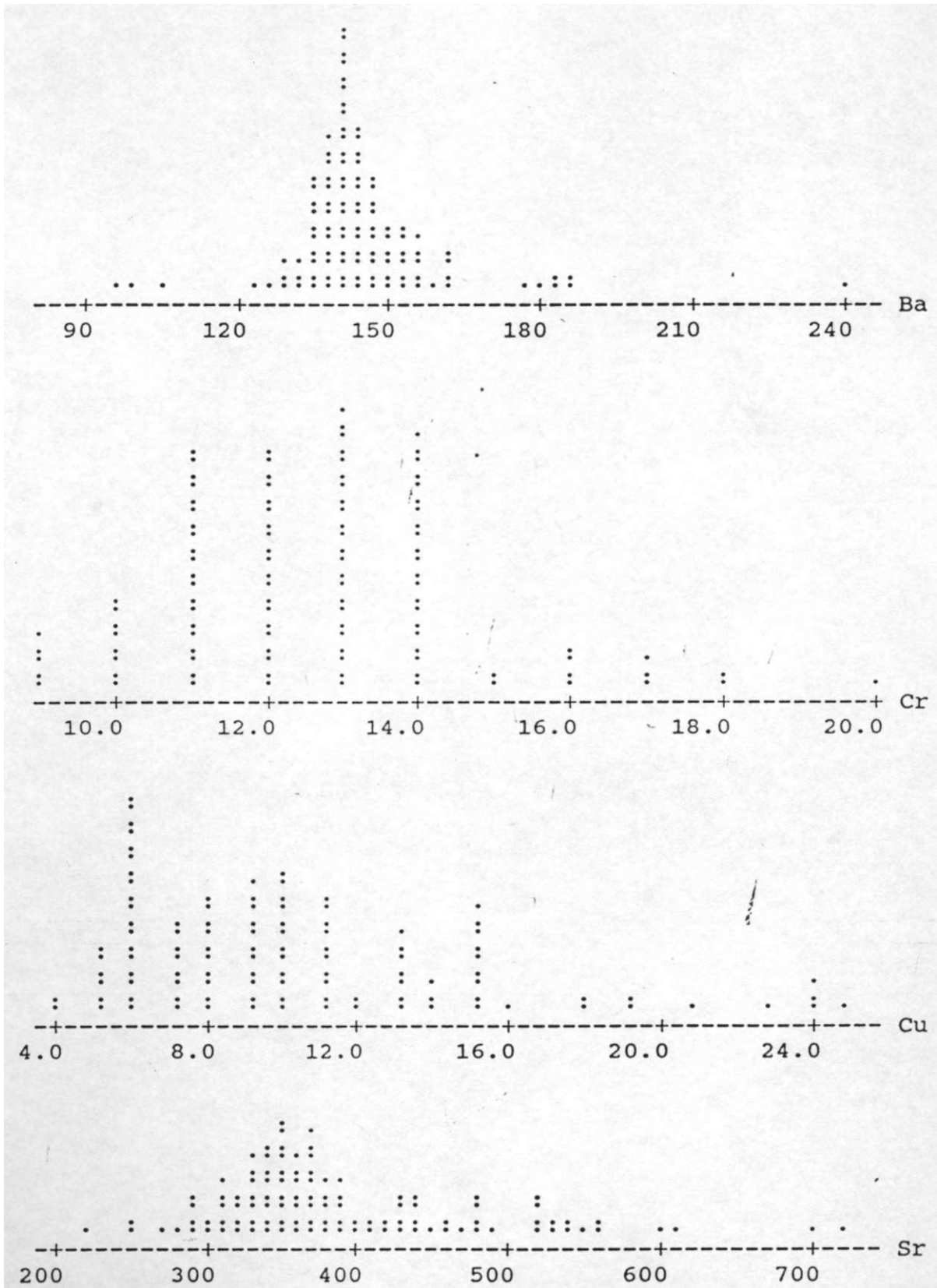


Each dot represents 5 points



Each dot represents 5 points





Each dot represents 4 points

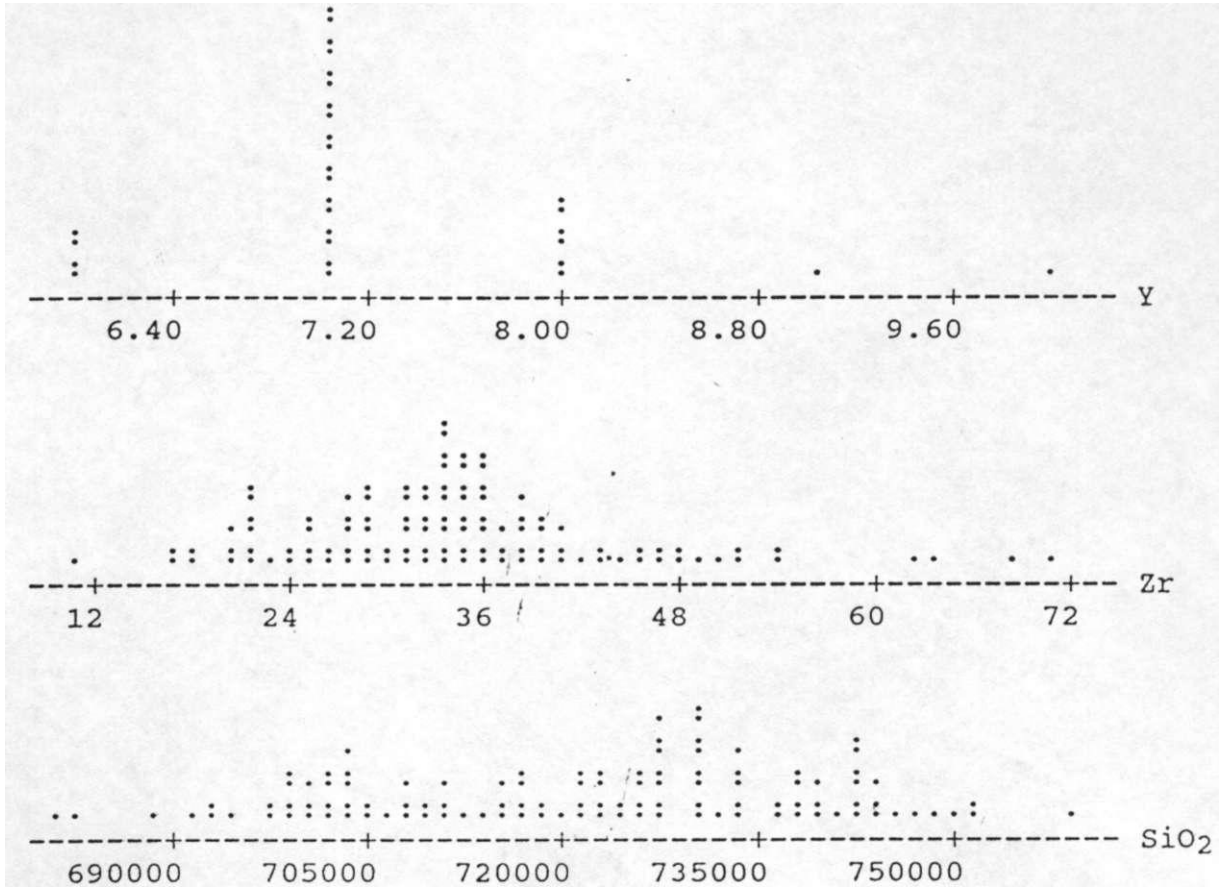


Figure 3

Coefficient and Component plots with results of Principal Components Analysis of data correlation matrix (overlapping points are shown as numbers reflecting the number of points in that area)

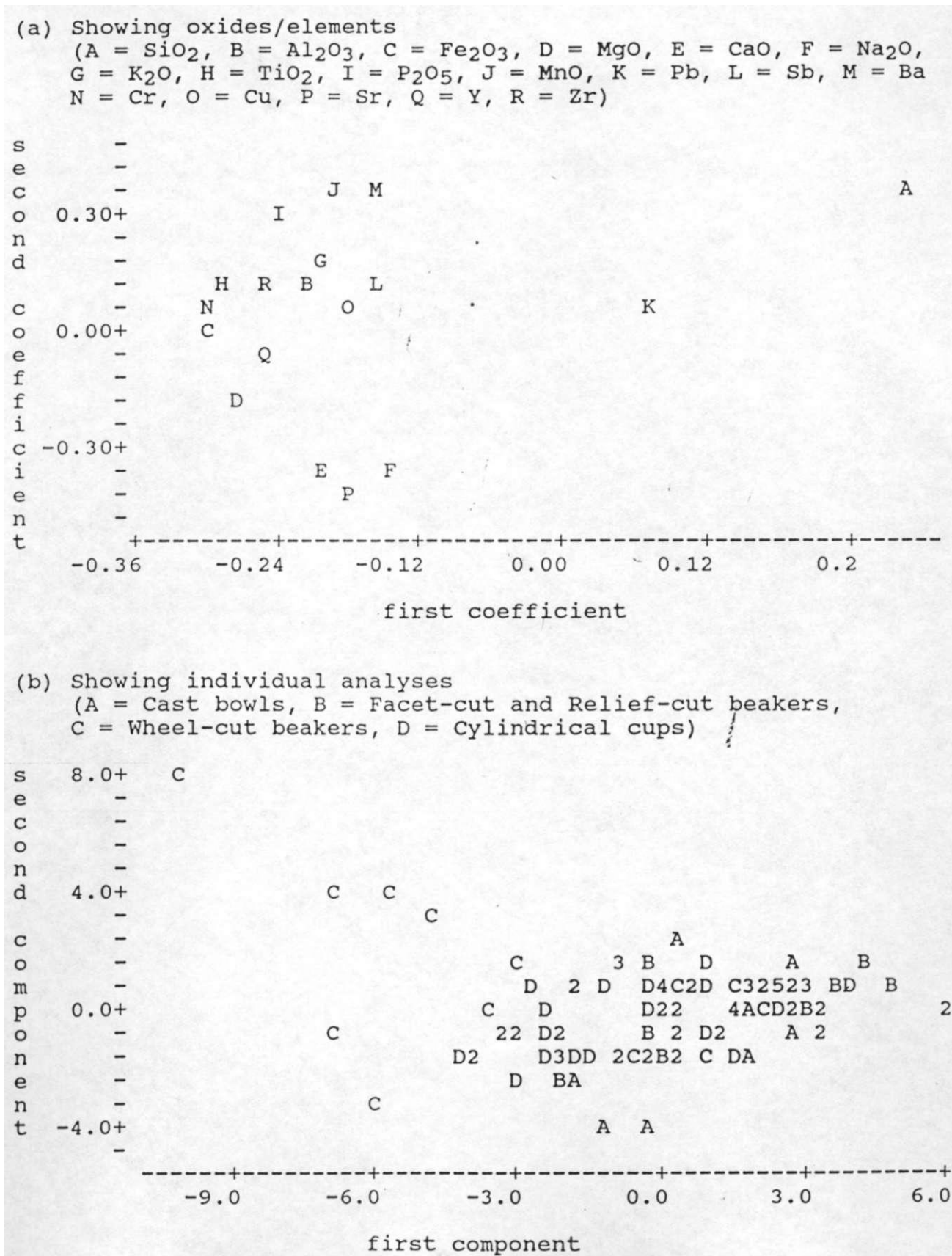


Figure 4

Coefficient and Component plots with results of Principal Components Analysis of data transformed by Aitchison's method (overlapping points are shown as numbers reflecting the number of points in that area)

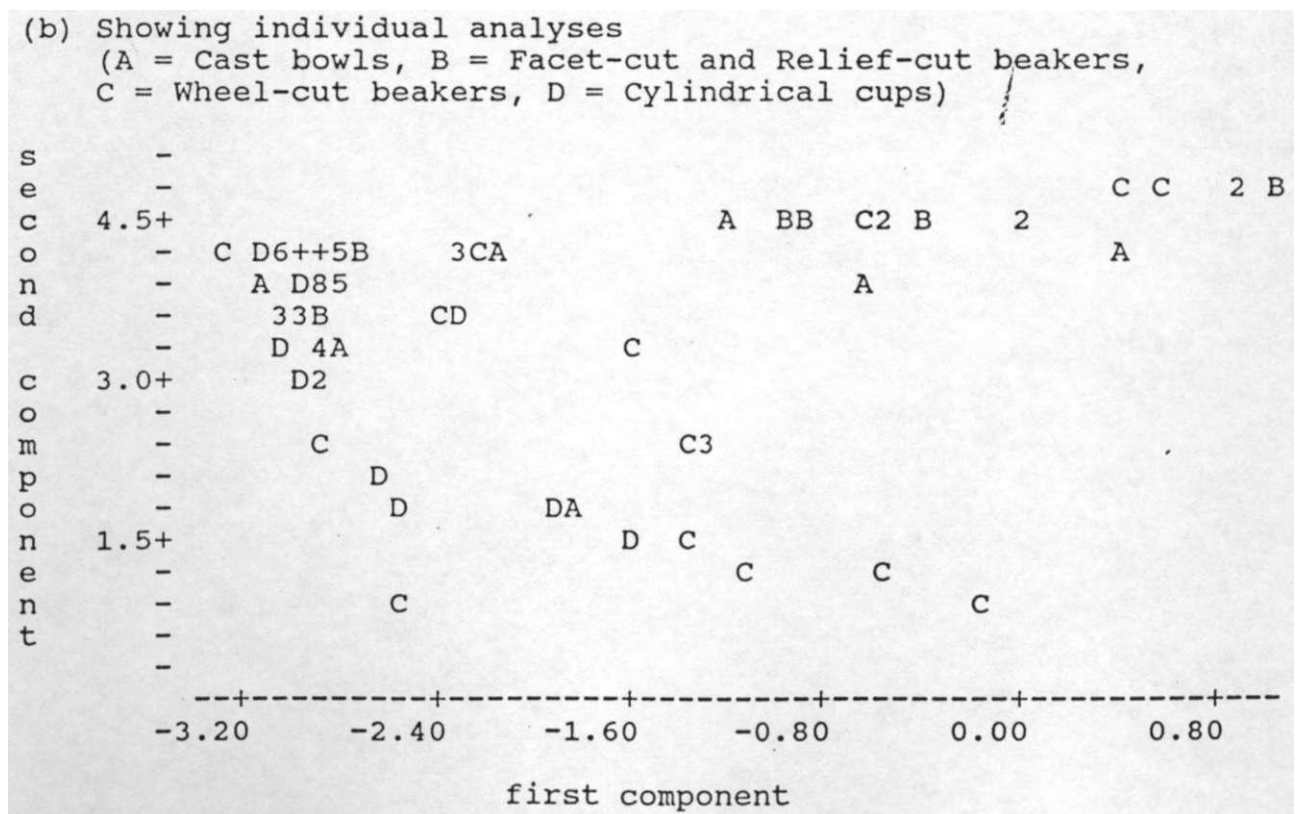
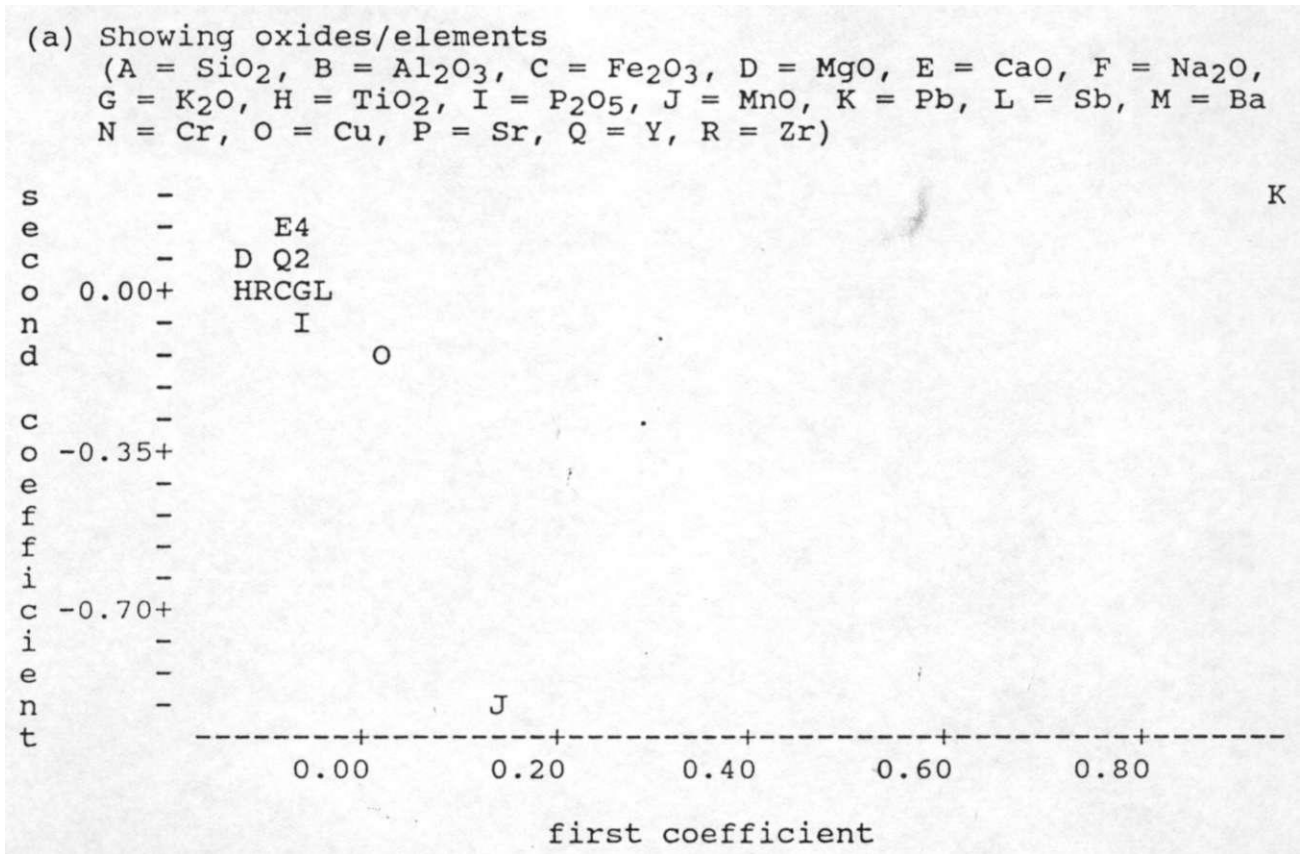


Figure 5

Coefficient and Component plots with results of Correspondence Analysis of the raw data (overlapping points are shown as numbers reflecting the number of points in that area)

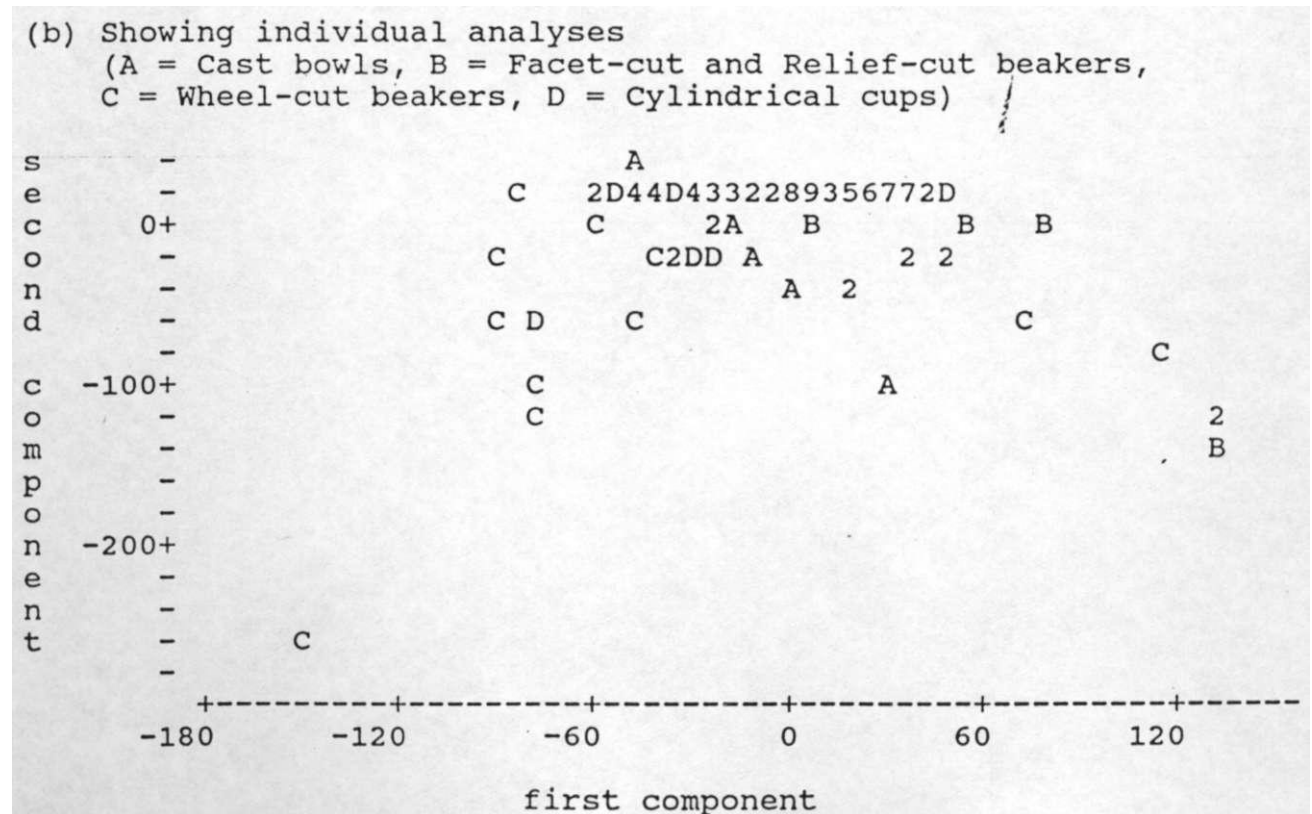
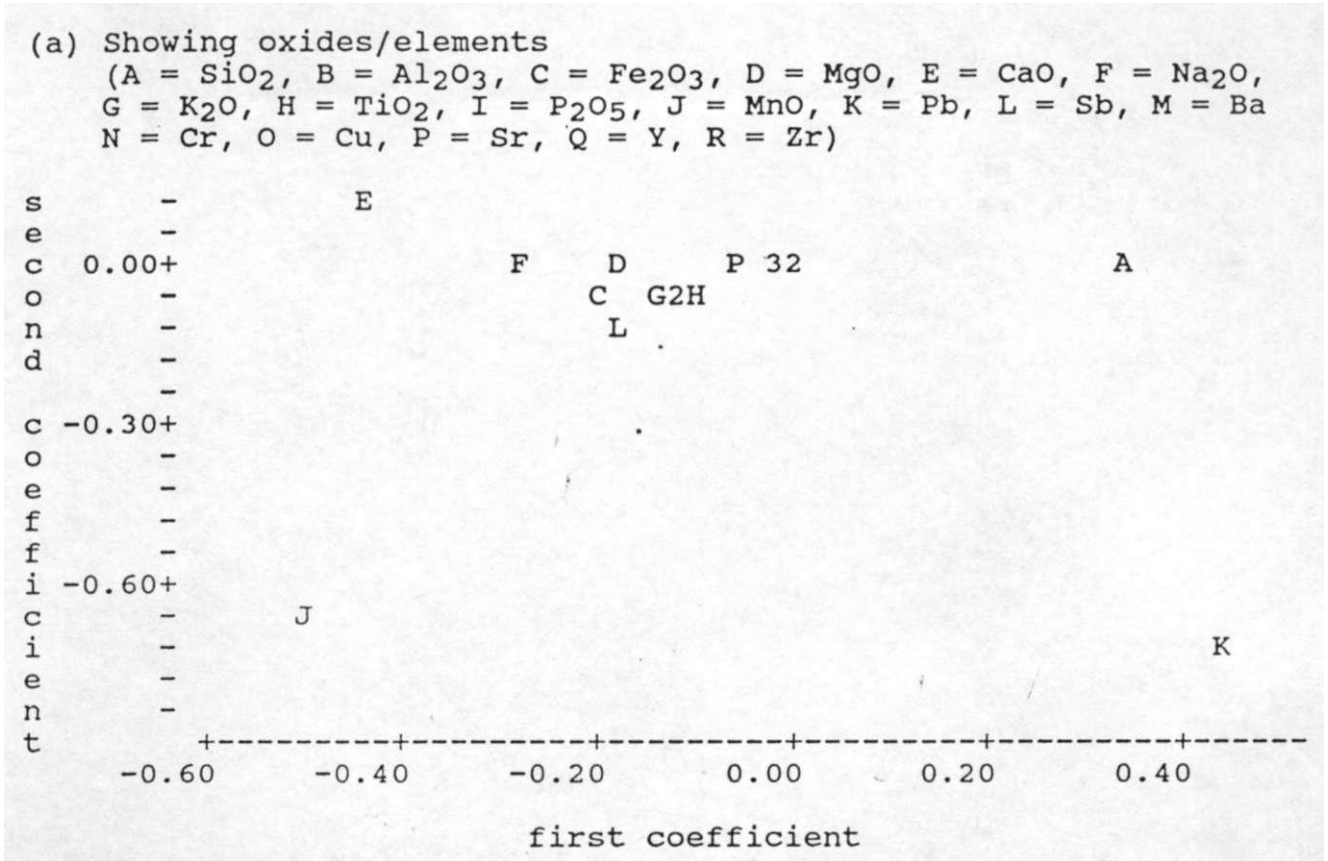
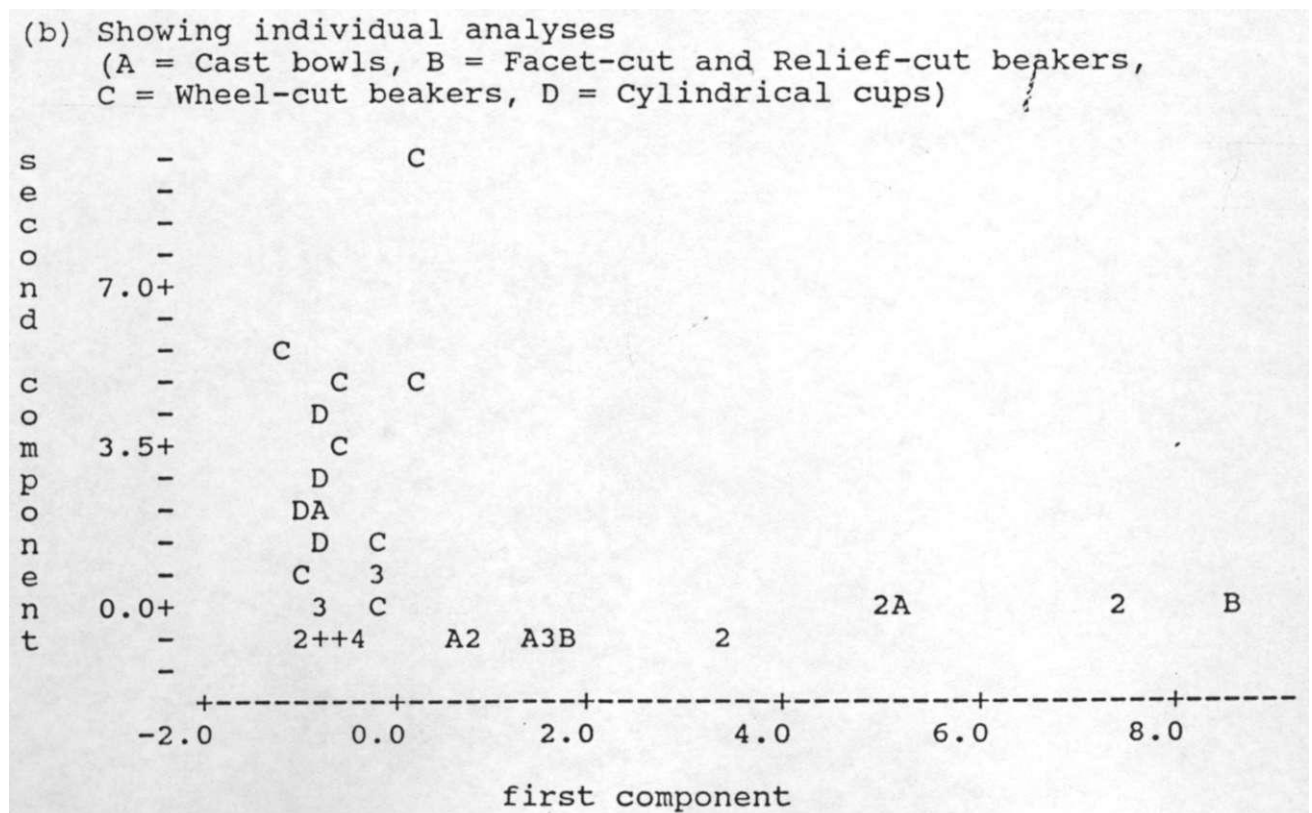
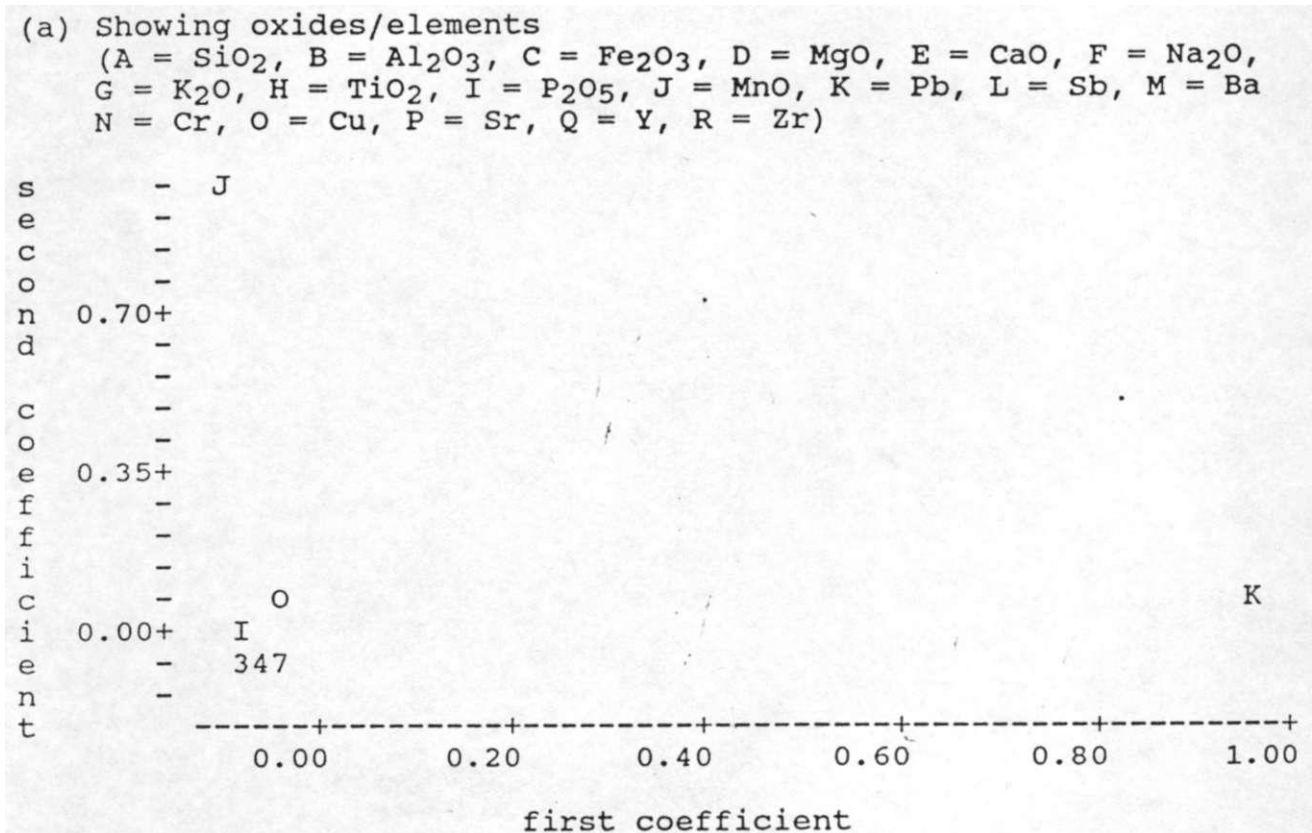


Figure 6

Coefficient and Component plots with results of Correspondence Analysis of data transformed by dividing by column means (overlapping points are shown as numbers reflecting the number of points in that area)



Appendix 2:

Bottles used to to generate Figures 11.1-11.5

Bottles from Romano-British sites

Published bottles

- Allason-Jones and McKay 1985, 39 no. 131
- Boon 1974, 230, fig. 36 no. 10
- Charlesworth 1966, 34, fig. 15, 36 Appendix 1 nos. 11, 23, 30, 40, 42, 44, 57, 59, 63, 65, 66, 68 (2 examples), 69, 77, 83, 85, 89, 91,, 92, 81.
- Charlesworth 1974-6, 102, fig. LIX A
- Charlesworth 1978c, 85, fig. 20.1
- Ellis 1874, 224, pl. II
- Fitzwilliam, 37 nos. 67a and c; 38 no. 68
- Harden 1962, fig. 88 no. H.34.C
- Harden 1968b, 92, fig. 35
- Hollingworth and O'Reilly 1925, 33, pi. XI.2
- Gage 1834, pl. II figs. 2 and 8, pi. III figs. 5 and 7
- Gage 1836, pl. XXXII figs. 1, 4 and 5
- Gage 1840, 2 no. I, 3 no. V
- Gage Rokewood 1842, 2 no. I
- Garrod 1925, 287, figs. 1-2
- Kelly and Dudley 1981, 67 no. 1, fig. 2 and 83, fig. 8.1
- Payne 1893, 48 pls. X and XII
- Price 1987a, 206 no. 33, fig. 4
- RCHM London, 161, fig. 66, 35i
- Townend and Hinton, 1978, 389 no. 116, fig. 176
- Westell 1931, 274, fig. 6 no. 4818
- Wheeler 1926, 249 fig. 106
- Whiting et al 1931, pl. XVI no 144

Unpublished bottles

Canterbury (?) - Royal Museum, Canterbury (RM 7235). Square bottle with three-ribbed handle. Height 150, base width 75mm.

Faversham - Royal Museum, Canterbury (RM 864). Hexagonal bottle with three-ribbed handle. Height 280mm., base width between centres of sides 110mm.

Leicester - Jewry Wall Museum, Leicester (132.65). Hexagonal bottle with reeded handle. Height 221mm., base width between centres of sides 155mm.

Lincoln - Lincoln Museum (9640.06). Square bottle with reeded handle. Height 250mm., base width 64mm.

Wroxeter - Rowley House Museum, Shrewsbury (unnumbered). Square bottle with two-ribbed handle. Height 190mm., Base width 54mm.

Bottles from the other north-western provinces

Arveiller-Dulong and Arveiller 1985, 67-71, nos. 104-7, 109, 110; 99-100 no. 74

Behrens 1925-6, 68 Abb. 9 no. 6

Beyer et al 1986, 329 no. 1, Abb 40

Faiyder-Feytmans 1940, 215, pl. I no. 1

Fremersdorf 1933, 270 nos. 9-11, Abb. 1

Goethert-Polaschek 1977, 193-96, nos. 1194, 1195, 1197-1205, 1211, 1212, Tafn. 9,10, 14, 65 and 66; 200 nos. 1232-4, T

van den Hurk 1977, 119 no. VI.21-2, figs. 43-4

Isings 1971, 26-37 nos. 84-91, 94-98, 100, 102, 103, 106, 107, 109, 110, 112, 120, figs. 5-9, pl. 2; 80 no. 154, 81 nos. 156, 158-160, figs. 20-21

Landes 1983, 43-4 nos. 1-4, 45 no. 12, pl. Mil, V

Mitard 1977, 217 nos. 1-6, fig. IV

Müller 1959, 404 Abb. 37 nos. 8-9, 407 Abb. 39 nos 1-5 and 7

Petit 1980, 96 pl VIII no. A75 bis; 112, pl. XXIII no.A104.2

Sennequier 1980, 37 nos. 51-3, fig. 34

Sennequier 1985, 129-66 nos. 215-25, 227-30, 234, 235, 237-42, 247-50, 253-56, 258

Appendix 3:

GLASS CATALOGUE

Cast glass

Pillar-moulded bowls

All of these have fire-polished interiors. Where the rim is present it is wheel-polished on both the interior and exterior.

Polychrome

- 1 BKC73-6 E1159 I362 & E1250 L358, Building 37, Period 1b
2 rim fragments. Dark yellow/brown with opaque white spirals and rods. Part of 3 narrow ribs. PH 50, RD 160, RT 3.5.
- 2 1.81 B1496 & 1597 L366, Building 78 destruction
1.81 B1658 L407, early Period 3
1.81 B1410 L329, Building 94 Room 4b, Period 3/4
2 rim, 2 body and 1 base fragments. Dark yellow/brown ground with opaque white spirals. Parts of 5 narrow ribs on upper body with tooling marks on top and approx 11 ribs in very shallow relief running to centre of flat base.
- 3 1.81 K369 L358, Period 3
Rim fragment. Dark yellow/brown ground with opaque white spirals. Part of 1 rib. PH 40, rim thickness 3.5.
- 4 HEC76, unstratified.
Rim fragment. Deep purple ground with opaque white spirals. Part of one narrow rib. Shallow abraded line below rim edge on interior. PH 36, RD 105, RT 4.
- 5 BKC74 E987, Building 37, Period 1b
Rim fragment. Deep blue ground with opaque white spirals. Broken at top of rib. Wheel-cut groove below rim edge on interior. PH13, RD 110, RT 2.5.
- 6a LWC72 B642, Period 1 dump
2 body fragments, 1 with part of rim (edge missing). Dark yellow/brown with opaque white rods, 1 narrow rib and parts of 2 others, ribs die out on lower body. Dim 45x20 & 50x16, RT 3.

- 6b GBS85 B406 L26, Building 133 destruction, Period 2 or 3a
Rim fragment. Deep blue ground with opaque white specks. Rim edge broken; part of 2 ribs.
Dim 39x29.

Strongly-coloured

- 7 BKC76 J403, modern
2 joining rim fragments, deep bowl with widely spaced ribs. Dark yellow/brown. Part of 1 prominent rib with broad diagonal bulge at one side. Exterior of rim ground and then fire-polished; deep tooling marks; interior of bowl only very lightly wheel-polished except in band below rim. PH 68, RD 200, RT 5.
- 8 MID A250, Period 2/3
Rim fragment. Dark yellow/brown. Part of 1 rib. Deep tooling marks at top of fire-polished zone. PH 44, RD 190, RT 4.
- 9 LWC72 J989, Period 2 destruction/Period 3
Rim fragment; deep bowl. Dark yellow/brown. Parts of 2 ribs. Exterior of rim only very lightly polished. PH 48, RD 180, RT 6.
- 10 GBS85 A2595 L302, Period 1
Rim fragment. Light yellow/brown. Part of 1 rib. PH 28, RD 170, rim thickness 3.5.
- 11 GBS85 B68 F12, Building 131 Room 10, Period 1(or2)
1 rim and 1 joining body fragment. Dark yellow/brown. Parts of 4 close-set ribs. PH approx 46; RD 120-130, RT4.5.
- 12 LWC71, Building 86 F43 12th-15th century
Lower body fragment. Dark yellow/brown. Parts of 2 shallow ribs. 2 wheel-cut lines on interior. Dim 43x42.

Also 2 dark yellow/brown body fragments

- 13 BKC74 E1003 L314, Period 2
- 14 BKC75 K460 L61, Period 4c
- 15 1.81 K435 F411, Period 3a or 3b
Body fragment. Dark yellow/brown. Parts of 2 ribs. Dim 30x29.
- 16 LWC72 B644, Period 1 dump
Rim fragment. Light yellow/brown. Parts of 3 diagonal ribs. PH 50, RT 4.
- 17 BKC76 V29 L5, late Period 5
Base fragment. Light yellow/brown. Flat base with parts of 4 ribs dying out. Dim 47x18.
- 18 1.81 M334 L333, Building 121, Period 3
Rim fragment. Deep blue. Broken at top of rib. PH 22, RD approx 210-220, RT 5.

Also 2 body fragments from 2 bowls

- 19 BKC76 V1162 F503, Period 4 — deep blue
- 20 BKC76 T519 F37 contaminated, ?Period 1(or2) and 5c — light blue.
- 21 1.81 B2266 F282, Building 77 Room 5, Period 1/2
Rim fragment. Light green. Parts of 5 ribs with tooling marks on upper edges. PH 48, RD 160, RT 5.

Also 3 body fragments from 3 bowls

- 22 BKC75 K304 L9, ?Period 5or6—greenish yellow lower body fragment with 2 wheel-cut lines on interior
- 23 LWC72 J1682, Period 1—yellowish green

- 24 1.81 M361 F360, Period 3 — yellow/green with 2 wheel-cut horizontal lines on interior.

Blue/green

- 25 GBS84 A2106 L221, Period 2 or 3A
Rim fragment of shallow bowl. Parts of 8 shallow very close-set ribs on sides of bowl only. PH 30, RD 145, RT 3.5.
- 26 1.81 B977 L218 B112 Room 3, Period 4a
3 joining rim fragments. Parts of 5 ribs with varying degrees of tooling on upper edges. 1 rib deformed in upper part. 2 wheel-cut grooves on interior of lower body. PH 82, RD approx 220, RT 5.
- 27 GBS84 A1846 L28, Roman?
Rim fragment. Parts of 2 narrow ribs. 2 wheel-cut grooves on interior of lower body. PH 67, RD approx 200, RT 4.

Also 1 lower body fragment with part of 1 rib and 2 wheel-cut grooves on interior possibly from the same vessel

- 28 GBS84 A1420 L93, Period 2
- 29 1.81 E1266 L185, Period 1
1.81 E1329 L187, early B84 demolition early Period 2
1.81 E776 F424, Period 3
2 rim and 2 body fragments. Parts of 10 ribs with tooling marks on upper edges. 2 wheel-cut lines on interior of lower body. PH approx 65, RD 130, RT 4.
- 30 LWC71 A264 F89, Period 2
LWC71 A55 F31, post-Roman
1 rim and 3 body fragments (3 joining). Parts of 10 narrow, slightly diagonal ribs; wheel-cut grooves on interior of lower body. Rim affected by heat. PH approx 75.
- 31 BKC76 V71, unstratified
Rim fragment. Part of 1 wide rib with tooling marks on top. PH 39, RD 230, RT 5.
- 32 BKC75 J342 L35, ?Roman
1 rim and 1 body fragment. Parts of at least 2 ribs. PH 22, RD 230, RT 5.
- 33 LWC72 M110, Rampart 1b, mid 2nd century
Rim fragment of deep bowl. Part of 1 thick rib. Deep wheel-polished area on exterior of rim. PH 48, RD 210-230, RT 6.
- 34 1.81 C287 L36, early Period 3
Rim fragment. Parts of 2 ribs. Prominent tooling marks on exterior of rim and upper part of ribbed area. PH 50, RD approx 210, RT 4.
- 35 1.81 C11 F4, early medieval
Rim fragment. Part of 1 rib with tooling marks on upper edge. PH 45, RD approx 210, RT 6.
- 36 LWC72 J388 F48, Period 4b
Rim fragment, deep bowl. Part of 1 thick rib. PH 58, RD approx 200, RT 6.
- 37 LWC73 R129, Period 2
2 rim fragments, thin-walled bowl. Parts of 4 narrow ribs with tooling marks on upper edges. PH 44, RD approx 200, RT 2.5-3.5.
- 38 1.81 J244 F237, Period 3
Rim fragment. Dark blue/green. Part of 1 diagonal rib and edge of second. Exterior of rim deeply wheel-polished; tooling marks on upper edge of rib and rib tooled down 1 side. PH 37, RD approx 200, RT 5.
- 39 BUC79 H911 G661, Period 2
Rim fragment. Top of 1 rib. PH 30, RD approx 200, RT 5.
- 40 1.81 B862 L194 B113 Room 1, Period 4
Rim fragment. No ribs extant. PH 27, RD approx 200, RT 5.
- 41 BKC75 J499 F270, Building 45?, Period 2(?)
Rim fragment. Blue/green with streaky purple impurity at rim. Parts of 2 ribs. PH 37mm., RD 190mm., RT 5mm.

- 42 LWC71 B420 F158, Period 1
Rim fragment of deep bowl. Parts of 2 diagonal ribs with tooling marks on upper edges. PH 50, RD approx 180, RT 4.
- 43 1.81 E523 F389 +, unstratified
Rim fragment. Part of 1 rib with tooling mark on upper edge. PH 36, RD 180, RT 4.
- 44 GBS84 A1868 L168, Period 1 or 2
GBS84 A1849 L151, Building 131, Period 2
GBS84 A1194, Roman
2 rim and 1 body fragments (joining). Part of 1 rib with tooling mark on upper edge and edge of second. Wheel-polishing on exterior starts below bevelled edge. PH 53, RD 170, RT 4.
- 45 1.81 E364 F1007, Period 8
Rim fragment. Parts of 3 ribs. Wheel polishing on exterior starts below bevelled rim edge. PH 47, RD 170, RT 5.
- 46 GBS84 A291 L9, Period 3a
Rim fragment. Part of 1 rib with tooling mark on upper edge. PH 47, RD approx 180, RT 5.
- 47 1.81 E96 F7, Period 8
Rim fragment. Parts of 2 ribs with upper edges sloping in shallowly; tooling marks on rim exterior. PH 35, RD 170, RT 5.
- i 48 GBS84 A818 F119, Building 134, Period 2 (or 3a)
Rim fragment. Parts of 2 ribs with tooling marks on upper edges. PH 40, RD 170, RT 5.
- 49 1.81 E1246 L180, Period 2
Rim fragment. Part of 1 rib with tooling marks on upper edge and edges of 2 other ribs. PH 50, RD approx 160, RT 5.
- 50 GBS84 A401 F27, Period 3b
Rim fragment. Parts of 2 ribs. Exterior of rim only lightly wheel-polished PH 45, RD 155, RT 5.
- 51 1.81 E1656 L149, Period 2
Rim fragment. Part of 1 slightly diagonal rib with tooling marks on upper edge and indentation on upper body on either side. PH 58, RD approx 150, RT 4.
- 52 1.81 E1224 L138, Period 2
Rim fragment with part of 1 rib, probably from same bowl as no 50.
- 53 LWC71 A117 F14, post-Roman
Rim fragment. Part of 1 narrow rib. PH 33, RD approx 150, RT 3.5.
- 54 LWC71 B517 F184, Period 4
Rim fragment of shallow bowl. Parts of 3 ribs. Exterior of rim fire-polished with patches of wheel polishing. PH 44, RD 140, RT 4.
- 55 1.81 E1235, unstratified (contaminated L107)
Rim fragment. Parts of 2 close-set prominent ribs. PH 45, RD 140, RT 3.5.
- 56 1.81 K4, unstratified
Rim fragment. Rim and slide sloping in slightly. Part of 1 rib. PH 30, RD 140, RT 2.5.
- 57 MID78 A2288 L345, Roman Period 3
Rim fragment. Top of 1 rib. PH 28, RD 140, RT 5.
- 58 1.81 D1421 F1252, Period 4
Rim fragment. Tooled upper part of 1 rib with edge of second. PH 25, RD approx 140, RT 3.
- 59 BKC76 V6 L5, late Period 5 (300)
Rim fragment. Top of 1 rib sloping diagonally into rim area. PH 20, RD approx 140, RT 4.
- 60 1.81 M357 L248, Period 3 or 4
Rim fragment. Parts of 5 narrow ribs. Wheel-polishing on exterior starts below bevelled rim edge. PH 44, RD 120, RT 4.
- 61 BKC76 V339 F72, Period 4
1 rim and 1 joining body fragment. Part of 1 narrow, slightly diagonal rib. PH 37, RD 120, RT 4.
- 62 1.81 E1022 F890, Building 86/87, Period 3
Rim fragment. Part of 1 rib with tooling marks on upper part of fire-polished area. PH 33, RD 120, RT 4.

- 63 1.81 G83 F60, Period 6
Rim fragment. Parts of 2 ribs with tooling marks on upper edges and deep tooling mark on upper fire-polished area. Wheel-polishing on exterior starts below bevelled rim edge. PH 35, RD approx 110, RT 4.
- 64 CPS73 (420) F100, Period 5
Rim fragment. Broken at top of rib. PH 18, RD 110, RT 3.
- 65 COC79 (974) L280, Period 3
Rim fragment. Parts of 2 ribs. PH 58, RT 3.5.
- 66 1.81 E375 F257, Building 127, Period 5
Rim fragment, rim edge chipped. Part of 1 rib. PH 57, RT 5.5.
- 67 1.81 G515 F14, Period 5
Rim fragment. Part of 1 rib. PH 55, RT 5.
- 68 1.81 M396 L248, Building 121?, Period 3
Rim fragment. Part of 1 rib. PH 50, RT 4.
- 69 GBS85 B202 L8 upper Period 3
Rim fragment. Parts of 2 close-set ribs with tooling marks on upper edges. PH 45, RT 5.
- 70 LWC71 A264 F89, Period 2
Rim fragment. Part of 1 slightly diagonal rib. PH 45, RT 5.
- 71 BKC75 J9 L1, modern
Rim fragment. Part of 1 prominent rib. Narrow ground band and horizontal tool marks on exterior of rim. PH 42, RT 5.
- 72 LWC73 K499 F278, medieval and later
Rim fragment. Top of 1 rib. PH approx 35, RT 5.5.
- 73 BKC75 H12 L2, post-Roman
Rim fragment. Part of 1 prominent narrow rib and edge of second, ribs closely spaced. 1 edge grazed. PH 34, RT 4.5.
- 74 BKC76 T500, ?Period 1 or 2
Rim fragment. Edge of 1 rib. PH 30, RT 4.
- 75 LWC73 K434, Period 4b?
Rim fragment. 1 rib in very shallow relief; wheel-polishing in narrow band on exterior of rim. PH 29, RT 4.5.
- 76 1.81 E875 F747, Building 90, Period 2
Rim fragment. Part of 1 rib. PH 25, RT 3.5.
- 77 1.81 B2450 L407, Building 78? destruction, early Period 3
Rim fragment. Parts of 3 ribs. Heat affected and distorted. Dim 58x32.

Also 3 other melted and distorted rim fragments

- 78 BKC74 E926 L269, Period 3A
- 79 1.81 B1496 L366, Building 78 destruction, early Period 3 (very heavily burnt)
- 80 1.81 B1743 L418, Building 77 destruction, early Period 3

Also 7 rim fragments retaining the top of 1 rib

- 81 BKC76 T500, ?Period 1 or 2
- 82 LWC72 J1683, Building 20 Phase 2 Room 3, Period 4b
- 83 BUC76 B946 F125, Period 2
- 84 CPS73 (325) F83, Period 5
- 85 1.81 C221, ?Period 3
- 86 1.81 H354 F353, Period 6
- 87 1.81 K333, unstratified

Also 3 rim fragments

- 88 BKC76 V215 L55, Building 46, Period 2
- 89 LWC72 J1233, Building 8, Period 2
- 90 BUC77 C1574 G425, Period 2

Also 12 rim and upper body fragments retaining part of 1 rib but lacking rim edge

- 91 BKC74 E1161 L382, Period 1 b or 2
- 92 BKC74 J453 F260, Building 44 Room 2/3, Period 2
- 93 BKC74 J453 F260, Building 44 Room 2/3, Period 2
- 94 BKC74 V1033, Period 2-4
- 95 CPS73 (934) L148 B154, Period 4
- 96 1.81 D600 L248, Period 4
- 97 1.81 E690 L32, Building 100, Period 3a (parts of 2 ribs)
- 98 1.81 E1022 F890, Building 86/87, Period 3
- 99 1.81 G1444 L992, Period 4
- 100 1.81 J255 F253, Period 1 or 2 (very dark blue/green)
- 101 1.81 K448 F411, Period 3a or 3b
- 102 1.81 M729 F313, Building 121, Period 3

- 103 BKC75 S4, modern
2 joining lower body and base fragments. Parts of all ribs of bowl (20) present and extending onto slightly concave base and meeting off centre. On interior 3 shallow wheel-cut lines (becoming 2) around edge of base and 1 small wheel-cut circle at centre. PH 18, BD approx 70.
- 104 LWC73 K551 F313, Period 1
Lower body and base fragment. Parts of 12 shallow ribs extending almost to centre of flat base. On interior 1 small wheel-cut circle at centre of base and 2 wheel-cut lines at its edge. PH approx 10, BD approx 55, WT 4.
- 105 1.81 A22 F12, medieval or post-medieval.
Base fragment. Very slightly concave base with at least 12 ribs in very shallow relief running to centre. 2 concentric circular grooves on interior of base with a small circular groove at centre. Dim 59x42, diameter of outer circle approx 50.
- 106 1.81 K200, unstratified
Lower body and base fragment. Parts of 5 ribs running onto base. 2 wheel-cut circular grooves at edge of base on interior. PH 14, diameter of outer circle approx 50-55.
- 107 BKC76 T519, ?Period 1 (or 2) and 5c
Lower body and base fragment. Parts of 4 ribs dying out around edge of base. 2 wheel-cut lines around edge of base on interior. PH approx 9, base diameter approx 60.
- 108 1.81 K200, unstratified
Lower body and edge of base fragment. Parts of 5 ribs running onto base. 2 wheel-cut lines on interior of lower body. PH approx 20.
- 109 1.81 G2467 F2362, Period 3
Base fragment. Very slightly concave base with parts of 3 ribs running towards centre. 2 concentric wheel-cut circular grooves at edge of base on interior. Dim 34x27.
- 110 BKC76 V81, unstratified
Lower body and base fragment. Body curving in steeply to base. Part of 1 rib running onto base. 2 shallow wheel-cut lines on interior of lower body. PH approx 20.
- 111 MRC71 70, ?modern
5 lower body and base fragments joining in 2 pieces. Parts of 12 shallow ribs extending almost to centre of flat base but dying out before centre. Abraded band on interior of lower body. PH 30.

- 112 1.81 J255 F253, Period 1 or 2
Lower body and base fragment. Dark blue/green. Parts of 4 ribs running towards centre of slightly concave base. PH 17.
- 113 BKC76 J299 L35, Periods 3/4/5A
Base fragment. Parts of 8 ribs extending towards centre of flat base. Dim 62x39, BD 70-80.

Also 6 base fragments with ribs dying out towards centre

- 114 LWC71 B452 F159, Period 4
- 115 LWC72 K241 F117, medieval and later (2 fragments, wide bowl with ribs in high relief)
- 116 GBS84 A276 L9, Period 3a
- 117 GBS84 A291 L9, Period 3a
- 118 GBS85 A2394, unstratified

Also 4 blue/green ribbed base fragments

- 119 BKC76 V819 F30, Period 2 (or possibly 3) (3 joining fragments with at least 3 ribs)
- 120 BKC76 J81 L23, Period 5c or 6 (1 very bubbly fragment with 3 ribs)

Also 7 upper body fragments

- 121 BKC76 V487 L58, Building 46, Period 2
- 122 BKC76 T320 L37, Building 47, Period 3?
- 123 BKC75 K346 L28, Period 4b
- 124 BKC75 G443, Periods 1-4
- 125 BKC76 V1087, ?Period 4 or 5
- 126 LWC72 M100, Rampart 1c, mid 2nd century
- 127 LWC71 A20 F11, post-Roman (narrow rib)

Also 20 lower body fragments with 2 wheel-cut lines on interior (unless otherwise stated)

- 128 BKC76 T473, Building 34, Period 1
- 129 BKC75 J461 F285, Periods 3/4/5A
- 130 BKC76 V813 L22, late Period 5 (300) (widely-spaced)
- 131 BKC75 K457 L79, Period 4a
- 132 BKC76 V187, Period 2-4? (1 abraded band, also 1 chip from rim)
- 133 BKC76 T371, Period 5? (1 abraded band)
- 134 LWC71 C393, Periods 2 or 3
- 135 LWC72 J682, Period 4
- 136 1.81 C440 L83, Building 79 Room 2, Period 1
- 137 1.81 C271 L32, Building 96 Room 2, Period 3 (heat affected)
- 138 1.81 E737 L27, Period 3 (1 abraded band)
- 139 1.81 E827 L44, Period 3
- 140 1.81 E836 F557, Period 3
- 141 1.81 J255 F253, Period 1 or 2 (dark blue/green; heat affected)
- 142 1.81 J300 F290, Period 1 or 2 (dark blue/green)
- 143 1.81 G2908 L2904, Period 6 (1 abraded band)
- 144 1.81 G3000, Period 1-6 (widely spaced)
- 145 GBS85 A2535 F338, Period 1 (1 wheel-cut line)

- 146 GBS84 A769 L35, Period 3b (1 abraded band)
- 147 GBS85 B217 L8, Period 3 (heat affected)

Also 6 lower body fragments

- 148 BKC76 V21 L1, Periods 5, 6 or modern (2 joining fragments)
- 149 LWC72 L417, Building 12, Period 3b
- 150 LWC72 K255 F126?, medieval and later
- 151 CPS73 (244), unstratified
- 152 CPS73 (937), Building 154, Period 4
- 153 1.81 C305 F105, Building 96 Room 1, Period 3
- 154 1.81 E556 F409, Building 99, Period 3a

Also 22 body fragments

- 155 BKC76 T565, ?Period 1 or 2
- 156 BKC74 E759 F184, Period 2
- 157 BKC72 D403 F49, Period 3
- 158 BKC74 E394 F125, Period 3b
- 159 BKC76 V823 F30, Period 2 (or possibly 3)
- 160 BKC74 V55 F8/F130, Period 4
- 161 BKC76 V550 L63, Period 4
- 162 BKC76 V706 L88, Period 4
- 163 BKC75 J334 F85, Period 3/4/5a
- 164 BKC76 V123 F14, ?Period 5 or 6
- 165 BKC75 J9 L1, modern
- 166 LWC72 J1149, J1188 F315, Period 2
LWC72 J1260 F211, Period 1
LWC72 J1295 F419, Period 1 (8 fragments)
- 167 LWC72 J1039 F315, Period 2
- 168 LWC72 E127 F61, late Roman
- 169 LWC73 R4, post-Roman
- 170 1.81 B1222 F348, Period 3 (heat affected)
- 171 1.81 C269 F94, Period 3
- 172 1.81 D1421 F1252, Period 4
- 173 1.81 E958 L77, Period 3
- 174 1.81 E887 F788, Building 101, Period 3a
- 175 1.81 G2192 L1814, Period 3
- 176 1.81 G2119 L2024, Period 3d
- 177 1.81 H624, Period 1-6
- 178 1.81 J301 F291, Periods 1 or 2 (heat affected)
- 179 1.81 M729 F313, Building 121, Period 3
- 180 1.81 M382 F381, Building 91, Period 2
- 181 GBS A410 F80, medieval
- 182 GBS A245, Roman

183 GBS B639 F159, Building 133 Room 2, Period 2

184 GBS B445, unstratified
Rim fragment of shallow bowl without ribs. Rounded rim; edge ground. Interior and exterior wheel-polished. PH 25, WT 4

Objects

185 LWC72 J993, Period 2 demolition
LWC72 J887 J941 J951, Building 8
LWC72 J1025, Building 16, Period 3 make-up
LWC72 J978 J1037, Building 16, Period 3
LWC72 J1008 J1010, Period 3 and 4a make-up
23 fragments of rectangular stand with feet. Dark yellow/green appearing opaque black; some fragments heat affected. Stand flat with asymmetrically bevelled edges. 2 corner fragments, 1 retaining broken foot on underside. Minimum length 75, thickness 3mm (close to edge) — 5mm, total height 9.

Also 1 similar flat fragment; translucent purple appearing opaque black

186 LWC72 J981, Building 16, Period 3 make-up

187 GBS84 A1383 L66, Period 3A
GBS84 A2321 L89, Period (1 or) 2
2 fragments of palette. Very dark yellow/green appearing black. Both fragments retain part of a bevelled edge. Dim 33x25, 18x17, thickness 3.

188 1.81 G3762 L3219, Period 4 or 5
Fragment of palette. Translucent purple appearing opaque dark blue/black. Flat fragment, now deformed by heat, broken at edge of foot. Dim 51x27, thickness 4.

Polychrome mosaic vessels

- 189 1.81 C481, 489, 491 F138, Building 79 Room 2, Period 1/2
5 rim and 11 body fragments of segmental bowl. Floral mosaic; emerald green ground with opaque yellow specks and larger opaque red spots now appearing black at surface and yellow in section; each red spot surrounded by 2 rings of yellow specks. Surfaces originally ground and wheel-polished but now heavily weathered. PH 47, RD 170, WT 3.
- 190 1.81 G1177 F982, Period 6
2 rim fragments of small hemispherical bowl. Floral mosaic; emerald green ground with opaque yellow specks and 6 petalled opaque red and yellow flowers with central red and yellow spots. Rim edge rounded; side convex-curved. PH 20, RD 70, WT 4.
- 191 BKC75 G413 TT6, Period 4 or 5
Rim fragment of hemispherical bowl. Floral mosaic; deep emerald green ground with opaque yellow spots and 1 opaque red spot. Vertical rim, convex-curved body. Surfaces heavily weathered. PH 30, RD approx 120, WT 4.
- 192 1.81 B1902 L473, Building 77 Room 7, Period 1/2?
Rim fragment of bowl. Deep blue ground with translucent emerald green ring with opaque yellow strip in section and 1 strand each of purple and opaque white twisted into right hand cable. Rim out-turned. Dim 12x9, WT 3.

Monochrome vessels

- 193 LWC73 J1698 F495, Period 1
LWC72 J951, Building 8, Period 2 destruction
2 rim fragments of hemispherical bowl. Deep emerald green. Vertical rim with rounded edge; external thickening at rim by 1 broken edge, perhaps part of handle. Convex-curved body. Wide shallow wheel-cut groove on interior below rim. PH 52, RD 130, WT 3.5.

- 194 BKC75 V81, unstratified
Rim fragment of handled bowl. Green/blue (peacock). Rim has small horizontal projection from side of missing handle; straight side sloping in. Wheel-cut groove on upper body. PH 22, WT 2.
- 195 LWC71 C322, Building 19 make-up, Period 4
LWC73 J1009 make-up, Period 3 and 4a
1 rim and 2 small body fragments (2 joining) of bowl(?) Deep blue. Slightly everted rim with rounded edge; wide flange; sharp change of angle to body sloping inwards. Surfaces ground and wheel-polished to leave external moulding at rim edge and slight cordon on interior at rim/flange junction. PH 17, RD 95, WT 3.
- 196 LWC71 C322, Building 19 make-up, Period 4
Rim fragment of bowl appearing black. Very slightly everted rim with rounded edge; body sloping out. 1 deep wheel-cut channel on interior of rim and raised moulding at rim/body junction on exterior. PH approx 20, RD approx 80, WT 4.
- 197 1.81 M276 L1, unstratified
Rim fragment of plate. Deep blue. Vertical rim, body missing. Broad vertical rim with wheel-cut groove on top and bottom edges; exterior ground to leave horizontal ribs at top and bottom of rim; wheel-cut groove below rim edge on interior. PH 22, RD 175, RT 5.
- 198 1.81 G3627 L3596, Period 3
Rim fragment of plate or bowl, perhaps rectangular. Emerald green. Part of out-turned rim and side tapering in. Dim 15x13, thickness 2.5.
- 199 1.81 B1764 L389, Building 77 destruction, early Period 3
2 rim fragments of ?rectangular plate. Emerald green. Vertical rim with rounded edge; short side tapering in to base angle; base missing. Dim 43x15 & 42x15, thickness 3.
- 200 GBS85 B56 F1, Period 2 and 3a
2 rim and 1 body fragments (all joining) of shallow bowl. Emerald green. Narrow out-splayed rim; slightly convex-curved side sloping in steeply and beginning to curve in to base. PH 17, RD 160, WT 2.
- 201 BUC77 C1211 G380, Period 2
Rim fragment of plate or bowl. Dark yellow/brown, weathered surfaces appearing black. Wide everted rim; straight-sided body sloping in. Top surface of rim ground flat to leave raised ridge at rim edge and at rim/body junction; rim/body junction undercut on exterior. PH 13, WT 2.5.
- 202 BKC76 V410 F53, Period 5?
Base fragment of bowl. Dark emerald green. Edge of side curving in sharply to wide lower body and flat base with low base ring. PH 9, BD approx 90, WT 2.5.
- 203 LWC72 J944, Building 20 Phase 1 Room 4, Period 4a make-up
Base fragment of small bowl or plate. Deep emerald green. Wide lower body sloping into flat base; slightly out-splayed base ring with flat lower edge. PH 14, BD 56, BT 4. /
- 204 LWC J1464 F184, Period 4
Base fragment of bowl. Emerald green. Slightly out-splayed foot ring; slightly convex-curved base. External grinding has left slight horizontal ridge above outer lower edge of foot ring. Side grazed. BD approx 55.

Also 1 fragment from similar base, green glass

- 205 LWC72 J1014, Building 16, Period 3 make-up
- 206 LWC72 J90 F44, post-Roman
Base fragment of small bowl. Yellow/green appearing black. Broken at change of angle to wide lower body; flat base; high out-splayed base ring. PH 18, BD 43, WT 3.
- 207 BKC76 V1094, Period 4, 5 or 6
Body fragment. Opaque light blue. Convex-curved body. Dim 26x23, WT 4.
- 208 LWC72 J941, Period 3 make-up
Body fragment. Dark emerald green. Convex-curved side with change of angle. Dim 25x15, WT 2.

Colourless vessels

- 209 1.81 G2905 L1904, Period 3d
Rim fragment of bowl with handle. Outplayed horizontal rim with flat upper surface and rounded edge; ridge at junction with missing handle; convex-curved upper body with angular raised ridge on interior. 1 horizontal row of diagonal facets on upper body. PH 14, WT 3.
- 210 BKC74 E440 L116, Period 3b
Handle fragment. Green-tinged colourless. Flat rectangular-sectioned tapering handle. Dim 20x17, section (maximum) 20x4.
- 211 1.81 G3139, 3158, F2695, Period 3
3 body and base fragments (2 joining) of bowl. Wide convex-curved lower body; base ring sloping out; flat base mostly missing. Exterior of bowl facet-cut — row of vertical irregular touching facets immediately above a ring of larger horizontal oval facets on lower body; part of a ring of small oval facets concentric with base ring on base. PH 15, BD 100-110, WT 3.
- 212 BKC75 J247 F54, Period 5b
BKC75 J129 L17 & J132 L18, Building 60, Periods 3/4/5a/5b
10 rim, body & base fragments of shallow bowl. Wide everted rim with overhang; slightly convex-curved upper body sloping in; lower body curving in to flat base with high base ring. Top surface of rim ground flat to leave raised ridge by overhang and at rim/body junction. Height approx 45, RD 210, BD 110-120, WT 2.5.
- Also rim fragments from 5 bowls similar to no 212
- 213 BKC75 J42 L1, modern PH 8, RD 230.
- 214 BKC76 V88, Building 46, Period 3 or 4
BKC76 V161 F50, Period 5 or 6
2 fragments PH 14, RD 220, WT 2.5.
- 215 LWC71 C159 F92, post-Roman PH 9, RD 190.
- 216 LWC72 J514, Period 4 PH 8, RD 105.
- 217 BKC75 H276 L12, Period 5b (upper surface of rim concave)
PH 10, RD 250, WT 2.5.
- 218 GBS84 A295 L9, Period 3a
GBS84 A464, Roman
2 rim fragments of bowl. Colourless. Wide out-splayed rim with small overhang; slightly convex-curved body sloping in. PH approx 20, WT 2.
- 219 LWC72 M114, Rampart 1a, mid 2nd century
3 joining rim fragments of bowl or plate. Wide everted rim with rounded edge. RO approx 200-210, RT 3. *i*
- 220 BKC76 V146 F40, Period 4
Base fragment of bowl. Convex-curved lower body curving into flat base with high base ring. PH 17, BD 150, WT 2.
- 221 1.81 D71 F71, Period 4
Lower body and base fragment of bowl. Slightly green-tinged colourless. Slide sloping in through carination to wide lower body; base ring sloping flat, base mostly missing. PH 24, BD approx 120, WT 2.
- 222 GBS84 A522 F85, medieval
Base fragment of bowl. Wide lower body with foot ring; base mostly missing. PH 10, BD approx 100, WT 3.
- 223 1.81 G2755 L1, Period 6
Lower body and base fragment of bowl. Convex-curved lower body; base ring sloping out; base missing. PH 28, BD approx 80, WT 3.
- 224 LWC72 J1474, Building 20 Room 2 Phase 1, Period 4a make-up
Base fragment of bowl. Convex-curved side sloping in steeply to flat base; low outplayed base ring. PH 23, BD 80, WT 25.
- 225 GBS A1740 F223, post-Roman
Lower body and base fragment of bowl. Slightly convex-curved side sloping in steeply to low foot ring; flat base mostly missing. PH 22, BD 150, WT 2.

- 226 LWC72 J859, Building 20 Room 2, Period 4 make-up
2 base fragments of large plate. Colourless. Slightly concave base. 2 wide shallow concentric wheel-cut grooves at centre on underside of base. Dim 75x63 & 44x44, BT 2, BD at least 145.
- 227 BKC75 J232 L17, Building 60 Phase 3, Period 5b
Base fragment of plate or bowl. Colourless. Flat base with 2 wheel-cut concentric circles on underside. Dim 42x22, BT 2.
- 228 1.81 D968, Period 4
Body of base fragment. Colourless. Flat fragment. 1 side has part of a large facet and an irregular circular wheel-cut groove cut by a straight one. Dim 25x23, WT 5.
- 229 1.81 G3121 L3081, Period 5
Base of bowl? Colourless. Base ring sloping out; wide lower body and (?) flat base mostly missing. Probably cast, ground and wheel-polish but surface evidence now much obscured. PH 12.

Also 1 convex-curved colourless body fragment ground and wheel-polished on both surfaces.

- 230 LWC72 J859, Building 20 Room 2, Period 4 make-up

Also 1 small colourless body fragment with curved wheel-cut line probably cast ground and wheel-polished

- 231 1.81 G2459, unstratified

Mould- blown vessels

Left and right in the following descriptions refers to scenes when viewed from the exterior

Coloured and blue/green vessels

One-frieze chariot-race cups

- 232 BKC76 T198, Building 47, Period 3
4 joining rim and body fragments of cylindrical cup. Pale yellow/green. Small curved rim, edge cracked off; vertical side curving into rounded base edge and divided by horizontal cordons into 3 friezes with decoration in relief. The inscription frieze has the letters ...OLYMPEVA... The main decorated frieze has an obelisk to the left of a charioteer with 4 horses reined to a halt. The charioteer is holding a wreath in his right hand; his left hand controls the reins of the team and there is a palm frond to the left of his shoulder. The bottom frieze has a row of small pellets below the cordon with the hinder parts of an animal facing left, a tree, a lion (?) facing right which is attacking another animal. PH 67, RD 82, WT 0.75-2.
- 233 GBS B204 L8, Period 3
Body fragment of cylindrical cup. Blue/green. Straight side. Part of horizontal cordon above upper parts of triple *meta*; with head, shoulders and part of extended right arm of charioteer facing right. Vertical mould seam runs through centre of *meta*. Dim 33x17, WT 3.5.
- 234 BKC75 J188 F34, Period 5b (end of 4?)
Lower body fragment of cylindrical cup. Pale bluish green. Part of side curving into rounded base edge. Hinder parts of an animal facing left and parts of a tree. Dim 19x17, WT 1.5-2.5.
- 235 BKC75 N36 F13, Period 6 or later
Lower body and base fragment of cylindrical cup. Pale bluish green. Part of side curving into base. Hinder parts of an animal facing left (?); horizontal cordon above and rounded ridge at base edge. PH 15, BD approx 60, WT 1.5-3.

Two-frieze chariot-race cups

- 236 1.81 M227 L224, unstratified
Body fragment of cylindrical cup. Blue/green. Straight side divided into 2 zones by horizontal cordon. Faint edge of circus feature in upper zone; parts of 2 racing *quadrigae* in lower zone — on left foreparts of 3 horses, on right charioteer driving chariot with 4 spoked wheel and hinder parts of 3 horses. PH 28, WT 2-4.

Gladiator cups

- 237 1.81 G3110 L2966, Period 3d
Rim and body fragment of cylindrical cup. Blue/green. Curved rim, edge missing; straight side divided into 2 zones by horizontal cordon. Above cordon inscription zone contains letters ...ESPRV...Below the back of the head and the shoulder of a gladiator wearing a crested helmet facing right. PH 32, WT 3.
- 238 1.81 G3102 L296, Period 3d
Body fragment of cylindrical cup? Blue/green. Straight side. Lower edge bounded by horizontal cordon. Part of torso, extended left arm, extended right and bent left legs of gladiator wearing loin cloth and (?) shin guard on left leg. Long shield on left arm. To right of gladiator inscription at shoulder height including letters ...TAR...Part of ?foot of second figure on broken edge above cordon. Broken edge of cordon may have been reworked. PH approx 40, WT 1-3.5.
- 239 1.81 E100 F12, Period 7/8
Base fragment of cup. Blue/green. Wide lower body with horizontal cordon sloping in to small concave base with raised base ring and central circular pellet. PH 7, BD 28, Max. body diameter 54, WT approx 2.

Vessels with vegetal motifs

- 240 1.81 B1468 L357, B1469 F241, Building 94 Room 5a, Period 3
1 lower body and 1 base fragment of bowl or flask? Yellow/green. Wide convex-curved lower body; shallow circular moulding forming base ring; convex base with central kick. Raised curving foliage design on side including an oval flower or fruit head with curving tendril above horizontal cordon. 2 small circular scars on base—not from pontil iron. Dim (body) 50x43, (base) 57x27, BD approx 60, WT 2.5.
- 241 BKC75 J253 L33 Phase 3/4/5A
Lower body fragment of bowl. Light green. Convex-curved side sloping in. On left curving tree trunk with part of branch and pendant bunch of grapes to right on broken edge; on right two-thirds of a fleur-de-lys. Below horizontal moulding perhaps edge of base. PH 27, WT 2-4.
- 242 1.81 B1377 F387, B1378 L327, Period 3
2 joining body fragments. Light yellow/brown. Prominent horizontal cordon above foliage design consisting of a curved feature, 3 leaves and 2 stemmed fruits—probably part of a laurel wreath design; narrow horizontal cordon on lower body. Dim 59x42, WT 2.

Ribbed cups

- 243 GBS A424 L1, post-Roman
Rim and body fragment of ribbed bowl. Light green. Curved rim, edge cracked off and ground; concave-curved upper body with pronounced carination above convex-curved lower body with vertical ribs, parts of 7 remaining. PH 34, RD 115, WT 2.
- 244 1.81 B2548, clearance mainly periods 3-5
Body fragment of ribbed bowl. Pale green. Concave-curved upper body with pronounced carination above convex-curved lower body with vertical ribs, parts of 6 remaining. Dim 39x35, WT 2.5.
- 245 BKC75 J37 L1, modern
Lower body fragment of ribbed bowl. Deep blue. Convex-curved body. Lower parts of 3 narrow vertical ribs with rounded ends. Dim 21x19, WT 1.5-3.

Miscellaneous mould-blown vessels

- 246 BKC76 V585 L63, Period 4
2 body fragments. Blue/green. Convex-curved body. Larger fragment has parts of 2 oval rings above 2 horizontal ridges; smaller fragment has part of another motif above 2 horizontal ridges. Dim 20x16 & 13x9, WT 2-3.

- 247 1.81 G3184 L3183, Period 5?
Body fragment. Strong green/blue (peacock). 3 straight mouldings forming part of a diamond-shaped lattice. Dim 10x6, WT 2.
- 248 GBS A2269, post-Roman
2 joining base fragments. Blue/green. Concave base with indeterminate pattern in very shallow relief. Dim 39x23, WT 2.

Colourless mould-blown vessels

- 249 GBS B148 F25, Period 3
Rim fragment of beaker. Vertical rim, edge cracked off and ground; straight side. Exterior ground and wheel-polished to produce a small rib at rim edge above a wide ground out horizontal band; below the upper part of a mould blown circular or oval facet and a vertical wheel-cut facet. PH 26, RD 70, WT 2.
- 250 LWC B497, Building 17, Period 3
11 lower body and 1 base fragment of thick-walled (?) truncated conical beaker. Body fragment has 2 long narrow oval indentations. Surface ground to produce raised ridges around indentations and convex-curved ribs between them. Lower body ground away and tapering in to small outplayed base ring. Dim (largest frag.) 47x32, WT 5-6.
- 251 1.81 B41 F21, medieval
Body fragment. Convex-curved side. Parts of 7 vertical ribs in shallow relief above a horizontal one. Dim 36x22, WT 3-7.
- 252 1.81 G1021, Period 3d/4
Body fragment. Colourless with green tinge. Convex-curved side. Parts of 4 vertical ribs. Dim 31x18, WT 2.

Blown polychrome vessels

Applied decoration: early Roman

- 253 BKC74 E906 L250 & L361, Period 1b or 2
Rim fragment of cantheros. Blue/green with 2 applied opaque blue blobs (1 rod-shaped) on body. Stepped rim with fire-rounded edge; straight side sloping in. PH 36, RD 90, WT 2.5.
- 254 1.81 K368 L358, Period 3
Rim fragment of ribbed bowl. Blue/green with opaque white trails. Vertical rim, edge cracked off and ground; convex-curved side. At least 8 close-set opaque white spiral trails on upper body marvered smooth. PH 22, RD 6, WT 0.5-1.
- 255 LWC72 J1484 F497, Building 20 Phase 1 Room 3, Period 4
Body fragment of small ribbed bowl. Blue/green with opaque white marvered trails. Part of neck curving out to (missing) rim; convex-curved body with top of 1 pinched up rib. Opaque white marvered horizontal trails across body and rib. Dim 25x21, WT 3.
- 256 BKC76 V746 F170, Building 61, Period 4 or earlier
Base fragment of ribbed bowl. Yellow/green with opaque white marvered patch and spiral trail. Side curving into flat base with internal central thickening. Dim 37x24, BD approx 40.
- 257 BKC74 E515 F166, Period 5
Rim fragment of bowl. Deep blue with opaque white marvered horizontal trail at rim edge. Vertical rim, edge fire-rounded. PH approx 10, RD approx 90-100.
- 258 GBS84 A2321, 2331 L89, Period (1 or) 2
GBS84 A1175 L67, Building 136 destruction, Period 2 or 3A
GBS84 A1348, 1383 L66, Period 3a
GBS85 B78 F10, medieval
2 rim, 4 body and 1 base fragment (3 joining) of cylindrical cup. Deep blue ground and opaque white trails. Incurved rim, edge cracked off and ground; slightly convex-curved body curving into shallow concave base. At least 8 horizontal trails applied to side, drawn up at intervals to form a feathered zig-zag pattern and marvered smooth. PH (2 joining rim and body fragments) 54, (base) 21, RD 90, BD approx 30-35, WT 2.

- 259 GBS84 A1340 L81, Period 3A
 GBS84 A1348 L66, Period 3A
 GBS84 A1252 L49, Period 3
 2 rim and 2 body fragments of cylindrical cup. Description as no 258, at least 7 trails.
 Probably from a different vessel than no 258 as the ground colour is a less intense blue and
 the trails are narrower and thinner. PH 34, RD 80-90, WT 2.
- 260 GBS84 A949 L28, post-Roman?
 Body fragment. Deep blue ground with opaque white trails. Straight side. Zig-zag marvered
 trails now almost entirely weathered away. Dim 24x17.
- 261 1.81 E650 F94, late Period 7
 Body fragment. Translucent deep blue ground with opaque white trails. Convex-curved side. 2
 zig-zag marvered trails. Dim 28x22, WT 1.5.
- 262 GBS84 A2101 F252, Period 1
 Body fragment. Deep blue with opaque white marvered trail. Convex-curved side. Dim 19x17,
 WT 1.5.
- 263 CPS73 749 L103, Building 154, Period 4
 Body fragment of jug or jar (?). Deep blue with thin opaque white marvered oval spot.
 Convex-curved body. Terminal of 1 pinched-up rib. Dim 31x25, WT 1.5.
- 264 BKC75 G126, Period 3?
 Shoulder fragment of (?) globular flask. Deep blue with small opaque white marvered spots.
 Convex-curved shoulder? broken at junction with neck. Dim 39x29, WT 3.

Also 7 other deep blue body fragments with opaque white marvered spots and streaks

- 265 BKC74 E1205 F348, Period 1b
- 266 BKC76 V1268 F493, Period 2
- 267 BKC76 V336 F83, Period 4
 (Nos 266 & 267 could come from same vessel)
- 268 BKC76 T243 F111, Period 5c (?)
- 269 BKC76 T343, unstratified
 (Nos 268 & 269 could come from same vessel)
- 270 BKC74 E384 L98, Period 5
- 271 LWC71 B131 F47 12th-15th century
- 272 BKC76 V1176 L161, Building 64, Period 2 /
 BKC76 V102 F10, Period 5
 2 body fragments. Emerald green with marvered opaque white splashes. Thin convex-curved body.
 Dim 19x10 & 12x9, WT 0.5.
- 273 LWC71 A290, Period 1 destruction (?)
 Body fragment. Thick deep blue outside layer cased with thin opaque white inside layer.
 Convex-curved body. Dim 26x16, WT 2.
- 274 1.81 G2351 L1746, Period 3
 Body fragment. Cased—description as no 273. Dim 53x19, WT 2.
- 275 BUC77 C1711 G444, Period 2
 Body fragment. Brown with 3 opaque white parallel trails. Convex-curved side. Dim 13x12, WT
 2.

Snake-thread glass

- 276 1.81 G583 L207, Period 5
 Body fragment. Snake thread—green-tinged colourless with opaque white trails. 2 trails with
 transverse slashing. Dim 26x22, WT 0.5.
- 277 BKC75 J197 L25, Period 5c or 6
 Body fragment. Colourless with painted decoration. Straight-sided. Opaque white ground with
 curved band—upper side outlined in dark blue, rest shaded with short strokes of a lighter blue;
 light blue line above. Dim 23x15, WT 2.5.

278 Not used.

Cups and beakers

Hofheim cups

Emerald green

- 279 LWC72 J1536 F506, Period 3
1 rim and 1 body fragment of cylindrical cup. In-turned rim, edge cracked-off with inward bevel and ground; convex-curved side. 2 abraded bands on upper body. PH 48, RD 80, WT 2.
- 280 1.81 E825 L52, Period 3A
Rim fragment of cylindrical cup. Rim slightly incurved, edge cracked-off and ground; straight side. Abraded band below rim. PH 16, WT 1.5.

Yellow/brown

- 281 BKC73 A118 L18, Period 1
Rim fragment of cylindrical cup. Light yellow. Slightly in-bent rim, edge cracked-off and ground. 2 wide wheel-cut grooves on upper body. PH 30, RD 75, WT 1.5.

Light green

- 282 GBS84 A275 L9, Period 3a
Rim and body fragment of hemispherical cup. Pale green. Vertical rim, edge cracked-off and ground; straight side with lower body curving in. 4 wide wheel-cut grooves spaced from rim to lower body with increasingly wide intervals between them. PH 51, RD 80, WT 1.5.
- 283 LWC73 K434, Period 4b
Rim fragment of hemispherical cup. Light green. Vertical rim, edge cracked-off and ground. Wide shallow wheel-cut groove below rim. PH 20, RD 80, WT 2.
- 284 BKC76 V173 F44, Period 4
2 body fragments of cylindrical cup. Light green. Slightly convex-curved side curving into base. 1 wide wheel-cut groove with 2 narrow abraded bands below. Dim 50x36, WT 1.5.

- 285 GBS84 A317 L9, Period 3a
Lower body and base fragment of cylindrical cup. Pale green. Carination to convex-curved lower body sloping in to small base with pronounced central kick. PH 14, BD approx 25, max body diameter approx 80, WT 1.5.
- 286 1.81 W138 L137, Period 3 or 4
Lower body and base of cup? Light green. Convex-curved lower body curving in to concave base without pontil scar. PH 10, BD 35, WT 2.
- 287 GBS84 A440 L9, Period 3a
Lower body fragment of cup? Light green. Convex-curved side. Wheel-cut groove. Dim 26x21, WT 2.5.

Colourless (green-tinged)

- 288 BKC74 G221 L22, Building 41, Period 2
BKC74 G205 F40, Building 55, Period 5c?
BKC74 G98 F181, Period 5c or 6
5 joining rim and body fragments of thin-walled cylindrical cup. Slightly inturned rim, edge cracked off and ground; slightly convex-curved body curving into base. 3 wide wheel-cut grooves. PH 37, RD 90, WT 0.5.
- 289 LWC72 J718 F220, Period 3?
Rim fragment of thin-walled beaker or small cup. Vertical rim, edge cracked off and ground; convex-curved body. 3 wide wheel-cut grooves below rim and on upper body. PH 19, RD 85, WT 0.5.

Blue/green

- 290 BKC76 T216 demolition debris, Building 47, end of Period 3
7 rim, body and base fragments of cylindrical cup. Slightly in-turned rim, edge cracked-off and ground; convex-curved body; flat base. 1 narrow abraded band below rim, 1 wider band on lower body. Height approx 55-60, RD 75, WT 2.
- 291 BKC75 J282, J299 & J312 L35, Periods 3/4/5a
11 rim and body fragments of cylindrical cup. Slightly in-turned rim, edge cracked-off and ground; convex-curved body. Wide shallow wheel-cut groove with abrasions either side below rim; 1 narrow abraded band on lower body. Parts distorted by heat. PH 62, RD approx 85, WT 2.
- 292 GBS84 A1010 L28, Roman? A2306, unstratified
1 rim and 1 joining body fragment of cylindrical cup. Vertical rim, edge cracked-off and ground; straight side with lower body curving in to base. Abraded bands below rim edge and at carination to lower body; wide wheel-cut groove between. PH 50, RD 80, WT 3.
- 293 GBS84 A1541 L101, Period 2
Rim fragment of cylindrical cup. Slightly in-curved rim, edge cracked-off and ground; slightly convex-curved side beginning to curve in to lower body. Wide wheel-cut groove below rim; abraded band on lower body. PH 42, RD 80, WT 2.
- 294 GBS84 A1348 L66, Period 3
Rim fragment of cylindrical cup. Description as no 293. PH 40, RD 80, WT 1.5.
- 295 LWC72 J1634, Building 16, Period 3
Rim fragment of cylindrical cup. Slightly in-bent rim, edge cracked-off unevenly and ground; convex-curved body. 1 narrow abraded band near rim; 2 similar bands on body; traces of abraded band on interior by rim. PH 43, RD 70, WT 2.
- 296 GBS84 A839 L38, Period 3a
Body fragment of cylindrical cup. In-curved rim, edge missing; straight side beginning to curve in to lower body. Wide wheel-cut groove below missing rim; abraded band on lower body. PH approx 50, WT 2.
- 297 BKC74 E979 F276, Period 1 b
Rim fragment of cylindrical cup. Slightly in-bent rim, edge cracked-off and ground; convex-curved side. Wide wheel-cut groove and abraded band below rim. PH 26, RD 90, WT 2.
- 298 BKC74 E339 L69b, Period 3b or 4
Rim fragment of cylindrical cup. In-turned rim, edge cracked-off and ground; convex-curved side. Wide shallow wheel-cut groove and abraded line below rim. PH 41, RD 80, WT 1.5.

- 299 1.81 M729 F313, Period 3
Rim and 2 body fragments (all joining) of hemispherical cup. Vertical rim, edge cracked-off and ground; convex-curved side. Wide wheel-cut groove with narrow abraded band underneath below rim edge. PH 37, RD 80, WT 2.
- 300 GBS85 B219 L9, Period 3
3 joining rim fragments of cylindrical cup. Slightly in-curved rim, edge cracked-off and ground; straight side. 1 wide wheel-cut groove and abraded band below rim. PH 38, RD 80, WT 1.5.
- 301 GBS84 A151 L1, post-Roman
Rim fragment of cylindrical cup. Slightly in-curved rim, edge cracked off and ground; straight side. Abraded band below rim; wide wheel-cut groove on body. PH 33, RD 75, WT 1.5.
- 302 GBS85 B373, unstratified
Rim fragment of cylindrical cup. In-curved rim, edge cracked-off and ground; straight side. Wide wheel-cut groove and abraded band below rim. PH 30, RD 75, WT 2.5.

Also 1 rim and 1 body fragment (joining) probably from the same vessel as no 302

- 303 GBS85 A728 F80, medieval
- 304 1.81 K401 L358, unstratified
Rim fragment of cylindrical cup. Vertical rim, edge cracked-off and ground; straight side. Abraded band below rim. PH 27, RD 75, WT 2.5.
- 305 1.81 M281 L280, Period 3
Rim fragment of cylindrical cup. Vertical rim, edge cracked-off and ground with inward bevel; straight side. 1 abraded band below rim edge and 1 wide wheel-cut groove on body. PH 30, WT 2.
- 306 1.81 B565 L94, Period 4
Rim fragment. Vertical rim, edge cracked-off and ground. Wide wheel-cut groove with narrow wheel-cut line underneath, below rim edge. PH 23, WT 1.
- 307 GBS84 A1324 L61, Building 136, Period 2?
Rim fragment. Slightly in-curved rim, edge cracked off and ground. 1 wide and 1 narrow wheel-cut grooves below rim. PH 18, WT 2.
- 308 BKC75 J82 F12, Period 3 or 4 or 5a
Upper body fragment. Convex-curved body. Wide wheel-cut groove below missing rim with narrow wheel-cut groove below. Dim 42x28, WT 2.
- 309 1.81 M342 L333, Building 121, Period 3
Rim fragment of cylindrical cup. Vertical rim, edge cracked-off and ground with inward bevel; straight side. Wide wheel-cut groove below rim. PH 47, WT 2.
- 310 BKC74 E1302 L401, Period 1 b or 2
Rim fragment. Slightly in-turned rim, edge cracked-off and ground; convex-curved body. Wide wheel-cut groove and abraded line below rim. PH 31, WT 2.5.
- 311 LWC72 K1022, Building 8, Period 2 destruction
Rim fragment. Vertical rim, edge cracked-off and ground. Wide wheel-cut groove below rim. PH 24, WT 2.

Also 1 body fragment possibly from close to rim on a similar cup with a wide wheel-cut groove.

- 312 LWC71 A264 F89, Period 2
- 313 1.81 E548 L24, Building 99/100, Period 3a
Rim fragment of cylindrical cup. Vertical rim, edge cracked-off and ground; straight side. Wide wheel-cut groove with narrow abraded band underneath below rim. PH 22, WT 2.5.

Also 3 body fragments from similar cups

- 314 1.81 A682 F222, Period 2
(wide wheel-cut groove and narrow line on upper body, 1 similar line on lower body)
- 315 1.81 G2977 F2875, Period 3d
(1 abraded band on upper body and 1 on lower)

- 316 GBS85 B135 F15, Period 3b
(2 wide grooves with abraded band between)
- 317 LWC72 J1536 F506, Period 3
4 joining lower body and base fragments of cylindrical cup. Convex-curved body; concave base. 2 narrow abraded lines on lower body. PH 28, BD approx 35, WT 2.
- 318 LWC71 A264 F89, Period 2
4 lower body and base fragments of cylindrical cup. Convex-curved body with rounded change of angle to wide lower body and small convex-curved base. Narrow abraded band above change of angle. Heat affected. PH 26, BD approx 30, WT 2.
- 319 1.81 J344 F343, Period 1 or 2
2 joining lower body and base fragments and 1 body fragment of cylindrical cup. Rounded carination to wide convex-curved lower body sloping in diagonally to small flat base. Wide wheel-cut groove on body fragment. PH 20, BD approx 35, WT 2.
- 320 BKC76 J403, modern
3 joining lower body and base fragments of cylindrical cup. Convex-curved body; slightly concave base mostly missing. Narrow abraded band on lower body. PH 51, WT 2.

Also 6 fragments each with an abraded band all from lower bodies of similar cups

- 321 BKC74 E1269 F381, Building 37, Period 1b
- 322 BKC76 T328, Period 3?
- 323 BKC75 K298, unstratified
- 324 1.81 E623 L22, Building 86/87, early Period 3
- 325 1.81 E1209 F96, Period 8
- 326 1.81 G2617 F2362, Period 3

Also 1 lower body fragment from similar cup with 1 wheel-cut groove

- 327 1.81 W100 F99, Period 1 or 2

Also 3 heat affected and distorted fragment probably from a similar cup with abraded band on lower body

- 328 1.81 B1769 L415, early Period 3
- 329 BKC75 J371, Period 3 to 6
Lower body and base fragment of cup. Side curving in shallowly to concave base with pronounced kick. PH 10, BD approx 35-40, WT 2.5.
- 330 1.81 W140, unstratified
Base fragment of cylindrical cup. Convex-curved lower body sloping in to concave base with pronounced central kick. PH 12, BD 50-60, WT 2.5.
- 331 1.81 B1496 L366, early Period 3
Base fragment of cup. Concave base with pronounced central kick. Dim BD approx 30, WT 2.

Cylindrical or conical beakers with ground rims and wheel-cut and/or abraded decoration

Yellow/green

- 332 LWC72 J1083 F315, Building 8, Period 2
Rim fragment. Pale yellow/green. Slightly in-turned rim, edge cracked-off and ground; straight side tapering in. 2 narrow abraded bands. PH 36, RD 55, BT 1.

Also 4 body fragments probably from same vessel

333 LWC72 J995, Period 2 destruction

Pale green

334 BKC75 K650 L119, Period 4a/b
Rim fragment. Pale green. Large yellow/brown impurity. Curved rim, edge cracked-off and ground; straight side. PH 20, RD 70, WT 1.5.

Colourless

335 BKC75 J150 L1, modern
55 rim, body and base fragments of cylindrical beaker. Green-tinged colourless. Curved rim edge cracked-off and ground; straight side; slightly concave base. 2 narrow abraded bands on upper body and 1 on lower body. Circular pontil scar. PH (rim) 37 and (base) 38, RD 70, BD 50, WT 1, pontil scar diameter 10.

Blue/green

- 336 LWC72 J1682 F586, Period 1
Rim fragment of cylindrical beaker. Curved rim, edge cracked-off and ground; vertical straight side. 1 narrow abraded band on upper body with wider band below. PH 40, RD 80, WT 2.
- 337 LWC71 C356, ?Period 2 or 3a & 3b
Rim fragment. Curved rim, edge cracked-off and ground; side beginning to slope in. PH 13, RD 80, WT 2.
- 338 GBS84 A567 L8, Period 3a
Rim fragment of cylindrical beaker. Curved rim, edge cracked-off and ground; straight side. Thin abraded band below rim. PH 22, RD 75, WT 1.
- 339 1.81 D1415 F1344, Period 4
Rim fragment of cylindrical beaker (or cup). Curved rim, edge cracked-off and ground with inward bevel; straight side. Abraded band on upper body. PH 21, RD 75, WT 1.
- 340 GBS84 A241 L8, Period 3a
Rim fragment of slightly ovoid beaker. Curved rim, edge cracked-off and ground; slightly convex-curved side sloping out. Thin abraded bands below rim and on upper body. PH 33, RD 70, WT 1.5.

Also 1 rim fragment possibly from the same beaker as no 340

- 341 GBS84 A1666 L112, Period 1 or 2
- 342 BKC74 E1161 L382, Period 1 b or 2
Rim fragment of cylindrical beaker. Curved rim, edge cracked-off and ground; straight side. Narrow abraded band below rim. PH 29, RD 70, WT 1.5.
- 343 GBS84 A1748 L136, Period 2
2 joining rim and 2 body fragments of cylindrical beaker. Curved rim, edge cracked-off and ground; straight side. Abraded band below rim, wide wheel-cut groove on body. PH (rim) 21, RD 70, WT 2.5.
- 344 GBS85 A2377 L250, Building 131, Period 1 or 2
Rim fragment of cylindrical beaker. Curved rim, edge cracked-off and ground. Thin abraded band on upper body. PH 22, RD 60, WT 1.5.
- 345 1.81 G2313 F2218, Period 3
Rim fragment of conical beaker. Rim curved out, edge cracked-off smoothly but not ground. Straight side sloping in. PH 11, RD approx 65, WT 1.
- 346 BKC75 K459 L70, Period 4a
Rim fragment of cylindrical beaker. Curved rim, edge cracked-off and ground; straight side. Narrow abraded band below rim. PH 20, RD 60, WT 1.
- 347 1.81 E1337 F1164, Period 2
Rim fragment. Curved rim, edge missing; straight side. Wheel-cut groove below rim, wide wheel-cut groove with abraded lines on either side on body. Dim 41x19, WT 1.

- 348 GBS84 A317 L9, Period 3a
Complete base and lower body of beaker. Convex-curved side sloping in steeply to horizontal out-splayed base edge; thick flat base with central internal dome. PH 31, BD 49, WT 2.
- 349 1.81 M209 L1, unstratified
Side and base fragment of beaker. Side sloping in to horizontal out-splayed base edge; thick flat base with small central concavity on underside and thick rounded ridge on interior. Side irregularly grazed. PH 17, BD 42, WT 2.
- 350 LWC71 B517 F184, Period 4
Lower body and base fragment. Side sloping in to horizontal out-splayed base edge; thick flat base with rounded ridge on interior. Base worn. PH 12, BD 60, WT 4.
- 351 1.81 D2013 L1745, Period 4
Lower body and base fragment of beaker? Convex-curved side sloping in to horizontal out-splayed base edge; thick flat base mostly missing. PH 18, BD approx 40, WT 1.5.

Body fragments probably from Hofheim cups or wheel-cut/abraded beakers

Deep blue

- 352 GBS84 A235, unstratified (1 abraded band)

Emerald green

- 353 BKC76 V405 L52, Period 4, V658 L11, late Period 5 (2 fragments, 2 bands)

Blue/green

20 body fragments each with 1 wheel-cut groove unless otherwise stated

- 354 BKC74 E897 L250, Period 2 & 3A
- 355 1.81 B1556 L351, Building 94 Room 5b, Period 3 (6 fragments)
- 356 1.81 B1195 L271, Building 112 Room 6a, Period 4a
- 357 1.81 C129 L8, Period 4
- 358 1.81 E1587 F1329, Period 2 (3 fragments, 2 with 1 groove, 1 with 3)
- 359 1.81 E1091 F957, Building 90, Period 2 (2 fragments)
- 360 1.81 E871 F745, Period 2
- 361 GBS84 A1302 L81, Period 3a
- 362 GBS84 A1582 F210, Building 131 (2 grooves), Period 2
- 363 GBS84 A599, unstratified, Roman
- 364 GBS85 A2302, unstratified
- 365 GBS85 B204 L8, Period 3

19 body fragments each with 1 abraded band unless otherwise stated

- 366 BKC74 E891 L244, Period 3b (2 bands)
- 367 BKC75 J65 L11, Periods 3/4/5a
- 368 BKC75 J253 L33, Periods 3/4/5a (2 bands)
- 369 LWC71 B74 F42 C12-C15 (3 bands)
- 370 LWC71 C459, Period ?2 or 3a & 3b
- 371 LWC72 J1254, Period 4a (2 bands)
- 372 LWC72 J305 F128 (5 bands), early medieval
- 373 LWC73 K519 F292, Period 3 or 4 (2 bands)
- 374 LWC73 K452 F233, medieval and later

- 375 LWC72 L481, Period 1 (2 bands)
- 376 1.81 C315 L34, Period 3 (2 bands)
- 377 1.81 G2378 L1746, Period 3 (3 bands)
- 378 1.81 J372 F363, Building 79, Period 1 or 2
- 379 1.81 M330 F319, Period 3
- 380 GBS84 A1901 L163, Period 1 or 2
- 381 GBS84 A1585 L100, Period 2
- 382 GBS84 A1051 L46, Building 134, Period 2 or 3a (heat affected)
- 383 GBS84 A350 F42, post-medieval
- 384 GBS84 B52, unstratified (2 bands)

Indented beakers

Yellow/green

- 385 GBS84 A1503 L110, Period 2
Body fragment. Slightly convex-curved side. Part of 1 elongated oval indentation. Dim 41x20. WT 1.

Light green

- 386 BKC75 J242 L33, Period 3/4/5a
8 body and base fragments. Pale green. Straight side sloping in to constriction above tubular pushed-in base ring; domed base. 4 deep elongated oval indentations. PH 58, BD 38, WT 1.5.
- 387 1.81 G1523 L1344, Period 4
2 lower body and base fragments. Light green. Side curving in to wide convex-curved lower body; closed pushed-in base ring; base missing. PH 22, BD 40, WT 1.

Colourless

- 388 LWC72 J1025 & 941, Building 16, Period 3
31 rim, body and base fragments of squat cylindrical beaker. Green-tinged colourless. Vertical rim, edge cracked-off and ground; convex-curved body; open pushed-in base ring; high concave base mostly missing. Wide shallow wheel-cut groove below rim; 4 deep oval indentations on body. Height approx 90, RD 80, BD 39, WT 1.
- 389 BKC76 V234 L21, Period 4
Rim fragment. Slightly curved rim, edge cracked-off and ground; slightly convex-curved body with part of 1 large indentation. Wide wheel-cut groove below rim. PH 26, RD 90, WT 1.
- 390 GBS84 A291 L9, Period 3a
2 rim and 8 body fragments (several joining) of beaker. Slightly green-tinged colourless. Vertical rim, edge cracked-off and ground; straight side above indentations. Abraded band below rim. RD approx 70, WT 1.
- 391 LWC72 J718 F220, Period 3
9 body and base fragments. Straight side curving in at bottom to solid pushed-in base ring; base missing. Long, narrow, deep indentations on side. PH 31, (minimum height 55), BD approx 30, WT 0.5.
- 392 1.81 G3139 F2695, Period 3
Lower body fragment. Side with base of 1 large indentation curving into wide lower body; fragment broken as it curves out to form base ring. Dim approx 40x25, WT 1.

Blue/green

- 393 GBS84 A573 F90, Period 3b
Lower body and base fragment. Convex-curved side sloping in steeply to shallow concave base, mostly missing. Parts of 2 elongated indentations. PH 31, BD approx 55, WT 1.5.

Arcaded beaker

Pale green

- 394 COC79 902 L226, Period 2
Lower body and base fragment. Straight-side; convex-curved lower body; broken pushed-in tubular base ring; domed base mostly missing. Arcaded trails on straight side. PH approx 67, BD approx 40, WT 1.5.

Facet-cut and related beaker forms

Colourless

- 395 1.81 G1544 L1473, G1561 L1473, Period 4 or 5
2 joining rim fragments of facet-cut beaker. Exterior ground. Straight side with at least 5 rows of oval facets close set in quincunx to form diamonds; lower body slopes in slightly with only slight ridge between it and facet-cut zone. Dim 48x46, WT 4-3.
- 396 1.81 E738, unstratified
Body fragment of facet-cut beaker. Exterior ground. Straight side with parts of 2 elongated facets forming part of an irregular 'jigsaw' pattern; lower body slopes in and has been ground to leave facet-cut zone as raised area. Dim 33x10, WT 5-2.
- 397 1.81 G1118 L1112, Period 5
Lower body fragment of facet cut-beaker. Exterior ground. Straight side with parts of 2 rows of circular facets close set in quincunx to form diamonds; lower body slopes in and has been ground to leave facet-cut zone as raised area and a rib part way down lower body. Dim 29x17, WT 5.5-3.
- 398 LWC72 M147 Dump over Road 2 and between Road 2 and wall. Probably Flavian
Body fragment of facet-cut beaker. Exterior ground. Straight side tapering in. 3 rows of large oval facets set in quincunx. Dim 33x36, WT 4.
- 399 LWC72 J746 F231, Period 3
Body fragment of facet-cut beaker. Straight side. 3 rows of elongated oval facets set in quincunx to form diamonds. Dim 17x9, WT 2.
- 400 1.81 E102 F17, Period 7
Body fragment of facet-cut beaker. Exterior ground. Straight side with at least 4 rows of oval facets in shallow relief close set in quincunx to form diamond. Dim 44x22, WT 2.
- 401 BKC75 J38 L4, Period 5b
Lower body and base fragment of beaker. Exterior ground to produce convex-carved lower body with horizontal rib; foot ring at edge of base; flat base. Rib and base ring now chipped. Dim 39x20, BD approx 40, WT 3.
- 402 1.81 E349 F247, Period 7
Base fragment of beaker. Exterior ground to produce lower body sloping in to low out-splayed base ring; flat base, mostly missing. PH 10, BD 35, WT 1.
- 403 1.81 G1764 F1675, Period 3
4 base and 4 body fragments (several joining) of beaker. Exterior ground to leave slightly convex-curved body sloping in; out-splayed base ring; very slightly convex base. PH approx 15, BD 38, WT 3.
- 404 1.81 G4260 L4241, Period 3d
Lower body fragment of beaker? Side curving in to lower body. Exterior ground to leave 2 horizontal zones with lower edges raised (upper edge of lower zone sloping in smoothly to undercut lower edge of upper zone); lower zone has row of vertical oval facets with plain area above; upper zone retains bottom of 1 similar oval facet; lower body below lower facet-cut zone is plain and broken at edge of ground out foot ring or rib. Dim 36x30, WT 6-3.5.
- 405 BKC75 J176 F32, Period 5c/6
Body fragment of beaker? Straight side. Exterior ground. 2 horizontal rows of vertical oval facets separated by horizontal band ground down to leave central rib. Dim 34x21, WT 2-2.5.
- 406 1.81 B1069 L279, Period 3
Rim fragment of beaker. Exterior ground. Curved rim, edge cracked-off and ground; straight side. Exterior ground to leave rib below rim edge. PH 15, RD 75, WT 1.5.

- 407 MID78 A3110 L366, Building 69 Phase 2 or, Building 70 Phase 1, Roman Period 2 or early Period 3
Rim fragment of conical beaker. Out-turned rim, edge cracked-off and ground; straight side sloping in. Exterior ground to leave cordon below rim edge. PH 16, RD 110, WT 1.
- 408 1.81 G2915 L2374, Period 3d
Rim fragment of beaker. Exterior ground. Vertical rim; straight side. Horizontal zone below rim edge ground away to leave slight ridge on upper body. PH 26, RD 75, WT 2.5.
- 409 LWC72 M138, dump over Road 2 and between Road 2 and wall, probably Flavian
Lower body and base fragment. Exterior ground. Straight side sloping into slightly concave base with angular bevelled foot ring. PH 17, BD 30, WT 1.
- 410 LWC71 C59, post-Roman
Upper body fragment of beaker or cup. Straight side. Exterior ground to leave horizontal rib. Dim 31x15, WT 1.

Vessel with high-relief cutting

Colourless

- 411 1.81 G2094 L2024, Period 3d
Body fragment of cup. Straight side. Exterior ground to leave decoration in relief — part of a rectangular shape with a concave depression centrally about long axis and part of an elongated 'V' shape. Dim 33x28, WT 4-2.5.

Faceted cups and bowls

Colourless

- 412 LWC71 B45 F23, Period 4 to 5
Rim fragment. Slightly curved rim, edge cracked-off and ground; convex-curved body. 1 wheel-cut groove below rim and second on upper body with row of vertical rice grain facets below. PH 28, RD 110, WT 2.
- 413 1.81 G824 L784, Building 120, Period 5
1.81 G226, Period 4 to 6
4 body fragments (2 joining) probably from a hemispherical bowl. Slightly green tinged colourless. Convex-curved side. Facet-cut decoration from top to bottom is probably as follows:-
(a) a row of horizontal rice grain facets,
(b) at least 2 rows of vertical rice grain facets with ends of upper row between ends of lower row,
(c) abraded band with wheel-cut line above and below,
(d) as (b) but facets larger. Lightly abraded horizontal guidelines can be seen between (a) and (b). Dim 38x30, 31x25, 29x18, WT 2-3.5.
- 414 1.81 G897 L425, Building 120, Period 5
Body fragment. Slightly green-tinged colourless. Convex-curved side. A row of narrow vertical rice grain facets above 2 rows of larger vertical oval facets with ends of upper row between those of lower row. Lightly abraded horizontal guide lines can be seen at the lower edge of the upper row of facets. Dim 30x22, WT 2.
- 415 BKC73 A92 L12, post-Roman
Rim fragment. Curved rim, edge cracked-off and ground; convex-curved side. 2 abraded bands on upper body; parts of 2 oval facets separated by rice grain facet below. PH 27, RD 100, WT 2.
- 416 1.81 G177 L177, Building 120, Period 5
Lower body fragment. Slightly green-tinged colourless. Convex-curved side. Decoration from top to bottom as follows:-
(a) lower ends of a row of vertical rice grain facets,
(b) row of horizontal rice grain facets,
(c) row of large circular facets,
(d) broken at edge of large facet. Dim 30x20, WT 4.

- 417 LWC72 J718 F220, Period 3
Rim fragment of bowl or beaker. Vertical rim, edge cracked-off and ground; slightly convex-curved body. Part of 1 oval facet on exterior; wheel-cut groove below rim on interior. PH 19, WT 2.5.

Other facet-cut body fragments

Pale green

- 418 1.81 G355 F16, Period 6
Body fragment. Parts of 2 rice grain facets. Affected by heat. Dim 29x21, WT 3.

Colourless

- 419 1.81 D337 F299, Period 6
Body fragment. Slightly convex-curved side. Parts of 12 circular facets arranged in 5 rows, facets of each row touch each other. Dim 50x26, WT 5.
- 420 MID78 B1483 L214, Roman Period 3
Body fragment. 2 wheel-cut lines with part of 1 horizontal rice grain facet and 1 oval facet, third wheel-cut line below. Dim 18x13, WT 2.
- 421 BKC75 J38 L4, Period 5b
Body fragment. Convex-curved side. Parts of 2 oval facets and 1 wheel-cut line. Dim 49x11, WT 3.5.
- 422 LWC71 B180 F70, Period 5 backfill
Body fragment. 1 narrow oval facet. Dim 15x12, WT 2.
- 423 1.81 D1096 F22, Period 4
Body fragment. Slightly green-tinged colourless. Straight side. 2 large elongated facets arranged in a diagonal cross between 2 horizontal oval facets. Dim 34x19, WT 2.
- 424 1.81 G882 F264, Period 6
Body fragment. Convex-curved side. 3 rows of oval facets. Very heavily strain-cracked and surfaces obscured. Dim 25x18, WT 4.

Late Roman green

- 425 1.81 H378 F377, Period 6
Body fragment. Greenish colourless. Convex-curved side. Part of 1 circular facet with parts of 2 oval facets and 3 wheel-cut lines. Dim 31x24, WT 2.5.

Colourless wheel-cut beakers

- 426 LWC72 M111, Rampart 1a, mid 2nd century
LWC72 M102, Rampart 1b, mid 2nd century
LWC72 M92, Rampart 1e, late Roman;
16 rim, body and base fragments of cylindrical beaker. Curved rim, edge cracked-off; straight side sloping out to slightly rounded carination with lower body; base ring formed from separately-blown paraison; base ring edge bent out, cracked-off and ground. 1 pair of wheel-cut lines below rim, a second pair on upper body and a third pair above change of angle to lower body. PH (base and lower body) 53, BD approx 50, widest body diameter 80, WT 1-2.5.
- 427 BKC75 J142, J186 & J238 F13, Period 5b
BKC75 J10 L1, modern
18 rim and body fragments of ovoid beaker. Curved rim, edge cracked-off and probably ground; slightly convex-curved upper body sloping out; convex-curved lower body. 1 wheel-cut groove below rim edge, possibly 2 on upper body and 1 on lower body. PH (rim fragment) 23, RD 90, WT 1.5-2.5.

- 428 LWC72 J859, Building 20 Room 2, Period 4 make-up
2 rim and 7 body fragments. Out-turned curved rim, edge cracked off and ground. Lower body fragments show rounded change of angle. 1 abraded band below rim and another above change of angle. PH (rim) 13, RD approx 110, WT 1.5.
- 429 BKC75 J166 F36, Period 5b
Body fragment of beaker (?) Convex-curved side. 1 single and 1 pair of wheel-cut lines. Exterior wheel-polished. Dim 55x20, WT 1.5.
- 430 CPS73 (124) F45, Period 5
Rim fragment. Curved rim, edge cracked off and ground; convex-curved body sloping out. Abraded band on interior of rim; 1 wheel-cut line below rim and 1 on upper body with abrasions on either side. PH 15, RD 90, WT 1.
- 431 MID78 C1194 L114, Period 1 or pre-Period 1
Rim fragment. Curved rim, edge cracked off and ground; convex-curved body. 1 wheel-cut line below rim edge, 2 on upper body, and 2 lower down. PH 31, RD 80, WT 1.

Also 4 convex-curved body fragments with pairs of wheel-cut lines possibly from same vessel as no 431

- 432 MID78 A3180 L494, late Roman Period 2
- 433 1.81 B330 F108, Period 4
1 rim and 1 body fragment of cylindrical beaker. Out-curved rim, edge cracked-off and ground; straight side. 2 wheel-cut grooves below rim edge and 1 on upper body. PH 15, RD 80, WT 2.
- 434 BKC75 J176 F32, Period 5c/6
2 rim fragments of cylindrical beaker. Curved rim, edge cracked-off and ground; straight side. 1 wheel-cut line below rim edge and 1 on upper body. PH 37, RD 75, WT 0.5.
- 435 LWC72 K278 F102, Building 15, Period 3?
Rim fragment of beaker. Out-turned curved rim, edge cracked-off and ground; side sloping in. Abraded band below rim; wheel-cut groove on upper body. PH 10, RD 90, WT 1.5.
- 436 BKC75 J212 F46, Period 5c or 6
Rim fragment. Curved rim, edge cracked-off and ground; straight side sloping in. 1 wheel-cut groove below rim edge and 1 on upper body. PH 22, RD 65, WT 2.
- 437 1.81 C67 F27, late Period 4/5
Upper body fragment. Curved rim, edge missing; straight side. 1 wheel-cut groove on upper body.
- 438 BKC75 N33 L3, Period 6
Rim fragment of beaker? Vertical rim, edge cracked-off and ground. Narrow abraded band below rim edge. PH 13, RD 110, WT 2.
- 439 1.81 D1621 L1620, D1648 L1372, Period 4
1.81 D1241, unstratified
4 lower body fragments (3 joining) of carinated beaker. Straight side curving through carination to lower body sloping in diagonally to base ring (upper edge only surviving); slight horizontal concavity on lower body below carination. Wheel-cut groove on lower body. Max body diameter approx 90, WT 4.
- 440 BKC75 J196 F44, Period 5c/6
Lower body fragment of carinated beaker. Carination from upper body to diagonally sloping convex-curved lower body. 2 close-set wheel-cut grooves on lower body; slight horizontal concavity on lower body below carination. Dim 38x30, WT 3.
- 441 LWC72 M111, Rampart 1 a, mid 2nd century
Lower body fragment of carinated beaker. Straight side sloping in, becoming very thick and convex-curved towards bottom. Deep wheel-cut groove. Dim 43x40, WT 2-5.
- 442 1.81 B1421 L340, Building 94 Room 1b, Period 3/4
6 body fragments of beaker. Slightly convex-curved upper body beginning to curve out to rim and curving through rounded carination to lower body. 3 wheel-cut grooves above carination. Dim 60x40, WT 1.5.
- 443 BKC75 J88 L17, Building 60 Phase 3, Period 5b
Base fragment of beaker. Small flat base with foot ring formed from separate blown paraison. Side grazed; edges of foot ring broken. BD 21.

Also 5 other lower body and base fragments from ?beaker with foot ring formed from separate blown paraison.

444 BKC75 J10 L1, modern

445 MID78 A3148 L490, Building 69 Room 4, Roman Period 2

Lower body and base fragment of beaker. Side curving in through carination to diagonally sloping lower body; slightly open pushed-in base ring; concave base mostly missing. PH 18, BD 44, WT 1.5.

446 LWC71 B561 F190, Period 4

Lower body and base fragment of beaker. Rounded carination to convex-curved lower body sloping into solid pushed-in base ring; domed base mostly missing. PH 17, BD 32, WT 1.

447 1.81 G4311 L4310, Period 3d

Lower body and base fragment of beaker. Wide lower body sloping in to closed pushed-in base ring; domed base missing. PH 10, BD 35, WT 1.

448 1.81 G2702 L2374, Period 3d

3 joining lower body and base fragments of beaker. Description as no 447. PH 12, BD 35, WT 1.5.

449 1.81 G3579 F3578, Period 5

Lower body and base fragment of beaker. Side sloping in to closed pushed-in base ring; base missing. PH 19, BD 40, WT 2.

450 1.81 B2554, Period 4

Lower body and base fragment. Wide lower body sloping in shallowly to solid pushed-in base ring. Base missing. PH 6, BD 45, WT 2.

Also 19 colourless body with wheel-cut grooves (2 unless otherwise stated) probably from this type of beaker

451 BKC75 J188 F34, Period 5b (end of Period 4?)

452 BKC75 K9 L1, modern (3 fragments, 3 grooves)

453 BKC76 N566 L88, Building 64 Phase 1, Period 5b1 (1 groove)

454 BKC76 N449 L47, Building 65 Phase 2, Period 5b2

455 BKC76 V207 F50, Period 5 or 6 (3 fragments, 1 groove)

456 LWC71 C356, ?Period 2 or 3a & 3b

457 LWC72 J1211, Building 20 Phase 2 Room 2, Period 4b

458 LWC73 R177, Period 4a (3 grooves)

459 MID78 A2961 L438, Building 70 Passage 2, Roman Period 3 destruction (6 grooves)

460 MID78 C1642 F471, Building 74, early medieval destruction or Period 1 (2 and 3 grooves)

461 MID78 C1776 F529, early medieval or Period 1 (3 grooves)

462 CPS73 138 F53, Period 5, 848 L116, Building 154, Period 4 (2 fragments)

463 1.81 B1103 L228, Period 4A (1 groove & 1 abraded band)

464 GBS84 A209 F41, post-Roman

Cylindrical cups

Pale green

465 1.81 M195 F193, Building 123, Period 4

Base fragment. Wide lower body broken at carination to side; solid intermittently tubular pushed-in base ring; slightly concave base with circular trail applied to underside. Circular pontil scar on base inside trail. PH 5, BD 50, WT 1.

Colourless

- 466 1.81 G3966 L3948, Building 118?, Period 4
1 rim and 11 body fragments and complete base. Out-turned rim, edge fire-rounded; straight side curving in through rounded carination to wide lower body; tubular pushed-in base ring; slightly concave base. Horizontal trail on upper body and another on lower body. Post-technique scars on base rings. PH (rim) approx 30, RD 85, BD 40, WT 0.5.
- 467 BKC73 D225 L1, Anglo-Saxon
Rim fragment. Slightly out-turned rim, edge fire-rounded; straight side. Horizontal trail on upper body. PH 36, RD 110, WT 1.5.

Also 3 rim fragments from 3 similar cups

- 468 MID78 E2343, unstratified. PH 12, RD 95, WT 0.5.
- 469 BKC75 J38 L4, Period 5b. PH 24, RD 90, WT 1.
- 470 BKC73 D32A L1, Anglo-Saxon. RD approx 90-100.

Also 2 carinated body fragments with narrow trail at carination possibly from similar cups

- 471 BKC75 H14 L2, post-Roman
- 472 1.81 G3131 L2831, Period 4

473 LWC73 G208, Building 28 Phase 2, end of Period 3
Rim fragment. Vertical rim, edge fire-thickened; straight side. Horizontal trail applied immediately below rim edge. PH 19, RD 70, WT 1.

- 474 1.81 C82 L7, Building 114 destruction, late Period 4
Rim fragment. Out-turned rim, edge fire-thickened; straight side. PH 18, RD 105, WT 1.
- 475 BKC J32 L1, modern
Rim fragment. Out-turned rim, edge fire-rounded; straight side. PH 21, RD 100, WT 1.5.
- 476 1.81 G1493 L1043, Period 5
5 rim and 8 body fragments and complete base. Vertical rim, edge fire-rounded; straight side with rounded carination to wide lower body; pushed-in base ring; slightly concave base with circular trail with pontil scar on underside. PH (rim) 32 (base) 15, RD approx 60-70, WT 0.5.
- 477 BKC76 N641 L106, Building 64 Phase 1, Period 5b1
Rim fragment. Vertical rim, edge fire-rounded; straight side. PH 46, RD 120, WT 1.5.

Also 34 rim and body fragments from 27 similar cylindrical cups with vertical rims

- 478 CPS73 791 L111, Building 134, Period 4
Rim edge fire-rounded. PH 27, RD 110, WT 1.5.
- 479 LWC71 L232, Building 19, Period 4b
Rim edge fire-thickened. PH 16, RD approx 110, WT 1.
- 480 1.81 G1106 L1049, Period 5
Rim edge fire-thickened. PH 11, RD 110, WT 2.
- 481 BKC75 H13 L2, post-Roman
Rim edge fire-thickened. PH 21, RD 105, WT 1.
- 482 BKC75 H36 L7, Period 6
Rim edge fire-thickened. PH 37, RD 100, WT 1
- 483 1.81 G1106 L1049, Period 5
Rim edge fire-rounded. PH 15, RD 100, WT 1.
- 484 MID78 A1846 L214, Roman Period 3 destruction or later
2 fragments. Rim edge fire-thickened. PH 39, RD 95, WT 1.5.
- 485 CPS73 697 L61, Building 134, Period 4
Rim edge fire-thickened. PH 18, RD 95, WT 1.
- 486 MID78 A2983 L444 & L446, Roman Period 3
Rim edge fire-thickened. PH 33, RD 90, WT 2.

- 487 MID78 B292 F40, modern
Rim edge fire-thickened. PH 31, RD 90, WT 2.
- 488 MID78 A2531 F49, early medieval Robbing
Rim edge fire-rounded. PH 26, RD 90, WT 1.
- 489 BKC73 A90 F16, Period 6 or Anglo-Saxon
Rim edge fire-rounded. PH 23, RD 90, WT 1.
- 490 1.81 J3 L1, Period 6
Rim edge fire-thickened. PH 23, RD 90, WT 1.
- 491 CPS73 138 F53, Period 5
3 rim and 1 body fragments. Rim edge fire-thickened. PH 21, RD 90, WT 2.
- 492 BKC74 E1289 F436, Period 6?
Rim edge fire-rounded. PH 18, RD 90, WT 1.
- 493 LWC72 J173 F65, post-Roman
Rim edge fire-thickened. PH 18, RD 90, WT 2.5.
- 494 1.81 G811 L581, Period 5
Rim edge fire-rounded. PH 14, RD 90, WT 1.
- 495 1.81 C145 149 F42, Building 114, early Period 4
2 fragments; rim edge fire-thickened. PH 36, RD 85, WT 1.
- 496 LWC72 J859, Building 20 Room 2 make-up, Period 4
Rim edge fire-rounded. PH 16, RD 85, WT 1.
- 497 CGC78 9, unstratified
Rim edge fire-thickened. PH 13, RD 85, WT 1.
- 498 1.81 C46, early medieval
Rim edge fire-rounded. PH 10, RD 85, WT 1.5.
- 499 CPS73 514 L75/22?, Period 6
Rim edge fire-thickened. PH 23, RD 80, WT 1.5.
- 500 MID78 A2688 F787, early medieval
MID78 A1721 F44, early medieval
2 rim and 1 body fragments. Rim edge fire-thickened. PH 18, RD 80, WT 0.5.
- 501 BKC76 N437 F122, Building 65 PH 2, Period 5b2
Rim edge fire-rounded. PH 14, RD 80, WT 1.5.
- 502 LWC72 K248 F121, medieval and later
Rim edge fire-rounded. PH 14, RD 80, WT 1.
- 503 CPS73 429 L50, Period 6 to 8
Rim edge fire-thickened. PH 16, RD approx 80, WT 1.
- 504 1.81 G3293 F3292, Period 5 or 6
Rim edge fire-thickened. 2 fragments PH 27, RD 75, WT 1.

Also 11 other small fragments from rims of similar cylindrical bowls with vertical rims

- 505 BKC75 J19 L1, modern (RD 80-90).
- 506 BKC73 A167 TT3 F63, post-Roman
- 507 BKC75 H13 L2, post-Roman
- 508 BKC76 N488 L113, Period 5b2
- 509 LWC72 D222, post-Roman
- 510 LWC72 L302, Building 19 Room 2 Phase 3, Period 4(3)
- 511 MID78 C1083 F343, Period 1 or 2
- 512 CPS73 195 F74, Building 156, Period 7
- 513 1.81 B553 L88, Building 112 Room 2, Period 4
- 514 1.81 G948 L883, Period 5
- 515 GBS84 A36 L1, post-Roman (heat affected)

- 516 BKC76 N322 F97, Building 64 Phase 1, Period 5b2
Rim fragment of small cylindrical cup or flask (?) Slightly funnel-mouthed with rim edge fire-rounded. PH 18, RD 50, WT 1.
- 517 CPS73 485 F114, Period 5
Rim fragment of small cylindrical cup or flask (?) Vertical rim, edge fire-rounded; straight side. PH 16, RD approx 50, WT 1.
- 518 1.81 G673 L618, Period 5
Base fragment. Wide lower body; tubular pushed-in base ring; slightly concave base with circular trail on underside. Pontil scar on trail and centre of base. BD 55, WT 1.
- 519 BKC73 A66 F11 ?, post-Roman
7 lower body and base fragments. Side curving into wide lower body; solid pushed-in base ring; circular trail with pontil scar applied to under side of flat base. PH 7, BD 48, WT 1.
- 520 1.81 G4155, Period 4 to 5
Base fragment. Wide lower body; intermittently tubular pushed-in base ring; slightly convex base with circular trail on underside. Post-technique scars on base ring. BD 45, WT 1.5.
- 521 CPS73 761 L67, Period 5
Base fragment. Wide lower body; tubular pushed-in base ring; circular trail applied to underside of flat base; linear pontil scar across trail and on centre of base. BD approx 45, WT 1.
- 522 1.81 J168 F165, Period 6
Base fragment. Tubular pushed-in base ring; circular trail with pontil scar on underside of concave base. Side grazed. BD 44.
- 523 LWC71 B321 F70, Period 5
Base fragment. Solid pushed-in base ring; thick circular trail with pontil scar on underside of flat base. Base ring highly worn; side grazed. BD 39.,
- 524 BKC74 A109 L9, Period 6 or Anglo-Saxon
Complete base. Wide lower body; distorted tubular pushed-in base ring; thick circular trail with pontil scar applied to underside of slightly concave base. BD approx 35.

Also 4 base fragments with parts of tubular pushed-in base rings possibly from cups of this sort

- 525 GBS84 A266 F27, Period 3b (BD 55)
- 526 1.81 A85 F36, Period 5 (BD 45)
- 527 LWC72 L287, Building 19 Room 2 Phase 3, Period 4(3) (BD 35, side grazed)
- 528 1.81 G3230 L3212, Period 4 or 5
- 529 1.81 G1321 G1363 L1157, Period 5
1 lower body and 2 base fragments (all joining). Straight side with rounded carination to wide lower body; trailed base ring; circular trail with pontil scar on underside of slightly concave base. PH approx 12, BD 38, WT 1.
- 530 1.81 G3973 L3952, Period 5
4 lower body and base fragments. Side curving through carination to wide lower body; trailed base ring; slightly concave base with circular trail in very shallow relief. Pontil scar at centre of base. BD 40. WT 3.

Also 2 fragments from sides and wide lower bodies of similar cups, broken at edge of base ring.

- 531 1.81 G1499 L1477, Period 5 (body diameter approx 110-20)
- 532 1.81 B679 F188, Building 112 Room 6a, Period 4
- 533 1.81 D1793 L1372, Building 112 Room 5, Period 4
Base fragment. Circular trail with pontil scar applied to underside of slightly concave base. Base grazed around edge of trail. Dim 24x22.

Also 1 similarly grazed trailed base fragment

- 534 1.81 G3148 L946, Period 5

Also 1 similar trailed base fragment

535 1.81 D1268 L328, Period 4

Blue/green

536 1.81 G684 L581, Period 5

Rim fragment. Vertical fire-rounded rim. PH 5, RD 85, WT 1.

Also 4 similar rim fragments with vertical fire-rounded edges

537 LWC72 J830, Period 4a

538 CPS73 450 L22/75, Period 6

539 1.81 G3084 L1344, Period 4 (with 1 body fragment)

540 1.81 G840, Period 4 to 6

Stemmed beakers or flasks

Colourless

541 CPS73 698 L61, Building 154, Period 4

Lower body fragment. Short convex-sided cylindrical stem broken at junction with missing body; wide, slightly convex-curved broken foot. Small circular pontil scar at centre of foot. PH 16, stem diameter 15, WT 2, pontil scar diameter 10.

542 1.81 G1003 L936, Period 5

Base fragment. Wide foot with slightly concave upper surface and fire- rounded edge. BD 60.

Hemispherical cups with fire-rounded rims

Colourless

543 LWC71 B128 F46, ?medieval and later

Lower body and base fragment. Convex-curved side sloping into flat base edge Horizontal row of small pinched-up knobs on lower body, 3 remaining. PH 16, WT 1.

544 1.81 D1833 L1818, Period 4

Body fragment probably from hemispherical cup. Slightly convex-curved side. 2 horizontal wheel-cut grooves above a pinched-up knob. Dim 26x21, WT 1.5.

545 1.81 G900, Period 3d to 6

Body fragment probably from hemispherical cup. Convex-curved side curving into edge of thick base. Lower part of pinched-up lug with pincer marks on sides. Dim 30x31, WT 1.5-4.5.

546 1.81 G2908 L1, Period 6

Body fragment. Slightly green-tinged colourless. Convex-curved side. 3 pinched-up knobs. Dim 34x33, WT 2.

547 1.81 M194 F193, Building 123, Period 4

Body fragment. Convex-curved side. 2 pinched-up knobs. Dim 23x21, WT 1.5.

548 BKC75 H7 L2, post-Roman

Body fragment. Convex-curved side. Pinched-up knob. Dim 20x18, WT 2.

Also 1 other body fragment with broken pinched-up knob

549 1.81 E584 L24, Building 99/100, Period 3a

550 CPS73 264 L22/57, Period 4
Body fragment. Convex-curved body. Pinched-up lug with at least 3 rounded points, 2 of which remain. Dim 18x18, WT 0.5.

550a BUC79 H1039-1041 G693 SF1708, Period 1
17 rim and approx 260 body and base fragments (many very small) of cup. Out-turned rim, edge fire-rounded; slightly convex-curved side sloping into thick flat base. RD 70, WT 1.

Miscellaneous indented beakers or cups

Colourless

551 BKC75 G354 F11 (?), Period 5c (?)
Base fragment. Indented side above tubular pushed-in base ring; concave base with central kick. Circular pontil scar. PH 10, BD 51, WT 1 pontil scar diameter 12.

552 CPS73 691 L61, Building 54, Period 4
Lower body fragment. Straight, slightly indented/flattened side; convex-curved lower body. 2 horizontal trails on lower body. Dim 55x32, WT 1.5-2.5,

Hemispherical cups

Late Roman green

- 553 BUC B1180 G180 SF 413, Period 2
Cup in 12 fragments, missing only 3 small body fragments. Pale greenish colourless. Vertical rim, edge cracked-off with slight step and not ground; convex-curved body; concave base. Abraded band on upper body, a festooned trail with 5 loops below. Height 68, RD 76, WT 1.
- 554 CPS73 547 F112, Period 5
Rim fragment. Pale greenish colourless. Vertical rim, edge cracked-off smoothly but not ground; convex-curved side. 4 abraded bands on upper body; 2 curved trails below. PH 44, RD 75, WT 1.
- 555 CPS73 576 F115, Building 154, Period 4
Body fragment. Pale greenish colourless. Convex-curved side. Curved trail with second curved trail running into it. Dim 28x15, WT 2.
- 556 CPS73 533 F116, Period 5
Body fragment. Pale greenish colourless. Convex-curved body. Curving trail running over second curved trail, side of vessel deeply tooled inwards at junction. Dim 27x17, WT 2.
- 557 1.81 D1269 F1291, Period 4
Body fragment. Yellowish green. Convex-curved side. Part of 1 abraded band 1 curving trail. Dim 22x25, WT 0.5.
- 558 LWC74 U60, Roman to medieval
Rim fragment. Pale green-tinged colourless. Vertical rim, edge cracked off and possibly ground; convex-curved body. Abraded band at rim edge, 3 similar narrow bands on upper body. PH 28, RD 80, WT 1.
- 559 1.81 G1318 L1304, Period 5
Rim fragment. Pale greenish colourless. Vertical rim, edge cracked-off and ground. 2 abraded bands on upper body. PH 22, RD 80, WT 2.
- 560 BUC77 E686 F103, early Period 2
Rim fragment. Vertical rim, edge cracked-off smoothly but not ground. PH 25, WT 0.5.
- 561 BUC77 E258 L16, 5th century
Rim fragment. Pale yellow/green. Curved rim, edge cracked-off with slight step and not ground; convex-curved body. Abraded band at rim edge; 1 similar band below rim and 1 on lower body. PH 70, RD approx 102, WT 2.
- 562 CPS73 567 F115, Building 154, Period 4
Rim fragment. Pale yellowish green. Thick curved rim, edge cracked-off smoothly but not ground; convex-curved side. Abraded band below rim and 1 on body. PH 38, RD approx 80, WT 1.

- 563 CPS73 576 F115, Building 154, Period 4
Rim fragment. Green-tinged colourless. Curved rim, edge cracked-off smoothly but not ground; convex-curved side. PH 15, RD 90, WT 1.
- 564 LWC72 K249 F55, Building 19 Room 18, end of Period 4b
2 rim fragments. Pale greenish colourless. Curved rim, edge cracked-off smoothly but not ground; convex-curved body. 1 abraded band below rim and 3 on upper body. PH 26, RD 75, WT 0.5.

Also 1 similar yellowish green rim fragment distorted by heat

- 565 CPS73 641 L88, Building 154, Period 4

566 1.81 G650 F174, Period 6?
Rim fragment of hemispherical cup or conical beaker. Pale greenish colourless. Curved rim, edge cracked-off smoothly but not ground; slightly convex-curved side. Abraded band below rim. PH 20, RD 90, WT 1.5.

- 567 LWC74 U25 F10, medieval
Base fragment. Pale green. Convex-curved lower body; slightly concave base. PH 16, WT 1.5.

Also 1 similar pale green lower body and base fragment

- 568 LWC74 U24 F10, medieval

Also 1 pale greenish colourless lower body fragment probably from a hemispherical cup

- 569 CPS73 575 F115, contaminated

Conical beakers

Colourless

- 570 BKC76 V927 L5, late Period 5 (c AD 300)
Rim fragment. Curved rim, edge cracked-off and ground; straight side. 1 narrow abraded band below rim, 1 wider band on upper body. PH 21, RD 80, WT 1.5.
- 571 CGC78 9, unstratified
1 rim and 1 body fragment. Vertical rim, edge cracked-off smoothly but not ground. 2 abraded bands below rim edge. PH 17, RD approx 70, WT 1.
- 572 CPS73 623 F111, 365 F92, Period 5
12 body and 1 base fragments. Straight side; concave base. Groups of 10, 6, 5 and 2 abraded bands. Dim (largest joining fragment) 42x27, WT 1.
- 573 1.81 G4300, Period 3d to 4
Rim fragment of conical beaker. Curved rim, edge cracked off and probably not ground; straight side sloping in. 3 wheel-cut grooves on upper body. PH 21, RD 80, WT 0.5.
- 574 1.81 J69 L1, Period 6
Rim fragment of cylindrical beaker. Vertical rim, edge cracked off and probably ground; straight side. Abraded horizontal band on upper body. PH 15, RD 80, WT 1.
- 575 1.81 G636 L518, Period 5
1 rim and 1 body fragment of cylindrical beaker. Vertical rim, edge cracked-off and smoothed; straight side. 1 abraded band on upper body and another on body fragment. PH 21, RD 100, WT 1.5.

Late Roman green

- 576 1.81 C46, early medieval
Rim fragment. Very pale green-tinged colourless. Curved rim, edge cracked-off and ground; straight side sloping in. 1 abraded band below rim and 2 on body. PH 42, RD approx 80, WT 2.

- 577 BKC73 A31 TT 11 L2, post-Roman
Rim fragment. Pale green-tinged colourless. Curved rim, edge cracked-off smoothly but not ground; straight side sloping in. 4 narrow abraded bands on body. PH 34, RD 90, WT 1.
- 578 BKC74 E360 L433, post-Roman
Rim fragments. Greenish colourless. Curved rim, edge cracked-off smoothly but not ground; straight side sloping in. 2 abraded bands on body. PH 30, RD 90, WT 1.
- 579 BUC77 E324 L17, 5th century
Rim fragment. Pale greenish colourless. Slightly curved rim, edge cracked-off smoothly but not ground; straight side tapering in. 2 abraded bands on upper body. PH 31, RD 90, WT 1.
- 580 BUC77 E690 L48a, Period 2 or 5th century
Rim fragment. Pale green-tinged colourless. Curved rim, edge cracked off smoothly but not ground; straight side tapering in. Possibly a faint horizontal abraded band on upper body. PH 26, RD 80-85, WT 1.
- 581 BKC73 A92 L12, post-Roman
Rim fragment. Greenish colourless. Curved rim, edge cracked-off smoothly but not ground; straight side sloping in. Abraded band on upper body. PH 15, RD 80, WT 1.
- 582 LWC72 H202 F56 post-robbing ?pre-18th century
1 rim and 1 body fragments. Pale greenish colourless. Curved rim, edge cracked-off smoothly but not ground; straight side sloping in. 2 abraded bands on upper body. PH 43, RD approx 80, WT 1.
- 583 LWC72 H257 F10 & F15, early medieval
1 rim and 2 body fragments. Green-tinged colourless. Curved rim, edge cracked-off smoothly but not ground; straight side sloping in. 1 abraded band below rim, 1 on upper body. PH 33, RD 75, WT 1.
- 584 LWC71 C267 F178, ?post-Roman
1 rim and 1 body fragment. Green-tinged colourless. Curved rim, edge cracked off smoothly but not ground; straight side sloping in. 3 abraded bands on upper body. PH 30, WT 1.
- 585 BUC77 E622 F94, post-Roman
2 base and body fragments. Pale greenish colourless. Straight side tapering in to concave base. Abraded band on lower body. PH 71, BD 42, WT 0.5.
- 586 BUC77 C1605 G427, Period 2
Lower body and base fragment. Pale greenish colourless. Straight side tapering in to slightly concave base. PH 22m., BD 40, WT 1.
- 587 1.81 G803 L450, Period 6
Base fragment. Green-tinged colourless. Side sloping in steeply to slightly concave base. PH 14, BD 32, WT2.5.
- 588 1.81 B1847 F550, post-Roman
Body fragment. Greenish colourless. Straight side. 2 rice grain wheel cuts arranged in a 'v' shape above 2 abraded bands; parts of 4 diagonal shallow rice grain wheel-cuts below. Dim 26x20, WT 2.

Also 31 light greenish/greenish colourless body fragments with abraded bands probably from hemispherical cups or conical beakers (1 band unless otherwise stated)

- 589 BKC73 A25 L1, post-Roman
- 590 BKC73 A31 TT 11 L2
- 591 BKC73 D267 L10, Anglo-Saxon (2 bands)
- 592 BKC73 D409 F19, Period 6 robbing (2 bands)
- 593 BKC74 E302 L447, Period 6
- 594 BKC76 N364 F33, Period 6+ (2 bands)
- 595 BKC76 N253 F83, modern
- 596 BKC76 T274 L9 & L67, Building 56, Period 5c (2 bands)
- 597 LWC71 A236, pre-Period 4 (4 bands)
- 598 LWC72 H124 (2 bands), Roman?/Anglo-Saxon?/16th-17th century?
- 599 BUC76 A67 F61, modern (2 bands)

- 600 BUC77 C1107 L1, Period 1/2
- 601 BUC77 E271 L16 C5th (2 bands)
- 602 BUC77 E443 L29 c 5th (2 bands)
- 603 BUC77 E364 L16 c 5th (2 fragments)
- 604 BUC77 E256 L5, modern
- 605 CPS73 554 F115, Building 154, Period 4 (5 fragments)
- 606 CPS73 576 F115, Building 154, Period 4 (2 bands)
- 607 CPS73 473 F106, Period 5
- 608 CPS73 579 F112, Period 5 (3 bands)
- 609 CPS73 821 F118, Period 5
- 610 1.81 A62, post-Roman (2 bands)
- 611 1.81 C20 L3, post-Roman
- 612 1.81 D1075 F22, Period 4 (2 bands)
- 613 1.81 G551 L170, Period 5 (5 bands)
- 614 1.81 G752 F661, Period 6 (2 bands)

Beakers, cups or bowls with out-turned fire-rounded rims

Yellow/green

- 615 1.81 E1, unstratified
Rim fragment of cup beaker or jar. Very dark yellow/green appearing black. Out-turned rim, edge fire-rounded, side sloping in. PH 18, RD 85, WT 1.
- 616 MID78 C1607 L219, Building 75 Phase 2, Period 2
Rim fragment. Out-turned rim, edge fire-thickened. Slightly, distorted. PH 15, WT 1.5.
- 617 Not used.

Blue/green

- 618 BKC76 V813 L22, late Period 5 (c AD 300)
Rim fragment of cup or bowl. Out-turned rim, edge fire-rounded; convex-curved body. PH 14, RD approx 170, WT 1.
- 619 CPS73 860 F115, Building 154, Period 4
Rim fragment of bowl? Out-turned rim, edge fire-rounded; short upper body sloping out to carination. PH 20, RD 110, WT 2.

Late Roman green

- 620 BUC77 C1157 G367, Period 2
Rim fragment of cup. Pale greenish colourless. Out-turned rim, edge fire-thickened; slightly convex-curved body. PH 24, RD 95, WT 1.
- 621 BKC75 N102 F30, Period 6
Rim fragment of beaker? Light greenish colourless. Out-turned rim, edge fire-thickened slightly convex-curved side. PH 26, RD 70, WT 1.
- 622 LWC72 E108 17th-20th century
2 rim fragments of cup or beaker. Pale green. Out-turned rim, edge fire-rounded straight side. PH 17, RD 90, WT 1.
- 623 CPS73 460 F99, Period 5
Rim fragment of cup or beaker. Green-tinged colourless. Out-turned rim, edge fire-rounded; straight side. PH 19, RD 90, WT 1.

624 BKC75 N11 L1, modern
Rim fragment of cup or beaker. Green-tinged colourless. Out-turned rim, edge fire-rounded; side sloping in. PH 15, RD 120, WT 1.5.

625 BKC75 N72 F18, Period en-
Rim fragment. Light greenish colourless. Out-turned rim, edge fire-rounded. PH 7, RD 65.

Also 3 fragments from out-turned rims with fire-rounded edges

626 BKC76 V190 F499, Period 5

627 BKC73 A74 F16, Period 6 or Anglo-Saxon

628 BKC74 E1013 L1 20th century

629 1.81 G158 F158, Period 6

Base fragment of conical beaker. Light green. Side sloping in steeply to slightly concave base. Pontil scar with small amount of additional glass. PH 9, BD 35, WT 2.

Bowls

Tubular-rimmed bowls

Deep blue

- 630 BKC75 G398, Period 2 or 3?
Rim fragment. Slightly out-bent rim, edge rolled out and down. PH 16, RD 150.
- 631 1.81 B4 F1, medieval
Rim fragment. Vertical or slightly out-bent rim, edge rolled out and down. PH 7, RD approx 160.
- 632 BKC75 K299 F6, Period 6
Rim fragment. Out-bent rim, edge rolled out and down. PH 10.
- 633 BKC76 V553 L55, Building 46, Period 2
Rim fragment of bowl or jar. In-bent rim, edge rolled out and down. PH 8, RD 110.

Emerald green

- 634 BKC74 E918 L226, Period 1b
BKC74 E243 L36, Period 6
Rim fragment. Vertical rim, edge bent out and down; straight side. PH 19, RD approx 100, WT 1.5.
- 635 GBS85 A2396 L258, Building 131 Room 5, Period (1 or)
GBS85 A2345 F310, Building 131, Period 2
2 joining body fragments of shallow bowl. Out-bent rim missing; straight side with rounded carination to wide body broken at edge of base ring. PH approx 40, max body diameter approx 90, WT 1.5.

Yellow/brown

- 636 LWC71 B289 F113, Building 23, Period 5
Rim fragment. Dark yellow/brown. Slightly out-bent rim, edge bent out and down. PH 15, RD approx 190.
- 637 BKC74 E1262 L387, Building 37, Period 1b
Rim fragment. Dark yellow/brown. Vertical rim, edge bent out and down; straight side. PH 17, RD 170-190, WT 1.
- 638 BKC75 J4 L1, modern
Rim fragment. Dark yellow/brown. Slightly out-bent rim, edge bent out and down. RD approx 180.
- 639 LWC73 M155, silt/dump below Road 2. Probably before approx 75.
Rim fragment. Light yellow/brown. Slightly out-bent rim, edge bent out and down. Horizontal split with fire-rounded edges on outside of rim. PH approx 10, RD 140.
- 640 1.81 G2194 L1745, Period 3
Rim fragment. Dark yellow/brown. Slightly out-bent rim, edge bent out and down. PH 15, WT 1.5.
- 641 BKC76 V1253 F482, Period 4
Rim fragment. Light yellow. Out-bent rim, edge first rolled in, then out and down. PH 10, RD 190.
- 642 1.81 B1417 L319, Period 3
Rim fragment of bowl or jar. Yellowish colourless. In-bent rim, edge bent out and down. Side grazed. PH 11, RD 100.
- 643 1.81 B1579 L380, Building 94 Room 2, Period 3
Rim fragment of bowl or jar. Dark yellow/brown. In-bent rim, edge first rolled in then folded out and down. PH 11, RD 70.

Yellow/green

- 644 BKC76 V938 L11, late Period 5 (c AD 300)
Rim fragment of large bowl. Slightly out-bent rim, edge bent out and down; straight side sloping in. PH 16, RD 250, WT 2.
- 645 GBS84 A420 L1, Period PR
Rim fragment. Vertical rim, thickened edge bent out and down; straight side sloping in. PH 21, RD 185, WT 2.
- 646 BKC76 V169 F50, Period 5 (or 6)
Rim fragment of bowl or jar. Rim edge first rolled in, then out and down. PH 15, RD 130.
- 647 1.81 B1255, unstratified
Rim fragment. Rim edge bent out and down. PH 17, WT 1.5.
- 648 GBS84 A392 L13, Period 3b or 4
2 joining fragments. Rim edge bent out and down. PH 16.

Pale green

- 649 LWC72 J954 F193, Period 4a or b
2 rim fragments. Out-bent rim, edge bent out and down; slightly concave-sided upper body. PH 47, RD approx 180, WT 2.
- 650 BKC76 T468, Period (2 or) 3
Rim fragment. Vertical rim, edge bent out and down; straight side sloping in. PH 14, RD approx 110, WT 1.

Blue/green

- 651 BKC75 J49 L7, Period 5b
Rim fragment of ribbed bowl. Out-bent rim, edge bent out and down; straight side. 1 diagonal optic-blown rib in low relief. PH 32, RD 160, WT 1.5.
- 652 BUC77 C1413 L4, modern/post-Roman
Rim fragment of ribbed bowl. Out-bent rim, edge bent out and down; body sloping inwards. Optic-blown diagonal ribs. PH 20, RD 175, WT 1.5.

- 653 1.81 B1195 L271, Building 112 Room 6a, Period 4a
Rim fragment. Out-bent rim, edge bent out and down. Side missing but elongated diagonal bubbles and slight ribbing on interior part of rim suggest it may have been diagonally ribbed. PH 13, RD 140.
- 654 1.81 B147, unstratified
Body fragment. Straight side curving through carination to lower body. 1 vertical rib dying out at carination. Dim 34x20, WT 2.
- 655 BKC74 E1170 F251, Period 2
Rim fragment. Slightly out-bent rim, edge bent out and down. PH 12, RD 240.
- 656 1.81 M357 L248 & L249, Period 3 or 4
Rim fragment. Out-bent rim, edge rolled out and down; straight side. PH 22, RD approx 200, WT 1.5.
- 657 GBS84 A1406 L66, Period 3a, GBS84 A861 L28, post-Roman
2 rim fragments. Vertical rim, edge bent out and down; straight side sloping out slightly. PH 25, RD 200, WT 1.5.
- 658 GBS84 A243, Roman
Rim fragment. Vertical rim, thickened edge bent out and down. PH 14, RD 270.
- 659 BKC73 A95 L4, post-Roman
Rim fragment. Vertical rim, edge bent out and down. PH 10, RD 170.

660 LWC72 J1290, Building 8 Floor, Period 2

Rim fragment. Vertical rim, edge bent out and down. Straight side. PH 11, RD 160-170, WT 1.

- 661 BKC73 B48 F13/L30, modern?
Rim fragment. Out-bent rim, edge bent out and down; side sloping in steeply. PH 20, RD 160, WT 1.
- 662 CPS73 641 L88, Building 154, Period 4
Rim fragment. Vertical rim, edge bent out and down; straight side. PH 13, RD 160, WT 1.
- 663 MID78 A2269 F48, modern
Rim fragment. Vertical rim, edge bent out and down; straight side sloping in. PH 10, RD approx 150, WT 1.
- 664 1.81 K445 F418, Period 3a or 3b
Rim fragment. Out-bent rim, edge rolled out and down. PH 10, RD 140-150, WT 1.5.
- 665 BUC76 A357 F123, Period 2 or later
Rim fragment. Vertical rim, edge bent out and down; body sloping inwards. PH 13, RD 130-140, WT 1.
- 666 BKC76 V932 L11, late Period 5
Rim fragment. Vertical rim, edge bent out and down; straight side sloping in slightly. PH 15, RD 130, WT 1.
- 667 LWC73 R312 F105, Period 4 or, post-Roman
Rim fragment. Out-bent rim, edge bent out and down. PH 11, RD approx 110, WT 2.

Also 7 fragments with rim edges bent out and down from tubular-rimmed bowls; nos 670 & 671 distorted by heat.

- 668 BKC74 G104 L30, Building 49, Period 5
- 669 BKC76 N235, modern
- 670 LWC71 B59 F30, post-medieval
- 671 LWC72 N334, Period 8
- 672 BUC77 B1316 G192, Period 2
- 673 MID78 A2929 L329, Building 69 Room 3, early Roman Period 2
- 674 CPS73 938 L146 and below, Building 153, Period 3
- 675 GBS84 A1456 F195, Period 3a

- 676 1.81 G2679 F2370, Period 4 or 5
Rim fragment. Vertical rim, edge first rolled in, then out and down. PH 8, RD approx 100.
- 677 BKC75 J49 L7, Period 5b
BKC75 J45 L6, Period 5b?
28 rim and body fragments. Almost vertical (slightly-out-bent) rim, edge bent out and down; concave-sided body with carination to wide lower body tapering in. Vessel very bubbly. PH (rim) 26, (base) 29), RD 140, WT 1.
- 678 1.81 E784 F579, Building 89, Period 2
Lower body fragment of bowl. Side curving out then in to rounded carination to slightly convex lower body. Max body diameter 130, WT 1.5.
- 679 LWC72 J1634, make-up, Building 16, Period 3
Rim fragment of ?shallow bowl. Vertical rim, edge bent out and down; convex-curved body curving in. PH 18, RD approx 150, WT 2.
- 680 GBS84 A552 F95, ?Period 3a
Rim fragment of probably shallow bowl. Vertical rim, edge first rolled in then out and down; side curving in through rounded carination. PH 10, RD 150, WT 1.5.
- 681 LWC72 K200 F66, Anglo-Saxon
Rim fragment of ?shallow bowl. Vertical rim, edge first rolled in then out and down; body beginning to curve in. PH approx 9, WT 2.
- 682 BKC75 N170 L3, Period 6
BKC75 N159, Period 6
11 rim and body fragments of rim of shallow bowl. Horizontally out-bent double tubular rim; shallow convex-curved body. PH approx 10, RD 280, WT 1.
- 683 CPS73 683 L61, Period 4
Rim fragment. Horizontally out-bent rim, edge bent out and down; vertical side. PH 12, RD 200, WT 1.
- 684 BKC76 T566 F206, Period 1 or 2
Rim fragment. Rim out-bent almost horizontally with edge bent down and under to form hollow tube; side sloping in very shallowly. PH 15, RD 110, WT 1.
- 685 BKC75, unstratified
Rim fragment. Out-bent rim with edge bent down and under to form hollow tube; side sloping in very shallowly. PH 9, RD 130, WT 1.5.
- 686 LWC72 M152 Silt or dump over Road 2, probably Flavian
Rim fragment. Wide horizontal rim, edge bent out and down. PH 13, WT 1.
- 687 BKC75 J218, Periods 5/6 or modern?
Rim fragment of bowl or jar. Rim in-bent almost horizontally, edge bent out and down; convex-curved body. PH approx 8, inner RD approx 130, WT 1.
- 688 BKC J81 L23, Period 5 or 6
Rim fragment of bowl or jar. In-bent rim, edge bent out and down; convex-curved body. PH 20, RD approx 100, WT 1.
- 689 BKC75 H14 L2, post-Roman
Rim fragment of bowl or jar. In-bent rim, edge bent out and down. Dim 14x9.
- 690 MID78 A24 L1, medieval or later
Rim fragment. Markedly in-bent double tubular rim; straight side. PH 15, RD (outer) 160, WT 1.
- 691 BKC75 J150 L1, modern
Rim fragment. In-bent rim, edge first rolled in then out and down. Inner edge of rim broken. RD approx 150.

Late Roman green

- 692 GBS84 A21 L1, post-Roman
Rim fragment. Light green. Out-bent rim, edge rolled out and down; convex-curved side. PH 25, RD 90, WT 1.

Bowl with wide out-turned rim

Blue/green

- 693 BUC76 B464 G100 SF 278, Period 1, Phase 3
Bowl in 33 fragments, parts of body missing. Rim out-bent horizontally, edge fire-rounded; straight side sloping in slightly to carination with lower body; tubular pushed-in base ring; base has applied pad which has produced a central thickening on interior and exterior; deep oval pontil scar, base ring worn. Height 45, RD 93, BD 39, WT 1.

Bowls with wide out-turned ribbed rims

Yellow/brown

- 694 BKC74 G1, unstratified
Rim fragment. Dark yellow/brown appearing black. Horizontally out-bent, stepped rim with fire-rounded edge. Rim has slight step on upper surfaces and rib on lower. PH 5, RD 90, WT 0.5.

Colourless

- 695 BKC75 K493 L95, Period 4c
Rim fragment. Rim out-bent almost horizontally with fire-rounded edge, rib on underside; side sloping in. PH 15, RD approx 300, WT 2.
- 696 LWC72 J825 F262, Period 4
2 rim and 2 body fragments of shallow bowl or plate. Wide, horizontally out-bent rim, edge fire-rounded, rim has slight step on upper surface and rib on lower; convex-curved side sloping in very shallowly. PH 10, RD 140, WT 1.5.
- 697 BKC75 J210 F44, Period 5c/6
Rim fragment. Rim out-bent almost horizontally, edge fire-rounded, rib on underside; side sloping in. PH 6, RD 110, WT 1.5.

Blue/green

- 698 LWC M76, Rampart 1e, late Roman
Rim fragment of shallow bowl or plate. Wide rim bent out and slightly down, edge fire-rounded; side sloping in very shallowly. Horizontal trail on upper rim/body junction. PH approx 10, RD 120, WT 4.

Canthari and other vessels

Blue/green

- 699 1.81 C390 L60, Period 2
Rim fragment of bowl. Out-turned stepped rim with fire-rounded edge; straight side sloping in. PH 13, RD 85, WT 1.5.
- 700 LWC J1233, Building 8, gravel yard, Period 2
Rim fragment of bowl. Out-bent stepped rim, edge fire-rounded. Rounded cordon below rim. PH 17, RD 130, WT 3.
- 701 GBS85 A2302, unstratified
Rim fragment of cylindrical beaker. Stepped rim, edge fire-rounded; straight side. PH 17, RD 60, WT 1.

Bowls and plates with cut-out folds

Emerald green

- 702 BKC76 T487, Period 1 & 2
BKC76 T94 L16, Building 47, end of Period 3
BKC76 T322 L37, Building 47, Period 3?
BKC76 T200, unstratified
6 base fragments of plate. Cut-out and pushed-in figure-of-eight base ring; flat base wheel-polished on underside. Side broken. PH 10, BD 145.

Blue/green

- 703 1.81 E813 L52, Period 3a
Rim fragment of bowl. Out-turned rim, edge fire-rounded; figure-of-eight fold on upper body; side sloping in. Part of upper handle attachment on underside of fold. PH 19, RD 100, WT 1.5.
- 704 LWC71 C22 F9, post-Roman
Rim fragment of small bowl. Vertical concave-sided rim, edge fire-rounded; cut-out fold below. PH approx 15, body diameter of fold 80, WT 1.5.
- 705 LWC71 B329, Period 5?
Rim fragment of plate? Wide, almost horizontally out-bent rim, edge fire-rounded; slight change of angle at junction with flat body marked on outside by cut-out fold. RD 160, WT 1.5.
- 706 LWC72 J281 F121, post-Roman
Body fragment. Convex-curved body with horizontal cut-out fold. Dim 30x13, body diameter of fold approx 120, WT 1.5.
- 707 BKC75 K40 F9, modern
Body fragment. Convex-curved body with cut-out fold. Vertical trail caught between fold and body on 1 side. Dim 31x18, WT 1.5.
- 708 BKC76 T219, end of Period 3 (contaminated)
Lower body fragment. Straight side sloping in steeply to out-splayed cut-out fold; lower body curving in. PH 25, body diameter of fold 70, WT 1.
- 709 LWC73 R326 F122, post-Roman
Rim fragment. Rim edge fire-rounded with figure-of-eight fold. Dim 25x17, WT 1.
- 710 CPS73 120 F46, Period 5
Lower body fragment. Figure-of-eight fold with wide lower body projecting out. Dim 29x17, WT 1.5.
- 711 1.81 G2294 L1703, Period 3
Rim or body fragment. Horizontal cut-out figure-of-eight fold. Dim 41x13, WT 1.
- 712 1.81 H338 L283, Period 5
Body fragment. Figure-of-eight cut-out fold. Dim 24x11, WT 1.

Shallow plates and bowls with fire-rounded rims

Yellow/green

- 713 BKC75 H298 F94 & F167, Period 6
Rim fragment. Dark yellow/green appearing black. Fire-thickened rim with marked external lip; straight side sloping in. PH 17, RD 120, WT 2.

Blue/green

- 714 LWC73 J1475 F494, Period 4a
Rim fragment. Slightly out-turned rim, edge fire-thickened; straight side sloping in very shallowly. PH 7, RD 230-50, WT 1.
- 715 LWC72 E103 F52, Roman/medieval/post-medieval
Rim fragment. Rim edge fire-thickened, straight side sloping in very shallowly. PH 11, RD 210-40, WT 1.

- 716 BKC75 J167, unstratified
Rim fragment. Rim edge fire-rounded; side sloping in very shallowly. PH 5, RD 200, WT 2.5.
- 717 BUC77 D109, unstratified
Rim fragment. Rim edge fire-thickened; slightly convex-curved body sloping in. PH 13, RD 130, WT 1.5.
- 718 1.81 D2003, unstratified
Rim fragment of bowl? Rim out-bent almost horizontally, fire-rounded rim edge curved up and slightly in. PH 9, RD 95, WT 1.5.
- 719 1.81 W74, Period 4 F66
Rim fragment of bowl? Out-bent rim, edge fire-rounded; convex-curved side sloping in. Broken at change of angle? PH 17, RD approx 210, WT 1.5.

Indented truncated conical bowls

Late Roman green

- 720 BKC75 N61, Period 6?
1 rim and 1 body fragment. Light greenish colourless. Curved rim, edge cracked-off smoothly but not ground; convex-curved body sloping in with 1 indentation. PH 21, RD approx 120, WT 1.
- 721 LWC72 H36 F10, Roman
1 rim and 7 body fragments. Green-tinged colourless. Curved rim, edge cracked-off smoothly but not ground; indented body. Abraded band on upper body. PH (rim fragment) 7, RD 100, WT 1.
- 722 LWC72 G275, Building 28 Phase 1, Period 2
Rim fragment. Pale green. Curved rim, edge cracked-off smoothly but not ground; slightly convex-curved body with part of an indentation. Abraded band below rim and second on upper body. PH 23, WT 1.5.
- 723 CPS73 473 F106, Period 5
Rim fragment. Green-tinged yellow. Curved rim, edge cracked-off smoothly but not ground; slightly convex-curved side sloping in and possibly broken at side of indentation. 2 abraded bands on upper body. PH 27, WT 1.5.
- 724 LWC71-3 J185 F94, early medieval
Rim fragment. Pale green. Curved rim, edge cracked-off smoothly but not ground; slightly convex-curved body with parts of 2 indentations. PH 28, WT 1.5.

Also 4 indented body fragments probably from similar bowls

- 725 BKC74 E311 F102, Periods 3b-6
- 726 LWC72 L441 F261, Period 5
- 727 BUC77 E415 L16, 5th century
- 728 CPS73 420 F100, Period 5

Indented truncated conical or segmental bowls

Late Roman green

- 729 CPS73 117 F43, Period 5
Rim fragment. Pale yellow/green. Curved rim, edge cracked-off smoothly but not ground; straight side sloping in. Wide abraded band on upper body. PH 20, RD 160, WT 2.
- 730 LWC72 J500, Building 20 Room 2, make-up floor, Period 4
Rim fragment. Pale greenish/yellowish colourless. Curved rim, edge cracked-off and ground; straight side sloping in. PH 17, RD 120, WT 1.
- 731 LWC72 E73, 16th-17th centuries
Rim fragment. Green-tinged colourless. Curved rim, edge cracked-off smoothly but not ground; straight side sloping in. PH approx 15, RD 100, WT 0.5.

Jars

Collared jars

Deep blue

- 732 BKC75 K361 L35, Period 4a or 4b
Rim fragment. Part of vertical rim, edge (now missing) bent out and down to form collar. PH 17. RD110.

Yellow/brown

- 733 BKC75 J84 L15 & J240 L33, Period 3/4/5a
BKC75 J166 & J219 F36, Period 5b
10 rim and body fragments of ribbed jar. Dark yellow/brown. Slightly out-bent rim, edge bent out and down; convex-curved globular body. Parts of at least 4 narrow pinched-up ribs. PH 45, RD 90, WT 1.
- 734 BKC76 T218 F98, Building 47, Period 3
Rim fragment. Light yellow/green. Slightly out-bent rim, edge bent out and down. PH 20, RD 105.
- 735 1.81 E827 L44, Period 3
Rim fragment. Light yellow/brown. Vertical rim, edge first rolled in, then bent out and down. PH17, RD115.
- 736 LWC73 J1003 F210, Period 4b destruction
Rim fragment. Light yellow/brown. Slightly out-bent rim, edge first rolled in then bent out and down. PH approx 10, RD approx 85.

Yellow/brown

- 737 LWC72 K31, post-Roman
Rim fragment. Vertical rim, edge first rolled in then out and down. PH 15, RD 85.

Pale green

- 738 BKC76 T1, unstratified
Rim fragment. Pale green. Slightly out-bent rim, thickened edge bent out and down; body sloping out. PH 22, RD 100, WT 2.
- 739 GBS84 A970 L2, Period 3b (+4)
GBS84 A891 L10, Period 3b
2 joining rim fragments. Light green. Vertical rim, edge bent out and down then deeply tooled horizontally to produce a double ridge effect. PH 12, RD 67.
- 740 BKC76 T200, unstratified
Rim fragment. Light green. Slightly out-bent, double tubular rim, edge first rolled in then out and down. PH 12, RD 75.

Blue/green

- 741 BKC76 V1102, Period 4
Rim fragment. Out-bent rim, edge first bent in then out and down, neck curving out. PH 19, RD 110, neck thickness 2.
- 742 BKC75 J176 F32, Periods 5c/6
Rim fragment of thick-walled jar. Vertical rim, edge first rolled in then out and down. PH 20, RD approx 110, neck thickness 3.5.
- 743 BKC75 J186 F13, Period 5b
Rim fragment of thick-walled jar. Out-bent rim, edge first rolled in then out and down. Side grozed. PH 16, RD 100, neck thickness 3.
- 744 BKC76 V71, unstratified
Rim fragment of thick-walled jar. Out-bent rim, edge first bent in to form very small roll and then out and down; neck curving out; heat affected. PH 18, RD 100, neck thickness 3.
- 745 BKC75 J240 L33, Periods 3/4/5a
Rim fragment. Vertical rim, edge first bent in then out and down. PH 18, RD 95, neck thickness 1.
- 746 1.81 C153 F43, Building 95, Period 3
Rim fragment. Slightly out-bent rim, edge first rolled in then out and down; body sloping out. PH 17, RD 75, WT 1.5.
- 747 LWC72 J530 J805, occupation on floor, Building 20 Room 6, Period 4a and b
4 rim fragments. Vertical double tubular rim, edge irregularly rolled in then out and down. PH 16, RD 85.
- 748 BKC76 T306 L38, Period 5a or b
Rim fragment. Out-bent rim, edge first rolled in then bent out and down. PH 7, RD 75, neck thickness 1.
- 749 GBS84 A407 F79, Period 3b?
Rim fragment. Vertical rim, edge first rolled in then out and down. PH 15, RD 70.
- 750 LWC72 M131 Road 3, mid 2nd century
Rim fragment. Vertical rim, edge first rolled in then out and down. PH 12.
- 751 BKC75 J171, Periods 5 or 6
Rim fragment. Vertical rim, edge first rolled in then out and down. PH 16.
- 752 GBS85 B639 F159, Building 133 Room 2, Period 2
Rim fragment. Outer part of rim with thickened edge bent out and down and retaining fragment of side attached to edge. PH approx 20.
- 753 GBS84 A356 F75, Roman
Rim fragment. Slightly out-bent rim, thickened edge bent out and down; side beginning to curve out. PH 19, RD 120, WT 4.5.
- 754 GBS84 B180 F34, Period 3
Rim fragment. Description as no 753. PH 17, RD 100.
- 755 GBS84 B373, unstratified
Rim fragment. Slightly out-bent rim, thickened edge bent out and down. PH 20, RD 90.
- 756 BKC75 J40 F3, modern
Rim fragment. Slightly out-bent rim, edge bent out and down and horizontally tooled. PH 12, RD 90, neck thickness 1.

- 757 1.81 G1139 L723, Period 5
Rim fragment. Vertical rim, edge bent out and down; body sloping out. PH 15, RD 70, WT 1.5.
- 758 1.81 E283 F206, Period 7
Rim fragment of thick walled jar. Rim bent over and down, horizontally tooled centrally. PH 25, WT 3.
- 759 GBS84 A916 L14, Period 3a
Rim fragment. Thickened rim edge bent out and down, upper part of collar then bent out. PH 10, RD 90-100.
- 760 LWC71 C3 F2, post-Roman
Rim fragment. Vertical rim with concave profile, edge bent out and down. PH approx 15, RD 90.
- 761 1.81 E11 F9 but contaminated. Unstratified
2 rim fragments. Vertical rim, irregularly-thickened edge bent out and down; convex-curved side sloping out almost horizontally. Distorted by heat. PH 18, RD 70, WT 1.5.
- 762 LWC72 E129 F66, post-Roman
Rim fragment. Top of rim with edge bent out and down from collared jar or tubular-rimmed bowl. Dim 17x4.
- 763 GBS85 B204 L8, Period 3
Upper body fragment. Inner part of collared rim and convex-curved body with scars from outer edge of rim. Upper end of 1 rib on body. Dim 42x32, WT 3.

Polychrome

- 764 1.81 E828, Building 89 F661, Period 2
6 rim and 4 body fragments (several joining). Blue/green with opaque white. Vertical rim, edge bent out and down and tooled horizontally; convex-curved side. Thin opaque white spots marvered smooth. PH (rim) 13, RD 60, WT 1.

Jars with tubular rims

Emerald green

- 765 CPS74 693 L61, Building 154, Period 4
Rim fragment. Horizontally out-bent double tubular rim, edge bent in then out and down; body curving out. PH 10, RD 85, WT 1.
- 766 1.81 B285 L23, Period 4
Rim fragment. Tubular rim out-bent horizontally, edge rolled out and down; neck sloping in very shallowly. PH 7, RD 125, neck thickness 1.5.
- 767 1.81 K434 F411, Period 3a or 3b
Rim fragment. Tubular out-bent rim, edge rolled out and down. Side grazed. RD 120.
- 768 BKC76 T306 L38, Period 5a or b
3 rim fragments of jar or bowl. Markedly out-turned rim, edge rolled out and down. PH approx 10, RD 105, WT 1.
- 769 1.81 E494, unstratified
Rim fragment. Asymmetrical tubular rim, edge rolled out and down; neck sloping in. PH 8, RD (maximum) 110, neck thickness 1.
- 770 BKC75 J435 F276, Period 5?
Rim fragment. Markedly out-turned rim, edge bent out and down; side sloping out. PH 20, RD 80, WT 1.

Jars with out-bent rims, edges rolled in

Deep blue

- 771 1.81 H33 L0003, Period 6
Rim fragment. Out-bent rim, edge rolled down and in. PH 5, RD 75.

Blue/green

- 772 BKC75 J157 F31, Period 5b
Approx 40 rim, body and base fragments of bulbous jar. Wide horizontal rim bent out and down, edge rolled up and in; short neck; convex-curved, slightly squashed spherical body; concave base with central thickening on inner and outer surfaces. Circular pontil scar. Height approx 90, RD 92, BD 55, WT 1, pontil scar diameter 14.
- 773 1.81 G1393 L865, Period 3 or 4
Rim fragment of large jar. Wide horizontal rim, edge rolled down, up and in. RD approx 140, WT 2.
- 774 BKC76 N379, Period 6
Rim fragment. Wide horizontal rim bent out and down, rolled up and in unevenly and flattened; neck beginning to curve out to shoulder. PH 8, RD approx 60, WT 1.5.
- 775 1.81 A492 F181, Building 93, Period 3 or 4
Rim fragment. Wide horizontal rim, edge rolled down, up and in. RD 60, WT 1.5.
- 776 BKC75 J15 L1, modern
Rim fragment of large jar. Rim bent out almost horizontally, edge rolled in and flattened; neck sloping in. PH 12, RD 210, WT 3.
- 777 1.81 G2351 L1746, Period 3
Rim fragment of jar or large bottle. Rim bent out, up and in; neck sloping in slightly. PH 17, RD 110, WT 5.
- 778 BKC76 V13 L5, late Period 5 (c AD 300)
BKC75 J19 L1, modern
2 joining rim fragments of large jar. Rim bent out almost horizontally; edge rolled in and flattened. Top of rim shows much wear and short radial lines scratched around the edge at intervals. RD approx 190, WT 5.
- 779 1.81 G4006 L3985, Period 3
Rim fragment. Rim bent out, up, in and flattened. RD approx 150.
- 780 1.81 G1 L1, Period 6
Rim fragment. Rim bent out, up, in and flattened. RD approx 120.
- 781 LWC72 J445, Building 20 Room 3, Period 4
Rim fragment of jar? Wide rim bent out horizontally, edge rolled in. PH 10, RD 110, WT 2.
- 782 BUC76 A414 F134, modern
Rim fragment. Rim bent out horizontally, edge rolled in and flattened. PH 10, RD approx 110, WT 6.
- 783 LWC72 J739 F180, Period 4
Rim fragment. Rim out-bent horizontally, edge rolled in. RD 100-110, WT 2.
- 784 BKC76 V80 L5, late Period 5 (c AD 300)
Rim fragment. Wide rim bent out horizontally, edge rolled in and flattened; neck curving out steeply to shoulder. PH approx 10, RD approx 95, WT 1.5m.
- 785 LWC72 J859, Building 20 Room 2, Period 4
Rim fragment. Wide rim bent out horizontally; edge rolled in very neatly; neck sloping out. PH 11, RD 85, WT 2.
- 786 LWC71 C336, Building 19, Period 4
Rim fragment. Wide rim bent out horizontally, edge rolled in. RD 75, WT 1.
- 787 BUC79 E868 L66, post-Roman
Rim fragment of jar? Wide rim bent out horizontally, edge rolled in. RD 75, WT 1.
- 788 LWC71 B236 F24, post-medieval
Rim fragment. Wide rim bent out horizontally, edge rolled in. PH 6, RD 70, WT 2.

- 789 1.81 D2002 F1990, Period 4
Rim fragment. Black impurities in rim. Rim bent out horizontally, edge rolled in and flattened neck sloping in. PH 7, RD 70, WT 1.
- 790 BKC76 V188 F50, Periods 5 or 6
Rim fragment. Rim bent out horizontally, edge rolled in and flattened. RD 60, WT 1.
- 791 CPS73 135 F51, Period 8
Rim fragment. Rim bent out horizontally, edge rolled in. PH 6, RD 60, WT 1.5.
- 792 1.81 D1849 L204, Period 4
Rim fragment. Rim edge bent out horizontally, edge rolled in and flattened. RD approx 60.

Also 2 rim fragments from similar jars with horizontally out-turned rims and edges rolled in

- 793 LWC72 H257 F10 & F15, early medieval
- 794 LWC72 J887, Period 3 make-up

- 795 1.81 J99 F80, Period 6
Rim fragment. Out-bent rim, edge rolled in; cylindrical neck. PH 15, RD 80, neck thickness 1.
- 796 LWC72 L466, Building 11 associated with F276, Period 3a
Rim fragment. Markedly out-bent rim, edge rolled in. PH 6, RD 75, WT 1.5.
- 797 BKC75 J49 L7, Period 5b
Rim fragment. Markedly out-bent rim, edge rolled in. PH 8, RD approx 70, WT 1.5.
- 798 BKC75 J62 L1, modern
Rim fragment. Out-bent rim, edge rolled in. PH approx 6, RD approx 60, WT 1.5.

Also 1 other similar rim fragment, possibly from same jar

- 799 BKC75 J9 L1, modern
- 800 1.81 G2560 L2494, Period 5
Rim fragment. Streaky yellow impurities. Out-bent rim, edge rolled in. RD 60, WT 2.5.
- 801 MID78 B1125 L114, Period 1 or pre-Period 1
Rim fragment of flask or small jar. Rim edge bent out, up and in. RD 45.
- 802 GBS84 A36 L1, post-Roman
Rim fragment of small jar. Out-bent rim, edge bent out and down. RD approx 40.

Also 2 fragments from rims with rolled edges, probably from jars

- 803 1.81 G905 L883, Period 5
- 804 1.81 G3332 L3214, Period 3
- 805 1.81 C270 L30, Building 96 Room 1, Period 3
Rim fragment. Rim edge first rolled in then out and down, complete rim bent out horizontally. RD 80.
- 806 1.81 G3930 L3624, Period 3
Rim fragment. Rim edge bent out and down; complete rim bent out horizontally; neck sloping out. RD 60.

Jars with funnel mouths, rim edge rolled in

Yellow/brown

- 807 1.81 G2484 L2483, Period 5
Rim fragment. Deep yellow/brown. Funnel mouth, rim edge rolled in; straight-sided neck sloping in. PH 17, RD 55, WT 1.

Pale green

- 808 LWC71 C43 F42, post-Roman
Rim fragment. Funnel mouth, rim edge rolled in. PH 15, RD 65, WT 1.

Blue/green

- 809 GBS84 A366 L10, Period 3b
Rim fragment. Funnel mouth, rim edge rolled in and flattened; neck sloping in and beginning to curve out to side. PH 27, RD approx 80-90, WT 2.
- 810 BKC76 V111, ?Period 3 or 4
Rim fragment. Funnel mouth, rim edge rolled in; body beginning to curve out, PH 22, RD approx 80, WT 1.
- 811 GBS84 A573 F90, Period 3b
Rim fragment. Funnel mouth, rim edge rolled in and flattened; neck sloping in. PH 12, RD 80, WT 1.5.
- 812 MID78 A2765 F366, Building 75 Phase 2, Period 2
MID78 A2831 F746, Building 69 Phase late Roman Period 2
2 rim fragments. Funnel mouth, rim edge rolled up and in, neck sloping in. PH 18, RD 80, WT 1.
- 813 1.81 B26, unstratified
Rim fragment. Funnel mouth, rim edge rolled up and in; neck sloping in and beginning to curve out to body. PH 27, RD 70, WT 1.5.
- 814 LWC71 C209 F129, Building 19, Period 4
Rim fragment. Funnel mouth, rim edge rolled up and in; neck sloping in and beginning to curve out to body. PH 20, RD 70, WT 2.
- 815 BUC77 C1612 L7, Period 1
Rim fragment. Funnel mouth, rim edge rolled up and in; neck sloping in. PH 8, RD approx 70, WT 1.
- 816 GBS84 A301 F57, Period 3b
Rim fragment. Red inclusions in rim. Funnel mouth, rim edge rolled in and flattened; neck sloping in and beginning to curve out to side. PH 22, RD 65, WT 1.5.
- 817 BUC77C1468, Period 2
Rim fragment. Funnel mouth, rim edge rolled in; neck sloping in and beginning to curve out to body. PH 18, RD 65, WT 1.5.
- 818 BUC77 C1285 L1, Period 1-2
Rim fragment. Funnel mouth, rim edge rolled up and in; neck sloping in and beginning to curve out to body. PH 20, RD 60, WT 1.
- 819 1.81 G2136 L1824, Period 3 or 4
Rim fragment. Funnel mouth, rim edge rolled out, up and in; neck sloping in. PH 17, RD 55, WT 1.
- 820 GBS84 A668 F107, Period 3b
Rim fragment. Funnel mouth, rim edge rolled in; neck sloping in and beginning to curve out to side. PH 19, RD 55, WT 1.
- 821 BKC75 H12 L2, post-Roman
Rim fragment. Funnel mouth, rim edge rolled up and in, neck sloping in. PH 17, RD 50, WT 2.

Also 4 rim fragments with rolled in rim edges possibly from funnel-mouthed jars

- 822 BKC75 H14 L2, post-Roman, RD approx 85.
- 823 BKC75 H12 L2, post-Roman
- 824 LWC72 J907, Period 4
- 825 GBS84 A445 F27, Period 3b

826 LWC72 J805, Period 4a & b
3 rim fragments of small jar? Funnel mouth, rim edge rolled in; body beginning to slope out. PH 23, RD 38, WT 1.

827 1.81 G2679 F2370, Period 4 or 5
Rim fragment. Funnel mouth, rim edge rolled out and down; neck sloping in. PH 8, RD 50, neck thickness 1.5.

Jars with fire-rounded rims

Emerald green

828 GBS84 A739 L33, post-Roman; A164, unstratified
3 rim and 3 body fragments of jar or bowl. Streaky opaque red impurities parallel to rim edge. Horizontal out-bent rim, edge fire-rounded; convex-curved body sloping out. PH 11, RD 100, WT 1.5.

Yellow/brown

829 1.81 G1939 L1868, Period 3
Rim fragment. Light yellow/brown. Out-bent rim, edge fire-thickened. PH 13, RD 70, WT 1.

Colourless

830 1.81 D1293 F1252, Period 4
Rim fragment. Out-turned rim, edge fire-rounded; slightly convex-curved side sloping out. Horizontal trail on upper body. PH 18, RD approx 45, WT 1.

Blue/green

831 LWC71 C393, Period 2? or 3?
Rim fragment of bowl or jar. Rim out-bent horizontally, edge fire-thickened. RD approx 170, WT 1.

832 BKC75 J463 F286, Building 47-49, Periods 3/4/5a
8 rim and body fragments. Rim bent out almost horizontally, edge fire-thickened; convex-curved body with high carination. PH 65, RD 140, WT 1.

833 1.81 J30 L1, unstratified, Period 6
Rim fragment. Rim bent out horizontally, edge fire-rounded. RD 130, neck thickness 1.5.

834 BKC76 V71, unstratified
Rim fragment. Rim bent out almost horizontally, edge fire-thickened. PH 9, RD 120, WT 1.

835 BKC74 E261 L59, Period 5
Rim fragment. Markedly out-turned rim, edge fire-rounded; neck curving out to wide shoulder. PH 19, RD approx 110, WT 3.

836 1.81 B1067 L178, Period 3
2 rim and 4 body fragments. Markedly out-bent rim, edge fire-rounded; convex-curved side. PH (rim) 7, RD 100, WT 1.

837 BKC75 M26 TT1, ?Period 3 or 4 to 6
Rim fragment. Markedly out-turned rim, edge fire-rounded; neck curving out to wide shoulder. PH 9, RD 95, WT 2.

838 BKC73 B46 F24/L25, Period 1-1 b
Rim fragment. Markedly out-turned rim, edge fire-rounded. Dim 27x16.

839 1.81 E522 F96, Period 8
2 rim and 2 body fragments (2 joining). Out-bent rim, edge fire-rounded; convex-curved side sloping out. PH approx 35, RD approx 90-100, WT 0.5.

840 1.81 G1178 L1146, Period 5
Rim fragment. Out-bent rim, edge fire-rounded. PH 10, RD 90-100.

841 1.81 G530 F163, Period 6
Rim fragment. Out-bent rim, edge fire-rounded. PH 8, RD approx 90.

- 842 MID78 A1974 L241, late or post-Roman
Rim fragment. Out-turned rim, edge fire-rounded. PH 12, RD approx 70, WT 1.5.
- 843 1.81 G2119 L2024, Period 3d
Rim fragment. Out-bent rim with thin fire-rounded edge. PH 8, RD 70, WT 1.
- 844 1.81 G1393 L865, Period 4 or 5
3 rim fragments (2 joining). Streaky green impurities. Funnel mouth, fire-rounded rim edge irregularly bent in; neck sloping in and beginning to curve out to body. PH approx 40, RD 110, neck thickness 3.
- 845 COC79 839 L198, Period 3
Rim fragment. Funnel mouth, rim edge fire-rounded. PH 22, RD 70, WT 1.5.
- 846 1.81 B1491 L353, Building 94 Room 1a, Period 3/4
2 joining rim and 4 body fragments. Some black impurities. Funnel mouth, rim edge fire-rounded; convex-curved side. PH (rim) 15, RD 65, WT L
- 847 1.81 B1036 L235, Building 112, Period 4a
Rim fragment. Funnel mouth, rim edge fire-rounded; neck sloping in and beginning to curve out to body. PH 20, RD 55, WT 1.
- 848 BKC75 J176 F32, Period 5c/6
2 rim fragments of jar? Slight out-turned rim, edge fire-rounded. PH 27, RD 72, WT 2.5.
- 849 BKC75 K439 L60, Period 5 or 6
Rim fragment. Slightly out-turned rim, edge fire-rounded. PH 20, RD 65, WT 1.5.

Also 2 other fire-rounded rim fragments possibly from jars with slightly out-turned rims

- 850 BKC76 V890 L22, late Period 5 (RD approx 60)
- 851 1.81 G3246 F3248, Period 6

Also 7 rim fragment probably from jars with fire-rounded rims

- 852 BKC73 D42b L1, Anglo-Saxon
- 853 BKC75 J49 L7, Period 5b
- 854 BKC75 J121 F13, Period 5b
- 855 BKC75 G381, Periods 3 & 4
- 856 LWC72 L461, Building 11, Period 3a make-up
- 857 1.81 G232 F201, Period 6

Jars with vertical necks

Blue/green

- 858 BKC75 J166 & J219 F36, Period 5b
5 rim and body fragments. Tall, near vertical rim curved out and in irregularly near fire-rounded edge; diagonal shoulder beginning to curve down to body. PH 24, RD 50, WT 1.
- 859 BKC75 J196 F44, Period 5c/6
Rim fragment. Rim edge bent out, up and in; wide cylindrical neck. PH 19, RD 55, WT 1.5.

Pear-shaped jar or beaker

Late Roman green

- 860 IRB72 130 F78, inhumation grave
Complete pear-shaped jar or beaker. Greenish colourless. Out-turned rim, edge fire-rounded; wide straight-sided neck sloping out to junction with ovoid body with high rounded carination and lower body sloping in to narrow constriction above small open pushed-in base ring; slightly concave base with central kick. Circular pontil scar. Height 88, RD 34, BD 25, max body diameter 58, WT at rim 2, pontil scar diameter 7.

Hat-shaped unguent jar

Blue/green

- 861 1.81 G631 L631, Period 5
Complete unguent jar. Horizontal rim bent out, up, in and flattened; slightly convex-curved body sloping out; concave base. Pontil scar. Height 27, RD 34, BD 21.

Inkwells

Blue/green

- 862 1.81 H206 F146, H289 F146, Period 6
Complete rim and joining handle and side fragment. Folded rim with rounded edge bent out and flattened into shoulder to produce concave upper surface with small central aperture; shoulder curving over to cylindrical body with slight horizontal convexity; side curving into missing base. Side and edge of shoulder retain simple rounded lower attachment from 1 loop handle. Height approx 57, body diameter approx 80, central aperture diameter 18, WT 3.

Also 1 other body fragment probably from same vessel

- 863 1.81 H257 F146, Period 6
- 864 BKC76 V272 & V285 L27, Period 6
4 rim and handle fragments. Rim bent out, up, in and flattened into shoulder to leave central aperture; shoulder curving down steeply to side. Originally probably 3 loop handles, 1 now remaining; loop handle applied to shoulder and rim and then bent out, down and up with thick trail. PH (excluding handle) 12, RD (outer) 65, WT 3.5.
- 865 GBS84 A1172 F134, Period 3a
Handle fragment. Loop handle retaining outer edge of folded rim and shoulder. Dim 25x24.
- 866 LWC71 C145 F90 17th century
Rim fragment. Rim bent out, up, in and flattened into convex-curved shoulder to leave central aperture; shoulder broken beneath rim. PH 13, RD approx 60, WT 3.

Jugs

Medallions from jugs

Deep blue

867 LWC71 A292, ?Period 2, dump?

Medallion, handle and side fragment of jug. Oval medallion. Face in high relief with trail from medallion as prominent band across forehead merging with hair details on left side of face. Hair shown as spikes radiating from head on left of head only. Ridges with 3 diagonal scored lines giving ringletted appearance. Head surrounded by flat border apart from on one part of upper edge where it was never present. Body of jug neatly grazed behind edge of mask. Lower handle attachment on top of head and forehead. Dim of medallion 48x31.

Yellow/brown

868 1.81 W107 L106, ?unstratified

Medallion, handle and side fragment of jug. Deep yellow/brown medallion, handle and body a lighter slightly green-tinged shade. Well moulded face with prominent chin; ringlet down each side of face and leaves projecting from head above ringlet on left side (other side broken); trail from formation of medallion crosses forehead and 1 ringlet diagonally. Central prong from lower handle attachment on forehead. Side broken behind medallion and on either side of the handle. Dim of medallion 40x41.

Light green

869 1.81 E123 F108, Period 8

Medallion, handle and side fragment jug. Approximately circular medallion broken below chin. Well moulded face with prominent chin; ringlet down each side of face and leaves projecting from head above ringlets on both sides of head; trail from formation of medallion crosses eyes and bridge of nose. Central prong from lower handle attachment on crown of head; side broken behind medallion and handle. Dim of medallion 34x41.

Blue/green

- 870 1.81 G749 L653, Period 5
Fragment of mask medallion of jug? Lower border of medallion with trail from formation on underside. Dim 36x14.

Globular and conical jugs (Isings Forms 52 and 55)

Deep blue

- 871 BKC76 V938 L11, late Period 5 (c c AD 300)
Handle fragment. Straight ribbon handle, 2 central ribs. PH 61, section 34x6.
- 872 BKC74 G176 F42, Building 49, Period 3/4
Handle fragment. Edge of slightly curved ribbon handle with a rib in high relief. Dim 49x19.

Yellow/brown

- 873 BKC76 T135, Period 5
3 neck, shoulder and handle fragments of conical jug. Light yellow/brown. Long, narrow, slightly tapering, cylindrical neck with tooled constriction at junction with conical body; claw lower handle attachment retains 1 side prong and central pinched trail running down body. PH (neck fragment) 104, neck diameter (outer) 18-22. WT 2.5.
- 874 LWC72 K210, Period 4b
K160 K246 F120, medieval and later
22 lower body and base fragments of ribbed conical jug. Light yellow/brown. Straight side sloping out to slightly concave base. Narrow vertical ribs. PH approx 65, BD approx 120, WT 1.
- 875 GBS85 B36 L7, Period 3
Body fragment. Light yellow/brown. Straight side. Parts of 2 vertical ribs. Dim 52x30, WT 2.
- 876 GBS85 B190 L8, Period 3
3 body fragments. Light yellow/brown. 2 fragments retain rounded carinations. Parts of at least 3 vertical ribs. Dim 35x33, 37x30, 28x16, WT 1.5-3.

Also 1 other light yellow/brown body fragment with 1 rib

- 877 GBS85 B322 F7, modern

Nos 875 to 877 could all have come from the same vessel

Also 1 light yellow/brown body fragment with shallow diagonal ribs possibly from a globular jug

- 878 BKC75 J49 L7, Period 5b

- 879 BKC75 K120 F15, Period 6
K298, unstratified
1 body and 1 base fragment of ribbed conical jug. Dark yellow/brown. Straight-sided body sloping out to low concave base. 1 vertical pinched-up rib. Dim 54x37 & 44x36, WT 1.
- 880 GBS85 B160 L5, Roman?
Base fragment. Very dark yellow/brown. Outer edge of concave base. BD approx 120-130.
- 881 MRC71 148 F85, Building 160 Phase 2, Flavian to early 2nd century (but contaminated)
Handle and body fragment. Ribbon handle with pronounced central rib; claw lower handle attachment with central rib forming elongated central prong; body below handle attachment has very shallow S-shaped profile. Body possibly deliberately broken away around edge of handle attachment. Dim 95x35, handle section (excluding rib) 18x3, WT 1.5.
- 882 LWC72 H251, ?medieval or post-medieval
Handle fragment. Light yellow/brown. Upper part of angular ribbon handle with central rib. Tooling marks on inside, (excluding rib) 31x4.
- 883 BKC76 T168 F74, Building 55, Period 5b
Handle fragment. Dark yellow/brown. Angular ribbon handle with central rib. PH 26, handle section (excluding rib) 20x4.

- 884 LWC71 B239 F44, medieval
Handle fragment. Greenish brown. Ribbon handle with central rib. PH 31, handle section (excluding rib) 21x6.
- 885 BUC77 C1132 L1, Period 1 to 2
Handle fragment. Ribbon handle with narrow central rib now chipped. PH 45, handle section (excluding rib) 34x6.

Also 1 dark yellow/brown fragment from lower part (near attachment) of ribbon handle with rib

- 886 LWC72 J653 F180, Period 4

887 GBS84 A1894 L146, Period 1 & 2
Handle fragment. Dark yellow/brown. Straight ribbon handle with 2 prominent ribs now chipped. Present length 35, handle section 21x10.

- 888 BKC76 K677 F121 E, Period 2
2 joining neck, handle and shoulder fragments of jug. Light yellow/brown. Angular ribbon handle with 3 narrow prominent ribs; folded upper attachment with part of cylindrical neck; broken simple lower attachment with sides and ribs drawn out into short prongs; convex-curved side. Height of handle approx 60-65, handle section (at angle) 28x3, WT 1.

Also 1 dark yellow/brown handle fragment from similar handle with at least 2 ribs; convex-curved body.

- 889 BKC76 N623, ?Period 5b1 at latest

890 BUC77 C1025 L1, Period 1-2
C1715 L14, Period 1
2 handle and shoulder fragments. Angular ribbon handle with 3 ribs; simple lower attachment; convex-curved side. PH 70, handle section 23x6.

- 891 1.81 G330 F16, Period 6
Rim and neck fragment of jug. Deep yellow/brown. Rim bent out, up, and in; fragments of handle attachment on rim and neck. PH 18, RD 30, neck thickness 2.5.

Yellow/green

892 BKC74 E1053 L327, Period 2, 3a or 3b
Handle and body fragment of conical jug. Straight ribbon handle with pronounced central rib; broken claw lower handle attachment; very slightly convex-curved body; body deliberately broken away around edge of handle. Dim 50x36, handle section (excluding rib) /18x3.

893 BUC77 C1739 F62, Period 1
Handle fragment. Ribbon handle with scar of central rib. PH 10, handle section (excluding rib) 33x6.

894 GBS85 B15, Roman
Handle fragment. Straight ribbon handle with central rib. Present length 16, handle section (excluding rib) 27x7.

895 BKC75 D359 F12, ?modern
Handle fragment. Angular ribbon handle with central rounded rib. PH 33, handle section (excluding rib) 15x5.

896 1.81 G2592 L2494, Period 5?
Handle and side fragment of globular or discoid jug. Side of handle with at least 3 prominent ribs; simple lower attachment with side and ribs drawn out into short prongs; convex-curved body with close-set shallow spiral ribs. Dim (body) 38x22, WT 1.5.

Also 1 other narrow angular ribbon handle fragment with at least 3 narrow prominent ribs

- 897 LWC71 B292, Building 9, Period 2

898 BKC75 K141 F15, Period 6
Base fragment. Concave base. BD approx 70.

Light/pale green

- 899 BKC76 T468, Period (2 or)3
Neck and body fragment of ribbed conical jug. Light green. Cylindrical neck with tooling marks at neck/body junction; straight side sloping out. Shallow optic blown ribs on body. PH approx 75, neck diameter (outer) 29, WT 3.5.
- 900 GBS85 B296 L11 in F40, Period 3a?
7 joining body fragments with part of handle from conical jug. Light green. Slightly convex-curved body sloping out from edge of neck; lower part of long central extension trail from lower handle attachment. Narrow spiral ribs. PH approx 75, present maximum diameter approx 120, WT 1.5-4.
- 901 1.81 B1053 F302, Period 3
1 handle and 1 handle and body fragment of probably conical jug. Light green. Straight ribbon handle with central rib divided into 2; edge of lower handle attachment with upper part of central extension trail with at least 5 pinched projections; slightly convex-curved body with close-set spiral optic-blown ribs in very shallow relief. Handle section (excluding rib) 25x5, WT 2.
- 902 1.81 G4015 L3716, Period 3
Body and handle fragment of conical (?) jug. Light green. Part of pinched central extension trail from lower handle attachment; slightly convex-curved body with diagonal rib. Dim 30x22, WT 1.5.
- 903 E633 L27, Period 3
Handle and body fragment of conical jug. Light green. Angular ribbon handle with prominent central rib; broken claw lower attachment; straight side. Present length approx 80, handle section (excluding rib) 26x6, WT 1.5.
- 904 GBS85 B190 L8, Period 3
Shoulder fragment of discoid jug. Light green. Lower edge of cylindrical neck; wide convex-curved shoulder. Approx 20 vertical ribs, the majority narrow and prominent; some (in 2 areas) very shallow and almost imperceptible; prominent ribs run onto lower edge of neck and have tooling marks at neck/shoulder junction. Neck diameter 30, WT 1.5-3.5.
- 905 1.81 G2384 L2367 F2384, Period 4
Shoulder fragment of globular jug. Light green. Convex-curved shoulder curving up to neck. Parts of 3 ribs running into neck. Dim 40x13, WT 2.5.
- 906 BKC75 J435 F276, ?Period 5
Handle fragment. Pale green. Straight ribbon handle with very shallow rib. PH 24, handle section 26x5.5.
- 907 LWC72 J951, Building 2 make-up, Period 2 destruction
6 handle, neck and shoulder fragments. Angular ribbon handle with 4 narrow prominent ribs; folded upper attachment with part of cylindrical neck; broken simple lower attachment with ribs and sides pulled out into short prongs; slightly convex-curved body. Handle section (excluding ribs) 45x5.
- 908 1.81 B2079 F490, Building 77 Room 5, Period 2
2 joining handle fragments. Upper part of angular ribbon handle with 3 prominent ribs. Handle section (excluding ribs) 33x4.

Also 1 pale green fragment from a narrow angular ribbon handle with at least 1 prominent rib

909 BKC74 D417 F50, Period 1 fortress ditch

Also 1 light green fragment from lower handle attachment of handle with 2 or more prominent ribs retaining fragment of shoulder

910 1.81 M281 L280, Period 3

911 BKC76 V36, late, Period 5
Base fragment. Pale green. Side curving in steeply to concave base. PH 10, BD 100, WT 2.

912 1.81 J6 L1, Period 6
Base fragment. Pale green. Side curving in to very shallow concave base. PH 10, BD approx 80-90, WT 1.5.

Also 2 other light green concave base fragments

913 1.81 G2906 L2904, Period 3d

914 1.81 B506 L70, Period 4
Body fragment. Light green. Slightly convex-curved body. Diagonal optic-blown ribs in shallow relief dying out and possibly arrested by 1 broken edge. Dim 42x33, WT 2.

Blue/green

915 BKC76 T468, Period (2 or)3
Handle, neck and body fragment of ribbed globular jug. Cylindrical neck with tooling marks at junction with convex-curved body. Angular ribbon handle with central rib; broken at folded upper attachment; claw lower attachment with short central extension trail. Shallow diagonal optic blown ribs on body. PH approx 140, handle section (excluding rib) 30x6, neck diameter (inner) approx 30, WT 2.

916 GBS85 B36 L7, Period 3
5 joining neck and handle fragments of discoid jug. Wide convex-curved shoulder broken at edge of neck; straight ribbon handle with 4 prominent ribs, simple lower attachment with sides and ribs drawn out into short prongs; Narrow prominent spiral ribs running to neck edge which retains evidence of tooling. Present length of handle 130, inner diameter of neck approx 15, WT 2.5.

Also 1 shoulder fragment from ?globular jug with shallow diagonal optic-blown ribs

917 BKC75 K495 L98, Period 4c

Also 1 shoulder fragment (?) with narrow diagonal ?pinched-up ribs

918 BKC75J10L1

919 1.81 B511 L96, Period 4, modern
Handle and shoulder fragment of globular jug. Multiple ribbed handle with at least 6 narrow prominent ribs; simple lower attachment as no 916; wide convex-curved shoulder. Dim (shoulder) 43x24, WT 1.

920 LWC71 C223 F142, Period 4
Handle and shoulder fragment of large globular jug. Ribbon handle with 5 narrow ribs in high relief; simple lower handle attachment as no 916; convex-curved body. Dim 75x35, handle section (excluding ribs) 50x6.5, WT 2.

921 BKC76 T345, unstratified
3 handle and body fragments. Convex-curved shoulder. Angular ribbon handle with 3 narrow pronounced ribs; simple lower attachment as no 916. Present length of handle approx 90, handle section (excluding ribs) 19x5.

922 1.81 E924 F384, Building 104/5, Period 3b
Handle and shoulder fragment of globular jug. Multiple ribbed handle with at least 3 narrow prominent ribs; simple lower attachment as no 916; convex-curved shoulder. Dim (shoulder) 30x24, WT 1.5.

923 BUC77 C939 L2, Period 1
Handle and shoulder fragment. Ribbon handle with central rib; claw lower attachment with beginning of central pinched trail. Spiral ribs on body. Dim 50x40.

924 BKC76 T297?, Period 3
Handle and body fragment of conical jug. Straight ribbon handle with simple lower handle attachment; straight-sided body. Shallow vertical optic blown ribs on body. Dim 43x44, handle section 16x5.

- 925 GBS84 A1796, Period 1
GBS84 A1773 L139, Period (1 or)2
5 joining handle and body and 3 body fragments of conical jug. Straight ribbon handle with central rib beginning to curve over at top; claw lower handle attachment with elongated central extension trail; straight side. Present length of handle (excluding central trail) approx 85, handle section 21x4, WT 1.
- 926 BKC75 J40 F3, modern
Handle and body fragment. Wide, slightly convex-curved body. Ribbon handle with pronounced central rib; claw lower attachment. Dim 60x64.
- 927 LWC72 M25, modern. Top of Roman town wall
Handle and body fragment of conical jug. Straight ribbon handle with wide central rib; 3 pronged claw lower handle attachment with broken pinched extension trail; straight sided conical body. Dim 67x52, handle section (excluding rib) 25x4, WT 1.5.

Also 1 cylindrical neck fragment with narrow diagonal optic blown ribs dying out away from junction with body

- 928 BKC75 N102 F30, Period 6

929 LWC71 B179, post-Roman?
Handle and neck fragment. Angular ribbon handle with wide curved central rib; simple folded upper handle attachment; wide cylindrical neck. Dim 48x33, neck diameter (internal) approx 45, neck thickness 3, handle section (excluding rib) 32x5.

930 MID78 A2036 F636, post-medieval
Handle fragment. Upper part of angular ribbon handle with narrow central rib in low relief. Handle section (excluding rib) 30x5.

931 1.81 A403 L95, Period 1 or 2
Handle fragment. Lower part of straight ribbon handle with prominent central rib. Present length approx 55, section (excluding rib) 25x4.

932 LWC72 J951, Period 2 make-up;
LWC72 J945, Building 20 Phase 1 Room 4, Period 4a make-up
3 handle and 2 handle and body fragments. Straight ribbon handle with central rib in very high relief; broken claw lower attachment with elongated prongs; straight-sided body. Handle section (excluding rib) 37x6.

Also 6 fragments from straight ribbon handles with central ribs (section measurements exclude ribs)

- 933 BKC76 V1183, Period 4 (section 25x4)

934 BKC76 V250 F59, Period 5?

935 LWC73 K501 F281, Period 3 (section 26x5)

936 1.81 B1970 F266, Period 4 (section 30x5)

937 1.81 B701 L135, Building 112 Room 6a, Period 4b (section 22x6)

938 1.81 J6 L1, Period 6 (section 26x4)

939 BKC76 V81, unstratified
Handle trail and body fragment of conical jug. Part of pinched extension trail from lower handle attachment, 3 projections. Body deliberately broken away around edge of trail. Dim 42x14.

940 1.81 G1116 F1010, Period 5 or 6
Handle trail and body fragment. Lower part of pinched extension trail with 2 projections from handle; convex-curved side broken at edge of trail. Dim 21x15.

941 1.81 G3851 L3697, Period 1
Fragment from handle attachment. 'D'-shaped pinched projection probably from central pinched extension trail. Dim 18x11.

942 BKC75 J384 F285, Period 3/4/5a
Handle attachment fragment. Lower part of central pinched extension trail with 1 projection remaining. Dim approx 20x12.

- 943 1.81 J30 L1, Period 6
Handle and body fragment of jug. Part of central extension trail from handle horizontally slashed to form ribs in shallow relief. Side grazed behind trail. Some wear on inside surface indicating secondary use. Dim 19x14, WT 1.
- 944 LWC72 J952 F407, Building 8, Period 2 destruction
Handle fragment. Ribbon handle. 2 central ribs. Handle section 13x5.
- 945 BKC76 T215, Building 47 demolition debris. End of Period 3
Handle fragment. Upper part of angular ribbon handle with 3 prominent ribs centrally. Handle section (excluding ribs) 25x5.
- 946 BKC74 E1025 L279, Periods 2/3a or b
2 joining handle and body fragments. Lower part of straight ribbon handle with 3 prominent ribs centrally, broken lower attachment retaining part of body. Handle section (excluding ribs) 20x3.
- 947 BKC76 V168 F30, Period 2 (or possibly 3)
Handle and body fragment. Description as no 948, central rib chipped. Handle section excluding ribs 27x3 (approx).
- 948 BKC75 K272 F39, Period 6 or modern
Handle and body fragment. Straight ribbon handle with 3 prominent ribs; simple lower attachment with ribs pulled down onto slightly convex-curved body. Handle section (excluding ribs) 15x1.
- 949 1.81 H624, Periods 1 to 6
Handle fragment. Straight ribbon handle. 3 close-set narrow ribs centrally. Present length 39, handle section (excluding ribs) 27x6.
- 950 GBS84 A237 F49, post-Roman?
Handle fragment. Straight ribbon handle. 5 prominent ribs. Present length 75, section 29x10.
- 951 GBS85 A2487 F292?, Period 3b or 4
Handle fragment. Angular ribbon handle. 5 prominent ribs. Present length 67, handle section 38x12.

Also 2 fragments from handles with at least 1 prominent rib

- 952 BKC76 V471 F30, Period 2 (or possibly 3)
- 953 BKC74 E335 L69/59, Periods 3b/4/5

Also 1 fragment of handle with at least 6 narrow prominent ribs

- 954 BKC74 G104 L30, Building 49, Period 5a

Globular jugs and collared jars (lower body and base fragments)

Deep blue

- 955 1.81 D1724 L1721, Period 4
Lower body and base fragment. Convex-curved side sloping in to open pushed-in base ring; concave base mostly missing. Some wear on base. PH 30, BD 70, WT 2.5.

Also 2 other fragments from the edges of open pushed-in base rings

- 956 1.81 E584 L24, Building 99/100, Period 3a
- 957 GBS84 A543, Roman

Yellow/brown

- 958 GBS84 A317 L9, Period 3a
Base fragment. Dark yellow/brown. Open pushed-in base ring; high domed concave base. PH 18, BD 100, WT 2.

- 959 1.81 J333, Periods 1 to 5
Lower body and base fragment. Light yellow/brown. Side curving in to open pushed-in base ring; concave base. PH 20, BD 65, WT 2.
- 960 GBS84 A629 L13, Building 138 Room 2, Period 3b or 4
Lower body and base fragment. Very dark yellow/brown. Side sloping in to open pushed-in base ring; base mostly missing. PH 21, BD approx 50, WT 3.

Also 1 other dark yellow/brown lower body and open pushed-in base ring fragment

- 961 BUC77 C1241 L4, post-Roman/modern

Yellow/green

- 962 BKC76 V603 F8/130, Period 4
2 body and 1 base fragments of ribbed jug or jar. Convex-curved body; open pushed-in base ring; base missing. Vertical pinched-up ribs. Much wear on base ring. PH (base fragment) 23, BD 85, WT 2.
- 963 GBS84 A604 F90?, Period 3b
Lower body and base fragment. Convex-curved side sloping in to open pushed-in base ring; base mostly missing. PH 23, BD 85, WT 2.
- 964 1.81 G2678 L2677, Period 4
Base fragment. Open pushed-in base ring; convex base mostly missing. PH 12, BD 80.
- 965 GBS84 A1150 F150, Period 3
Lower body and base fragment. Side sloping in steeply to open pushed-in base ring. Base missing. PH 33, BD 65, WT 2.

Also 1 fragment from lower body and side of open pushed-in base ring

- 966 BKC74G219, modern

Pale/light green

- 967 1.81 B2348 L210, Period 3/4
Lower body and base fragment. Light green. Side sloping in to open pushed-in base rim; concave base mostly missing. PH 27, BD 90, WT 2.
- 968 BKC74 G126, Period 3 (?)
Base fragment of jar or jug. Light green. Convex-curved side sloping into open pushed-in base ring; base missing. PH 32, BD 65, WT 3.

Also 4 lower body and open pushed-in base fragments

- 969 BKC75 J142 F13, Period 5b (pale green, 2 fragments)
- 970 LWC71 B426, Period 5 (light green)
- 971 1.81 A147 F51, medieval or post-medieval (pale green)

Blue/green

- 972 BKC76 T283 L67, Building 56, Period 5c
17 body and base fragments of ribbed jar or jug. Convex-curved body; open pushed-in base ring; concave base, mostly missing. Narrow pinched-up ribs on body. PH 40, BD 70, WT 2.

Also 1 fragment possibly from the lower body of a similar ribbed jar or jug with the terminal of 1 rib

- 973 1.81 B2548, clearance mainly Periods 3-5
- 974 BKC76 J403, modern
Lower body and base fragment. Convex-curved body; open pushed-in base ring, concave base, mostly missing. PH 40, BD 80, WT 2.
- 975 BUC79 H1045 ?G693, Period 1
Lower body and base fragment. Convex-curved side sloping in shallowly to open pushed-in base ring; base missing. PH 22, BD 70, WT 1.5.

- 976 GBS84 A275 L9, Period 3a
Lower body and base fragment. Convex-curved body sloping into open pushed-in base ring; concave base mostly missing. PH 36, BD 60, WT 3.
- 977 1.81 C464 F185, Building 79 Room 1, Period 1
Lower body and base fragment. Description as no 964. PH 18, BD 55, WT 1.5.
- 978 1.81 B830 L138 & B1059 L230, Building 112 Room 1, Period 4a
4 lower body and base fragments (2 joining). Convex-curved globular body curving into open pushed-in base ring; base missing. PH 53, BD 45, WT 1.5.

Also 4 other convex-curved lower body and edge of open pushed-in base ring fragments

- 979 BKC75 J186 F13, Period 5b (BD 70)
- 980 BKC76 T1, unstratified
- 981 1.81 B343 F131, Period 4
- 982 1.81 G2891 L2785, Period 3 or 4

- 983 LWC71 B545 F195, Period 4
LWC71 B94, post-Roman
3 lower body and base fragments. Open pushed in base ring; concave base. PH 14, BD 80, WT 2.

Also 15 fragments of similar open pushed-in base rings

- 984 BKC75 J371, Periods 3-6 (BD 80)
- 985 GBS85 B229 F37, Period 2 or 3 (BD 80)
- 986 BKC75 H15 L2, post-Roman (BD 75)
- 987 1.81 G2082 F115, Period 5 (BD 60)
- 988 BKC75 J142 F13, Period 5b
- 989 LWC72 M85, Rampart 1e, late Roman
- 990 1.81 B479 F169, Building 112 Room 5, Period 4b
- 991 1.81 E958 L77, Period 3
- 992 1.81 G1457 L1423, Period 3 or 4
- 993 1.81 K373 L358, Period 3 (6 fragments)

All other jugs

Deep blue

- 994 1.81 A98 F28, early medieval
Handle fragment. Straight ribbon handle curving over and down to folded upper attachment; central rib in shallow relief. Section 8x3.
- 995 LWC71 C331, Building 19, Period 4
Handle fragment. Part of ribbon handle with edge rib. Dim 25x10.
- 996 1.81 D1402 L1253, Period 4
Neck and handle fragment. Cylindrical neck; part of folded upper attachment of wide handle. Dim 29x20.

Yellow/brown

- 997 BKC75 J463 F286, Building 47-49, Period 3/4/5a
7 rim, body, base and handle fragments of globular jug. Light yellow/brown. Short funnel mouth, edge rolled in; globular body; concave base (mostly missing). Curved ribbon handle, upper attachment missing. Simple lower attachment has deep tooling marks; streaky glass of handle appears darker than that of body and contains streaks of opaque white and purple glass. PH (rim) 18, (base and body) 57, RD 70, BD approx 60, WT 1.5.

- 998 LWC72 J611, Period 4
Neck fragment of jug. Dark yellow/brown. Cylindrical neck beginning to curve out to rim, edge of upper handle attachment on neck below rim. Lower edge of fragment grozed to form sharp edge. Present length 41, WT 2.
- 999 1.81 B2129 L588, Period 3
Handle and body fragment. Deep yellow/brown. Side prong of lower handle attachment; body broken around edge of handle. Dim 25x22, WT 1.5.
- 1000 BUC77 C1316L1, Period 1-2
Handle fragment. Angular ribbon handle with at least 3 vertical ribs. PH 37, handle section 15x4.

Yellow/green

- 1001 LWC72 M120, Rampart 1a (mid 2nd century) or ditch for Road 3 (late 1st to mid 2nd centuries)
Rim and handle fragment. Rim yellow/green; handle blue/green. Funnel mouth, edge rolled in; cylindrical neck. Folded upper handle attachment. PH 14, RD approx 40, neck thickness 1.
- 1002 LWC71 C356, Period ?2 or ?3a or ?3b
Neck fragment. Cylindrical neck curving out to shoulder; tooling marks at neck/shoulder junction; stump of handle attachment on neck. PH 33, neck thickness 2.5.

Also 2 similar neck fragments with stump of handle attachment

- 1003 BKC75 J242 L33, Periods 3/4/5a

Also 1 body fragment with edge of handle attachment

- 1004 BKC75 H7 L2, post-Roman

Pale/light green

- 1005 MID78 A2012 L241, late or post Roman
Rim fragment of spouted jug. Pale green. Funnel mouth, rim edge fire-thickened; part of rim pulled up to form narrow spout. PH (excluding spout) 18, RD (excluding spout) approx 40-45, WT 1.5.
- 1006 MID78 A2012 L241, late or post Roman
Handle and shoulder fragment. Pale green. Ribbon handle with simple lower attachment; convex-curved shoulder carefully broken around edge of handle attachment. PH 25, handle section 19x3.
- 1007 BKC75 K500 L106, Period 4c
Neck, shoulder and handle fragment. Pale green. Curved 'D'-sectioned rod handle; folded upper attachment with thumb rest and small part of neck; simple lower attachment with 2 pinched ridges; convex-curved shoulder. PH approx 70, handle section 12x8, WT 2.
- 1008 BKC76 V932 L11, late Period 5 (c AD 300)
Handle fragment. Light green. Curved ribbon handle; folded upper attachment with scar from junction with neck. Handle section 26x4.

Also 1 light green folded upper handle attachment and cylindrical neck fragment

- 1009 BKC75 J149 L1, modern

- 1010 BKC74 E83 L32, post-Roman
Handle and shoulder fragment. Light green. Simple lower attachment of ribbon handle; convex-curved shoulder carefully broken off around edge of attachment. Dim 45x20, WT 1.

Also side prong of similar pale green handle attachment with shoulder carefully broken off around edge

- 1011 BKC74 E808 L131, Period 5

1012 GBS84 A647 L9, Period 3a
Handle and shoulder fragment. Light green. Edge of ribbon handle with simple lower attachment. Convex-curved side. Dim (shoulder) 32x16, WT 3.

1013 BKC74 E249 L30, Period 5
Handle and shoulder fragment of jug. Pale green. Ribbon handle with central vertical indentation; simple lower attachment; convex-curved shoulder carefully broken off around attachment. Handle section 15x3, WT 0.5.

Also 1 light green fragment from ribbon handle with at least 4 rounded ribs

1014 LWC72 G292, Building 28, post-Roman

Also 1 light green fragment from ribbon handle with at least 1 rib

1015 BKC75 T460 F182 Plot D148, Period 3

Also 3 strain cracked pale green fragments from a ribbed handle

1016 1.81 G831 L581, Period 5

Colourless

1017 1.81 G55 F55, Period 6
Rim fragment of spouted jug. Slightly green-tinged. Funnel mouth, rim edge fire-rounded. PH 18, neck thickness 2.

1018 1.81 G752 F661, Period 6
1 rim and 2 neck fragments of spouted jug. Slightly green-tinged. Description as no 1017. PH 22, neck thickness 2.

1019 1.81 H240 L3, Period 6
Rim, neck and handle fragment. Out-bent rim, edge fire-rounded; short cylindrical neck curving out to body. Horizontal trail with overlapped ends on upper neck. Folded upper handle attachment applied to neck over trail. PH approx 52, RD approx 40, neck thickness 2.

Also 1 much strain-cracked cylindrical neck fragment from jug or bottle with part of folded upper handle attachment

1020 1.81 C54 F17, ?Period 5

1021 LWC72 L261, Building 19 Room 3 Phase 3, Period 4(3)
Handle and shoulder fragment. Ribbon handle; simple lower attachment; convex-curved shoulder. PH 17, handle section 17x3.

1022 GBS84 A890 L10, Period 3b
Handle and shoulder fragment. Edge of ribbon handle with simple lower attachment retaining part of convex-curved shoulder broken away around edge of attachment, possibly grazed. Dim (shoulder) 30x17, WT 1.5.

Also 12 much strain-cracked and devitrified fragments from edge of handle attachment and side

1023 LWC72 M139 Dump over Road 2 & between Road 2 and wall. Probably Flavian.

1024 1.81 B126, unstratified
Handle and shoulder fragment. Convex-curved body with 2 spiral trails; simple lower attachment of angular rod, perhaps from chain handle, applied over trails. Dim (body) 19x15, WT 1, handle section 4x3.

Also 1 other angular rod handle with simple lower attachment and broken edge retaining fragment of side, perhaps from chain handle

1025 LWC73 K533, Period 1 or 2

- 1026 COC79 902 L226, Period 2
Handle fragment. Green-tinged. Curved oval-sectioned rod handle with return trail from (missing) upper attachment. Present length approx 35, handle section (excluding trail) 5x4.
- 1027 1.81 G1531 L1490, Period 5
Handle fragment. Edge of handle with rounded side rib and at least 1 other rib. Present length 22.

Also the edge of another handle with side rib

- 1028 CPS73 240 L22/L57, Period 6

1029 BUC76 A454 G34, Period 2
Handle fragment. Edge of curved ribbon handle. Dim 20x6.

- 1030 1.81 G3260 L984, Period 5
Shoulder fragment. Convex-curved body curving up to neck. Parts of 3 vertical ribs running onto neck. Dim 28x17, WT 2.5.

Also 1 similar body fragment with 2 ribs

- 1031 1.81 G834 L783, Period 5

Blue/green

- 1032 BKC76 V81, unstratified
Rim fragment. Out-bent rim, edge rolled in. Pinched trail applied to part of rim edge. PH (excluding trail) approx 20, RD approx 90, WT 1.5.
- 1033 1.81 W89 F88, Period 1 or 2
Rim, neck and handle fragment. Rim bent out, up, in and flattened; cylindrical neck; folded upper attachment from ribbon handle on neck and underside of rim. PH 47, RD 26, neck thickness 1.
- 1034 LWC72 J1204, Building 2, Period 2 make-up
2 rim and 1 neck fragments of jug. Rim edge rolled out, up, in and flattened; cylindrical neck. Trail from handle attachment on rim. PH 41, RD 32, neck thickness 1.5.

Also 2 cylindrical neck fragments with edge of handle attachment

- 1035 BKC74 E1080 L279, Periods 2, 3a or 3b
- 1036 GBS85 A2357 L252
GBS85 A1666 L112, Periods (1 or)2
2 rim fragments. Rim bent out and down, up and in; cylindrical neck; scars from handle attachment on rim edge. PH 14, RD 45, WT 1.5.
- 1037 1.81 K122 & K159 F121, Period 3c
1 rim and neck and 1 neck fragment of spouted jug. Pinched-in spout, rim edge fire-rounded; cylindrical neck. Vertical ribs in shallow relief dying out on lower neck. PH 45, WT 2.
- 1038 1.81 E432 F297, Period 8
Rim fragment of spouted jug. Pinched-in spout, rim edge fire-rounded. PH 20, WT 1.
- 1039 LWC71 B100 F55, 12th-5th centuries
Rim fragment of spouted jug. Part of pinched-in pouring spout, rim edge fire-rounded with horizontal fold below. PH 14, WT 1.5.
- 1040 1.81 B802 F243, Period 4/5
Rim fragment of spouted jug. Funnel mouth with pulled-up spout, rim edge rolled in. Dim 41x28, WT 2.
- 1041 1.81 B766 L137, Building 112 Room 69, Period 4b
Rim fragment of spouted jug. Description as no 1040. Dim 33x19, WT 2.5.
- 1042 LWC73 K390 F209, medieval and later
Rim fragment of spouted jug. Funnel mouth with slightly in-curved rim, edge fire-rounded. 3 spiral trails below rim edge. PH 18, WT 1.5.

- 1043 1.81 B911 L100, Period 4
Rim fragment of spouted jug. Funnel mouth, rim edge fire-rounded; neck beginning to curve out to body. PH 22, WT 1.5.
- 1044 1.81 H462 L3, Period 6
Rim fragment of spouted jug? Asymmetrical funnel mouth, rim edge rolled in. PH 23, WT 2.5.
- 1045 BKC75 N48 F13, Period 6+
3 rim and handle fragments. Out-bent rim, edge rolled in; cylindrical neck; folded upper handle attachment. PH 17, RD 35, neck thickness 1.5.

Also 2 similar rim and handle fragments

- 1046 BKC76 V148 F62, Periods ?5 or 6
- 1047 1.81 H338 L283, Period 5

1048 1.81 B6, modern
Rim and handle fragment. Rim bent out, up and in, inner-edge missing; curved ribbon handle with folded upper attachment and thumb rest. RD approx 30-35, handle section 11x3.5.

- 1049 1.81 G496 F293, Period 6
Rim and handle fragment. Curved ribbon handle with broken upper attachment with thumb rest retaining small part of rim with rolled edge. Handle section 18x3.
- 1050 CPS73 275 L22/L57, Period 6
Rim and handle fragment. Out-bent rim, edge rolled in; 'D'-sectioned rod handle with broken folded upper attachment. Dim 17x15, handle section 8x5.5.
- 1051 1.81 H624, unstratified, Period 1-6
Rim fragment. Rim rolled out, up and in; pinched trail, probably from handle attachment, on top of rim. Dim 13x7, WT 1.5.
- 1052 BKC75 H338 L12 demolition, Building 59, Period 5b
Rim and handle fragment. Handle pale green. Funnel mouth, rim edge fire-rounded. Ribbon handle with rounded rib at each side; folded upper attachment with pinched looped thumb rest. PH (excluding loop) 19, RD 65, WT 2.
- 1053 BKC76 N339, unstratified
Rim and handle fragment. Slightly out-bent rim with fire-rounded edge, thick horizontal trail below. Folded and looped upper attachment of ribbon handle with central indentation forming 2 ribs applied to rim edge and trail. Dim 28x16.
- 1054 1.81 H626, unstratified, Period 1-6
Neck and handle fragment. Cylindrical neck; curved 'D'-sectioned rod handle with folded upper attachment and thumb rest, return trail from attachment forms prominent rib on upper part of handle. Handle section 10x5.5, WT 2.
- 1055 BKC75 J39 L1, modern
Handle fragment. Pinched thumb rest. Width 21.

Also 1 fragment from upper loop of looped and folded ribbon handle attachment

- 1056 BKC75 J176 F32, Period 5c/6

Also 1 fragment from side of looped upper handle attachment with scars from neck

- 1057 LWC72 K139 F62, medieval & later
- 1058 BKC76 T200, unstratified
Handle fragment. Upper part of angular ribbon handle; broken folded upper attachment; transverse tooling marks. Handle section 36x8.

Also 1 other upper part of probably angular ribbon handle with folded upper attachment

- 1059 BKC76 V932 L11, late Period 5 (c AD 300)

Also 8 fragments of folded upper attachment from handle

- 1060 BKC75J151 L1, modern

- 1061 BKC75 N303 F83, modern
- 1062 BKC76 V383 L50 + L72, Periods 4 or 5 (melted)
- 1063 LWC72 K275, Building 14 make-up, Period 3
- 1064 LWC71 C45 F20, post-Roman
- 1065 LWC72 G291, Period 2
- 1066 MID78 A50 F15, post-medieval
- 1067 CPS73 827 L111, Building 154, Period 4
- 1068 1.81 B2434 F651, Building 77 Room 1/2, Period 2
Complete handle, with parts of neck and side in 2 joining fragments. Curved ribbon handle with slight central indentation; folded upper attachment retaining small part of cylindrical neck; simple lower attachment convex-curved body. Height approx 55, handle section 13x2.5, WT 1.5.
- 1069 LWC71 B410 F139, Period 5
Handle and shoulder fragment. Angular ribbon handle with rounded change of angle; simple lower attachment; convex-curved shoulder. Approx 45, handle section 12x2.5, WT 1.
- 1070 BKC75 H12 L2, post-Roman
Handle and neck fragment. Small part of narrow cylindrical neck; curved ribbon handle arching over and down to simple folded upper attachment. Handle section (max) 22x3.5.
- 1071 LWC72 M115, Rampart 1a, mid 2nd century
2 handle and body fragments. Ribbon handle; simple lower attachment; straight-sided body. PH approx 42, handle section 23x2.5, WT 1.
- Also 3 similar lower handle and body fragments
- 1072 LWC72 M125, dump between Road 3 and wall and over Road 3. Probably late 1st to mid 2nd century. Handle section 19x2.5.
- 1073 BKC74 E231 F15, 19th-20th centuries (handle section 15x2.5)
- 1074 BKC76 V149 F50, Period 5 or 6 (2 fragments)
- 1075 BKC74 E1141 F322; E1118 L337, Building 37, Period 1b ,
2 handle and 1 handle and body fragments of jug. Convex-curved body. Curved ribbon handle centrally indented on upper part to produce side ribs; simple lower attachment. Handle section 20x2.
- Also 1 upper ribbon handle fragment similarly indented with broken tooled upper handle attachment
- 1076 BKC76 V932 L11, late Period 5 (c AD 300)
- 1077 BUC76 A133 G10, Period 2
Curved ribbon handle fragment. Section 10x2.5.
- 1078 1.81 G2306 L1814, Period 3
2 joining handle fragments. Straight ribbon handle; simple lower attachment. Present length 76; handle section 10x5.
- 1079 1.81 E633 L27, Period 3
Handle and shoulder fragment. Straight ribbon handle with central indentation; simple lower attachment; convex-curved side deliberately broken around edge of handle. Present length approx 50, handle section 9x3.5.
- 1080 1.81 E777 F560, Period 3
Handle and side fragment. Angular ribbon handle with central indentation; asymmetrical lower attachment with 4 small prongs of varying thickness. Present length approx 70, handle section 15x3.
- 1081 GBS84 A812 F121, Period 3?
Handle fragment. Straight ribbon handle centrally indented. Present length 53, handle section 17x4.
- 1082 BKC75 J123, Periods 3 to 6
Handle fragment. Narrow angular ribbon handle with central wide rib and edge ribs in low rounded relief. Present length 18, handle section 11x4.

- 1083 BKC75 H298 F94 & 167, Period 6
Handle and shoulder fragment. Horizontal shoulder; side sloping out. Short angular ribbon handle with pronounced side ribs; claw lower attachment. Height of handle 39, handle section 13x4.
- 1084 1.81 A539 L196, Period 3
Handle and shoulder fragment of jug or bottle. Straight ribbon handle with side ribs becoming more pronounced towards base; simple lower attachment with rounded extension on either side. Pale green convex-curved shoulder curving to side. Present length approx 40, handle section 15x3.
- 1085 BKC75 H175 F77, Period 5c
Handle and shoulder fragment of jug. Convex-curved shoulder. Straight ribbon handle with narrow side ribs; simple lower attachment. Dim 43x40, handle section 16x4.

Also 5 joining straight ribbon handle fragments with pronounced side ribs

- 1086 BKC75 M20 TT1, modern with Period 1-6.

Also 1 fragment from handle with pronounced side rib, affected by heat

- 1087 LWC72 K146, Roman or later

1088 GBS84 A696 F62, post-Roman
Handle fragment. Curved ribbon handle with 1 pronounced rib. Handle section 16x9.

- 1089 BKC74 E1189 L368, Building 37, Period 1b
2 handle and body fragments of jug or bottle. Convex-curved body possibly grazed around edge of handle attachment. Angular ribbon handle with 3 rounded ribs; broken folded upper attachment retaining fragment of neck; simple lower attachment. Height of handle approx 54, handle section 29x5.

Also fragment of side and simple lower attachment of handle with at least 3 ribs

- 1090 1.81 B766 L137, Building 112 Room 6a, Period 4b

Also 1 handle fragment with at least 3 rounded ribs

- 1091 BKC75 J320 F131, Building 47-49, Periods 3/4/5a

Also 1 angular ribbon handle fragment with at least 3 wide ribs

- 1092 LWC71 B239 F44, medieval

Also 1 fragment from edge of a curved ribbon handle with at least 1 rib in shallow relief

- 1093 GBS85 B408 F69, post-medieval.

Also 1 fragment from edge of a handle with at least 2 ribs

- 1094 GBS85 B202 L8, Period 3

Also 4 fragments from handles with at least 1 rib

- 1095 1.81 B1257 F359, Building 95 Room 2, Period 3

- 1096 1.81 E656, Period 3

- 1097 1.81 J353, Period 1-5

- 1098 HEC76 52 L36, Period 3a

Also 2 fragments from the edges of curved ribbon handles

- 1099 LWC72 L285 F144, Period 4(3)

- 1100 MID78A1841 F554, medieval

Also 4 fragments from the edges of angular ribbon handles

- 1101 BKC74 E907 L250, Periods 2 & 3a
- 1102 BKC76 V1033, Periods 2 to 4
- 1103 BKC73 A84 L4, post-Roman
- 1104 COC79, unstratified

Also 10 fragments from the edges of straight ribbon handles

- 1105 BKC76 V238 F54, Period 4
- 1106 BKC75 J157 F31, Period 5b
- 1107 BKC76 T76 F25, Building 36, Period 5c
- 1108 BKC75 J371, Periods 3 to 6
- 1109 BKC75 N61, Period 6?
- 1110 BKC75 J42 L1, modern
- 1111 LWC72 J813, Period 4a
- 1112 1.81 B222 L13, Anglo-Saxon Hut 3
- 1113 1.81 E1, unstratified
- 1114 GBS84 A1748 L136, Period 2

1115 BKC76 V73 L22, late Period 5

2 handle and body fragments. Convex-curved body. Oval-sectioned curved rod handle with simple lower attachment. Handle length 43, handle section 7x5.

Also 2 similar curved rod handle fragments

- 1116 BKC76 T215, Building 47, end of Period 3
- 1117 MID78 A2035 L241, late or post-Roman

Also 2 fragments from lower parts of similar rod handles, simple lower attachments showing deep tooled impression

- 1118 BKC76 N526 L84, Building 64 Phase 1, Period 5b1
- 1119 BKC76 N387 L23, Period 6

1120 1.81 G167 L167, Period 5

Handle and body fragments. Straight rod handle with ridge running down exterior; simple lower attachment at junction of neck and body; 3 fine trails on upper body. Handle section 8x5, WT 1.5.

1121 BKC75 N32 L3, Period 6

Handle fragment. Straight oval-sectioned rod handle curving over and down to upper attachment (missing apart from small part of return trail). Present length 47, handle section 9x5.

1122 1.81 E10 F9, Period 7

Handle fragment. Curved oval-sectioned rod handle with return trail from broken upper attachment. Handle section 5x4.

1123 BUC78 H467 G526, Period 2

Handle and shoulder fragment. Oval-sectioned straight rod handle; simple lower attachment. PH 40, handle section 6x5.

1124 BKC75 J224 F13, Period 5b

Handle fragment of jug or cup. Oval-sectioned rod handle with cut-out loop and change of angle above. Present length 44, handle section 7x4.

1125 BKC76 V82 L5, late Period 5

Rim, handle and shoulder fragment. Curved oval-sectioned rod handle; simple folded upper attachment with thick return trail retaining fragment of rim with fire-rounded edge; simple lower attachment; convex-curved shoulder. PH approx 60-65, handle section 10x7.

- 1126 BUC77 C1608 G430, Period 2
Handle fragment. Ribbon handle with central division producing 2 pronounced ribs; upper attachment folded up and down to form thumb-rest; scar from attachment to rim. Handle section 16x6.
- 1127 BUC77 E784 F139, post-medieval
Complete handle with fragment of shoulder. Thick, curved, oval-sectioned handle; broken folded upper attachment with scar from attachment to neck; simple lower attachment. Height of handle approx 50, handle section 14x8.
- 1128 BKC76 V595 L72, Period 4
Handle fragment. Curved oval-sectioned rod handle curving over and down to (missing) folded upper attachment. Thick pinched trail applied to handle, all but 1 of pinched projections now missing, possibly grazed. Present length 55, handle section (excluding trail) 15x7.
- 1129 1.81 B688 L133, Building 113 Room 1, Period 4
Handle and body fragment. Lower attachment of 1 side of chain handle; oval sectioned strand with simple lower attachment and broken at first junction with second strand; convex-curved side. Dim (of side) 34x22, WT 1.
- 1130 1.81 B103 F51, post-Roman
Handle and body fragment. Lower attachment of 1 side of chain handle; oval-sectioned strand with simple lower attachment; convex-curved body with parts of 2 diagonal ribs in shallow relief. Dim (of side) 27x21, WT 1.
- 1131 BKC75 J150 L1, modern
Handle and body fragment. Lower attachment of 1 side of chain handle; oval-sectioned strand with simple lower attachment; convex-curved body deliberately broken around edge of attachment. Dim (of side) 20x20, WT 1.5.
- 1132 BKC74 E946 F259, Period 3b
Handle and shoulder fragment. Convex-curved body. Part of straight ribbon handle with wide side rib and part of second rib; simple lower attachment. Re-used with possible deliberate removal of second rib, body deliberately broken away and tip of handle attachment faceted to produce sharper edge now worn. Dim 40x14.
- 1133 BKC76 V812 F248, Period 2
Handle and shoulder fragment. Convex-curved body. Edge of ribbon handle and side prong of lower handle attachment. Grazing on edge of handle and on body around edge of attachment. Dim 45x17.

Also 11 other body and side prongs of claw or simple lower handle attachment grazed in a similar way.

- 1134 BKC76 V1033, Period 2 to 4
- 1135 BKC74 E882 L244, Period 3b
- 1136 BKC74 A58 F11, ?post-Roman (contaminated)
- 1137 BKC74 G1, unstratified
- 1138 LWC72 J381, Period 4b destruction
- 1139 BUC77 E408 L16, 5th century
- 1140 MRC71 123 F52, Flavian-Trajanic
- 1141 1.81 B887 L200, Period 4
- 1142 1.81 E1192 F1037, Period 2
- 1143 1.81 E494, unstratified
- 1144 GBS84 A402 F59, modern

Also 1 shoulder fragment with faint diagonal optic-blown ribs and edge of handle attachment

- 1145 BKC73-6 J49 L7, Period 5b

Also 11 shoulder fragments with edges of handle attachments

- 1146 BKC76 N544 F131, Building 65 Phase 1, Period 5b1
- 1147 BKC76 V82 L5, late Period 5

- 1148 LWC71 B329, Period 5(?)
 1149 LWC72 G272, Building 28 Phase 1, Period 2
 1150 LWC73 G474 F234, Period 2
 1151 BUC77 C1201 G377, Period 2
 1152 BUC77 C723 L1, Period 1-2
 1153 1.81 H221 F176, Period 6
 1154 1.81 K377 L358, Period 3
 1155 GBS85 A1536 F205, Building 133, Period 2
 1156 GBS85 B98 F15, Period 3b

1157 LWC73 R129, Period 2
 Handle and body fragment. Part of triangular-sectioned lower handle attachment and straight-sided body. Dim 24x17, WT 1.5.

1158 1.81 B1381 L336, Period 2/3
 Part of lower handle attachment and body of jug? Part of handle attachment with pinched projection; side deliberately broken around edge. Dim 34x22.

Also 1 fragment possibly from large simple lower attachment of handle

1159 1.81 H624, unstratified, Period 1-6

Late Roman green

1160 BUC77 B1180 G180 SF414, Period 2
 Complete carinated jug. Pale greenish colourless. Optic blown. Wide oval funnel mouth with fire-rounded edge; thick horizontal trail applied to underside of rim. Neck sloping out slightly to diagonal shoulder curving into slightly convex-curved lower body which tapers into base; pushed-in base forming foot with tubular ring at bottom; central domed kick. Prominent circular pontil scar with part of cylinder of glass still attached which has been roughly smoothed off. Curved handle with 3 prominent ribs, claw lower attachment placed just above change of angle on body, looped and folded upper attachment joined to trail and rim edge. Diagonal shallow optic-blown ribs on neck and upper body dying out below change of angle to lower body; bubbles elongated parallel to ribs in ribbed area. Height 168, height from base to shoulder (approx) 85, RD 64x59, BD 59, pontil scar diameter (inner) 12 (outer) 20.

1161 BUC76 B47 L1, modern/post-Roman
 Rim, neck, handle and upper body of jug in 35 fragments. Pale green. Wide funnel mouth with fire-rounded edge; thick horizontal trail applied to underside of rim; cylindrical neck; convex-curved globular upper body. Curved handle with prominent rib on either edge; claw lower attachment on shoulder; looped and folded upper attachment joined to trail and rim edge. Body decorated with fine spiral trails. PH (rim to base of handle) 62, RD 40, WT 1.

1162 BUC77 E362 L1, modern
 Handle and shoulder fragment. Pale greenish colourless. Ribbon handle with 5 prominent ribs and cut-out fold; claw lower attachment. Dim 66x49.

Also 1 light green body fragment with ?edge of handle attachment

1163 CPS73 475 L22/L75, Period 6

1164 BUC76 A262, A269 G15, Period 2
 Approximately 700 rim, neck, handle, body and base fragments (parts of rim, neck, handle and probably body missing). Green-tinged colourless. Slightly out-bent rim, edge rolled in; cylindrical neck; globular body with domed concave base; circular pontil scar. Oval-sectioned curved rod handle applied to shoulder with oval attachment elaborated by a series of 4 tightly folded 'S'- shaped folds below; stump of upper attachment on neck. BD 40-45, neck diameter (outer) 18, neck thickness 3, WT 1-1.5, handle section 8x4.5, pontil scar diameter 18.

Flasks and unguent bottles

Amphorisks

Deep blue

- 1165 1.81 E774, unstratified
Handle fragment. Curved ribbon handle with prominent rounded central rib. Section (excluding rib) 22x5.

Dark yellow/brown

- 1166 1.81 B921 L100, Period 4
Rim and neck fragment. Rim bent out, up and in, edge missing; cylindrical neck. PH 21, RD 60, WT 2.
- 1167 1.81 B939 L210, Period 3/4; B428 L42, Period 4
1.81 B680 L25, Period 4/5
3 joining neck and handle fragments. Cylindrical neck; ribbon handle with prominent rounded central rib and edge ribs curved over and down to folded upper attachment at neck and (missing rim) WT 3, handle section 22x10.

Blue/green

- 1168 LWC72 J1132 F375, Building 8, Period 2
Handle fragment. Curved ribbon handle with broken fold from upper attachment; central rounded rib. Handle section 19x7.
- 1169 BKC76 V853 L111, Building 46, Period 2
Handle fragment. Part of curved ribbon handle with thick central trailed rib; scar from upper attachment. Section (excluding rib) 23x4.

Flasks with sheared rims

Blue/green

- 1170 MRC71 148 F85, Building 160, Flavian to early 2nd century
Complete rim, neck and part of body, also 3 small body fragments. Out-turned rim, edge sheared; cylindrical neck with bulge beneath rim and pronounced constriction and tooling marks at base; body sloping out shallowly. PH 104, length of rim and neck 94, RD 28x26, WT 1.5.
- 1171 GBS85 B162 L6, Period 3b
Rim fragment. Out-turned rim, edge sheared; cylindrical neck. PH 17, RD 30, WT 2.

Flasks with funnel mouths and rolled rims

Blue/green

- 1172 1.81 B680 L25, Period 4/5
Rim and neck fragment. Funnel mouth, rim edge rolled in; cylindrical neck with constriction at base. Also 7 convex-curved body fragments possibly from same vessel. PH 65, RD 45, WT 3.
- 1173 BKC76 V301 L29, Period 5
Rim and neck fragment. Funnel mouth, rim edge rolled in; cylindrical neck with much diagonal tooling at neck/shoulder junction. PH 53, RD approx 40, WT 2.
- 1174 1.81 M353 L351, Period 3
Rim fragment. Funnel mouth, rim edge rolled out, up and in; cylindrical neck. PH 28, RD approx 40, WT 2.
- 1175 1.81 G4260 L4241, Period 3D
Rim, neck and body fragment. Funnel mouth, rim edge rolled in; short cylindrical neck with tooling marks curving out to body. PH 39, RD 55, WT 2.

Ovoid flask

Colourless

- 1176 MRC71 10 L15 Grave F8, 3rd-4th centuries
Ovoid flask in 31 fragments lacking only part of rim and neck and small parts of body. Green-tinged. Rim bent out, up, in and flattened; cylindrical neck with slight bulge above neck/body junction; ovoid body with deeply indented concave base. Base shows wear but no evidence of pontil or post-technique scars. H 205, RD 50, body diameter 115, BD 71, WT 2.

Miscellaneous flasks with folded or rolled rims

Colourless

- 1177 1.81 B131 F73, early medieval
Complete neck. Narrow cylindrical neck constricted at base and out-bent at top with small fragment of attached glass probably from the missing folded rim. Length 75, neck diameter 13, WT 2.

Blue/green

- 1178 BKC75 J183 F41, Periods 5b/c/6
25 rim, neck and body fragments of wide bodied flask. Short funnel mouth, rim edge rolled in; long narrow cylindrical neck with tooled constriction at neck/shoulder junction; wide slightly concave shoulder curving out to body. PH 145, length of rim and neck 110, RD 38, WT 1.

- 1179 Balcerne Gardens, 1977 (a watching brief), 'X Series' 151
Rim and neck fragment lacking on approx one-third of rim edge circumference. Wide horizontal rim, edge rolled in; thick straight-sided neck expanding out to junction with body; tooling marks at base of neck. PH 89, RD 40, WT 4.5.
- 1180 1.81 B1449 L267, Building 112 Room 4, Period 3/4
Rim fragment. Rim out-bent almost horizontally, edge partially rounded and partially rolled in. RD 45, WT 2.
- 1181 LWC72 J887, J911 F220, Building 3 & J718 F220, Period 3
J805 Floor, Building 20 Room 5, Period 4a & b
7 rim, neck and body fragments. Rim edge neatly rolled out, up, in and flattened to form small lip of varying thickness; cylindrical neck with tooling marks on lower part; slightly convex-curved body sloping out diagonally. PH 70, RD approx 32, WT 2.

Mercury flasks

Pale green

- 1182 BKC73-6 A30 L1, post-Roman
Body fragment. Flat side with raised design in low relief — a central bar with 2 bars running off diagonally to 1 side and a third to other Dim 30x25, WT 3-5.

Pale green

- 1183 MID78 E2918 L409, Building 76 Phase 1, Period 1
2 body and base fragments. Straight side; flat base with raised moulding. Dim 32x34, WT 3.

Spherical flasks with cracked-off rims

Blue/green

- 1184 1.81 G584 L206, Period 5
1.81 G1 L1, Period 6
2 joining rim and 1 neck fragments. Vertical rim, edge knocked-off and ground; cylindrical neck. Abraded band below rim. PH 42, RD 20, WT 3.
- 1185 BKC75 H111 F33, Period 5c
2 rim fragments. Cylindrical neck, edge cracked-off but not ground. PH 30, RD 20, WT 1.5.

Late Roman green

- 1186 1.81 G1464 L762, Period 5
Rim fragment. Light green. Vertical rim, edge cracked-off and not ground; cylindrical neck with tooling marks at base. PH 44, RD approx 15, WT 2.
- 1187 1.81 B126, unstratified
Rim fragment. Greenish colourless. Vertical rim, edge cracked-off and ground cylindrical neck. PH 40, RD 21, WT 3.5.

Indented flasks

Colourless

- 1188 BUC79 H1039 G693, Period 1
Indented flask in 62 fragments. Green-tinged. Funnel mouth and neck, rim edge fire-rounded; wide convex-curved shoulder above truncated conical body which tapers into concave base with central kick; very thick trailed base ring with post technique scars. Lower body decorated with 5 deep oval indentations which show sharp central imprint of tool used to push them in. Shoulder and inside of rim have abraded bands. Height approx 160, RD 71, BD 57, WT 1.

- 1189 BKC75 N90 L9, Period 6
8 rim, body and base fragments. Funnel mouth, rim edge fire-rounded; convex-curved body curving into broken base with trailed base ring at edge. Deep elongated oval indentations on body. PH (rim) 41, (base) 42, RD 65, WT 1.5.

Bath flasks

Blue/green

- 1190 1.81 B1847 F550, post-Roman
Complete rim, neck, 2 handles and part of shoulder. Rim bent out, up, in and flattened; cylindrical neck; horizontal convex-curved shoulder. Dolphin handle either side of neck, applied to shoulder trailed up neck and underside of rim, looped down to shoulder and return trail taken back up to rim. PH 26, RD approx 31, WT 3.
- 1191 BKC75 J61 L1, modern
Rim, neck, handle and shoulder fragment. Rim bent out, up, in and flattened with deep tooling marks on underside; cylindrical neck; shoulder sloping out. 1 dolphin handle applied to shoulder, trailed up neck and underside of rim and looped down; small fragment only of second handle remains. PH 28, RD 35, WT 4.
- 1192 BKC76 V658 L11, late Period 5 (c AD 300)
Rim, neck and handle fragment. Rim bent out, up, in and flattened with part of edge extending down inside cylindrical neck; part of dolphin handle applied to underside of rim and neck. Underside of rim distorted by folds. PH 16, RD approx 30.
- 1193 GBS84 A318 F27, Period 3b
Rim fragment. Rim bent out, up, in and flattened with inner edge projecting down inside cylindrical neck; small fragment from handle on rim edge. PH 10, RD 30, WT 2.
- 1194 BUC77 C1672 G442, Period 2
3 rim, neck, shoulder and handle fragments. Rim bent out and down, up, in and flattened; cylindrical neck with constriction above wide convex-curved shoulders; 2 dolphin handles trailed up shoulder and neck, looped back to shoulder with return trail running up handle to neck. PH 48, RD 46, WT 2.5.
- 1195 BKC76 V1113 L146, late Period 5 (c AD 300)
Rim, neck, handle and shoulder fragment. Out-turned rim, edge rolled up and in; neck curving into convex-curved shoulder. Dolphin handle applied to shoulder, trailed up neck and underside of rim and looped down. PH approx 30, WT 2.

Also 2 neck and shoulder fragments of bath flask with part of dolphin handle attached in similar way

- 1196 BKC75 J158 F32, Period 5c/6
- 1197 LWC72 M95, Rampart 1e, late Roman
Rim, neck, shoulder and handle fragment. Slightly funnel-shaped mouth, edge rolled in; cylindrical neck constricted at junction with convex-curved shoulder; dolphin handle attached to shoulder, neck and underside of rim, looped down to shoulder and back to rim. Horizontal tooling marks inside handle. PH 40, RD approx 40, WT 2.5.
- 1198 1.81 B916, unstratified
Rim, neck, shoulder and handle fragment. Description as no 1197.
- 1199 BKC76 V1052, late Period 5 (c AD 300)
Rim, neck, handle and shoulder fragment. Rim bent out, up and in; cylindrical neck; convex-curved shoulder; dolphin handle applied to shoulder, trailed up neck and underside of rim and looped down. PH 28, RD approx 30, WT 2.
- 1200 BKC75 M10, modern with Periods 5 and 6
Rim, neck, handle and shoulder fragment. Rim bent out, edge missing; cylindrical neck; convex-curved shoulder. Dolphin handle applied to neck, trailed down then back up and down to shoulder. PH approx 30, neck diameter (outer) 22, WT 3.

Also 6 dolphin handle fragments

- 1201 BKC74 E313 F24, post-Roman (with orange/red inclusion and part of neck)

- 1202 LWC71 B380 F139, Period 5 (4 fragments with part of neck; diameter of handle approx 20.)
- 1203 LWC73 J615 make-up, Building 20 Phase 1 Room 7, Period 4a (diameter of handle approx 20.)
- 1204 1.81 D1631 F1492, Period 4
- 1205 1.81 G3333 L3214, Period 3
- 1206 CPS73 105 F43, Period 5
Shoulder and handle fragment. Convex-curved shoulder; broken lower handle attachment applied to shoulder and tooled to crest, probably from looped handle. Dim 34x20, WT 3.
- 1207 1.81 C100 L8, Period 4
Body and handle fragment of bath flask or jug? Convex-curved body; rounded lower handle attachment possibly with some pinched decoration. Dim 41x22. WT 5.
- 1208 BKC75 N1 L1, modern
Lower body and base fragment of bath flask? Convex-curved side sloping into concave base with small central kick. Oval pontil scar. PH 12, BD approx 25, WT 3.
- 1209 1.81 G230 L177, Period 5
Base fragment of bath flask? Side curving into small concave base with additional glass left by pontil iron. BD approx 20, WT 3.

Tubular unguent bottles

Blue/green

- 1210 BKC75 J384 F285, ?Periods 3/4/5a
2 rim fragments. Out-turned rim, edge sheared off; cylindrical neck. PH 18, RD 25, neck thickness 1.5.
- 1211 1.81 B1769 L415, Building 77 destruction, early Period 3
Rim fragment. Out-turned rim, edge sheared off; cylindrical neck. PH 12, RD approx 25, WT 1.5.
- 1212 GBS84 A1026 L47, Period 2
Neck and upper body fragment of tubular unguent bottle. Out-bent rim (edge missing); cylindrical neck with tooled constriction at base; straight side sloping out. PH approx 85, present max body diameter 18, WT 1-2.5.
- 1213 1.81 B874 L94, Period 4
Neck and body fragment. Cylindrical neck with constriction at base; upper part of tubular body. Dim 30x14, WT 1.

Also 5 body fragments from similar neck/body junctions

- 1214 1.81 C271 L32, Building 96 Room 2, Period 3
- 1215 GBS84 A378, unstratified (4 fragments)

Also 1 body fragment

- 1216 1.81 B1593 L389, Building 77 destruction, early Period 3
- 1217 1.81 G1314 L1224, Period 5
Complete base and lower body fragment. Tubular body with horizontal tooling marks under neck base; convex base with small central flattening. PH 43, max body diameter 20, WT 1.5-2.5.
- 1218 GBS84 A1221 L77, Period 2 or 3A
Base fragment. Convex base with small central flattening. PH 11, max body diameter approx 30, WT 4.
- 1219 LWC72 J925, Period 3 make-up
Lower body and base fragment. Straight side curving into slightly flattened base. PH 22, max body diameter approx 28, WT 2.

- 1220 1.81 E1301 F900, Building 83 Room 7, Period 1
Base fragment. Convex base with small central flattening. PH 10, max body diameter 25, WT 4.
- 1221 1.81 G4086 L3624, Period 3
Lower body and base fragment. Tubular body; convex base with central flattening. PH 27, ma. body diameter approx 25, WT 4.
- 1222 BKC73 A10TT1 L1, post-Roman
Lower body and base fragment. Tubular body; convex base with small central flattening. PH 13, max body diameter 15, WT 2.
- 1223 CPS73 694 L61, Building 154, Period 4
Lower body and base fragment. Tubular body; slightly flattened base. PH 10, max body diameter 16, WT 2.

Also 12 similar lower body and convex base fragments

- 1224 BKC73 A108 F19 L4, post-Roman
- 1225 BKC76 T382, Periods 3 or 4
- 1226 BKC76 V811 F252, Period 2 or 3
- 1227 BKC76 V470 L19, Period 4
- 1228 BKC76 V451 L50, Periods 4 or 5
- 1229 1.81 B1822 L442, Building 78 Room 5, Period 1/2
- 1230 1.81 E1122 L149, Period 2
- 1231 1.81 E588 F426, Building 100, Period 3a
- 1232 1.81 E793 F549, Period 3
- 1233 1.81 G2121 L1814, Period 3
- 1234 GBS85 A2341 L101, Period 2
- 1235 GBS84A421F80, unstratified

1236 BKC75 H89, Period 5 or 6 (imbedded in late surface)
Lower body and base fragment. Tubular body expanding out to convex base with pontil scar. PH 28, max body diameter 16, WT 2.

- 1237 BKC76 T248 L21, Period 3
Part of neck and complete body. Cylindrical neck with tooled constriction at base, tubular body expanding out slightly to flat base. PH 46, max body diameter 18, WT 1.
- 1238 LWC72 D253, post-Roman
Lower body and base fragment. Straight side sloping out slightly; small flat base. PH 26, maximum body diameter approx 28, WT 2.

Also 1 similar lower body and flattened base fragment

- 1239 GBS84 A1913 L181, Period (1 or) 2
- 1240 1.81 B1769 L415, Building 77 destruction, early Period 3
Lower body and base fragment. Tall conical tubular body; curving in to convex base, centre missing. PH 47, maximum body diameter 34, WT 2.5.
- 1241 LWC72 J974 F313, Period 1
2 lower body fragments of large tubular bottle beginning to curve in to base. PH approx 40, maximum body diameter 33, WT 2.
- 1242 1.81 B999 F288, Period 3
Body and base fragment or conical bodied unguent bottle or flask. Slightly convex-curved side sloping out and curving in to concave base mostly missing. PH 28, WT 2.

Truncated conical and discoid unguent bottles

Pale green

- 1243 LWC71 A259 F62, Building 24, Period 4b
Lower body and base fragment of small conical unguent bottle. Slightly convex-curved body sloping out sharply and curving into flat base. PH 20, WT 3.

Colourless

- 1244 1.81 D1798 L1367, Period 4
Base fragment of discoid unguent bottle? Side sloping out and curving in to edge of concave base. PH 12, WT 2.

Blue/green

- 1245 1.81 B776 L159, Building 112 Room 4, Period 4a
Base fragment of thin-walled discoid unguent bottle. Slightly concave base with impressed leaf stop. Dim 17x17, WT 1.

Also 1 other fragment with traces of an impressed design, probably also from base of thin-walled unguent bottle

- 1246 1.81 B518 L72, Building 112 Room 4, Period 4

1247 BKC76 V679, late Period 5 (some modern)
Body and base fragment of small conical unguent bottle. Side sloping out to slightly concave base. PH 22, body diameter 30, WT 2.

Also 3 similar lower body and base fragments

- 1248 BKC75 J188 F34, Period 5b (end of Period 4?)
1249 BKC75 J27 L1, modern
1250 1.81 G884 L883, Building 120?, Period 5

Indented unguent bottles

Blue/green

- 1251 1.81 H627, unstratified, Period 1-6
Lower body fragment. Lower part of asymmetrical oval indentation. Dim 28x24, WT 1.5.

Late Roman green

- 1252 MRC71 52 F12, 3rd/4th century inhumation.
Complete indented unguent bottle, rim chipped in 2 places. Pale greenish colourless. Rim bent out, up, in and flattened; cylindrical neck curving out to shoulder; conical body tapering in evenly to gently rounded, convex base. 4 elongate indentations. Oval pontil scar with part of - glass cylinder still attached. Height 131, length of neck and rim approx 40, RD 24, maximum body diameter 45.
- 1253 BUC76 B808 F141, modern
Rim and neck fragment. Rim edge rolled out, up and in unevenly and flattened; cylindrical neck. PH 15, RD approx 28, neck thickness 2.

Miscellaneous unguent bottles

Colourless

- 1254 1.81 G3158 F2695, Period 3
Rim and neck fragment. Rim bent out, up, in and flattened; short cylindrical neck beginning to curve out to body. PH 18, RD 20, WT 2.5.
- 1255 LWC71 B321 F70, Period 5
5 neck and body fragments. Long cylindrical neck; wide convex-curved shoulder. Neck diameter 11, WT 1.
- 1256 1.81 C151 L13, Building 114 destruction, Period 4
4 joining neck fragments. Cylindrical neck curving out to body. Neck diameter 13, WT 2.5.

Blue/green

- 1257 LWC73 R43 F27, post-Roman
Rim fragment. Rim bent out, up, in and flattened. RD 20.

Also 1 fragment from the outer ridge of a similar rim

- 1258 1.81 H630, Periods 1-6 RD 20.

Also 2 cylindrical neck fragments from unguent bottles

- 1259 1.81 B1870 L466 Phase 1/2

- 1260 GBS85 B76, unstratified

- 1261 1.81 G2617 F2362, Period 3
Rim fragment. Rounded rim out-bent horizontally; cylindrical neck. PH 36, RD 20, WT 1.

Rim, neck and shoulder fragments from jugs or flasks

Deep blue

- 1262 BKC74 E343 L92, Periods 3b/4/5
BKC74 E346 L69a, Period 3b or 4
2 neck fragments. Wide cylindrical neck with tooling marks near base. PH 48, neck diameter (outer) approx 30, neck thickness 1.5.

Also 2 other cylindrical neck fragments

- 1263 BKC76 V581 L63, Period 4

- 1264 BKC76 T460 F182, Period 3

Also 1 light blue shoulder fragment with edge of neck

- 1265 BKC76 V88, Building 46, Period 3 or 4?

Yellow/brown

- 1266 LWC72 M77, Rampart 1e, late Roman
Rim and neck fragment. Dark yellow/brown. Rim bent out, up, in and flattened; cylindrical neck. PH 26, RD 27.

Also 1 other dark yellow/brown cylindrical neck fragment

- 1267 1.81 G1858 L1, Period 6

1268 LWC72 J549, Period 4

Neck fragment. Dark yellow/brown. Cylindrical neck with tooling at neck shoulder junction, edge below this deliberately grozed. Dim 30x17, WT 4.5.

Also 1 light yellow/brown globular shoulder fragment

1269 BKC74 G98 F181, Period 5c or 6.

Yellow/green

1270 GBS84 A1447 F121, Period 3?

Neck fragment. Cylindrical neck. Present length 34, WT 2.

Pale/light green

1271 1.81 D50 F30, Period 6

Rim fragment. Light green. Rim folded out, up, in and flattened. RD 35.

1272 1.81 G287 F264, Period 6

Rim fragment. Light green. Rim bent out, up and diagonally in; cylindrical neck. PH 12, RD 35, WT 3.

1273 LWC72 M125, late 1st to mid 2nd century .

Rim and neck fragment. Pale green. Small funnel mouth, rim edge rolled in; cylindrical neck. PH 12, RD 35, WT 3.

1274 LWC72 J1590 F538, Building 16, Period 3

Cylindrical neck fragment. Light green. 1 short side deliberately grazed to point. Dim 53x15, neck thickness 3.

Also 2 light green cylindrical neck fragments

1275 LWC72 E103 F52, post-Roman

1276 LWC72 J1336 F506, Period 3?

1277 LWC71 C430 F212, Building 2, Period 1

Neck and shoulder fragment. Light green. Wide cylindrical neck; slightly convex-curved, almost horizontal shoulder. Dim 38x23, WT 2.5.

Also 2 light green convex-curved shoulder fragments

1278 BKC75 J188 F34, Period 5b (end of Period 4?)

1279 LWC73 K461 F240, Period 3

Colourless

1280 LWC72 H22, Roman?/Anglo-Saxon?/16th-17th century?

Rim and neck fragment. Rim edge rolled out, up and in; cylindrical neck. PH 8, RD approx 30, neck thickness 2.

1281 BKC75 J213 F48, Period 5b

Rim fragment. Funnel mouth, edge cracked off and ground. Horizontal abraded band below rim edge. PH 10, RD 40, neck thickness 1.5.

1282 BUC77 E390 L16 5th century

Cylindrical neck fragment. 2 faint abraded lines. Deliberately grazed to point. Dim 36x16, neck thickness 4.

Also 11 fragments from 4 cylindrical necks (nos 1283 & 1284 much strain-cracked)

1283 BKC75 K466 L81, modern (6 fragments).

1284 BKC73 E23 F2 19th & 20th centuries (3 fragments).

1285 CPS73 494 L22/L75, Period 6 (outer neck diameter approx 15).

1286 CPS73 637 L87, Building 154, Period 4.

Also 1 cylindrical neck fragment curving into shoulder

1287 1.81 B13 F11, medieval.

Also 3 convex-curved shoulder fragments

1288 LWC72 J900 F294, Building 20 Phase 2 Room 3, Period 4b.

1289 LWC72 J1090, Period 4a make-up.

1290 LWC72 J1185 F404, Building 20 Phase 1 Room 3, Period 4.

Blue/green

4 rim and neck fragments. Rim edge bent out and in with triangular profile

1291 GBS85 B299 L36, Period 2? RD 45.

1292 LWC72 L406, Period 4(1) RD approx 38.

1293 BKC76 V1033, Periods 2-4 RD 35.

1294 LWC72 J810, Building 20 Phase 1 Room 6, Period 4a make-up, RD 30.

Also 22 rim and neck fragments. Rim edge bent out, up, in and flattened; cylindrical neck

1295 BKC73 D66a L1, Anglo-Saxon. RD 50.

1296 CPS73 49 L13, Period 8. RD approx 40.

1297 LWC72 H177 F75, Anglo-Saxon? RD approx 38.

1298 1.81 H630, Periods 1-6. RD approx 40.

1299 1.81 B401 F92, Period 5. RD 40.

1300 LWC72 L300, Building 19 P1 Phase 1, Period 4a
RD approx 40 (distorted by heat).

1301 BKC75 J296 F85, Periods 3/4/5a RD 35 (2 fragments).

1302 BKC75 J483, Periods 2-6 RD 35.

1303 BKC76 T139 L19 & later material, Periods 3-5. RD 35.
(Complete rim. Scar on neck, possibly from handle attachment).

1304 BKC75 J19 L1 modern. RD 35.

1305 BKC76 V71, unstratified. RD approx 35.

1306 LWC72 J1084, Building 8, Period 2 destruction. RD 30-35.

1307 MID78 C1493 L0032 RD approx 30 (distorted by heat) Site C, Period 2.

1308 1.81 H169 F81, Period 6. RD 30.

1309 BUC76 A90 F70, modern. RD 28.

1310 1.81 E584 L24, Building 99/100, Period 3a. RD 25.

1311 1.81 M88 L11 demolition, Building 123, Period 4 RD 25.

1312 BKC76 V628 L81, Period 2.

1313 BKC75 H119, Period 5c.

1314 BKC73A10TT1 L1, post-Roman.

1315 BKC73 D63b L1, Anglo-Saxon.

1316 1.81 A471 L180, Period 3

1 rim and 3 neck and body fragments. Out-bent rim, vertical edge rolled up and in; cylindrical neck; convex-curved body sloping out. RD 40, WT 1.5.

Also 11 rim and neck fragments. Out-bent rim, edge rolled in; cylindrical neck

1317 MID78 C1650 L215, Building 70, Roman Period 3 destruction. RD 45.

1318 BUC76 B824 F119, Period 1. RD approx 45.

1319 BKC75 J371, Periods 3-6. RD approx 40.

1320 BKC76 V243 L46, Period 5. RD 35.

1321 BKC76 V61 L9, late Period 5 (c AD 300). RD 35.

1322 BKC75 H157 L2, post-Roman. RD approx 35.

1323 1.81 G1488 F1467, Period 5. RD 35.

1324 BKC76 V230 F45, Period 4. RD approx 30.

1325 BKC75 J32 L1, modern.

1326 BKC76 N363, Period 6 or later.

1327 BKC76 V933 L11, late Period 5 (c AD 300)

Complete rim. Out-turned rim, edge irregularly rolled in. PH 12, RD 36, neck thickness 1.5.

Also 1 similar irregular rim fragment

1328 BKC75 J149 L1, modern. RD approx 30-35.

Also 3 funnel-mouthed rim fragments. Rim edge rolled in

1329 BKC75 H7 L2, post-Roman. RD 45.

1330 BUC77 C1418 G414, Period 2. RD approx 40.

1331 MRC71 70, modern? RD 38.

1332 LWC72 J1421 F462, Building 20 Phase 1 Room 2, Period 4

Rim fragment. Funnel mouth, rim edge bent down and up. PH 8, RD approx 45, neck thickness 2.

Also 1 similar rim fragment

1333 BUC76 B538 G109, Period 2. RD 53.

1334 BKC75 G375, Period 5c

Rim and neck fragment. Asymmetrical funnel mouth with fire-rounded rim edge curving into neck. Distorted by heat. PH 36, RD 36, neck thickness 2.

1335 1.81 E1232 L169, Building 86/87, Period 2

Rim fragment. Rounded rim edge bent out horizontally; cylindrical neck. PH 27, RD approx 40, WT 2.

Also 56 cylindrical neck fragments

1336 BKC75 J528 L49, Building 45, Period 2?

1337 BKC74 T17 L5, end of Period 3

1338 BKC76 V581 L63, Period 4

1339 BKC76 V355 L99, Period 1 to early 4

1340 BKC76 V127, Periods 4 to 6

1341 BKC75 J38 L4, Period 5b

1342 BKC75 J238 F13, Period 5b (3 fragments)

- 1343 BKC76 N500 L70, Building 65 Phase 2, Period 5b2
- 1344 BKC75 G328 F108, Building 55, Period 5c
- 1345 BKC76 V938 L11, late Period 5 (c AD 300)
- 1346 BKC76 V679 Mainly late Period 5 (some modern)
- 1347 BKC75 K147 F12, Period 6
- 1348 BKC75 J483, Periods 2-6
- 1349 BKC75 H12 L2, post-Roman
- 1350 BKC76 V81, unstratified
- 1351 BKC76 V238, unstratified
- 1352 BKC75 J212 F46, Period 5c or 6 (9 fragments)
- 1353 BKC75 J150 L1, modern
- 1354 LWC72 D279 F149 & F162, post-Roman
- 1355 BUC76 B928 G155, Period 2
- 1356 BUC76 B946 G121, Period 2
- 1357 MID78 A2123 L283 & F16, early medieval
- 1358 CPS73 791 L111, Building 154, Period 4
- 1359 CPS73 576 F115, Building 154, Period 4
- 1360 1.81 A328 L74, Period 3
- 1361 1.81 B1592 L343 ?Building 77 destruction, early Period 3
- 1362 1.81 B1017 F260, Building 77 destruction, Period 3
- 1363 1.81 B576 L97, Building 112, late Period 4
- 1364 1.81 B2275 L212, Building 112 Room 3, Period 4a
- 1365 1.81 B701 L135, Building 112 Room 6a, Period 4b
- 1366 1.81 B916, unstratified
- 1367 1.81 D1247 F624, Period 4
- 1368 1.81 E876 L57, Building 86/87, Period 2
- 1369 1.81 E173 F123, Period 8
- 1370 1.81 E389 F274, Period 8
- 1371 1.81 G414 L327, Period 5
- 1372 1.81 G337 F270, Period 4
- 1373 1.81 G2426 L1510, Period 4
- 1374 1.81 G1847 L1767, Period 3
- 1375 1.81 G2645 L2373, Period 4
- 1376 1.81 G3705 L3549, Period 3 (2 fragments)
- 1377 1.81 G3679 L3549, Period 3
- 1378 1.81 G2570 F2543, Period 3
- 1379 1.81 G2531 F2363, Period 3
- 1380 1.81 G622 N622, Period 5
- 1381 GBS84 A1867 L168, Period 1 or 2

Also 10 cylindrical neck fragments broken at tooled neck/body junction

- 1382 BKC76T520, ?Period 1 (or 2)

- 1383 LWC72 E125 F61, Roman (2 fragments, neck diameter 16)
- 1384 LWC72 G179 F81, Period 2
- 1385 LWC72 J735 F228, Period 3
- 1386 MID78 C1679 F492, Building 75 Phase 1, Period 1 (3 fragments)
- 1387 1.81 B1700 L402, Building 77 destruction, early Period 3
- 1388 1.81 H462 L3, Period 6

1389 1.81 G1795 L1660, Period 5
 Neck fragment. Majority of thick-walled cylindrical neck expanding slightly towards constriction at base. Present length 74, max neck diameter 24, WT 4.

Also the majority of a similar neck in 2 joining fragments

- 1390 BKC75 G208 F190, Building 57, Period 5c
 (PH 82, Max. neck diameter 20, WT 2.5).

Also 8 wide cylindrical neck fragments curving out to shoulder

- 1391 GBS84 A1796 L156, Period 1 (6 fragments)
- 1392 LWC73 K533, Period 1 or 2 (neck diameter approx 40)
- 1393 CPS73 308 L50, Period 6-8

Also 9 cylindrical neck fragments curving out to shoulder

- 1394 BKC75 J49 L7, Period 5b
- 1395 BKC76 J312 L35, Periods 3/4/5a
- 1396 LWC72 B41 F19, post-medieval
- 1397 1.81 B966 L215, Period 3
- 1398 1.81 G1847 L1767, Period 3 (4 fragments)
- 1399 1.81 H323 L78, Period 4 to 6

Also 6 cylindrical neck and shoulder fragments from conical flasks or jugs

- 1400 BKC76 N311 F97, Building 64 Phase 1, Period 5b2
- 1401 BKC76 V82 L5, late Period 5 (c AD 300) (2 fragments)
- 1402 BKC76 V258 F59, Period 5?
- 1403 CPS73 94 F42, Building 155, Period 6
- 1404 GBS85 A2401 L259, Building 131 Room 3, Period 1 or 2

Also 6 shoulder fragments from conical flask or jug

- 1405 BKC75 J166 F36, Period 5b
- 1406 1.81 G2697 L2374, Period 3d
- 1407 1.81 H624, Periods 1-6
- 1408 1.81 H626, Periods 1-6
- 1409 1.81 M578, unstratified
- 1410 GBS84 A1775 L147, Period 1

Also 8 cylindrical neck and convex-curved shoulder fragments from globular or wide bodied flasks or jugs

- 1411 BKC75 J283 L33, Period 3/4/5a

- 1412 BKC74 E343 L92, Period 3b/4 or 5
- 1413 BKC76 N465 L113, Building 65 Phase 2, Period 5b2
- 1414 BKC76 V110 F53, Period 5?
- 1415 BKC76 V81, unstratified
- 1416 BKC75 K195, machine clearance
- 1417 LWC72 J981, Building 16, Period 3 make-up
- 1418 BUC77 C966 L1, Period 1-2

Also 34 convex-curved shoulder fragments from globular jars, jugs or flasks

- 1419 BKC74 E1162 L363, Building 37, Period 1b (3 fragments)
- 1420 BKC75 G381, Period 3 or 4?
- 1421 BKC76 V136 F44, Period 4
- 1422 BKC76 V68 L22, late Period 5 (c AD 300)
- 1423 BKC76 V91 L11, late Period 5 (c AD 300)
- 1424 BKC73 A176 F16 L3, post-Roman
- 1425 BKC76 A123 L20, Period 6?
- 1426 BKC75 H5 F6, post-Roman
- 1427 BKC75 H14 L2, post-Roman
- 1428 BKC75 N147 L1, modern
- 1429 BKC75 N21 L1, modern (2 fragments)
- 1430 BKC76V71, unstratified
- 1431 LWC73 G499 F247, Period 2
- 1432 LWC72 J1262 Floor, Building 8, Period 2
- 1433 LWC72 J812 F264, Building 20 Phase 1 Room 6, Period 4a
- 1434 LWC72 J859, Building 20 Room 2 make-up, Period 4
- 1435 LWC72 K502 F282, medieval and later
- 1436 LWC72 J440 F51?, early medieval
- 1437 CPS73 210? L39, Period 8
- 1438 1.81 B1135 L270, Period 3
- 1439 1.81 B1592 L343, Building 77 destruction, early Period 3 (3 fragments)
- 1440 1.81 B405 L104, Building 112 Room 1, Period 4b
- 1441 1.81 B183, unstratified
- 1442 1.81 G1733 L1391, Period 5 (2 fragments)
- 1443 1.81 H627, Periods 1-6
- 1444 1.81 M294 L1, Periods 1-6
- 1445 GBS84 A1320 L81, Period 3A
- 1446 GBS84 A163, Roman

Late Roman green

- 1447 BKC76 T274 L9 & L67, Building 56, Period 5c cellar fill
Rim fragment of jug or bottle. Pale green-tinged colourless. Funnel mouth, edge fire-rounded.
Thick trail below rim edge. RD 50.

- 1448 BKC75 J178 F39, Period 5c or 6
Rim fragment. Pale greenish colourless. Funnel mouth, edge rolled in; cylindrical neck beginning to slope out to body. PH 42, RD 40, WT 2.
- 1449 CPS73 546 L22, Periods 6-8
Neck fragment. Pale yellow green. Cylindrical neck. PH 45, neck diameter approx 20, neck thickness

Also 1 convex-curved body fragment possibly from same vessel with 3 possibly spiral trails —
CPS73 546

- 1450 CPS73 469 F105, Period 5
Neck fragment. Yellow/green. Cylindrical neck curving out to rim with trail at change of angle. PH 20, neck diameter approx 15, neck thickness 2.
- 1451 GBS84 A827 F121, Period 3?
Body fragment of small flask. Yellowish colourless. Edge of neck with tooling marks at base; convex-curved shoulder. Dim 18x17, WT 2.5.

Miscellaneous forms and body fragments

Applied true base rings

Deep blue

- 1452 BKC76 V934 L11, late Period 5
Base fragment of bowl or jug. Flat base with applied true base ring. Base ring shows post technique scars and a high degree of wear; side grazed. PH 13, BD approx 80.
- 1453 BKC74 E896 L250, Periods 2 & 3a
Base fragment of bowl or jug. Applied base ring, base and side broken. PH 16, BD approx 70.
- 1454 GBS84 A48 F9, modern
Base fragment. Applied true base ring; slightly convex-curved base. Post technique scars on base ring. Side grazed. BD 55.

Yellow/brown

- 1455 LWC72 K368, Period 4b
Base fragment. Dark yellow/brown. Wide lower body; applied true base ring; flat base. Base ring worn; post technique scars. PH 11, BD approx 95.
- 1456 BKC75 H297 F33, Period 5c
Lower body and base fragment of bowl or jug. Dark yellow/brown. Wide lower body; flat base; applied true base ring. Lower body grazed for secondary use. PH 15, BD 70, WT 2.

1457 1.81 G1942 L1708, Period 3
Base fragment. Applied true base ring; side broken; base mostly missing. Post technique scars on base ring edge. PH 12, BD 60.

Also 1 similar dark yellow/brown base fragment (?) with applied true base ring

1458 BKC75 J142 F13, Period 5b

Yellow/green

1459 1.81 E690, Building 100, Period 3a
Base fragment. Wide lower body; applied true base ring; base mostly missing. Post technique scars. PH 15, BD 70, WT 3.

Light green

1460 1.81 G1441 L1434, Period 3d
Lower body fragment. Wide lower body broken at edge of ?applied true base ring. Dim 35x29, WT 3.

Blue/green

1461 LWC72 J530, Building 20 Room 6, Period 4a & b
2 joining base and lower body fragments of globular ribbed bowl, jar or jug. Convex-curved, wide lower body; applied true base ring with flattened edge; slightly concave base. Optic blown (?) vertical ribs dying out on lower body. Curved scratch-marks on interior; base ring worn. PH 17, BD 65, WT 3.

1462 1.81 E1224L138, Period 2
Base fragment. Wide lower body; applied true base ring; concave base with central kick. Post-technique scars on base ring. PH 11, BD approx 120, WT 2.5.

1463 1.81 K125 F112, Period 3b
3 base fragments and 5 flakes. Wide lower body; applied true base ring; probably slightly concave base. Post-technique scars. PH 14, BD 90, WT 4.

1464 BKC74 E932 F248, Period 1b
Lower body and base fragment of bowl or jug. Wide convex-curved lower body sloping in shallowly; applied true base ring; flat base. Post technique scars. PH 20, BD 85, WT 2.5.

1465 1.81 K116 F55, Period 3a
Base fragment. Wide lower body; applied true base ring; slightly concave base. Traces of post-technique scars on inner edge of base ring. PH 10, BD 75.

1466 1.81 M204 L1, unstratified
Base fragment. Applied true base ring; slightly concave base. Side grazed. PH 14, BD approx 75.

1467 BKC76 V88 L55, Building 46, Periods 3 or 4?
Lower body and base fragment of bowl or jug. Convex-curved body sloping in; applied true base ring; base mostly missing. PH 14, BD 55, WT 2.

1468 GBS85 B655, unstratified
Base fragment of bowl or jug. Applied true base ring; flat base. Side grazed. BD 55.

1469 GBS85 A615 L1, post-Roman
Base fragment. Applied true base ring; slightly concave base with central kick. Post-technique scars on base ring. Side grazed. BD 50.

1470 BKC75 J183 F41, Periods 5b/5c/6
Base fragment of jar or jug. Flat base; applied true base ring. Post-technique scars. Side grazed. Wear marks on outer edge of base ring and grazed edge. BD 48.

Also 1 flat base with ?applied true base ring

1471 BKC76 T24 L6, Building 47, Period 3

1472 BKC75 K111, machine trench
Base fragment of bowl, jug or jar. Wide lower body with applied pad base ring. PH 12, BD 55.

Applied pad bases

Light green

1473 BKC75 J403 J416, unstratified
Complete base of bowl or jug in 3 fragments. Light green. Wide lower body; flat base; out-splayed base ring formed from applied pad. Diagonal tooling marks on base ring; post-technique scars; base ring worn. PH 12, BD 68x62, WT 2.

Blue green

- 1474 BKC76 V54 L5, end of Period 5 (c AD 300)
Base fragment of jug. Wide lower body; flat base; applied pad base ring. PH 13, BD 60, WT 6.
1475. BKC76 V938 L11, late Period 5.
Lower body and base fragment of jug. Convex-curved lower body; applied pad base ring. PH 34, BD 90, WT 2.
- 1476 LWC73 J1435 F495, Period 1
Base fragment of bowl or jug. Wide lower body; out-splayed base ring formed from separate pad. PH 12, BD 70, WT 2.5.
- 1477 BKC74 E935 F253, Building 37, Period 1b
Lower body fragment with complete base of bowl or jug. Wide convex-curved lower body sloping shallowly to flat base with applied pad base ring; bottom of base ring flattened. Scars and small applied fragments of glass from empontilling. PH 11, BD 45, WT 1, pontil pad diameter 27x35.
- 1478 BKC76 V116 L16, late Period 5 (c AD 300)
Lower body and base fragment of bowl or jug. Thick lower body curving into broken base with applied pad base ring. PH 11, BD 40, WT 3.5.
- 1479 BKC75 J84 L5 late Period 5 (c AD 300)
Lower body and base fragment of jar or jug. Convex-curved body sloping in shallowly to asymmetrically concave base with applied pad base ring. Pad of uneven thickness; base ring low and irregular. PH 11, BD approx 45, WT 2.5.

Separately-blown base

Yellow/green

- 1480 1.81 G2591 L2576, Period 3
Rim or separately-blown foot fragment. Very dark yellow/green appearing black. Curved 'rim', edge cracked off and ground. Narrow wheel-cut groove close to base edge. BD 65, WT 1.

Pushed-in bases

Dark blue

- 1481 LWC72 L473 F283, Period 2
LWC72 L377, Period 2 & 3a make-up
2 base fragments. Solid pushed-in base ring. Side and base broken. PH 9, BD approx 50.
- 1482 1.81 G4247 L4241, Period 3d
4 body and 1 base fragment of jar? Convex-curved side curving into solid pushed-in base ring; base mostly missing. BD 50, WT 4.

Green/blue (peacock blue)

- 1483 BKC75 H321 L13, end of Period 5b
Base fragment of bowl. Wide convex-curved lower body; solid pushed-in base ring; flat base with central thickening on underside. Pontil scar. PH 10, BD 40, WT 2.

Yellow/brown

- 1484 1.81 M281 L280, Period 3
2 base fragments. Dark yellow/brown. Parts of concave base with central kick; possibly broken at edge of base ring. Dim 19x12 & 16x8.

Yellow/green

- 1485 BKC75 J160 F34, Period 5b (end of Period 4?)
Base fragment of bowl, jug or jar. Very dark yellow/green appearing black. Tubular pushed-in base ring; high concave base. Side grazed. PH 14, BD 65.

Pale/light green

- 1486 BKC76-V71, unstratified
Complete base of bowl or jug. Pale green. Lower body sloping-in to tubular pushed-in base ring; concave base. Large circular pontil scar. Small lump of melted glass on base ring. PH 13, BD 50, WT 2, pontil scar diameter 26.
- 1487 1.81 G662 F661, Period 6
Base fragment of bowl or jug. Pale greenish colourless. Solid vertical base ring. Side and base broken. BD approx 75.

Also 1 other solid base ring fragment. Side grazed, base broken (base ring distorted by heat)

- 1488 BKC76 V932 L11, late Period 5

Colourless

- 1489 BKC75 H14 L2, post-Roman
Complete base of beaker or bowl in 2 fragments. Side sloping in shallowly to out-splayed solid pushed-in base ring; concave base. Pontil scar. PH 7, BD 34, WT 2.

Also 1 similar base ring fragment

- 1490 BKC76 V285 L27, Period 5 (BD c 40)

- 1491 BKC76 N543 F130, Building 65 Phase 1, Period 5b1
Base fragment of bowl. Solid pushed-in base ring; concave base mostly missing. Side grazed; base ring worn. BD 60.

Also 1 other solid base ring fragment. Side grazed, base broken. BD 60

- 1492 BKC73 D31 a L1, Anglo-Saxon

- 1493 MID78 G1949 L240, unstratified
5 base fragments of bowl or beaker. Side sloping in shallowly to tubular pushed-in base ring; concave base with narrow circular trail and central blob on underside, thin end of circular trail running off to side. Pontil scar. PH 6, BD 40, WT 1.

- 1494 LWC71 B424 F147, Period 5
2 base fragments. Tubular pushed-in base ring; concave base. Deep pontil scar. Heat affected. BD approx 40.

- 1495 BKC76 N423 F75, Building 65 Phase 2, Period 5b2
Complete base of bowl or beaker. Slightly green-tinged. Tubular pushed-in base ring; concave base with central kick. Pontil scar. Side grazed. BD 44.

- 1496 LWC72 M76 & 77, Rampart 1e, late Roman
3 joining base fragments of bowl. Tubular pushed-in base ring; slightly concave base. Side grazed. BD 60.

- 1497 BKC76 V188 F50, Period 5 or 6
Base fragment of bowl or beaker. Grozed side sloping down steeply to tubular pushed-in base ring; flat (?) base (mostly missing). Base ring worn. BD 50.
- 1498 BKC74 E289 L59, Period 5
Base fragment of bowl or beaker. Wide (?) lower body; tubular pushed-in base ring; concave base mostly missing. BD 35.

Blue/green

- 1499 BUC75 B388 G91, Period 2
Base fragment of jug or bowl. Wide lower body sloping into solid pushed-in base ring; concave base with central kick. PH 10, BD 60, WT 1.5.
- 1500 1.81 B387 F108, Period 4
Base fragment of bowl or jug. Side sloping in to solid pushed-in base ring; base convex at outer edge with central kick. PH 11, BD 60, WT 1.5.
- 1501 1.81 E791 F549, Period 3
Base fragment of bowl or jug. Solid pushed-in base ring; flat base mostly missing. Side broken. BD approx 60-70.
- 1502 BUC76 B834 L1, modern/post-Roman
Base fragment of bowl or jug. Solid pushed-in base ring; flat base (mostly missing). Side possibly deliberately grozed. Post technique scars; base ring worn. PH 12, BD 65.

Also 2 other fragments from solid pushed-in base rings

- 1503 1.81 G2136 L1824, Period 3 or 4
- 1504 BKC74 E728 L156, Period 3b
- 1505 1.81 B1999 F587, Building 112?, Period 4
Lower body and complete base fragment of small beaker or bowl. Slightly convex-curved body sloping in steeply to intermittently tubular base ring; concave base with central kick. Circular pontil scar. PH 14, BD 39, WT 1, pontil scar diameter 10.
- 1506 BKC75 J384 F285, Periods 3/4/5a?
2 lower body and base fragments of bowl or jug. Convex-curved side sloping in steeply to tubular pushed-in base ring; high domed concave base. PH 11, BD 39, WT 1.
- 1507 1.81 H225 F59, Period 5
1.81 H462 L3, Period 6
2 lower body and base fragments of bowl or jug. Convex-curved side sloping in to tubular pushed-in base ring; base mostly missing and slightly convex at edge. Base ring worn. Lower body of 1 fragment grozed. PH 13, BD approx 55, WT 1.
- 1508 BUC76 A474 G36, Period 2
Base fragment of bowl (?) Straight side sloping in steeply to out-splayed tubular pushed-in base ring. Base missing, possibly deliberately grozed. PH 16, BD approx 75, WT 1.
- 1509 BKC75 N63 L8, Period 6
Complete base of bowl or jug. Tubular pushed-in base ring; concave base with pronounced central kick infilled with pad of glass containing impurities. Small pontil scar. Base worn; side grozed. BD 46x43.
- 1510 BKC75 H56 F2b, modern
Lower body and base fragment of bowl or jug. Convex-curved lower body; tubular pushed-in base ring; concave base with central kick. Pontil scar. PH 18, BD 60, WT 1.
- 1511 1.81 G1359 L1050, Period 5
Base fragment of bowl or jug. Side (mostly missing) sloping in very shallowly to tubular pushed-in base ring; thick slightly concave base with central kick. Circular pontil scar. BD 80, base thickness 6.
- 1512 BKC76 N311 F97, Building 64, Period 5b2
Complete base of bowl or jug. Very irregular tubular pushed-in base ring; concave base with central kick. Oval pontil scar. Side grozed. BD 41x38, pontil scar diameter 18x12.
- 1513 1.81 G49, Period 4-6
Base fragment of bowl or jug. Tubular pushed-in base ring; concave base with central kick. Circular pontil scar. Side grozed. BD approx 38.

- 1514 1.81 B2271 L187, Building 112 Room 3, Period 4B
Complete base of bowl or jug. Side sloping in shallowly to tubular pushed-in base ring; concave base with off-centre kick. Pontil scar. Wear on interior surfaces of kick. PH 6, BD 34, WT 1.
- 1515 LWC71 B297 F116, Period 5
Base fragment of bowl or jug. Tubular pushed-in base ring; concave base with shallow central kick. Circular pontil scar. Side grozed. BD approx 50.
- 1516 BKC73 D226 L1, Anglo-Saxon
Base fragment of bowl or jug. Outsplayed tubular pushed-in base ring; slightly concave base probably with central kick. Side grozed. BD 65.
- 1517 BKC76 N447, Period 6?
Base fragment of small beaker, bowl or jug. Side sloping into tubular pushed-in base ring; slightly concave base. Circular pontil scar; side grozed. PH 12, BD 45.
- 1518 BKC76 V54 L5, late Period 5 (c AD 300)
Base fragment of bowl or jug. Tubular pushed-in base ring; slightly concave base. Post-technique scars. Side grozed. BD 60.
- 1519 BKC76 V81, unstratified
Base fragment of bowl or jug. Side sloping into tubular pushed-in base ring; slightly concave base. Post-technique scars. BD 65.
- 1520 MID78 A2661 L239, Building 70, Roman Period 3 destruction or later
Base fragment of bowl or jug. Side sloping shallowly into tubular pushed-in base ring; slightly concave base. Pontil scar. PH 9, BD 65, WT 1.5.
- 1521 MID78 A84 F15, post-medieval
Base fragment of bowl or jug. Tubular pushed-in base ring; slightly concave base. Side grozed. BD 70.

Also 1 fragment from centre of concave base with pontil scar

- 1522 1.81 G3104 L3081, Period 5

1523 BKC75 H189 F94, Period 5c
Lower body fragment with complete base of bowl or jug. Wide lower body sloping into tubular pushed-in base ring; concave base with applied pad at centre. Pontil scar. Base worn. PH 5, BD 40, WT 1.

1524 MID78 A3245 L532, Building 67 Phase 1 & 2, Roman Period 1
Base fragment of bowl or jug. Side sloping in shallowly to tubular (becoming solid) pushed-in base ring; concave base with central kick and externally-applied pad. Pontil sea/. PH 8, BD 40, WT 1.5.

1525 LWC71 A251 F86, post-Roman
4 base fragments of jug. Side broken; tubular pushed-in base ring; slightly concave base with marked central thickening and small central kick. Large oval pontil scar. BD 85, WT 1, diameter of pontil scar approx 15.

1526 1.81 G3403 L1, Period 6
Base fragment of bowl or jug. Tubular pushed-in base ring; flat base mostly missing. Side grozed. BD 60.

Also 3 fragments from tubular pushed-in base rings, side and base broken

1527 BKC75 J238 F13, Period 5b

1528 BKC76 V1 L1, Periods 5, 6 or modern

1529 1.81 B517 F185, Building 112 Room 3, Period 4

Also 5 tubular pushed-in base ring fragments, bases broken and sides grozed

1530 1.81 B890 L196, Building 112 Room 2, Period 4 (BD 70)

1531 BKC75 H36 L7, Period 6 (BD 60)

1532 BKC76 V736 L11, late Period 5 (c AD 300) (BD 50)

1533 BKC75 H98 F42, Building 59, Period 5b (BD 45)

1534 BKC75 H14 L2, post-Roman

Also 1 tubular base ring fragment, side and base grozed

1535 MID78 C674 L25, Period 3 (Building 75 phase 3). BD 60

1536 LWC72 D161, Building 29 Phase 1, post-Roman

Base fragment of jug or bowl. Convex-curved lower body; outsplayed tubular pushed-in base ring; base mostly missing. PH 13, BD 90, WT 2.

1537 1.81 E887 F788, Period 3a

Base fragment of bowl or jug. Solid out-bent pushed-in base ring; concave base mostly missing. Side broken, possibly deliberately. BD 75.

1538 MID78 A775 F239, post-medieval

2 base fragments of jug or bowl. Outsplayed tubular pushed-in base ring; base concave at centre. Circular pontil scar. Side broken away, possibly deliberately. BD 55.

1539 LWC71 A20 F11, post-Roman

Base fragment of jug or bowl. Tubular pushed-in base ring outsplayed so that it is almost horizontal with concave base. Side probably grozed. BD 60.

1540 BKC76 N240 F76, Period en-

Base fragment of bowl or jug. Side sloping in and touching top of out-splayed tubular pushed-in base ring; slightly concave base BD 65.

Also 1 similar lower body and base fragment

1541 BKC76 V787 L22, late Period 5 (c AD 300) (BD approx 70)

1542 BKC75 G328 & G369 F108, Building 55, Period 5c

3 base fragments of bowl or jug. High vertical pushed-in base ring with hollow tube at end; convex base. Side grozed. PH 18, BD 95.

Late Roman green

1543 BKC76 V63, 76 L22

BKC76 V658 L11, late Period 5 (c AD 300)

4 base fragments of jug. Dark green. Side sloping in shallowly to tubular pushed-in base ring; concave base. Pontil scar. PH 12, BD 60, WT 1.5.

1544 BKC74 E302 L447, Period 6

Base fragment of bowl or jug. Light greenish colourless. Side sloping in to solid/pushed-in base ring; concave base. PH 9, BD 40.

1545 BKC75 N61, Period 6?

Base fragment of jug. Yellow/green. Side broken. Out-splayed pushed-in foot ring with hollow tube at end; high concave base. Circular pontil scar. PH approx 16, BD 70, pontil scar diameter approx 15.

Also 1 yellow/green fragment with hollow tube and part of foot from similar base (BD 70.)

1546 BKC73 D254, Anglo-Saxon

1547 BUC77 E235 L13, post-Roman

Base fragment of jug or goblet. Pale greenish colourless. Out-splayed pushed-in foot ring with hollow tube at base. Dim 38x20.

1548 BKC75 J69 L1, modern

Base fragment of bowl or jug. Pale greenish colourless. Narrow out-splayed pushed-in foot ring with hollow tube at end. Base broken; side grozed. BD 90.

1549 LWC72 K146, Roman or later

1 rim and 5 base fragments of jug or flask? Pale green. Funnel mouth, rim edge rolled in; narrow lower body; pushed-in base forming out-splayed foot with tubular ring at edge; central kick. Pontil scar. PH (rim) 18, (foot) 8, RD approx 58, BD 50, WT 1.

Bases with trailed base rings

Colourless

- 1550 LWC71 C119 F72, post-Roman
Lower body and base fragment of bowl. Wide convex-curved lower body sloping in to concave base with central kick; trailed base ring. Thick horizontal trail on lower body. Oval pontil scar. Base ring worn. PH 15, BD 60, WT 2.5, pontil scar diameter 15x12.
- 1551 BKC75 H14 L2, post-Roman
Base fragment of bowl. Wide lower body; flat base; trailed base ring. BD approx 50, WT 1.5.

Also 1 similar lower body and base fragment with trailed base ring and pontil scar.

- 1552 BKC75 J166 F36, Period 5b
- 1553 BKC73 A158 F40, post-Roman
Base fragment of beaker or bowl. Slightly green-tinged. Side sloping in steeply to concave base with trailed base ring at edge. PH 11, BD 70, WT 2.5.

Blue/green

- 1554 1.81 D1950 L1021, Period 4
Base fragment. Convex-curved side; trailed base ring. Base missing. PH 18, BD approx 40, WT 1.5.

Late Roman green

- 1555 CPS73 597 F112, Period 5
Base fragment of beaker. Green-tinged colourless. Side curving in steeply to concave base with central kick; spiral trailed base ring. PH 7, BD 35, WT 2.

Flat and concave bases

Dark blue

- 1556 LWC72 M170, M173 F70, levelled early rampart? Pre-Flavian
3 base? and body fragments. Twisted by heat but possibly from concave base. Dim (largest) 44x14.

Emerald green

- 1557 LWC72 L479, Period 1 or 2
Base fragment of bowl or flask. Edge of side curving into concave base. Dim 32x13.
- 1558 LWC73 K508, Building 15, Period 3, Period 2 destruction
Base fragment. Part of flat base with internal thickening. Broken into sub-triangular shape; 1 edge grozed. Dim 52x23.

Yellow/brown

- 1559 GBS85 B190 L8, Period 3
Base fragment. Side curving into shallow concave base. Base worn. PH 6, WT 1.5.

Colourless

- 1560 1.81 B315 L31, Building 112 Room 5, Period 4c
Base fragment of jug? Side curving into shallow concave base. End of vertical rib dying out just above base. PH 6, BD 50, WT 1.
- 1561 1.81 H131 L3, Period 6
Lower body and base fragment. Vertical flattened or indented side curving into concave base. PH 17, BD approx 30, WT 4.

Also 1 other flattened side fragment curving into side of base, possibly from the same vessel

1562 1.81 H601 L598, Period 4 or 5

1563 BKC76 V679, late Period 5 (some modern material)
2 base fragments of bowl, flask or jug. Side curving into very slightly concave base. BD approx 30.

Blue/green

1564 1.81 B899 L200, Period 4
Lower body and base fragment of bowl or jug? Side curving in steeply to concave base. Edge of large vertical rib. PH 14, WT 3.

1565 CPS73 641 L88, Building 154, Period 4
Lower body and base fragment of bowl or flask. Side curving into concave base with pronounced central kick. PH 14, BD approx 45, WT 3.

1566 1.81 E830 L49, Period 2
Complete base of flask or bottle? Cylindrical side mostly missing; shallow concave base. Base worn. BD 50, WT 2.

1567 1.81 B1769 L415, Building 77 destruction, early Period 3
2 lower body and base fragments of conical beaker? Side sloping in steeply to shallow concave base. PH 9, BD 40, WT 1.5.

1568 LWC72 J718 F220, Period 3?
Base and lower body fragment of globular flask or bowl? Wide convex-curved lower body sloping in shallowly to slightly concave base without pontil scar. PH 14, BD approx 35, WT 3.

1569 LWC72 J1035, pre-Period 4b
2 lower body and base fragments of flask or bowl. Convex-curved lower body curving into slightly concave base. PH 17, BD approx 40, WT 3.5.

1570 BKC74 G40 L7, Period 5a or b
2 base fragments of bowl, jug, jar or flask. Convex-curved side sloping into shallow concave base. PH 19, BD approx 40, WT 1.5.

1571 GBS84 A1796 L156, Period 1
Base fragment. Side curving in to shallow concave base. BD approx 50, WT 2.

1572 BKC76 V206 F62, ?Period 5(or 6)
Lower body and almost complete base fragment of bowl, jar, jug or flask. Side curving into slightly concave base without pontil scar. Heat affected. PH approx 10, BD 42, WT 3.

Also 1 other similar concave base fragment

1573 BUC77 C167 G251, Period 2 (BD approx 50)

1574 LWC71 C413, Building 13, Period 3b
Base and lower body fragment of flask or bowl. Wide convex-curved lower body sloping in to flat base without pontil scar. PH 9, BD 50, WT 2.

1575 LWC71 C289 F192, Building 19, Period 4
Lower body and base fragment of globular flask? Thick convex-curved body; flat base. PH 20, BD approx 80, WT 3.5.

1576 1.81 A16 F16, medieval/post-medieval
Base fragment. Side sloping in steeply to concave base. BD approx 50.

Also 1 fragment from a shallow concave base without pontil scar.

Also 1 fragment from a shallow concave base without pontil scar

1577 1.81 B405 L104, Building 112 Room 1, Period 4b

1578 COC79 831 L231, Building 141, Period 3
Lower body and base fragment of flask? Convex-curved body sloping out slightly; flat base. PH 25, BD 35-40, WT 3.

Also 1 other thick-walled fragment curving into flat base

1579 LWC72 J816 F210, Period 4b destruction

Also 3 other fragments from flat bases

1580 LWC72 J1273 F426, Building 8, Period 2

1581 LWC73 K453, Building 15, Period 3 make-up

1582 LWC72 L447, Building 11, Period 3a make-up

1583 LWC71 B173 F70, Period 5

Base fragment. Flat base with edge of side. Short wheel-cut grooves radiating out on edge of underside of base. Dim 30x29, BD approx 42, base thickness 5.5.

1584 BKC76N279 F151, Period 6+

Base fragment of jug or flask. Side curving into concave base with central kick. Pontil scar. BD 75.

1585 BKC76 V149 F50, Period 5 or 6

Base fragment of small bowl or flask. Side curving into base with pronounced central kick. Pontil scar. BD 25, WT 3.

1586 BKC76 V71, unstratified

Base fragment of jug or flask. Side curving into concave base. Large off-centre pontil scar. PH 7, BD approx 35, WT 2.5.

1587 LWC72 B280 F88, Period 5

Lower body and base fragment of flask. Convex-curved lower body curving into concave base. Pontil scar. BD approx 35, WT 2.

1588 LWC71 C389, Building 13, Period 3

Base fragment of flask? Side curving into concave base. Circular pontil scar. BD approx 35, WT 1.5, pontil scar diameter 15.

1589 1.81 B2205 L631, Building 112, Period 4

Base fragment. Side curving into shallow concave base. Small part of pontil scar. BD approx 30.

1590 1.81 B484 L16, Building 112 Room 1, Period 4/5

Lower body and base fragment of cylindrical flask or bottle. Vertical side; concave base. Edge of pontil scar. Base worn. PH 9, BD approx 60, WT 2.

Also 4 lower body and edge of concave base fragments of similar cylindrical vessel

1591 1.81 B192 F89, Period 5

1592 GBS84 A1773 L139, Period (1 or) 2 (3 fragments)

1593 LWC72 E38, Building 28 Phase 2, post-Roman

Lower body and base fragment of flask. Convex-curved lower body curving into concave base with marked internal thickening. Pontil scar. PH 8, BD approx 35, WT 2.

1594 BKC76 V84 L5, late Period 5 (c AD 300)

Base fragment of bowl or flask. Side curving into base with central kick. Pontil scar. Grozed to circular shape. BD 20, present diameter 32, pontil scar diameter 13.

1595 BKC75 K147 F12, Period 6

Base fragment of bowl or flask. Fragment from centre of base with small pad applied to external surface at centre. Pontil scar. Fragment now approximately square with 1 side grozed to sharp edge. Dim 25x24, pontil scar diameter 8.

Also 8 fragments from concave bases with pontil scars

1596 BKC75 J25 F4, modern (BD approx 50)

- 1597 BKC76 T377, Period 2 or 3? (BD approx 25)
- 1598 BKC76 V658 L11, late Period 5 (c AD 300)
- 1599 BKC73 D220 L15, Anglo-Saxon
- 1600 BKC75 N133 F40, Period 6+
- 1601 LWC71 B111 F62, 12th-15th centuries
- 1602 MID78 E3015 L460, Building 76 Phase 1, Period 1
- 1603 TSC77 102 F38, Period 3 or 4
- 1604 1.81 D1378 F1252, Period 4
2 joining base and 1 body fragment of globular jug or flask. Convex-curved side curving into concave base. Distorted by heat. PH (base) 12, BD approx 50, WT 1.
- 1605 1.81 H645 F639, Period 1 or 2
Lower body and base fragment of globular jug or flask. Convex-curved side sloping into concave base. PH 10, BD approx 50-60, WT 2.

Also 2 lower body and edge of concave base fragments from globular vessels

- 1606 1.81 B802 F243, Period 4/5
- 1607 1.81 C390 L60, Building 79 Room 2/3, Period 2

Also 9 lower body and base fragments from globular vessels with concave bases, no pontil scars now remaining

- 1608 BKC75 M6, modern with Periods 5 and 6 (BD 40)
- 1609 BKC75 J238 F13, Period 5b (BD 30)
- 1610 BKC75J61 L1, modern
- 1611 BKC75 K31 F7, modern
- 1612 BKC75 V82 L5, late Period 5 (c AD 300) (2 fragments)
- 1613 LWC72 J113 F56, post-Roman
- 1614 LWC72 L406, Building 19 Room 2 Phase 1, Period 4(1)
- 1615 1.81 B285 L23, Period 4

Also 22 fragments from concave bases, no pontil scar now visible

- 1616 1.81 B966 L215, Period 3 (BD approx 110-120)
- 1617 BKC74 G47 F11, Period 5c (BD 50, side grozed to sharp edge)
- 1618 BKC76 V134 F30, Period 2 (or possibly 3)
- 1619 BKC76 T212 L57, Building 47, Periods 4 or 5a
- 1620 BKC76 V679, late Period 5?/modern
- 1621 BKC75 H334 L13, end of Period 5b
- 1622 BKC75 N159, Period 6?
- 1623 BKC76 V839 L1, Periods 5 or 6 or modern
- 1624 LWC73 K507 F287, Period 3 (BD approx 70)
- 1625 LWC72 J847, Period 3
- 1626 BUC77 C1294 G390?, Period 2
- 1627 MID78 E2966 L266, Building 76 Phase 1, Period 1 (2 fragments)
- 1628 COC79 895 F325, Period 2/3
- 1629 1.81 B1269 L269, ?Period 3

1630 1.81 B405 L104, Building 112 Room 1, Period 4b (edge only)

1631 1.81 B1022 F298, Building 112 Room 5, Period 4a

1632 1.81 E1197 F1037, Period 2

1633 1.81 G213 F183, Period 6

1634 1.81 H13 L3, Period 6

1635 1.81 J372 F363, Period 1 or 2 (2 fragments)

1636 1.81 G2718 L2677, Building 119?, Period 4

Base fragment of flask or jug. Side curving in to high domed concave base, mostly missing. BD approx 60.

Also 1 similar concave base fragment

1637 1.81 H645 F645, Period 1 or 2

1638 1.81 B231 & B249 F108, Period 4

2 joining lower body fragments of globular flask or jug. Convex-curved body curving in shallowly and broken at the edge of a thickened base. Dim 88x40, WT 2-6.

Also 1 fragment possibly from the same vessel

1639 1.81 B1013 L231, Building 112, Period 4A

Late Roman green

1640 BKC73 A183 L3, post-Roman

Base fragment of beaker or bowl. Yellow/green. Convex-curved side; shallowly concave base. PH 11, BD approx 35, WT 1.5.

Also 7 other concave base fragments

1641 BKC73 A90 F16, Period 6 or Anglo-Saxon (BD 40-45)

1642 CPS73 415 F95, Period 5 (BD 60)

1643 BKC73 D22a L1, Anglo-Saxon

1644 BKC74 E302 L447, Period 6

1645 BKC75 N80 L1, modern

1646 CPS73 499 ?L43, Period 6-8

1647 CPS73 344 L58, ?Period 3-6

1648 BKC75 N11 L1, modern

Base fragment of conical beaker or flask(?) Light green. Side sloping in steeply to high concave base. Circular pontil scar. PH 8, BD 20, WT 1.5.

1649 LWC72 K61 F26, post-Roman

Base fragment of beaker? Light green. Side curving in to high concave base with central kick. Circular pontil scar with small fragment of additional glass. PH 8, BD approx 22, WT 2, pontil scar diameter 13.

Funnels

Blue/green

1650 BKC75 J234, modern

Body and spout of funnel? Wide convex-curved body; narrow tapering cylindrical spout. PH approx 59, spout diameter 9-12, WT 1.5.

- 1651 1.81 G1869 F1864, Period 3
2 fragments of funnel spout? Tapering cylindrical tube with broken ends. Present length 50, diameter (maximum) 11, WT 1.
- 1652 BKC76 T294 L38, Period 5a or b
Fragment of funnel spout. Description as no 1651. Present length 46, diameter (maximum) 10, WT 1.
- 1653 1.81 H343 L78, Period 5
Fragment of funnel spout. Description as no 1651. Present length 39, diameter (maximum) 8, WT 1.

Rhyton

Blue/green

- 1654 BKC76 V81, unstratified
Body fragment of rhyton or infundibulum or neck fragment of flask. Slightly oval-sectioned, tapering curved cylinder. Present length approx 10, section 23x20 —14x14, WT 1.5.

Miscellaneous decorated body fragments

Optic-blown decoration

31 body fragments with shallow ribs probably optic blown

Yellow/brown

- 1655 LWC71 C393, Period ?2 or ?3a & b
1656 LWC72 J530, Building 20 Room 6, Period 4a or b
1657 LWC73 R310 F107, post-Roman

Yellow/green

- 1658 BKC74 E259 L68, Period 5
1659 LWC72 K31, post-Roman
1660 1.81 E10 F9, Period 7
1661 1.81 A115 F50, medieval or later

Pale/light green

- 1662 BKC75 G378 F164, Period 5b?
1663 BKC75 J90 L13, ?Periods 3/4/5a
1664 LWC72 J964, Period 3 make-up
1665 LWC71 C43 F42, post-Roman
1666 MID78 G3244, early Roman Period 3

Blue/green

- 1667 BKC76 T128, Periods 3/4/5

- 1668 BKC76 T251, Periods 4 or 5
- 1669 BKC76 T256, Period 4 or 5
- 1670 BKC75 K121 F6, Period 6
- 1671 BKC75 H160, unstratified
- 1672 BKC75 K38, modern
- 1673 LWC72 J1032, Building 8, Period 2
- 1674 LWC71 B63 F34, 16th-17th century
- 1675 BUC77 C939 L2, Period 1
- 1676 1.81 B1781 L400, Building 77 destruction, early Period 3
- 1677 1.81 D1840 F1411, Period 4
- 1678 1.81 G2678 L2677, Period 4 (4 fragments)
- 1679 1.81 G2687 L2332, Period 4
- 1680 1.81 G1830 L1767, Period 3
- 1681 1.81 G424 F163, Period 6
- 1682 1.81 G193 F158, Period 6
- 1683 1.81 H627, Periods 1-6
- 1684 GBS85 B389 L57, Building 133, Period 2
- 1685 GBS85 B190 L8, Period 3

Also 5 body fragments with optic blown corrugations

Colourless

- 1686 1.81 D817 F498, Period 6

Late Roman green

- 1687 BKC75 H36 L7, Period 6
- 1688 BKC73 A31 TT11 L2, post-Roman
- 1689 LWC72 K310 F15, medieval and later
- 1690 CPS73 452 L22, Period 6-8

Pinched-up decoration

55 body fragments with prominent ribs probably tooled up

Deep blue

- 1691 1.81 D1401 L0358, Period 4

Yellow/brown

- 1692 BKC76 V187, Period 2/4?
 BKC76 V91 L11, late Period 5 (c AD 300)
 BKC76 V130 L16/17 c AD 300 at latest
 BKC76 V157 & 185 F62?, Period 5 (or 6)
 5 light yellow/brown fragments
- 1693 BKC76 V1154, Building 51, Period 4 (2 dark yellow/brown fragments)
- 1694 LWC72 L436, Period 3a make-up

Yellow/green

- 1695 1.81 E12 F10, Period 7
- 1696 1.81 E512 L21, Building 99/100, Period 3a
- 1697 GBS84 A542 F93, Period 4

Light/pale green

- 1698 BKC75 J491, Periods 2-6 (light green)
- 1699 BKC76 V91 L11, late Period 5 (c AD 300) (light green)
- 1700 BKC75 J234, modern (pale green)
- 1701 LWC73 K368, Period 4b (6 fragments)
- 1702 LWC73 K507 F287, Period 3 (pale green)
- 1703 1.81 G4271 L4241, Period 3d (light green)
- 1704 1.81 G2840 L2815, Period 4 (light green)
- 1705 1.81 H664, Periods 1-6 (pale green)

Colourless

- 1706 LWC72 J693, Period 4b destruction
- 1707 1.81 G3084 L1344, Period 4

Blue/green

- 1708 BKC76 V1102, Period 4
V1116, Periods 4, 5 or 6 (7 fragments)
- 1709 BKC76 T500, Period 1 or 2?
- 1710 BKC75 J243 L33, Periods 3/4/5a
- 1711 BKC76 T289 L38, Period 5a or b
- 1712 BKC75 N123 F13, Period 6+
- 1713 BKC75 J5 L1, modern (2 fragments)
- 1714 LWC72 H138 F30 17th century
- 1715 MID78 A2932 F856, Building 70 Passage 2, early Roman Period 3 (2 fragments)
- 1716 1.81 B1622 L395, Building 77 destruction, early Period 3
- 1717 1.81 B1199 L266, Building 112 Room 2, Period 3/4
- 1718 1.81 B6, unstratified
- 1719 1.81 G2800 F2798, Period 1 or 2
- 1720 1.81 G4278 L4241, Period 3d
- 1721 1.81 H664, Period 1-6
- 1722 1.81 K365 L358, Period 3
- 1723 GBS85 A2394, unstratified (7 pairs of narrow spiral ribs)
- 1724 GBS84 A628 L22, ?Period 3
- 1725 GBS84 A623 L27, Period 3
- 1726 GBS84 A1010 L28, post-Roman
- 1727 GBS84 A686 F107, Period 3b

Trailed decoration

52 body fragments with trailed decoration

Pale/light green

- 1728 BKC76 T293, ?Periods 1-5 (pale green)
- 1729 BKC76 T216, Building 47, end of Period 3 (pale green)
- 1730 BKC75 J49 L7, Period 5b (pale green)
- 1731 BKC76 V1120, Periods 4-6 (pale green, also 1 optic blown rib)
- 1732 LWC71 A51, modern (3 spiral trails)

Colourless

- 1733 BKC75 H111 F33, Period 5c (2 horizontal trails pinched together in spectacle pattern)
- 1734 LWC72 K158 F66, Anglo-Saxon (2 fine spiral trails)
- 1735 LWC72 M92, Rampart 1e, late Roman (2 vertical trails)
- 1736 CGC78 7 F1A, modern
- 1737 1.81 B790 L133, Building 113 Room 1, Period 4 (14 close-set spiral trails)
- 1738 1.81 E393 F117, Period 7 (3 fragments, 1 trail)
- 1739 1.81 G3516 L3386, Period 4 (3 fragments, 1 trail)
- 1740 1.81 G1497 L1163 (1 trail), Period 5A

Blue/green

- 1741 BKC76 V62 F8/F130, Period 4 (3 curving trails, 2 joining in loop)
- 1742 BKC76 V507 F102, Periods 1 to early 4
- 1743 BKC75 K521 L119, Period 4a/b
- 1744 BKC75 J176 F32, Period 5c/6 (2 fragments)
- 1745 BKC76 V91 L11, late Period 5 (c AD 300)
- 1746 BKC73 A184 L3, post-Roman
- MAI BKC75 H15 L2, post-Roman
- 1748 BKC76 V81, unstratified
- 1749 BKC75 J32 L1, modern
- 1750 BKC75J177, unstratified
- 1751 LWC72 J1182 F348, Period 1 (6 spiral trails)
- 1752 LWC71 B317 F92, Period 5
- 1753 LWC71 B267 F105, Period 5
- 1754 LWC71 C412, Building 13, Period 3b
- 1755 LWC72E111 F55, post-Roman
- 1756 BUC77 C1285 L1, Period 1-2
- 1757 BUC77 C973 F25, modern (parts of 2 raised ribs and ?spectacle pinched trail)
- 1758 1.81 G2674 L2332, Period 4 (2 trails)

Late Roman green

- 1759 BKC73A11 L1, post-Roman (4 fragments)
- 1760 BKC74 E359 L437, Period 6

- 1761 BKC75 H75 F28, Period 6 (1 thin horizontal trail and 1 thicker 'V'-shaped trail pinched together)
- 1762 BKC76 V658 L11, late Period 5 (c300) (3 fragments)
- 1763 BKC73 A90 F16, Period 6/Anglo-Saxon
- 1764 LWC71 C267 F178 ?post-Roman (3 fragments, 5 harrow spiral trails)
- 1765 LWC72 D97, Building 30, post-Roman (2 fragments, at least 7 trails)
- 1766 CPS73 736 L102, Building 154, Period 4 (6 spiral trails)
- 1767 CPS73 514 7L22/75, Period 6

Indented decoration

- 1768 BKC76 V82 L5, late Period 5 (c AD 300)
Body fragment. Pale green. Convex-curved with flattened side. 2 diagonal optic blown ribs, 1 with spectacle trail. Dim 36x25, WT 2.

Indented body fragments

Yellow/green

- 1769 BKC75 N150, Period 6?
- 1770 GBS85 A2257, post-Roman

Colourless

- 1771 BKC76 V250 F59, Period 5? (2 fragments)
- 1772 BKC74 G188 F40, Building 55, Period 5c
- 1773 LWC71 C411, Period ?2 or ?3a & b
- 1774 BUC77 C848 G320, Period 2 (approx 145 small fragments)
- 1775 CPS73 602 F106, Period 5

Blue/green

- 1776 BKC75 H178 F76, Period 5c
- 1777 BKC75 J373 L33, Periods 3/4/5a
- 1778 LWC72 J1188, Building 8, Period 2

Wheel-cut decoration

Colourless

- 1779 BKC76 V81, unstratified
2 lower body fragments. Side curving steeply into shallow slightly concave lower body and base edge. 1 wheel-cut line on lower body. Wear scratches. Dim 50x39, WT 2.5-3.5.
- 1780 1.81 D1630 L1617, Period 4
Body fragment. Convex-curved side. Part of 1 circular wheel-cut groove above 1 horizontal wheel-cut groove and 4 horizontal abraded bands. Dim 26x20, WT 2.
- 1781 1.81 D1577 L1372, Period 4
Body fragment. Slightly convex-curved side. 4 wheel-cut lines, the central 2 paired. Dim 28x23, WT 1.5.

Also 7 other body fragments with wheel-cut grooves

- 1782 1.81 B409 L56, Building 112 Room 4, Period 4c (2 grooves)
- 1783 1.81 B108 F52, medieval (1 groove)
- 1784 1.81 E129 F110, late Period 7 (2 fragments, 1 groove)
- 1785 1.81 G2678 L2677, Period 4 (2 & 3 grooves)
- 1786 1.81 G3478 L3291, Period 5 (2 grooves)
- 1787 1.81 M343 L1, unstratified (3 grooves)

Abraded decoration

51 body fragments with abraded bands

Light green

- 1788 GBS84 A515 F90, Period 3b

Colourless

- 1789 BKC75 J39L1 (1 band), modern
- 1790 BKC75 K651 L121C, Period 2 (2 bands)
- 1791 BKC75 J38 L4, Period 5b (3 bands)
- 1792 BKC75 N166 F55, modern (8 narrow bands)
- 1793 BKC75 N185 F65, Period 6+ (1 band, also ?edge of handle)
- 1794 LWC72 J935, Period 2; J890, Building 8, Period 4a (2 fragments, 2 bands)
- 1795 LWC72 J541 & 542, Period 5 (2 fragments, 8 bands)
- 1796 LWC72 L288, Period 4(3), Building 19 Room 2 Phase 3 (1 band)
- 1797 MID78 E2733 L408, Building 76 Phase 1, Period 1 (11 bands)
- 1798 MID78 A2688 f787, early medieval (10 bands)
- 1799 MID78 C1011 F309, early medieval (7 bands)
- 1800 CPS73 337 L61, Building 154, Period 4 (3 fragments, 2 bands)
- 1801 CPS73 480 F106, Period 5 (3 bands)
- 1802 1.81 B140 L14, Period 4c (3 fragments, 2 groups of 3 bands)
- 1803 1.81 D1793 L1372, Period 4 (2 bands)
- 1804 1.81 G3455 L3291, Period 5 (2 bands)
- 1805 1.81 G2299 L2090, Period 4 (4 fragments, 6 & 1 bands)
- 1806 1.81 G880 L879, Period 5 (10 bands)
- 1807 1.81 G3121 L3081, Period 5 (2 bands)

Blue/green

- 1808 BKC75 G388 F11, Period 5c (1 set of 2 and 1 set of at least 5 bands)
- 1809 BKC74 E1208 F166, Period 5 (2 bands)
- 1810 BKC75 J238 F13, Period 5b
- 1811 BKC75 J238 F15, Period 6
- 1812 MID78 C1023 L114, Period 1 or pre-Period 1 (2 bands)
- 1813 1.81 A601 L214, Building 77 Room 9, Period 2 (1 band)

- 1814 1.81 B1870 L466, Period 1/2 (1 band)
- 1815 1.81 B1225 L281, Period 3 (1 band)
- 1816 1.81 B1377 L387, Period 3 (1 band)
- 1817 1.81 B1219 L256, Period 3/4 (1 band)
- 1818 1.81 B598 L102, Building 113 Room 1, late Period 4 (2 fragments with 4 & 5 bands)
- 1819 1.81 D1577 L1372, Period 4 (3 bands)
- 1820 1.81 E830 L49, Period 2 (2 bands)
- 1821 1.81 E1122 L149, Period 2 (2 fragments, 1 band)
- 1822 1.81 E974 F747, Building 90, Period 2 (1 band)
- 1823 1.81 E1090 F957, Building 90, Period 2 (1 band)
- 1824 1.81 E580 F422, Building 99, Period 3a (1 band)
- 1825 1.81 E647 L24, Building 99/100, Period 3a (1 band)
- 1826 1.81 G2466 & G2493 L2444, Period 3 (2 joining fragments, 1 band)
- 1827 1.81 H484 L443, Period 5 (1 band)
- 1828 1.81 J255 F253, Period 1 or 2 (2 bands, heat affected)

Late Roman green

- 1829 1.81 D2048, unstratified (2 bands)
- 1830 1.81 G2142 L1976, Period 3 or 4 (3 bands)

Applied decoration

Blue/green

- 1831 LWC72 J682, Period 4
Body fragment. Convex-curved. 1 short length of cylindrical rod and 1 sub-rectangular blob of glass applied. Dim 34x30, WT 2.5.

Late Roman green

- 1832 CPS73 419 L74, Period 5
Body fragment. Green-tinged colourless. Large oval blob applied.

Melted vessel

Blue/green

- 1833 GBS84 A1089 L46, Building 134, A1108 L48, Building 134 destruction, Period 2 or 3
Lower body and complete base of globular or ovoid vessel now melted, heavily burnt and vesicular. Thick walled fragment with additional melted mass in interior. PH 38, Max. body diameter approx 68.

Blue/green prismatic and cylindrical bottles

Upper body fragments

1834 1.81 E1, unstratified
2 joining rim and neck fragments of large bottle or jar. Rim edge bent out, up, in and flattened; wide cylindrical neck. PH 45, RD 120, neck thickness 4.

Also 1 similar folded and flattened rim and neck fragment from large, wide necked bottle or jar

1835 BUC77 C1449 G410, 411, 412, Period 2 (RD 140)

1836 1.81 C199 F56, Period 3
Rim, neck, handle and shoulder fragment and 7 body fragments (several joining) of cylindrical bottle. Rim bent out, up, in and flattened with small triangular profile; narrow cylindrical neck with tooling marks at base; straight horizontal shoulder curving over to side. Angular reeded handle with simple lower attachment and folded upper attachment joining neck. Vertical wear scratches on side with pronounced bulge at top of side. PH 120, RD 45x41; handle section 34x7, body diameter approx 110-120.

1837 1.81 B507 F184, Period 4
Rim, neck, shoulder, side and handle fragment and 1 body fragment of hexagonal bottle. Rim bent out, up, in and flattened; cylindrical neck tooled at base; horizontal shoulder curving over to straight side. Angular reeded handle with simple lower attachment and folded upper attachment joining neck and underside of rim. Some horizontal wear marks around lower part of neck. PH 65, RD 40, handle section 36x4, maximum width of body approx 90.

1838 BKC76 V938 L11, late Period 5 (c AD 300)
Rim, neck, shoulder, handle and body fragment of square bottle. Rim edge bent out, up and in; cylindrical neck with tooling marks and constriction at base; horizontal shoulder; straight sides. Angular ribbon handle with 2 deep depressions forming 3 ribs; folded upper attachment joined to neck; simple lower attachment. PH 60, RD 35, body width approx 60, handle section 32x6.

Also 1 similar folded and flattened rim, neck, shoulder and handle fragment; handle broken but probably ribbed (PH 40, RD 42)

1839 BKC75 G335 F113, modern

1840 1.81 B1717 L413, Building 77 destruction, early Period 3
Rim, neck, handle and shoulder fragment of bottle. Rim bent out, up and in; cylindrical neck; slightly convex-curved diagonal shoulder. Angular ribbon handle with side ribs, simple lower attachment and folded upper attachment joined to neck and underside of rim. PH 35, RD 32, handle section 25x3.

1841 1.81 G3631 L3355, Period 3
Rim, neck and handle fragment of bottle. Rim bent, out, up, in and flattened; narrow cylindrical neck broken at base. Folded upper attachment of handle joined at neck and underside of rim. PH 42, RD 38.

1842 1.81 C323 L39/43, early Period 3
Rim, neck and shoulder fragment of bottle. Rim bent out, up, in and flattened; short cylindrical neck with horizontal tooling marks at base; horizontal shoulder. Scars from upper handle attachment on neck and underside of rim. PH 25, RD 37x35.

1843 BKC76 T468, Period (2 or)3
Rim, neck, shoulder and handle fragment of bottle. Rim edge bent out, up, in and flattened; cylindrical neck with stump of folded upper handle attachment and tooling marks at base; horizontal shoulder. PH 71, RD 64x58.

Also 1 similar bottle rim, neck, shoulder and handle fragment

1844 BKC76 T326 L67, Building 56, Period 5c (PH 49, RD 52)

Also 1 similar folded and flattened rim, neck, handle and edge of shoulder fragment with scar from handle attachment

1845 BUC77 C1017 G345, Period 2

Bottles

Also 9 similar folded and flattened rim and cylindrical neck fragments with part of folded handle attachment

1846 GBS85 A2410 L257, Building 131 Room 6, Period (1 or) 2 (RD 50)

1847 BKC74 G93 F11, Period 5c (RD 47)

1848 BKC75 H16 L2, post-Roman (RD 44, also 1 shoulder fragment)

1849 BKC76 V608 LIT, modern/Period 5 (RD 42)

1850 CPS73 692 L61, Building 154, Period 4 (RD 44x42)

1851 LWC72 J1363 F465, Building 20 Phase 1 Room 2, Period 4? (RD 40)

Also 2 similar rim and cylindrical neck fragments with part of folded upper handle attachment; rim edge bent out, up and in very neatly without ridge along inner edge of mouth

1852 BKC76 V191 F499, Period 5 (3 fragments)

1853 1.81 G4278 L4241, Period 3d (broken at tooled junction with shoulder, small fragment of handle attachment only. PH 48, RD 50.

Also 1 cylindrical neck fragment with folded handle attachment retaining outer edge of folded rim

1854 GBS85 B190 L8, Period 3

Also 5 folded and flattened rim and cylindrical neck fragments with small fragment of, or scar from, upper handle attachment

855 GBS84 A25 L1, post-Roman (horizontal scratch marks on neck, RD 80)

- 1856 1.81 H13 L3, Period 6 (RD 60)
- 1857 BKC76 V71, unstratified (RD 48)
- 1858 1.81 G1847 L1767, Period 3 (RD 45)
- 1859 LWC72 J452, Period 4b destruction (RD 35)

Also 36 bottle rim and neck fragments; rim bent out, up, in and flattened; cylindrical neck

- 1860 BKC76 N533 F122, Building 65 Phase 2, Period 5b2 (RD 100, 2 fragments)
- 1861 MRC71 70, modern? (RD 80)
- 1862 1.81 G1431 L1232, Period 3E-4 (RD 75)
- 1863 BKC76 V400 L54, Building 61, Periods 1 to early 4 (RD 65)
- 1864 BKC74 G2, unstratified (RD 65)
- 1865 LWC72 J1632, Building 16, Period 3 (RD 60, part of rim flattened inside neck)
- 1866 LWC72 D217 F101, post-Roman
- 1867 1.81 G2500 L2145, Period 3-6 (RD 55)
- 1868 1.81 H525 L3, Period 6 (RD 55)
- 1869 BKC76 V933 L11, late Period 5 (RD 50)
- 1870 LWC71 B623 F221, Period 4 (RD 50)
- 1871 LWC72 J720 F210, Period 4b destruction (RD 50)
- 1872 LWC71 B24 F15, medieval (RD 50)
- 1873 1.81 B1579 L380, Building 94 Room 2, Period 3 (RD 50)
- 1874 GBS84 A1796 L156, Period 1 (RD 50)
- 1875 GBS84 A1327 L66, Period 3a (RD 50)
- 1876 LWC72 J951, Building 8, Period 2 destruction (RD approx 47)
- 1877 BKC75 H203 L13, Period 5b demolition, Building 59 (RD 45)
- 1878 LWC72 J1201, Building 20 Phase 1 Room 1, Period 4a make-up (RD 45, thin-necked, 2 fragments)
- 1879 1.81 G4200, Period 1-6 (RD 45)
- 1880 LWC72 D287, Building 21, Roman (RD 44, 3 fragments, thin walled, rim irregularly folded)
- 1881 BKC75 G153 F41, Building 55, Period 5c (RD 40)
- 1882 BKC76 V444 L56 & L72, Period 4 (RD 40)
- 1883 BKC75 K159 F6 (RD 40)
- 1884 1.81 B1644 F333, Period 3 (RD 40)
- 1885 GBS84 A163, unstratified (RD 40), Roman
- 1886 1.81 B1164 F302, Period 3 (RD 35)
- 1887 LWC71 C359, Period 4
- 1888 LWC72 J1650, Period 1
- 1889 MID78 A2620 L366, Building 69 Phase 2 or, Building 70 Phase 1, late Roman Period 2 or early Roman phase 3
- 1890 1.81 C267 L20, Period 3
- 1891 1.81 E774, unstratified

Also 10 rim fragments, rim bent out, up, in and flattened

- 1892 BKC76 V938 L11, late Period 5 (c AD 300) (RD 80)

- 1893 BKC76 V580 L70, Period 4 (RD 60)
- 1894 1.81 B1637 L397?, Period 3 (RD 60, also 1 neck fragment)
- 1895 BUC77 C1298 F57, post-Roman (RD approx 50)
- 1896 MID78 E2886 L427, Building 76, Period 1 (RD 50)
- 1897 LWC72 K213, Period 4b (RD 35-40)
- 1898 GBS84 A167 L1, post-Roman (RD 35)
- 1899 LWC72 J530, Period 4a & b
- 1900 1.81 H212 F208, Period 6

Also 2 rim and cylindrical neck fragments; rim edge bent out, up and in very neatly with inner edge of mouth smooth

- 1901 BUC77 C1045 L1, Period 1-2 (RD 40-50, rim very.asymmetrical)
- 1902 1.81 J333, unstratified, Period 1-5 (outer edge of rim broken)
- 1903 1.81 B844 F260, Period 3
Rim and neck fragment. Rim bent out, up and in with triangular profile; cylindrical neck broken at base. PH 55, RD 50.

Also 6 rim and cylindrical neck fragments with a similar small triangular profile

- 1904 BKC76 V77 L5, late Period 5 (c AD 300) (RD 55)
- 1905 LWC72 K246 F210, medieval+ (RD approx 50, possibly with scar from handle)
- 1906 1.81 G3552 L3417, Period 3 (RD approx 50)
- 1907 GBS84 A1496 L111, Building 131, Period 2 (RD 40)
- 1908 GBS84 A131 L1, post-Roman (RD 35)
- 1909 BKC76 T578, unstratified

Also 2 rim fragments with similar small triangular profiles

- 1910 LWC71 B345, Building 23, Period 4 or 5 (RD 45, also 1 neck fragment)
- 1911 LWC72 J816 F210, Period 4b destruction (RD approx 50—rim flattened inside neck)

Also 3 cylindrical neck fragments with folded upper attachments from handles

- 1912 LWC72 K, unstratified
- 1913 1.81 B1643 F333, Period 3
- 1914 GBS84 A864 L2, Period 3 & 4

Also 2 neck fragments with stump of upper handle attachments

- 1915 LWC71 B173 F70, Period 5 (cellar backfill)
- 1916 1.81 G3428 L3404, Period 3a
- 1917 LWC71 C37 F19, post-Roman
Neck fragment of bottle. Very bubbly. Thin-walled cylindrical neck curving out to rim and flat shoulder. PH approx 40, neck diameter (inner) approx 25, neck thickness 2.5.

Also 11 cylindrical neck fragments from bottles

- 1918 BKC76T251, Period 4 or 5?
- 1919 BKC75 N147 L1, modern
- 1920 LWC72 J816 F210, Period 4b destruction

- 1921 MID78 C1412 L122, Building 75 Phase 2, Period 2
- 1922 CPS73 454 L69, Period 5
- 1923 1.81 B428 L42, Period 4
- 1924 1.81 G1895 F1868, Period 3
- 1925 1.81 G805 F264, Period 6
- 1926 1.81 J30 L1, Period 6
- 1927 GBS84 A716 F113, Period 3
- 1928 GBS84 A85 L1, post-Roman

Also 26 cylindrical neck and horizontal shoulder fragments from bottles

- 1929 BKC75 J150 L1, modern (shoulder grozed)
- 1930 BKC75 J219 F36, Period 5b (from large bottle)
- 1931 BKC76 V80 L5, late Period 5 (c AD 300) (from large bottle)
- 1932 BKC76 T14 F25, Building 56, Period 5c
- 1933 BKC73 B57 L3, post-medieval (from large bottle)
- 1934 LWC71 B421 F113, Building 23, Period 5 (2 fragments)
- 1935 LWC72 J948, Building 20 Rooms 2 & 3, Period 4 (13 fragments)
- 1936 LWC72 J648, Period 4 (3 fragments)
- 1937 1.81 B1283 F367, Period 3
- 1938 GBS84 A581 F102, ?Period 3
- 1939 GBS84A731 F117, Period 3a

Also 3 neck and shoulder fragments of bottles; wide cylindrical neck and narrow shoulders

- 1940 LWC71 B323, Periods 3 to 5 (inner neck diameter approx 75)
- 1941 LWC73 R147, Period 2 demolition (inner neck diameter approx 40)
- 1942 IRC73 6, latest Roman

1943 BKC74 G27 F18, modern

6 shoulder, handle and body fragments (3 joining) of square bottle; horizontal shoulder; straight side meeting at 90°. Angular reeded handle with simple lower attachment; reeding in shallow relief. Handle width at shoulder (approx) 50, handle thickness 5.

Also 1 similar angular handle fragment with reeding in shallow relief, simple lower attachment

- 1944 1.81 E314, unstatified (handle section 42x7)

1945 BKC75 H14 L2, post-Roman

Neck, shoulder and handle fragment of large prismatic bottle. Cylindrical neck; horizontal shoulder; straight side. Reeded ribbon handle with simple lower attachment. Handle section 63x10.

Also 15 similar reeded handle and shoulder fragments from prismatic bottles

- 1946 BUC77 C1739 F62, Period 1 (handle section 44x5)
- 1947 BKC74 E191 F27 (handle section 42x3.5), Period 6
- 1948 BKC76 N624, ?Period 5b1 at latest (handle section 35x2)
- 1949 BKC76 N516 L76, Building 64 Phase 1, Period 5b1
- 1950 BKC75 J115 F25, Period 3-5
- 1951 BKC76 V386 L50 & 72, Period 4 or 5

- 1952 BKC74 G223, Period 5
- 1953 BKC76 V161 F50, Period 5 (or 6)
- 1954 BKC76 V787, late Period 5 (c AD 300) (much strain cracking, approx 20 fragments and chips)
- 1955 MID78 A2351 F23, early medieval robber trenches
- 1956 MID78 A760 F238, post-medieval
- 1957 1.81 B51 F27, medieval
- 1958 1.81 D1203 L267, Period 4
- 1959 1.81 G1 L1, Period 6
- 1960 GBS84 A580 F27, Period 3b

Also 3 fragments from shoulders of bottles showing scars of lower handle attachments

- 1961 LWC72 J816 F210, Period 4b destruction (2 fragments)
- 1962 LWC72 K192, Roman?

Also 11 fragments from the upper parts of angular reeded handles with folded attachments

- 1963 LWC71 B131 F47, 12th-15th centuries (retaining fragments of neck)
- 1964 LWC72 J384, ?Period 4b destruction (retaining fragments of neck)
- 1965 1.81 J69 L1, Period 6 (reeding running onto attachment, section 56x5)
- 1966 1.81 G2684 L2639, Period 3 (handle section 75x12)
- 1967 1.81 K445 F418, Period 3a or b (handle section 55x6)
- 1968 1.81 B903 F278, Building 112 Room 6a, Period 4b
- 1969 1.81 G2721 L1708, Period 3
- 1970 1.81 G3679 L3549, Period 3 (2 joining fragments)
- 1971 1.81 G3779 L3754, Period 3
- 1972 1.81 G4206 F4001, Period 3

Also 20 fragments of angular reeded handles

- 1973 BKC76 V588 L87, end of Period 4/beginning of Period 5
- 1974 BKC76 N560 L107, Building 64 Phase 1, Period 5a
- 1975 BKC75 H297 F33, Period 5c (fine shallow reeding)
- 1976 BKC76 V938 L11, late Period 5 (c AD 300) (3 joining fragments, fine shallow reeding)
- 1977 BKC75 M10, modern with Periods 5 & 6
- 1978 BKC75 J40 F3, modern
- 1979 LWC72 L282, Building 19 Room 2 Phase 3, Period 4(3)
- 1980 1.81 B6, unstratified (fine shallow reeding)
- 1981 1.81 D1201 L267, Period 4
- 1982 1.81 G4311 L4310, Period 3d
- 1983 1.81 G1831 L1767, Period 3
- 1984 1.81 H401, unstratified, Periods 4-6 (fine shallow reeding)
- 1985 1.81 H321, unstratified, Periods 4-6
- 1986 1.81 H420 L3, Period 6
- 1987 1.81 H627, Period 1-6
- 1988 1.81 H630, Period 1-6

1989 1.81 J103 F18, Period 6

1990 1.81 J30 L1, Period 6

Also 9 reeded handle fragments

1991 BKC75 J176 F32, Period 5c/6

1992 LWC71 B83 F47 12th-15th century

1993 LWC72 J915 F185, Building 20 Room 2, Period 4

1994 CPS74 1064 F177, Period 5 (fine shallow ribbing)

1995 1.81 G2541 L1746, Period 3

1996 1.81 G4006 L3985, Period 3

1997 1.81 G387 F370, Period 6

1998 1.81 H624, Period 1-6

1999 GBS84A36 L1, post-Roman

2000 LWC71 B552 F199, Period 3

Handle and shoulder fragment. Angular ribbon handle with central depression; small part of shoulder attached. Height of handle approx 45, handle section 33x5.5.

Also 1 similar shoulder and handle fragment

2001 BUC77 C946 L1, Period 1-2

Also 7 angular ribbon bottle handle fragments

2002 BKC74 E834 L252, Period 3b

2003 BKC75 J445 F281, Period 3/4/5a?

2004 BKC76 V314 L34, Period 5

2005 BKC76 V63 L22, late Period 5 (c AD 300)

2006 MID78 A1791 L223, unstratified (edge only)

2007 COC79 334 L2, Period 4 (edge only)

2008 1.81 G497 F47, Period 6

Also 1 fragment from massive ribbed angular handle probably from bottle

2009 1.81 M729 F313, Building 121, Period 3

Also 5 fragments probably from bottle handles

2010 1.81 B155 L7, Period 5 (2 fragments)

2011 1.81 D968 F686, Period 4

2012 1.81 J162 L1, Period 6

2013 GBS84 A369 F27, Period 3b

Also 3 shoulder and side fragments from hexagonal bottles

2014 BKC76 V243 L46, Period 5

2015 BKC75J176F32, Period 5c/6

2016 1.81 G2507 L1974, Period 5

2017 LWC71 B426, Period 5
4 neck and body fragments of square bottle. Wide cylindrical neck; narrow horizontal shoulder curving down to straight side. Neck diameter (external) approx 45, shoulder width approx 30.

Also 22 shoulder and side fragments from square bottles

- 2018 BKC74 G42 L8, Period 5a or b (3 fragments)
- 2019 BKC75 J195 L26, Period 5b
- 2020 BKC76 N604 F141, Building 65 Phase 1, Period 5b1
- 2021 BKC75 H287 L13, Building 59 demolition, end of Period 5b (2 fragments)
- 2022 BKC76 V1113 L146, late Period 5 (c AD 300)
- 2023 BKC75 H308 L13, Period 5b (demolition, Building 59) (3 fragments)
- 2024 BKC75 K16 F6, Period 6
- 2025 BKC75N143 F33, Period 6+
- 2026 BKC74 E1278 L397, post-Roman
- 2027 BKC75 J40 F3, modern
- 2028 LWC72 M114, Rampart 1a, mid 2nd century
- 2029 CPS73 734 L101, Building 154, Period 4 (4 fragments)
- 2030 GBS84 A1098 F141, ?Period 3
- 2031 GBS85 B207 F25, Period 3

Also 26 shoulder and side fragments from prismatic bottles

- 2032 BKC75 H14 L2, post-Roman (2 fragments, 1 from very large bottle)
- 2033 BKC76 V88, Building 46, Period 3 or 4?
- 2034 BKC75 G395, Period 2-5
- 2035 BKC76 V1102, Period 4
- 2036 BUC77 C1739 F62, Period 1 (2 fragments)
- 2037 MID78 C1084 L87, Period 2 (from narrow bottle)
- 2038 MID78 A2840 L317, Building 70 Phase 2, early Roman Period 3 (from large bottle)
- 2039 1.81 B807 L169, Building 113 Room 5, Period 3/4
- 2040 1.81 B279 F120, Period 4
- 2041 1.81 D1862 L1745, Period 4
- 2042 1.81 G1307 L1297, Period 4 or 5 (2 fragments)
- 2043 1.81 G2007 L1462, Period 5
- 2044 1.81 G3131 L2831, Period 4
- 2045 1.81 G2352 L2087, Period 5 (3 fragments)
- 2046 1.81 G159, Period 4-6
- 2047 1.81 G1205 L1137, Period 5 (2 fragments)
- 2048 1.81 H336 L283, Period 5
- 2049 1.81 K200, unstratified
- 2050 GBS84 A1584 L100, Period 2
- 2051 GBS A1528 L101, Period 2 (from large bottle)
- 2052 GBS85 B105 F15, Period 3b

Also 77 shoulder fragments from bottles

- 2053 BKC76 T413 L43, Building 41 49, Period 3
- 2054 BKC76 T291, Period 3?
- 2055 BKC76 V598 F8/130, Period 4
- 2056 BKC76 V595 L72, Period 4 (2 fragments)
- 2057 BKC76 V697 L72, Period 4
- 2058 BKC76 V1336, Building 51, Period 4
- 2059 BKC76 V359 L39, Period 5
- 2060 BKC76 T278 L38, Period 5a or b (2 fragments)
- 2061 BKC76 T306 L38, Period 5a or b
- 2062 BKC75 J198 F45, Period 5b
- 2063 BKC76 T199 F89, Building 55, Period 5b
- 2064 BKC75 H148 F63, Period 5c
- 2065 BKC75 J179 L23, Period 5c/6
- 2066 BKC76 V67 L5, late Period 5 (c AD 300) (3 fragments)
- 2067 BKC76 V121 F18, Period 5 or 6
- 2068 BKC76 V214 F50, Period 5 or 6
- 2069 BKC76 V607 F18, Period 5 or 6?
- 2070 BKC75 H7 L2, post-Roman
- 2071 BKC75 H13 L2, post-Roman (2 fragments)
- 2072 BKC73 D260 F16, modern
- 2073 BKC74 G32 F6, modern
- 2074 BKC75 H318 F166, modern (2 fragments)
- 2075 BKC76 V81, unstratified (2 fragments)
- 2076 BKC76 V162, unstratified
- 2077 BKC75 J32 L1, modern
- 2078 BKC75J151 L1, modern
- 2079 BKC76 T360, ?Period 3
- 2080 LWC71 A256, pre-Period 4
- 2081 LWC71 B117, Period 5
- 2082 LWC71 B267 F105, Period 5
- 2083 LWC71 C356, Period ?2 or ?3a or ?3b
- 2084 LWC71 C29 F18, post-Roman
- 2085 LWC72 H155, Roman?/Anglo-Saxon?/16th-17th centuries?
- 2086 LWC73 K501 F281, Period 3
- 2087 LWC72 K214, Period 4b
- 2088 LWC73 K567 F325, medieval and later or Roman
- 2089 LWC73 K499 F280, medieval and later
- 2090 LWC72 M152 Silt or dump over Road 2, probably Flavian
- 2091 LWC72 M154 Silt or dump over Road 2, probably Flavian
- 2092 BUC76 A358 F123, Period 2 or later
- 2093 BUC77 C1071 L1, Period 1-2

- 2094 BUC77 C1068 G353, Period 2
- 2095 BUC77 C973 F25, modern
- 2096 BUC77 C1268 L4, modern
- 2097 BUC77 E608 L7 5th century
- 2098 MID78 A24 L1, medieval & later
- 2099 MID78 A2862 L285, Building 70, Roman Period 3 destruction or later
- 2100 MID78 A3110 L366, Building 69 Phase 2 or, Building 70 Phase 1, late Roman Period 2 or early Roman Period 3
- 2101 MID78 C1681 L220, late Roman to early medieval
- 2102 MID78 G3301 L559, Building 70 Room 6, early Roman Period 3
- 2103 CPS73 948 L149, Building 153, Period 3
- 2104 CPS73 505 L68, Period 3
- 2105 1.81 A239 F92, Period 5
- 2106 1.81 B1644 F333, Period 3
- 2107 1.81 B915 F278, Building 112 Room 6a, Period 4b
- 2108 1.81 B518 L72, Building 112 Room 6a, Period 4
- 2109 1.81 G4009 L3716, Period 3
- 2110 1.81 G1626 L1553, Period 5
- 2111 1.81 G3037 L1599, Period 4
- 2112 1.81 G3769 L3724, Period 4
- 2113 1.81 G322 L209, Period 5
- 2114 1.81 G730 L618, Period 5
- 2115 1.81 G3293 F3292, Period 5 or 6 (2 fragments)
- 2116 1.81 G3246 F3245, Period 6
- 2117 1.81 H345 F208, Period 6
- 2118 1.81 J3 L1, Period 6
- 2119 1.81 J69 L1, Period 6
- 2120 1.81 K30 F12, Period 4
- 2121 GBS85 B142 F28, Period 3
- 2122 GBS84 A472 F80, medieval
- 2123 BKC75 J234, modern
4 neck, shoulder and handle fragments of large cylindrical bottle. Angular handle with central portion reeded; folded upper attachment with part of neck; simple lower attachment. Handle section approx 65x9
- 2124 BKC76 V261 L25, Period 4
Handle and shoulder fragment of cylindrical bottle? Angular ribbon handle with central indentation; simple lower attachment. Handle section 21x3.5.
- Also 1 similar handle and shoulder fragment (handle lacking indentation)
- 2125 BKC76 V839 L1, Period 5, 6 or modern

2126 LWC72 J892, Building 20 Phase 1 Room 2, Period 4a make-up
LWC72 J805, Building 20 Room 6, Period 4a & b
11 shoulder and body fragments of cylindrical bottle. Shoulder curving over to cylindrical sides with vertical scratch marks. Edge of lower handle attachment from reeded handle on shoulder.

Also 14 shoulder and body fragments from cylindrical bottles showing vertical scratch marks

- 2127 BKC74 E1118 L337, Building 37, Period 1b (WT 1)
2128 BKC76 V401 L47 & 50, Periods 4 or 5
2129 BKC76 V932 L11, late Period 5 (c AD 300)
2130 BKC76 T311 L38, Periods 5a or b
2131 BKC74 E302 L447, Period 6
2132 LWC71 B329, Period 5? (2 fragments)
2133 LWC72 J1321 F424, Building 8, Period 2 (2 fragments)
2134 LWC72 J1086, Building 20 Room 2, Period 4 (2 fragments)
2135 LWC72 J785 F210, Period 4b destruction
2136 1.81 A388 L138, Period 3
2137 1.81 K157 F91, Period 3a

2138 LWC72 J985, Building 8, Period 2 demolition
Shoulder and handle fragment of thin-walled ?cylindrical bottle. Ribbon handle with at least 3 prominent ribs; claw lower attachment; thin-walled horizontal shoulder curving over to side. PH 55.

2139 BKC76 V325 L11, Period 5 or, post-Roman
Neck, shoulder and handle fragment of large cylindrical bottle (?) Horizontal shoulder curving up to cylindrical neck tooled at base and down to side. Ribbon handle applied to shoulder with simple attachment, curved over in small ring to base of neck and then trailed up and back. Dim 65x52 mm; neck diameter (outer) approx 50.

Also 1 fragment possibly from a similar shoulder and handle

2140 BKC76 V360 L39, Period 5

Lower body and base fragments from prismatic bottles

Moulded Bases where complete design is known

- 2141 BKC75 J102 L17, J143 L18, Period 5b (Phase 3)
8 lower body and base fragments of thin-walled hexagonal bottle. Many bubbles. Base design in shallow relief—2 concentric circles with central dot. PH 16, BD 52, WT 1.
- 2142 MID78 A3050 L451, Building 71, Roman Period 3 destruction
1 lower body and 1 base fragment of hexagonal bottle. Base design—circular pellet in each corner and small central circular moulding. Circular pontil scar. PH 22, width of side approx 23, approx. diameter of bottle 50, diameter of pontil scar approx 11.
- 2143 1.81 B788 L169, Building 113? Room 5, Period 3/4
Base fragment of hexagonal bottle. Base design—straight moulding parallel to edge with circular moulding and central dot inside, a circular dot in extant corner outside of straight edge. Dim 35x24, probable width of bottle (corner to corner) approx 60.
- 2144 BKC76 V608 L11, late Period 5/modern
Lower body and base fragment of square bottle. Base design—2 concentric, slightly asymmetrical, circular mouldings. Base worn. PH 73, body width 57, WT 4.

- 2145 BKC76 N419 F117, Building 65 Phase 2?, Period 5b2?
Lower body and base fragment and 3 body fragments of thin-walled square bottle. Many bubbles; streaky weathered surfaces. Base design—2 concentric circular mouldings PH 57, body width 54, WT 2.
- 2146 GBS85 B223 L8, Period 3
Side and base fragment of square bottle. Base design—3 concentric circular mouldings with very small central dot. Base worn. PH 30, width of bottle 50, diameter of outer circle 40.
- 2147 GBS85 B466 F101, Building 133, Period 2, B361, Roman
2 joining base fragments of square bottle. Base design—3 concentric circular mouldings with small central dot. Diameter of outer circle 37.
- 2148 BKC76 T219, Building 47 destruction debris, Period 3 end
Base fragment of square bottle. Base design—3 concentric circular mouldings. Melted and distorted by heat. Body width originally approx 50.
- 2149 BUC77 E451 L32, Period 2
8 shoulder, body and base fragments of square bottle. Base design—2 concentric circular mouldings surrounding equal-armed cross; outer circle has 2 slight swellings positioned on opposite sides. Base deeply indented at one point on inner circle. PH 133, body width 86.
- 2150 LWC72 M85, Rampart 1e, late Roman
Lower body and base fragment of thin-walled square bottle. Base design—circular moulding with central dot, small oval dot with central depression ('O'-shaped) in each of 3 remaining corners. PH 28, body width 52, WT 2.
- 2151 CPS74 944 L148, Building 154, Period 4
Base fragment of square bottle. Concave base. Base design—3 concentric circular mouldings; 'L'-shaped moulding in each corner. PH 31, body width approx 95.
- 2152 BKC74 E1278 L397, ?post-Roman
Lower body and base fragment of square bottle. Base design—diagonally placed, square moulding with central dot. Large circular pontil scar. PH 40, body width 56, pontil scar diameter 35.
- 2153 BKC75 K111, machine Trench 1
Base fragment of square bottle. Base design—convex-sided square moulding with central circular moulding, 4 pairs of straight bars connect square and circle to produce 4 diamond shapes radiating out from circle; raised dot in outer edge of each diamond and in centre of circle. Circular pontil scar. Dim 67x55, pontil scar diameter 15, width of bottle approx 60.
- 2154 1.81 G1407 L991, Period 5
2 joining base fragments of square bottle. Base design—1 circular moulding with a small dot at centre and 4 semi-circular mouldings in middle of base edges. Width of bottle approx 85.

Moulded base fragments where complete design is almost certainly known but where the possibility of additional decoration such as corner mouldings cannot be ruled out

- 2155 BKC76 T67, Period 4 or 5?
Base fragment. Very slightly concave base with marked internal central thickening. Base design—1 circular moulding. Circular pontil scar. Dim 53x28, diameter of circular moulding 43, diameter of pontil scar 14, width of bottle approx 50.
- 2156 BKC76 V243 L46, Period 5
Base fragment. Base design—2 circular moulding. Diameter of outer circle approx 80, width of bottle approx 100.
- 2157 1.81 G1788 L1054, Period 4 or 5
Base fragment of square bottle. Base design—2 concentric circles (centre missing). Dim 75x35, diameter of outer circle approx 70, width of bottle approx 90.
- 2158 MID79 3348 F1020, Building 67 Phase 1 & 2, Roman Period 1
Base fragment. Many bubbles. Slightly concave base. Base design—1 circular moulding with central dot; part of small circular moulding outside of circle—possibly part of a corner moulding. Circular pontil scar. Dim 47x33, diameter of pontil scar approx 16.
- 2159 1.81 C8 F5, medieval
Concave base fragment of prismatic bottle. Base design—3 concentric circular mouldings with large central dot. Circular mouldings and dot reflected on inner surfaces of base. Base worn. Dim 45x27, diameter of outer circle 40.

- 2160 LWC72 J1086, Building 20 Room 2, Period 4
Base fragment of prismatic bottle. Base design—central dot and at least 3 concentric circular mouldings, fragment broken at edge of possible fourth. Dim 46x34.
- 2161 1.81 C199 F56, Period 3
Base fragment of prismatic bottle probably broken just inside sides. Base design—3 concentric moulded circles, irregular swellings join inner 2 at one point. Dim 60x26, diameter of outer circle approx 55, width of bottle approx 60-70.
- 2162 1.81 D127 F27, Period 6
Base fragment of prismatic bottle. Base design—1 circular moulding inside prismatic moulding parallel to edge. Circular pontil scar inside circular moulding. Diameter of circular moulding approx 35, pontil scar diameter approx 25, width of bottle approx 55?
- 2163 1.81 G56 F56, Period 6
Base fragment of probably rectangular bottle. Base design—1 circular moulding inside a (probably) lozenge-shaped moulding. Dim 50x46, original dimensions of base approx 55x?90.

Moulded base fragments with incomplete decoration

- 2164 MID78 A3054 F932, post-medieval or modern
Base design—at least 2 wide concentric circular mouldings and raised dot with central depression. Dim 31x31.
- 2165 1.81 G4230 L4211, Period 3c
Fragment from centre of base—2 concentric circular mouldings, inner one widest. Dim 28x20.
- 2166 LWC72 G274, Building 28 Phase 1, Period 2
Fragment from centre of base with 1 small circular moulding (diameter 11)
- 2167 BKC75 J166 F36, Period 5b
Base design—at least 2 concentric circular mouldings and central dot. Very bubbly. Dim 33x18.
- 2168 1.81 M327 F314, Period 2
Base design—at least 4 concentric circular mouldings alternating high and low relief with wide undecorated area between circles and edge. Dim 33x29, diameter of outer circle approx 40.

Also 5 base fragments with at least 3 concentric circular mouldings

- 2169 BKC76 T345, unstratified (diameter of outer circle approx 120; width of bottle approx 140)
- 2170 BKC76 V196 L13, Period 5 (very bubbly, Dim 20x17)
- 2171 BKC76 V240 L46, Period 5 (Dim 21x11)
- 2172 LWC73 K368, Period 4b (diameter of outer circle 80; width of bottle approx 105)
- 2173 CPS73 917 L144, Building 154, Period 4 (Dim 53x35)

Also 11 base fragments with at least 2 concentric circular mouldings

- 2174 BKC76 N578, Building 65 Phase 2, ?Period 5b1 (2 fragments, diameter of outer moulding approx 90.)
- 2175 BKC76 V743 L11, late Period 5 (c AD 300) (Dim 64x20)
- 2176 BKC76 V238 F54, Period 4 (Dim 36x17)
- 2177 BKC76 V91 L11, late Period 5 (c AD 300) (diameter of outer circle approx 70; width of bottle approx 85.)
- 2178 LWC73 K491 F267, medieval and later (diameter of outer circle approx 70; width of bottle approx 90)
- 2179 BUC77 C1064 L1, Period 1-2 (Dim 38x25)
- 2180 CPS73 826 L25, Building 154, Period 4 (diameter of outer circle approx 85; width of bottle approx 110)
- 2181 1.81 G2882 L2284, Period 3 or 4 (diameter of outer circle approx 40; width of bottle approx 60)
- 2182 1.81 B1008 F111, medieval (Dim 36x19)
- 2183 GBS84 A662 L13 ?Building 138 Room 2, Period 3b or 4 (heat affected; diameter of outer circle approx 60)

- Also 12 base fragments with at least 1 circular moulding
- 2184 BKC75 J125 L23, Period 5c/6 (Dim 20x14)
- 2185 LWC72 J887, Period 3 make-up (Dim 30x10)
- 2186 LWC72 L127, late medieval (Dim 34x15)
- 2187 LWC72 M112 F60, Rampart 1d, mid 2nd century (Dim 20x15)
- 2188 LWC72 J1474, Building 20 Room 2 Phase 1, Period 4a make-up (Dim 15x15.)
- 2189 MID78 A875 L598, late or post-Roman (diameter of outer circle approx 50; width of bottle approx 70)
- 2190 MID78 A3203 F955, Building 67 Phase 1 & 2 Room 4, Roman Period 1 (Dim 18x20)
- 2191 MID78 C1607 L219, Building 75 Phase 2, Period 2 (Dim 20x23.)
- 2192 1.81 G997 F163, Period 6 (diameter of outer circle approx 60; width of bottle approx 80)
- 2193 1.81 C269 F94, Period 3 (diameter of outer circle approx 60; width of bottle approx 70)
- 2194 1.81 G1457 L1423, Period 3 or 4 (dim. 25x15)
- 2195 LWC72 J571, Building 20 Room 2, Period 4
Lower body and base fragment. Base design—small raised dot at edge; fragment broken along side of ?circular moulding. Dim 29x10.
- 2196 IRB72 F33
Base fragment. Concave base. Base design—circular moulding with part of seriphed letter 'C' inside, circular moulding thickened internally opposite 'C'. Dim 65x31.
RIB II, 2, 124 no 2419.163.
- 2197 1.81 G177 L177, Period 5
Base fragment of prismatic bottle. Base design—1 curved moulding with the letter 'A' or 'V' inside. Dim 42x27.
- 2198 BKC76 V188 F50, Period 5 (or 6)
Lower body and base fragment. Base design—narrow circular moulding close to edge, inside a ?seriphed terminal of a letter. Dim 36x26
- 2199 LWC72 J421, Roman
Base fragment. Base design—parts of 2 large letters (?), perhaps T and 'E' apparently arranged around a raised moulding. Dim 25x24
- 2200 MID79 3350 F1020, Building 67 Phase 1 & 2, Roman Period 1
1 lower body and base fragment and 1 body fragment of square bottle. Base design—slightly concave sided square moulding with ?diagonal cross inside, 1 arm of which survives. PH 52, body width approx 70.
- 2201 1.81 A111, post-Roman
Side and base fragment of square bottle. Base design—1 square moulding parallel to edge with a quarter circle moulding inside 2 corners. PH 23, Dim 81x39, probable width of bottle approx 85.
- 2202 CPS73 745 L104, Building 154, Period 4
2 lower body and base fragments of square bottle. Base design—square moulding parallel to edge. PH 40, dim. 48x23.
- 2203 BKC76 V938 L11, late Period 5 (c AD 300)
Lower body and base fragment of square bottle. Base design—diagonally placed square moulding with 2 close-set concentric circles inside. Edge of base raised around sides. Base worn. PH 28, body width 72.
- 2204 1.81 G1588 F652, Period 5
Fragment from centre of base of prismatic bottle. Base design—circular moulding with central dot with parts of 3 petal-shaped mouldings radiating out from circle. Original design probably had 4 'petals'. Dim 38x38.
- 2205 BKC75 H338 L12, Building 59 demolition, end of Period 5b
Base fragment of prismatic bottle. Base design—zig-zag moulding with short diagonal bars branching off from it on alternate sides, fragment retains parts of 3 bars on each side. Dimensions 28x20.

- 2206 BKC74 G23 L1, modern
Lower body and base corner fragment of square bottle. Base design — circular moulding with triangular pellet outside circle in corner. Dim 31x18.
- 2207 LWC72 L275, Building 19 Room 2 Phase 3, Period 4(3)
Base fragment. Base design—raised dot in corner. Dim 25x13.
- 2208 1.81 G471 F293, Period 6
Side and base fragment of square bottle. Base design—part of corner moulding, probably 'L'-shaped. PH 23, Dim 35x18
- 2209 MID78 A2071 L214, Roman Period 3 destruction or later
7 lower body and base fragments of square bottle. Base design—part of elongated, narrow, concave-sided pointed moulding in corner. PH 63, body width 68.

Also 3 base fragments with parts of curved mouldings

- 2210 BKC76 V67 L5, late Period 5 (c AD 300) (part of 1 moulding)
- 2211 GBS85 B112 F23, Period 2 or 3 (part of 1 moulding)
- 2212 GBS85 B307 F39, Period 3 (parts of 2 mouldings)

2213 BKC76 V679, mainly late Period 5
Base fragment with straight moulding in very shallow relief

Also 2 base fragments each with curved moulding inside straight moulding

- 2214 LWC72 M99 F57, Rampart 1e, late Roman
- 2215 1.81 G2882 L2284, Period 3 or 4

2216 1.81 A111, post-Roman
Base fragment. Affected by heat. Base design includes 1 straight moulding parallel to edge, details of other mouldings obscure.

Also 3 base fragments each with part of 1 moulding of indeterminate shape

- 2217 CPS73 121 F46, Period 5
- 2218 1.81 A250 L37, Period 4
- 2219 1.81 G3885 L3125, Period 3

2220 LWC72 K318, Building 14, Period 3 make-up
Side and base fragment of large prismatic bottle. Base slightly concave and undecorated. PH 37.

Also 9 corner fragments from lower bodies and bases of square bottles

- 2221 LWC71 A361, probably Period 1 destruction (base very worn)
- 2222 LWC72 J663, Period 4
- 2223 LWC72 M115, Rampart 1a, mid 2nd century
- 2224 MID78 A1744 L223, unstratified
- 2225 1.81 B1053 F302, Period 3
- 2226 1.81 G2669 F1995, Period 4
- 2227 1.81 G1041 L894, Period 5
- 2228 1.81 G547 F264, Period 6
- 2229 GBS84 A2219 L242, Period 3b or 4

Also 2 lower body and edge of base fragments probably from a hexagonal bottle

- 2230 1.81 G2544 L2523, Period 3

Lower body and base fragments of cylindrical bottles

- 2231 BKC76 T220, unstratified
Base fragment of cylindrical bottle. Slightly concave base showing much wear. BD approx 170.
- 2232 1.81 J149 F113, Period 6
Side and base fragment of cylindrical bottle. Vertical side with vertical scratch marks; concave base. Base worn. PH 44, BD approx 100.

Also 7 other base fragments from cylindrical bottles

- 2233 BKC76 V82 L5, late Period 5 (c AD 300)
- 2234 BKC76 V680, modern
- 2235 BKC76 V359 L39, Period 5 (1 edge grozed)
- 2236 LWC71 B45 F23, Period 4 to 5
- 2237 LWC73 K507 F287, Period 3
- 2238 1.81 C172 L18, Building 95 Room 9, Period 3
- 2239 GBS84 B515 F75, Period 2

Coloured abraded cylindrical bottles

Yellow/green

- 2240 BKC76 T218 F98, Building 47, Period 3
Body fragment of cylindrical bottle or bowl. Pale green. Straight side curving into base. 3 narrow horizontal abraded bands. Vertical scratches. Dim 58x40, WT 1.
- 2241 1.81 J144 F124, Period 6
Body fragment of cylindrical bottle or bowl. Straight side. 2 abraded bands. Many vertical scratches. Dim 48x40, WT 3.

Also 1 other cylindrical body fragment probably from a similar vessel

- 2242 1.81 B1079 L253, Period 3/4

Colourless wheel-cut cylindrical bottles

Colourless

- 2243 LWC71 B253 F100, Period 5
Rim fragment. Wide rim, edge rolled out, up and in, narrow cylindrical neck; part of handle attachment on underside of rim. PH 16, RD 55, neck thickness 3.
- 2244 MID78 A1841 F554, medieval?
Rim fragment. Wide funnel mouth curving down to neck; rim edge bent down and up. RD 75, neck thickness 3.5.

Funnel-mouthed cylindrical bottles and miscellaneous cylindrical bottle fragments

- 2245 BKC75 J447 F43, Period 5b, J343, ?Roman
approx 15 rim, neck and handle fragments. Out-turned rim with fire- rounded edge; funnel mouth; cylindrical neck. Angular reeded ribbon handle with folded upper attachment applied to neck; simple lower attachment retaining fragments of shoulder. Thick horizontal trail applied to underside of rim. PH approx 50-55, RD 65, neck thickness 3.5.

- 2246 GBS84 A459 F27, Period 3b
Rim and handle fragment now in 3 large, much strain cracked, pieces and many granulated fragments. Funnel mouth with rounded edge; thick horizontal trail below edge; folded upper attachment of reeded handle attached below trail. PH approx 30, RD approx 50, neck thickness 45.
- 2247 BKC75 H14 L2, post-Roman
4 joining rim and handle fragments of jug or bottle. Funnel mouth with rim edge fire-rounded. Ribbon handle; folded upper handle attachment with bent back thumb rest applied to rim edge. PH approx 30, RD approx 50, neck thickness 45.
- 2248 1.81 A149, unstratified, post-Roman
Handle and shoulder fragment of bottle. Lower part of handle reeded in shallow relief with simple lower attachment. Shoulder possibly deliberately broken around edge of attachment. Dim (body) 44x18, WT 1.5.
- 2249 CPS73 415 F95, Period 5
Shoulder and body fragment of cylindrical bottle. Shoulder curving over to straight side. Abraded band on upper body. Dim 39x39, WT 1.

Also 1 fragment of lower part of neck and shoulder of a bottle

2250 1.81 G3478 L3291, Period 5

2251 1.81 G1 L1, Period 6
Base fragment of jug or bottle? Flat base slightly domed internally. BD 70.

2252 1.81 A139 F47, Period 5
4 rim and 1 neck fragments (3 joining) of bottle. Tubular horizontal rim, edge first rolled in, then bent out, up and in; thick walled cylindrical neck. PH 29, RD approx 55, neck thickness 2.

Also 2 joining cylindrical neck fragments from bottle with small part of handle and scars from its attachment

2253 1.81 G1316 L1230, Period 5

Blue/green

2254 BKC75 J150 L1, modern
Rim and handle fragment of jug or bottle. Markedly out-turned rim, edge rolled in; cylindrical neck; folded upper handle attachment on underside of rim and neck. PH 13, RD 60, neck thickness 2.

2255 BKC75 H26 L9, Period 5c or 6
Rim and neck fragment of jug or bottle. Markedly out-turned rim, edge rolled in; cylindrical neck; fragment of handle attachment on underside of rim. PH 23, RD 55, neck thickness 3.

Also 1 similar rim fragment with folded handle attachment

2256 BKC76 V938 L11, late Period 5 (c AD 300)

Late Roman green

2257 BUC77 B1098 G132 SF393, Period 2
One-handled cylindrical bottle broken mainly at neck and rim in 16 fragments. Small portions only of rim, neck and shoulder missing. Pale greenish colourless. Outplayed horizontal rim with rolled in edge; neck sloping out slightly to horizontal shoulder; straight-sided cylindrical body; concave base with central kick. Prominent ridged oval pontil scar. Angular reeded handle with simple lower attachment, folded upper attachment joined to neck and rim. Horizontal trail applied to underside of rim with ends of trail overlapping one on top of the other for approximately half the circumference. Height 232, height from base to shoulder 170, RD 74, BD 90, pontil scar diameter (outer) 28x23 (inner) 17x15.

Bottle with multiple compartments

Blue/green

- 2258 1.81 J371 F364, Period 1 or 2
1 base and 2 side fragments. Flat base with internal division and linear tooled ridge at right angles to exterior. Convex-curved body fragments each with part of an internal wall division. Dim (base) 52x43, base thickness 2.5-6, WT 2.

Frontinus bottles

Late Roman green

- 2259 BUC77 B1103 G174 SF394, Period 2
Complete two-handled ribbed barrel jug. Pale green. Mould blown. Markedly outsplayed almost horizontal rim with edge rolled in and flattened; cylindrical neck; horizontal shoulder; cylindrical body with 4 ribs on upper body and 5 ribs on lower body, central area plain; concave base with central kick. 1 circular moulding on base with letters FRO in retrograde between it and edge of base. Prominent oval pontil scar with part of cylinder of glass still attached. 2 handles each with 5 prominent ribs, claw lower attachment joined to shoulder, folded upper attachment joined to underside of rim and rim edge. Height 182, height from base to shoulder 136, RD 60, BD 81, pontil scar diameter (outer) 25x22 (inner) 17x15. *RIB* II, 2, 114 no 2419.117.
- 2260 BKC74 E281 L447, Period 6
BKC74 E360 L433, post-Roman
2 body fragments. Pale greenish colourless. Very slightly convex-curved cylindrical body bending out sharply at top and bottom. Body diameter approx 100-110, PH 55.

Colourless

- 2261 BUC79 H763 G620 SF 1663, Period 2
Approximately 250 body and base fragments, many very small. Mould blown. Cylindrical body with horizontal corrugations; thick base. 1 fragment retains vertical mould seam; 1 fragment retains juxtaposition of plain and corrugated zones. WT 1.5-2, base thickness 3-4.5.

Blue/green

- 2262 LWC72 L232, Building 19 Passage 1 Phase 2, Period 4b
Body fragment of ?ribbed barrel jug. Mould blown. Cylindrical body with parts of 2 horizontal ribs. Dim 12x10, WT 1.

Dolphin-handled bottles

Late Roman green

- 2263 BKC74 E217 L55, post-Roman
Neck; shoulder and handle fragment. Pale greenish colourless. Cylindrical neck; narrow horizontal shoulder curving over to body. Dolphin handle trailed down neck, over shoulder and back up to neck. Dim 26x23, WT 2.
- 2264 BKC75 N32 L3, Period 6
Body fragment of bottle? Pale greenish colourless. Flat side with narrow mould blown corrugations. Dim 28x28, WT 2.

Waste

Glass waste from production processes

Blue/green

- 2265 1.81 G2881 L2874, Period 3d
3 joining fragments of moile. Lower part of cylindrical neck with slight tooling marks at base; wide horizontal 'shoulder' curving over to side. Lower edge cracked off. Outer neck diameter approx 30, diameter at cracked off edge approx 80, WT 1-3.
- 2266 BKC73 D224, Period 5/6 ditch
Cylindrical moile fragment. Out-turned 'rim', edge irregularly sheared; straight-sided body sloping out slightly. PH 32, 'rim' diameter approx 30, WT 1.5.
- 2267 1.81 H627, unstratified
Fragment of glass working waste? Broken lower end of hollow tube with solid base retaining fragment from wall to which it was applied. Dim 21x16, WT 1.5 & 4.
- 2268 BKC76 T306, Periods 5a & b
Distorted and folded fragment, 1 edge heat rounded. Dim 23x26.
- 2269 1.81 D596 L247, Period 4
Fragment of glass 'ingot'. 1 surface smooth and glossy, other surfaces pitted. Dim 65x22, thickness 18.
- 2270 1.81 H624, unstratified
Twisted waste. Edge of terminal of rod; lower surface concave; upper surface convex and retaining edge of twisting. Dim 26x14, thickness 8.

- 2271 1.81 H225 F59; Period 5
Twisted waste. Part of rod with right-hand twist; one end broken, other broken across flat, heat- affected top. Streaky green impurities. Length 35, rod section 9.
- 2272 1.81 H624, unstratified
Twisted waste. Description as no 2271 but top of rod concave. Length 27, rod section 9.
- 2273 1.81 H627, unstratified
Twisted waste. Description as no 2271 but broken at beginning of expansion. Length 21, rod section 8.
- 2274 1.81 B813 L159, Building 112 Room 4, Period 4a
5 heavily strain-cracked melted lumps.

Appendix 4

Window Glass

Listed below are all the fragments of window glass of Roman date found during the 1971 to 1985 excavations at Colchester. The majority of the fragments are cast. This was the simplest way of making window glass and was achieved by melting glass, pouring it into moulds of wood or stone and spreading the molten glass out to the edges of the mould (Boon 1966, 44-5). This was the commonest way of making window glass during the 1st to 3rd centuries and could easily have been achieved at any building site where there was a source of cullet to provide the raw material. At Colchester the use of glazed windows at Boudican or earlier date is attested by the fragments found in early contexts at Site C at Culver Street, Site V at Balkerne Lane, Site A at Lion Walk, and at both sites A and B at the Gilbert School.

Blown window glass does not appear in any large quantities until the 4th century and this is reflected in the contexts of the fragments found at Colchester which are of either late or post Roman date.

All of the window glass is blue/green unless otherwise stated.

Cast window glass

Culver Street

Site A

Period 5

(33) F15 (with rounded edge)

(85) F36 (with rounded edge)

Site B

Period 3

(1847) F359 (with rounded edge)

Period 4B

B112 Rm 1 (682) L129 (2 fr., 1 with rounded edge)

B112 Rm 4 (650) L99

B112 Rm 5 (705) L86

B112 Rm 5 (448) L62 (2 fr., 1 greenish colourless with rounded edge)

B112 Rm 5 (613) L66 (3 fr., 1 greenish colourless with rounded edge)

B112 Rm 5 (543) L83 (5 fr., 1 with flaked edge)

B112 Rm 5 (612) F169

B112 Rm 5 (268) F116

B112 Rm 5 (2311) L48 (5 fr., 1 with flaked edge)

B112 Rm 6a (695) L111 (5 fr., 3 with rounded edge)

B112 Rm 6a (701) L135

B112 Rm 6a (886) L201 (2 fr., 1 with rounded edge)

B112 Rm 6a (938) L209

Period 4C

B112 Rm 4 (2307) L26 (5 fr., 1 with rounded edge)

(463) L53

(856) F261

Period 4B/C

B112 Rm 6a (465) L63 (3 fr., 2 joining with 2 rounded edges meeting at a 90o rounded angle)

Period 4

B112 Rm 2 (553) L88 (with rounded edge)

B112 Rm 5 (304) L21

B112 Rm 5 (620) F206

B113 Rm 1 (688) L133

(285) L23

(567) F193

(684) F224

(603)

Period 4/5

B112 Rm 4 (494) L65

(148) L8 (with 1 flaked edge)

(294) L25

Period 5

(155) L7

(168) L7

Medieval

(151) F76

(175) F76 (with 1 rounded edge)

U/S and modern

(6) (2 fr.)

(91)

(160)

(183) (with rounded edge)

(753)

Site C

Period 1

B79 Rm2 (461) L91

Period 1/2

B79 Rm2 (489) F138 (2 fr.)

B79 (444) L85 (2 fr.)

Early Period 3

B79 destruction (360) L52

(293) L36

Period 4

(494) F133

Later Period 4/5

(67) F27

Post -Roman and Medieval

(496) L3

(15) F7

Site D

Period 4

(255) L78

(696) L641 (with flaked edge)
(861) L714 (with 1 rounded edge)
(1053) F1044
(1062) F22 (2 pale green fr., 1 with 1 rounded and 1 flaked edge)
(1279) L266 (with 1 rounded edge)
(1410) L328
(1421) F1252
(1511) L1372
(1577) L1372
(1618) L1617
(1635) L328 (with 1 rounded edge and mortar attached)
(1758) F1766
(1793) L1372 (2 fr.)
(1856) F1819

Demolition Period 4/Period 5

(1119) L272 (2 fr.)

Period 5 or 6

(851) F88 (3 pale green fr., 2 with rounded edges)

Period 6

(347) F259 (pale green with 1 rounded edge)
(414) F259 (with 1 rounded edge and mortar attached)
(961) F937
(976) F498

Period 7

(10) L9
(1090) F121 Period 7 (with 1 rounded edge)

Site E

Period 3a

B99/100 E(698) F24

Period 3

(523) F389
(694)
(793) F549

Period 5

B127 (435) F308
B127 (309) F224
B127? (175) F143

Period 7

(11) F9
(48) F9 (with 1 rounded edge)

(117) F104

Period 8

(22) F16 (with 1 rounded edge)

(44) F7

(522) F96 (2 fr., 1 greenish colourless)

Post -Roman and unstratified

(1) (3 fr.)

(224) L100

(611) (2 fr. 1 with rounded edge)

(817)

Site G

Period 1 to 6

(4000)

(4050) (with 1 rounded edge)

Period 3D

(4288) L4255

(4316) L4304 (greenish colourless with 1 rounded edge)

Period 3

(2294)L1703

(2344) F79 (heat affected)

Period 3D or 3D4

(2769) L2758 (3 fr., 1 with 1 rounded edge, 1 with 2 rounded edges meeting at a rounded angle and showing tooling marks)

Period 3D4 to 6

(900)

Period 3 or 4

(1778) L1641

(2722) L1975 (with streaky purple impurity)

Period 3 to 6

(2000)

Period 4

(667)L653

(1087) L1050 (with 2 rounded edges meeting at an acute angle)

(1315) F1281

(1370) L1050 (yellow/green)

(1460) L992

(2679)L2370

Period 4 or 5

(2491) L1538

(2717) L2504 (with 1 rounded edge)

Period 4 to 6

(979)

(1251) (2 fr., 1 yellow/green with 1 rounded edge)

Period 5a

(1316) L1230 (1 edge grazed)

(1530) L1477

(3495) L1476 (2 fr.)

Period 5a or 5b

(1003) L936

Period 5b

(177) L177

(241) L206 (light green)

(247) L209 (with 1 rounded edge)

(312) L302

(632) L425

(961) L883

(1679) L1659 (4 fr.)

(1714) L1659 (5 fr.)

(1808) L1659

(3093) L1302

Period 5

(106) F57

(212) L206

(249) F14

(515) F14 (2 fr., 1 with rounded edge and mortar attached)

(869) L605

Period 5 or 6

(528) F523

Period 6

(1) L1

(47) F47 (with rounded edge)

(215) F211

(287) F264

(339) F293

(498) F47

(511) F163

(714) F542

(753) F724

(1254) F432
(1406) (with 1 rounded edge)
(2930) L1 (pale green)
(3468) F3458
(3907) F3418

Site H

Period 4 or 5

(255) L78 (greenish colourless)
(269) L235

Period 5

(225) F59

Balkerne Lane

Site A

Period 6 or Anglo-Saxon

(109) L9 (with rounded edge)
(111) L16

Period 6 or post-Roman

(136) F38

Post-Roman

(26) L1

Site D

Period 5/6 ditch

(46)
(81a) with rounded edge

Modern

(260) F16

Site E

Period 3B

(904) L265

Periods 4 or 5

(254) L62

End of Period 5B

(288) L13 (with rounded edge)
(317) L13

(336) L13

Period 6

(405) L438

(412) L440 (2 frs., 1 with rounded edge)

Post-Roman

(5) F6

(14) L2 (2 frs., 1 with rounded edge)

Modern

(3) F1

(318) F166

Unstratified

(160) (2 frs.)

Site G

Period 5c

(113) F11?

(375) (with rounded edge)

Modern

(27) F18 (with rounded edge)

Site J

Periods 3/4/5A

(241) L33

(283) L33 (with rounded edge)

(397) L237

Period 4

(49) L7

Period 5b

(34) L4 (1 rounded edge; heat distorted)

(35) L4

(45) L6

Period 5b?

(166) F36 (7 frs., 3 with rounded edges, 1 with mortar attached)

Period 5b/5c/6

(183) F41 (2 frs. with rounded edge)

Period 5c/6

(176) F32 (12 frs., 1 with rounded edge)

(178) F39 (3 frs.)

(254) F283

Period 6 or modern

(218)

Modern

(31) F3 (with rounded edge)

(40) F3

(184) (2 frs.)

(403) (with rounded edge)

Unstratified

(167)

Unphased

(19) L1 (2 frs., 1 with rounded edge)

(61) L1

Site K

Modern

(241) F53

Unphased

(231) TT2

Site N

Period 5B1

(506) L84

(578)

(597) F140

Period 6

(41) L4

(56) L7

(84) L8 (with rounded edge)

(297) F86

(384) L21

Period 6+

(45) F12

(66) F42

(86) F21

Modern

(2) L1

(147) L1

Site T

Period 1

(538) (with rounded edge)

Modern

(239) F105

Site V

Period 2

(767) L93

(804) L93

(949) F322

(1287) F497

Period 2 or 3

(134) F30

Period 3 or 4

(111) (with rounded edge)

Early Period 4

(178) L17 (2 fr.)

Period 4

(223) L46

(452) L18

(723) L88

Periods 4 to 6

(127) (4 frs., 1 with rounded edge)

Period 5

(225) F499 (with rounded edge)

(290) L27 (2 frs., each with rounded edge)

Late Period 5

(25)

(91) L11

(938) L11 (with rounded edge)

(1052) (with rounded edge)

Period 5 or 6

(149) F50 (with rounded edge)

(207) F50

Period 5 or 6?

(148) F62

(159) F62

Unstratified

(1069)

Lion Walk

Site A

Period 2

(264) F89 (10 frs., 4 with rounded edge, heat affected)

Period 1 destruction or Periods 2 or 3

(329) (with rounded edge)

17th. century

(9) F3

Site B

Period 5

(494) F178

Medieval, post-medieval and modern

(31) F18

(59) F30/50

(239) F44

(352) F131

(442) F9

Site C

Period 3b

(413) (with rounded edge)

Period 4

(322)

Post-Roman

(183) F109

Site D

Unphased

(278) F162

Site E

Unphased

(129)

Site G

Period 2

(291)

(474) F234

Period 4

(119) F62

Site J

Period 4a make-up

(826)

Period 4a and 4b

(805)

Period 4

(409) (9 frs.)

(474)

(1464) F184 (with rounded edge)

Period 4b destruction

(373)

(411)

(506)

(518)

(720) F210

(816) F210

(877) F183 (with rounded edge)

Unstratified

(476)

Unphased

(194) F96

Site K

Medieval

(123) F93

Site L

Period 3a

(427)

Period 4(1)

(406) (with rounded edge)

Period 5

(202) F95

(272) F83 (with rounded edge)

(435) F260

(441) F261

Period 6

(188) F115

The Gilbert School

Site A

Period 1

(2070) F252 (with rounded edge)

Period 2

B136 (1241) L71 (melted, with rounded edge)

(1374) L88

(1962) L139

Period 2 or 3a

(1340) L81 (heat affected)

Period 3a

(865) L10

(1382) L82

Period 3b

(1036) F133 (with rounded edge)

(2493) F292 (light green, very heavily weathered, with rounded edge)

Period 3b or 4

(507) L17 (with rounded edge and mortar attached)

Period 3b (+ 4)

(970) L2

Roman

(341)

Post -Roman and Medieval

(91) L1

(1955) F42

Site B

Period 1 (or 2)

(91) F24

Period 2

B133 Rm4 (455) F93 (4 fr.)

Period 2 or 3A

B133 destruction (360) F1

Period 3B

(129) F15

(134) F15

Period 3

(209) F25

Unstratified

(239)

Middleborough

Site A

Pre-Roman Period 3

(2533)

Roman Period 3

(2280) (with rounded edge)

(2691) F0849 (5 frs., 2 with rounded edges)

(3080) F0868 (with rounded edge)

Roman Period 3 destruction

(2055) L0214 (with rounded edge and mortar)

(2901) L0609 (with rounded edge)

Late Roman or ? Roman

(2012) L0241

(2035) L0241 (with mortar)

Late Roman or post-Roman

(2998) L0598 (with rounded edge and mortar)

(3010) L0447

(3024) L0608

Early Medieval robbing

(241) F0033

(1748) F0044(2 fr.)

(1901) F0038 (with robbing)

(2381) F0044

Medieval or later

(1756) L1 (with rounded edge)

(2422) F0698 (with rounded edge)

(3025) F0869

Unstratified

(1744) L0223

Site B

Roman Period 3 destruction

(1483) L0214

(1847) L215 (with rounded edge)

Early medieval robbing

(1699) F0023

Post -medieval

(182) F0045 (with mortar)

Site C

Period 1 or pre-Period 2

(1022) L0114

(1194) L0114

(1240) L0114

Period 2(3)

(374) F0115 (with rounded edge and mortar)

Period 2

(461) L0025 (with mortar)

(1190) F306 (with mortar)

Period 4 or 5

(414) L0021 (with rounded edge)

Late Roman/early Medieval

(852) L66

(1547) F0422 (with rounded edge)

Medieval kilns

(1848) F354

Post-medieval

(2090) F0686

Unstratified

(1711)

Unphased

(1652) F477

Site G

Early medieval robbing

(1937) F0038

(2031) F653

Post -medieval

(2003) F0597

Unstratified

(1949) L0240

(2243) L0276

The Cups Hotel

Period IV

(576) F115 (2 fr., 1 with rounded edge)

(686) L61 (with mortar)

(691) L61

(736) L102 (2 fr.)

(874) L127/8

(915) L143

Period V

(473) F106

(578) F112

(876) F46

Period VI

(238) L50

(249-50) L22/57

(283) L22

(328) L50

(338) L57 (with rounded edge and mortar)

(469) F105 (with rounded edge)

Period VIII

(135) F51 (with rounded edge and mortar traces)

Long Wyre Street

Period 2

(936) F354

Period 8

(625) L101

Unphased

(606) F326

Maldon Road

Roman

F17

Roman or Modern

(123) F52

Inner Relief Road

Site B

(88)

Castle Gardens 1978

Unphased

(8) F2B

Blown window glass

Balkerne Lane

Site A

Period 6/Anglo-Saxon

(34) F16

(65) F16

(111) L16

Site D

Period 5/6 ditch

(68a)

Period 6

(244) F13/L13 (with rounded edge)

Site E

Period 6

(1221) L450

Post-Roman

(14) L2

(40) F24

Site K

Machine Trench I

(111)

Site N

Unphased

(71) F17 (with rounded edge)

Lion Walk

Site A

Early Anglo-Saxon?

(170)

Late Roman/early medieval

(196) (2 frs.)

Site B

Period 5

(117)

Site E

Unphased

(97) (with rounded edge)

Site G

Period 2

(262)

Site H

Anglo-Saxon

(240) F63 (with rounded edge)

Site K

Post-Roman

(48) F22

The Gilbert School

Site A

Post Roman

(47) L1 (with rounded edge)

The Cups Hotel

Period IV

(554) F115

(576) F115 (2 joining fr. with rounded edge)

Period V

(422) F87

(453) F106

(473) F106

(586) F112

Period VI

(371) L57