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Bearsden

A Roman Fort on the Antonine Wall

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Chapter 7

POTTERY

7.1 SAMIAN WARE

BRENDA DICKINSON

7.1.1 Introduction

The samian assemblage consists of 188 sherds, mostly less than 60mm across, and weighing a total of 2,850kg. The dating evidence provided by this group of samian comes almost entirely from a relatively small number of decorated bowls and stamped plain vessels. The rest is so severely eroded that most of the plain forms are hard to identify and virtually impossible to date closely. All the potters represented by decorated ware and stamps are already attested in Scotland, but Secundus v appears for the first time in an Antonine context.

The South Gaulish form 27, assessed as 'probably Flavian or Trajanic' seems to be from La Graufesenque rather than Montans, and so is likely to be a Trajanic survival; cf a stamp of L.Ter(tius?) Secundus at Castlecary (Hartley, B R 1972: 7, no 10). This comes from a die used at La Graufesenque on vessels from a kiln which was in use in 116 (Vernhet 1981: 34, no 17).

There are no certainly late-Antonine forms, such as Dr 45 and Walters 79, and the rouletted dishes are consistently form 18/31R, rather than 31R, ie before 160, or so. The material from Montans, Les Martres-de-Veyre and some of the Lezoux ware is unlikely to have reached the site, or to have been in use, as late as 158.

The only East Gaulish vessel (52) comes from one of the early potteries and is probably pre-Antonine. Unfortunately, it cannot be assigned to a precise kiln-site.

7.1.2 Catalogue

The Fort

BUILDING 1

1. Form 31, Central Gaulish. Antonine.
   NK74BB; west end, topsoil.
2. Two sherds of form 33(?), Central Gaulish, Antonine.
   NK74BN; east end, topsoil.
3. Fragment from a dish, perhaps shaped as a counter, from Les Martres-de-Veyre. Hadrianic-Antonine.
   NK74AV; west end, overlying natural.
4. Two fragments from a dish or bowl, perhaps form 37, to judge by the footring. The pale fabric resembles ones in the second-century Montans range. *c* 115–45.
   NK78EQ; burnt daub in gulley between buildings 1 and 2.

BUILDING 2

5. Form 31, Central Gaulish. Antonine.
   NK74Ax ; west end, topsoil.
6. A Central Gaulish sherd. Hadrianic or Antonine.
   NK74BM; central area, topsoil.
7. A Central Gaulish fragment. Hadrianic or Antonine.
   NK78BE; west end, modern intrusion.

BUILDING 3

8. Form 37, in the style of Cettus of Les Martres-de-Veyre, with his small medallion (Stanfield & Simpson 1958: pl 144, 49) and border of squarish beads. *c* 130–60.
   NK74CN; topsoil in the officer's quarters.
9. Form 33, burnt. Central Gaulish. Antonine.
   NK73CI; in hearth in base of amphora in room 3.
10. Two sherds of form 18/31R, Central Gaulish. Antonine.
    NK73Au ; by wall between rooms 4 and 5, patch of burning.
11. Form 18/31R, Central Gaulish. Antonine.
    NK73GE; topsoil.

BUILDING 5

12. Form 33, Central Gaulish. Antonine.
    NK74DD; hearth at east end of building.
13. Form 37, Central Gaulish. Hadrianic or Antonine.
    NK77BT; topsoil at east end of building.

BUILDING 6

14. Form 18/31R, Central Gaulish. Hadrianic or early Antonine, to judge by the pale fabric.
    NK75AS; topsoil.
15. Form 33, Central Gaulish. Antonine.
    NK74CQ; in topsoil above pit at east end of building.

16. Form 37, Montans ware. *c* 120–45.
    NK75BA; topsoil.

17. Two sherds from a barrel-shaped beaker, Central Gaulish. The neck is decorated with a series of mouldings (cf Stanfield 1929: 133, nos 30–2). Presumably Antonine.
    NK77BS; immediately over burnt daub.

18. Form 18/31 or 31 wall and sherd which might be from the same vessel, Central Gaulish. Hadrianic or Antonine.
    NK74CG; topsoil.

19. Two sherds of form 33, Central Gaulish. Antonine.
    NK77Cu ; topsoil.

20. Form 37, Central Gaulish, apparently with a row of beads below the decoration. Hadrianic-Antonine?
    NK74AE; topsoil.

BUILDING 7

21. Two large sherds of form 33, stamped MΛ·CRINFE retrograde by Macrinus ii of Lezoux (Die 6a: Hartley & Dickinson 2009: 190). This stamp has so far been recorded only on forms 31 and 33. Macrinus ii also made forms 18/31, 18/31R and 27. Many of his stamps occur in the Rhineland, suggesting activity before the middle of the second century. *c* 120–50.
    NK77EV; black organic fill of gulley to north of building sealed by burnt daub.

22. Form 33, stamped CROBISOM by Crobiso of Lezoux (Die la: Hartley & Dickinson 2008b: 206). This stamp occurs on forms 18/31R, 27 and 38. There is one example from Bothwellhaugh. Crobiso also made forms 18/31 and 42. *c* 135–65.
    NK73DO; in sand fill of gulley to north of building.

23. Form 18/31 or 31, from Les Martres-de-Veyre. Hadrianic-Antonine.
    NK75CK; in soil overlying rubble to south of room 1.

24. Form 37, with details used by Cettus of Les Martres-de-Veyre (illus 7.1). The decoration includes ovolo Rogers B263 and a zone of double festoons containing a lion (O.1404) and bear (D.820). Two, and probably all, the festoons are separated by seven-petalled rosettes (Rogers C37). The ovolo and animals are on a bowl in Cettus's style from London (BM; Stanfield & Simpson 1958: pl 141, 16) and all the details, with the exception of the (unidentified) motif below the decoration, are on a bowl from Corbridge (Stanfield & Simpson 1958: pl 142, 32). About 130–60.
    NK74BZ; south-east corner of the officer's quarters, immediately over burnt wattle and daub. Other fragments of the same vessel were found immediately to the east: NK77AL and DG.

25. Form 27, burnt, South Gaulish. Probably Flavian or Trajanic.
    NK76DI; immediately south of west end, topsoil.

26. Form 18/31, Central Gaulish. Antonine.
    NK75AB; room 1, topsoil.

27. Two sherds of form 31, Central Gaulish. Antonine.
    NK74BP; south-east corner of officer's quarters, topsoil.

28. Two sherds of form 33, Central Gaulish. Antonine.
    NK74Ay; south-east corner of officer's quarters, topsoil.

29. A Central Gaulish flake. Hadrianic or Antonine.
    NK73BF; central area, overlying natural clay.

BUILDING 8

30. Rim of form 30, Les Martres-de-Veyre. Antonine.
    NK76BH; unstratified.

31. Form 33 fragment, Central Gaulish. Antonine.
    NK76DG; topsoil.

BUILDING 9

32. Form 18/31 or 31, Central Gaulish. A rim sherd, one other sherd and a flake, probably all from the same vessel. Hadrianic or early Antonine.
    NK77Cy and DK; under rubble within granary.

BUILDING 11

33. Two adjoining fragments, Les Martres-de-Veyre. Hadrianic-Antonine.
    NK76AM; topsoil.

BUILDING 12

34. Form 36 or Curle 11, Les Martres-de-Veyre. Hadrianic-Antonine.
    NK76ED; on road surface south of building.

BUILDING 16

35. Form 33, South Gaulish. Flavian-Trajanic.
    NK77AB; topsoil.

INTERVALLUM AREA

36. Form 31, Central Gaulish. Hadrianic-Antonine.
    NK78AE; intervallum north of building 1.

37. Form 33, in exceptionally pale fabric with a chocolate-brown slip. Both are reminiscent of first-century Montans ware, but the form is second-century. Hadrianic-Antonine, probably from Lezoux.
    NK74AR; burnt deposit in intervallum east of building 6.

38. Form 37, perhaps Montans ware. The upper zone of decoration includes satyrs, one with a hare, the other with grapes (larger and smaller versions of types used originally at La Graufesenque: Hermet 1934, pl 19, 87 and 80 or 81, respectively). *c* 120–45?
    NK73AO; topsoil overlying rampart between fort and annexe east of building 6.

39. Two joining base sherds of form 18/31 or 31, stamped AVITI·[MA] by Avitus iii of Lezoux (Die 1d: Hartley & Dickinson 2008a: 376). This stamp is already attested in

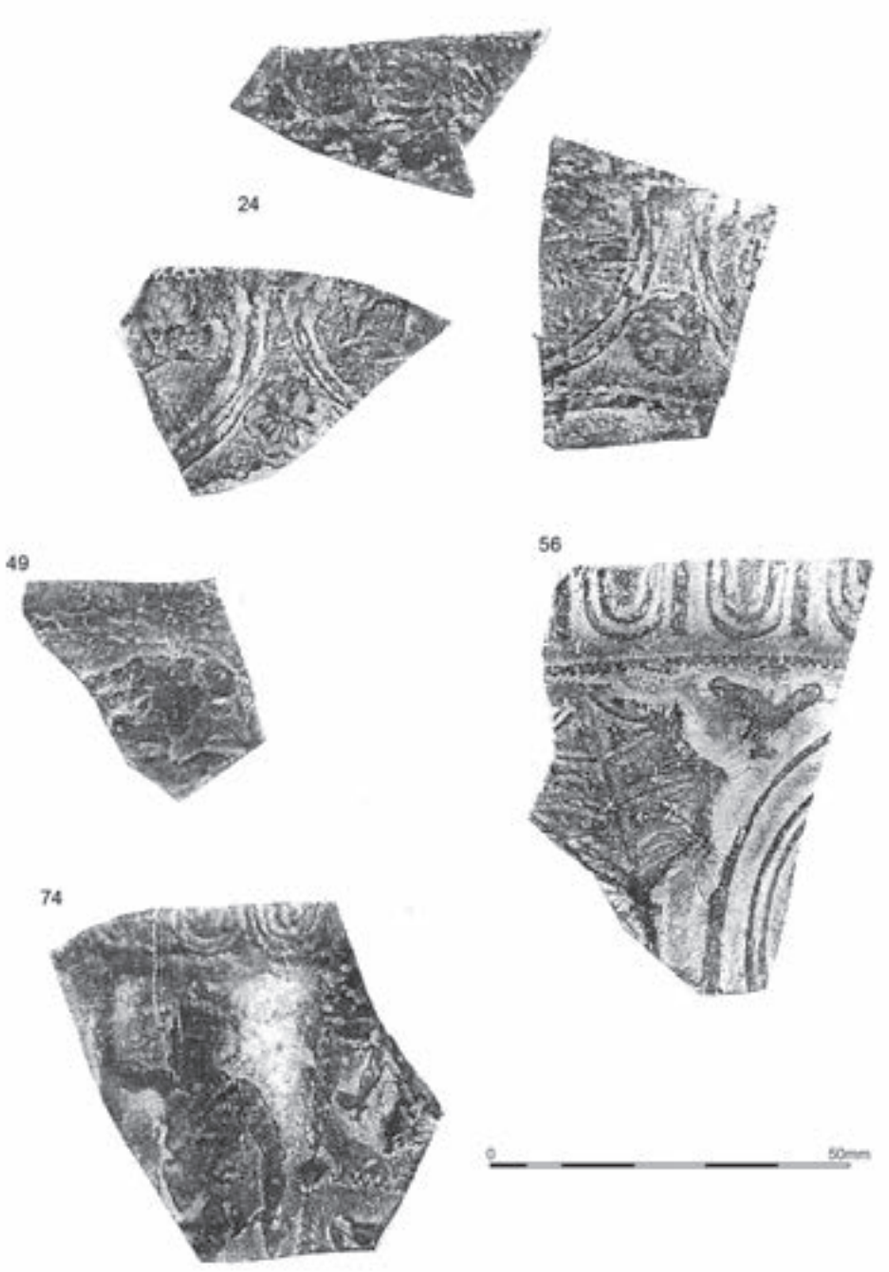


Illustration 7.1
Samian.

Scotland (two examples from Mumrills), as are several of his others, from different dies. His most common forms are 18/31 and 27 and his decorated ware is Hadrianic. About 120–50.

NK77AE; intervallum east of building 7, topsoil.

40. Fragments of form 37.

NK77AE; BL; EE; intervallum east of building 7, topsoil; NK77BQ; burnt patch between intervallum road and rampart.

41. Form 31.

NK74DE; intervallum east of building 8.

42. Form 33, burnt.

NK74CL; intervallum east of building 8, topsoil.

43. Forms 18/31 or 31, Central Gaulish. Antonine?

NK77CI, intervallum east of building 12 topsoil; NK77CR; unstratified; NK77CM; below cobbles of intervallum road east of building 12.

The Annexe

PRIMARY BATH-HOUSE

44. Dish footring, Central Gaulish. There is an owner's identification mark, in the form of a nick, across the underside. Antonine.
    NK80EE; construction trench.

45. Form 38 (?), Central Gaulish. Hadrianic or early Antonine.
    NK80EP (with NK80DI); from below hearth flags inside building.

46. Form 30 or 37 rim, Central Gaulish. Antonine.
    NK80DI; burning on floor of building.

47. Form 37, with the ovolo chiefly associated with the Cerialis ii–Cinnamus ii group at Lezoux (Rogers B144). The scroll decoration includes an eight-petalled rosette (Rogers C53) and a large leaf (not precisely identifiable). *c* 140–70.
    NK80DI; burning on floor of building.

BATH-HOUSE

48. Form 37, Central Gaulish, with a Venus at an altar (D.184) in a double medallion in the lower concavity of a scroll. Almost certainly by Cinnamus ii; cf Stanfield & Simpson 1958, pl 162, 59. *c* 150–80.
    NK81AJ; under flagged floor of the cold room.

49. Form 37, in the style of Cettus of Les Martres-de-Veyre (illus 7.1). The decoration includes his smallest ovolo (Rogers B97) and a lion (not in D. or O.), which appears on a bowl in his style from Les Martres (Terrisse 1968: pl x x II, 251b). For a discussion of this potter's date see Hartley (1972: 34). *c* 130–60.
    NK73CD; fill of cold room.

50. Form 37, Central Gaulish. The scroll decoration includes an eight-petalled rosette (Rogers C53), which was used by Cinnamus ii and some of his associates. *c* 140–70.
    NK73CD; fill of cold room.

51. Form 33(?), Central Gaulish. Antonine.
    NK73DF; clay and charcoal overlying flags of cold room.

52. Two sherds of form 46 (with Curle 23-type rim), East Gaulish. The footring is very shallow. The slip, though orange, is not a normal East Gaulish one. Probably pre-Antonine.
    NK79BC; warm room.

53. Form 37, burnt, Central Gaulish. The decoration includes an athlete (D.359) which Cinnamus ii used. Antonine.
    NK79DC; furnace of hot room.

54. Two joining sherds of form 37 and one other (AA), Central Gaulish, with panels: (1) A mask? (2) A crane (D.1001) and pygmy (D.442).

55. The figure-types were used at Lezoux by both Hadrianic and Antonine Lezoux potters. The slip suggests Hadrianic or early Antonine date.
    NK80AF and NK80 BE; hot dry room.

56. Form 37, Central Gaulish, with scroll decoration (illus 7.1). The ovolo (Rogers B145), leaf (Rogers B1) and bird (O.2239B) in the upper concavity and double medallion in the lower concavity are all on a bowl from Lezoux with one of Cinnamus ii's small label stamps. *c* 140–60.
    NK73CW; overlying floor of hot dry room.

57. Form 18/31R, Central Gaulish. Early to mid-Antonine.
    NK79CM; core of 'buttress' against the south wall.

58. Form 37, Central Gaulish. The ovolo is either Rogers B223, used by Cinnamus ii, or a version of it which occurs on bowls in the style of Secundus v. *c* 150–75.
    NK73FG; topsoil in hot room.

ANNEXE: AREA SOUTH OF BATH-HOUSE

59. Form 37 rim, Central Gaulish. Hadrianic or Antonine.
    NK79AD; topsoil to south of bath-house.

60. CV Form 30 or 37 base and an unidentified sherd. Both Central Gaulish and Antonine.
    NK73CN; topsoil.

61. Two sherds from a bowl with scroll decoration, Central Gaulish. The leaves (Rogers J 1 and, perhaps, H72) were used by both Attianus ii and Cinnamus ii and both used sinuous tendrils, as here, though they appear only rarely in Cinnamus's work. Not closely datable.
    NK73AB; topsoil.

62. Form 18/31R, Central Gaulish. Early to mid-Antonine.
    NK80AF; topsoil to south of bath-house.

63. Form 37, Central Gaulish, with a double medallion containing a Venus at an altar (D.184). Probably by Cinnamus ii. *c* 150–75.
    NL73AD; topsoil.

64. A bowl with scroll decoration, including a bird (D.1038) and leaf (Rogers H72). Probably by Cinnamus ii or one of his associates, to judge by the ovolo (Rogers B144). *c* 140–70
    NK73AD; topsoil.

65. Dish footring, Central Gaulish. Hadrianic or Antonine.
    NK80DG; burnt layer south of bath-house.

66. Form 18/31, from Les Martres-de-Veyre. Hadrianic.
    NK80HS; drain south of second warm room.

67. Form 18/31R, Central Gaulish. Early to mid-Antonine.
    NK80CL; pit south of warm room.

68. Form 37, Central Gaulish. The decoration includes a dolphin to right (O.2385?) in a single festoon and, perhaps, a ring-tongued ovolo (Rogers B105). Probably by Albucius ii, but Antonine, in any case.
    NK80EK; fill of drain running south from furnace of hot room.

69. Form 27, perhaps second-century Montans ware and, if so, about 120–45.
NK73Cx ; below cobbles to south of bath-house.

70. Form 33 stamped CRICIRONIS by Criciro v of Lezoux (die 4a: Hartley & Dickinson 2008b: 194). This stamp, which is also known from Camelon, was used on form 18/31. Criciro v's wares are common in Scotland and one of his decorated bowls occurs in an early Antonine pit at Alcester. *c* 135–60.
NK76FR; overlying cobbles to south of bath-house.

71. Form 30 or 37 rim, drilled for a rivet, Central Gaulish. Hadrianic or Antonine.
NK79BR; rubble south of bath-house.

72. Form 37, Central Gaulish, with panels: (1) A composite motif (?). (2) A Victory (D.474). *c* 125–45.
NK73DS; outside south-east corner of bath-house, unstratified.

73. Form 37, Central Gaulish. The ovolo is almost certainly one normally associated with the work of Cinnamus ii (Rogers B223, or a version of it), but there is apparently no border below it. However, it may have been impressed over a straight line, a common feature of Secundus v's, style. Only one example of the use of the ovolo by this potter is known to us, on a stamped bowl in the Oswald-Plicque Collection (Nottingham University Museum: Rogers 1999: pl 108, 1), but that has a bead-row below it. The decoration of the Bearsden bowl includes a double festoon which he also used. The available evidence, therefore, favours ascription to him, rather than to Cinnamus. Cf 88, below. *c* 150–75.
NK73DS; FG, NK79BN; outside south-east corner of bath-house, unstratified.

74. Form 37, Central Gaulish, with one of Albucius ii's common ovolos (Rogers B107 (illus 7.1)). The panels include: (1) a seated figure (perhaps with a staff); (2A) a Cupid (D.264); 2B) a cup (Rogers T17). Both the details in panel 2 are known on Albucius's stamped bowls, the Cupid on one from Bregenz (Stanfield & Simpson 1958: pl 121, 16) and the cup on one from the Wroxeter Gutter (Stanfield & Simpson 1958: pl 120, 1). *c* 145–75.
NK76CE; south of bath-house, topsoil.

75. Form 37, Central Gaulish, with a zone (?) of double festoons over an animal zone, including a bear (D.820) and small lion (O.1403A). By Sacer i or one of his associates (cf Stanfield & Simpson 1958: pl 82, 2, 3, 6, 7). *c* 125–50.
NK76DD; south of bath-house, topsoil.

76. A rim flake, Central Gaulish. Hadrianic or Antonine.
NK73ER; to east of cold bath, unstratified.

77. Form 30 or 37 rim, Central Gaulish. Antonine.
NK79DA; burnt material beside furnace and between bath-house and rampart.

78. Form 31, from Les Martres-de-Veyre. Early Antonine.
NK79BV; between the bath-house and annexe rampart, beside kerb of rampart.

79. Forms 30 or 37 rim and 31, Central Gaulish. Antonine.
NK73CE; topsoil overlying path to west of cold bath.

ANNEXE: AREA SOUTH-WEST OF BATH-HOUSE

80. Forms 18/31 and 33, Central Gaulish, the former perhaps from Les Martres-de-Veyre. Hadrianic-Antonine and Antonine, respectively.
NK73FS; topsoil.

81. Three sherds, two joining, of form 30, Central Gaulish. The decoration includes a slave (D.322), used by Drusus ii, and the rosette-tongued ovolo (Rogers B36?) would not be impossible for him. *c* 125–40.
NK73AW; annexe, topsoil (2); NK73AJ, annexe, topsoil.

82. Form 31, from Les Martres-de-Veyre. Hadrianic-Antonine.
NK73FS; annexe, topsoil.

83. A Central Gaulish scrap. Hadrianic or Antonine. NK73AW; topsoil. Annexe: south and west of latrine

84. Four rim sherds of form 30 or 37, some joining, Central Gaulish. Burnt, Antonine. Perhaps from the same bowl as 79.
NK79AF; topsoil south of latrine.

85. Form 30 or 37 rim, Central Gaulish. Antonine.
NK73AF; topsoil south of latrine.

86. Form 37, Central Gaulish. Hadrianic.
NK73AC; topsoil south of latrine.

87. Form 37 rim, Central Gaulish. Antonine.
NK80AE; beside cobble foundation to west of latrine.

88. Two joining sherds of form 37, Central Gaulish, with panels: (1a) A double festoon. (2) A double medallion with a horse and rider (D.156, but with a cloak). There is a small dolphin in the panel corner. (3) Man with a staff (D.88). The dolphin and the use of a straight line below the ovolo suggest Secundus v, an associate of Cinnamus ii. The ovolo (Rogers B223, or a version of it) is on a bowl stamped by Secundus in the Oswald-Plicque Collection (Nottingham University Museum: Rogers 1999: pl 108, 1). He is also known to have used the festoon. Perhaps from the same bowl as 73 above. *c* 150–75.
NK79BN; topsoil overlying gravel surface to west of latrine.

ANNEXE: SOUTH OF ROMAN ROAD

89. Two sherds of forms 18/31 or 31, Central Gaulish. Antonine.
NK77Au ; silt overlying path to east of fort rampart and building 12.

90. Forms 18/31–31, Central Gaulish. Antonine.
NK77AQ; below cobbles of path to east of rampart and building 12.

91. Form 33, Central Gaulish. Antonine.
    NK77AI; below cobbles of path east of rampart and building 12.

92. Form 37, Central Gaulish. Antonine.
    NK77AI; below cobbles of path east of rampart and building 12.

Defences

93. Form 31, Central Gaulish. Antonine.
    NK73AM; in topsoil overlying east ditches of annexe.

94. Form 37, Central Gaulish, with Cinnamus ii's ovolo 3 (Rogers B143). The leaf in a scroll is not closely identifiable. *c* 150–70.
    NK75CC; silt in outer east ditch.

External areas

95. Form 33 (?), in pale fabric, with traces of slip. Probably second-century Montans ware. *c* 115–45.
    NK78EW; to west of fort, topsoil.

96. Form 37 (?), Central Gaulish. Hadrianic or Antonine.
    NK78BQ; to west of fort, topsoil.

97. Two joining fragments of form 27, Central Gaulish. Hadrianic.
    NK78DL; to west of fort, topsoil.

98. Form 30 or 37 rim, Central Gaulish. Antonine.
    NK75BP; to east of annexe, topsoil.

99. Form 31, Central Gaulish. Antonine.
    NK75BP; to east of annexe, topsoil.

100. Form 33, Central Gaulish (?). Hadrianic or Antonine.
    NK78Bx ; to east of annexe, topsoil.

101. Form 37, Central Gaulish. The top half of a panel contains a chevron festoon (Rogers F15?), probably over an animal. The festoon was used by potters such as Laxtucissa and Carantinus, but the bowl is not firmly assignable to either. Early to mid-Antonine.
    NK78CV; to east of annexe, topsoil.

7.2 THE COARSE WARE

PAUL BIDWELL AND ALEX CROOM

7.2.1 Introduction

The fine and coarse wares assemblage as studied consisted of 3,353 sherds weighing a total of 41.082kg (table 7.1). The pottery was catalogued and quantified by weight, sherd count and by measuring rim percentages (EVEs). Many of the sherds have been badly affected by the soil conditions and are now soft and without their original surfaces.

The pottery was originally studied by Louise Hird in the 1980s, when a report, now archived, was produced and many of the vessels drawn. The report consisted of a vessel type series, a fabric list describing 40 different fabrics, and a brief discussion of the assemblage. At the same time heavy mineral analysis of the black-burnished wares was carried out by David Williams and thin sections of the oxidised wares were examined by Mark Gillings. Their reports are included below and cross-references to Gillings' samples are included in the catalogue of coarse wares with the reference numbers beginning BD (7.4.1). Williams' samples are also noted (7.4.4).

Vivien Swan started to update and revise the report in 1997 to take into account pottery research carried out in the intervening years, and recatalogued the majority of the pottery. A number of the vessels, especially those that had been drawn, were found to be no longer available for study. In 2003 the pottery database was transferred to an Access database, and further work was carried out on the pottery by Vivien Swan and Ray McBride, including the illustration of further vessels. Swan worked mainly on the North-Africa style pottery (Swan 1999) and had produced only a few notes on the rest of the assemblage before her death. This report incorporates elements of all of this previous work, as well as further research that has been carried out since.

Some of the pottery which was seen by Hird was misplaced before it was received by Swan, though it later emerged that two nearly complete vessels (nos 120 and 219) were in the Hunterian Museum .

Fortunately there are drawings and some fabric descriptions for the missing pottery, which is marked by an asterisk in the catalogue. Other fabric descriptions and identifications have been taken from Swan's notes. The identification of the Black Burnished ware 1 (BB1) as from south-east Dorset (SED BB1) or from south-western England, possibly south Somerset or west Dorset, or even east Devon (SOW BB1), has been carried out by the authors.

Excavations at sites along the Wall have produced over 600kg of pottery excluding amphorae, summarised by Swan (1999: 451–62). unfortunately, despite this large quantity, there is almost no quantification of pottery from these sites available for comparison with the Bearsden assemblage. Some has never been studied, some is awaiting publication, while much of the published material comes from old excavations when quantification was

Table 7.1
Breakdown of pottery from the whole site

Type	*Wt (kg)*	*No of sherds*	*EVE (%)*
Amphorae	150.505	2,129	unknown
Mortaria	19.369	502	1,524
Coarse wares	41.082	3,353	8,937
Samian	2.900	188	unknown

not carried out. Other more recent pottery reports do not include quantification, and sometimes do not even give the quantity of pottery recovered. Individual vessel types can be compared to those from other sites, but it is impossible to say how typical the composition of the Bearsden assemblage is of sites on the Antonine Wall.

7.2.2 Fabrics

Descriptions for the fabrics with National Reference Collection codes in table 7.17 (in italics) can be found in Tomber & Dore 1998. Other fabrics are described below, or within the pottery catalogue. Minor variations in the local wares were given separate fabric numbers; these have been included in the pottery catalogue in brackets after the fabric code (M = Mortarium Fabric).

The numbers listed under the vessel types are catalogue numbers.

Cologne (KOL CC)
Beaker: 206–7

Colchester (COL CC2)
Beaker: 205

Upchurch?
Poppy-head beaker: 209

Local oxidised ware (LOC OX)
For more detailed fabric descriptions see the report on the petrological analysis report (7.4.4) and the mortaria report (7.3).

Micaceous orange fabric, with moderate amounts of rounded quartz, soft red and multi-coloured inclusions; some sherds have a pale grey core. Can be soft and powdery, although those sherds that have survived better have a hard fabric with traces of a red slip. Some sherds have the remains of a cream slip. Gillings' analysis (7.4.1) has shown that while there is variation in the quantity of quartz present, all the sub-fabrics (distinguished by Hird), as follows, are likely to come from the same source, close to the fort.

5 Plentiful quartz inclusions (Gilling Fabrics 2 and 3).

8 Similar to Fabric 5, but with a darker, well-defined core.

10 Less quartz present than in Fabric 5, but inclusions generally larger (especially sandstone pieces). Often paler than Fabric 5. Some traces of a red slip.

14 Fine version of 10, without the large inclusions. Possible red surface slip.

16 Cream (sometimes with pink core) to very pale orange (oxidised version of Fabric 11).

26 Fine version of Fabric 10, pale orange.

M5 (Gilling Fabric 1), M8, M10, M13: these mortarium fabrics are very similar to 5 (Sarrius' workshop), 8 (Gilling Fabric 2), 10 and 13.

Local reduced ware (LOC RE)
Pale grey core (often in fact a buff core when seen in a fresh break) with mid-grey surfaces. Fabric moderately sandy, with similar inclusions to the oxidised versions, although generally quite fine.

11 Exterior sometimes darker grey from a slip.

15 Reduced version of Fabric 8.

21 Reduced version of Fabric 10.

22 Reduced version of Fabric 14.

M11 Mortarium Fabric 11

Local oxidised and reduced ware vessel types
Baking cover?: 30
Beaker: 4–6
Bowls: 31–4, 41–59, 96, 241(?), 246(?)
Cooking pot and jar: 7–29
Crucible: 90
Decorated: 93–5
Flagon: 1–2, 86, 92
Lamp: 97–8
Lids: 79–84, 254(?)
Patera: 85
Platters: 72–3
Storage jar: 3, 29
Tettina: 91
Triple vase: 89
Wide-mouthed bowl: 60

North-African type vessels
Basin: 62–4
Bowls with straight, up-turned rims: 35–40
Brazier: 87–8
Casserole: 61
Platter, flat bases, with concentric grooves on the underside: 65–7, 74
Platter, flat bases, plain: 69, 75
Platter, rims only: 70–1, 76–7
Platter, sagging base: 78
Platter, underside of base with recessed area: 68

Possible local production
Imitation African red-slipped ware dish: 249

Antonine Wall products
See also: Mortarium Fabrics 4 and 9.
As well as oxidised vessels made in Fabrics M4 and 9, there are sherds of a 'blue-grey' reduced ware. This is a fine, micaceous mid-grey fabric with plentiful soft black inclusions.
Cooking pot: 102–3

Patera: 106

Triple vase: 100

Balmuildy oxidised

A fabric thought to have been produced at the site, where it made up to 50% of the whole assemblage. It is a brownish-orange fabric sometimes with a grey core, variable sandy-textured, and often burnished or coated with a thin brownish or white slip (Swan 1999: 458). The range of vessels produced at Balmuildy was much more varied than those made at Bearsden, and includes some unusual forms (Swan 1999: 459). There are 15 sherds of this ware at Bearsden, from at least three vessels.

Cooking pot: 101, 104

Lid: 105

Severn Valley

When Webster published his study of this ware on the Antonine Wall he only knew of a single storage jar from Bearsden (Webster 1977: 171). He found that storage jars were the most common form found on the Wall, with much smaller numbers of bowls and only one tankard; Bearsden itself has produced only storage jars.

Storage jar: 191–202

Black Burnished Ware 1 (BB1)

There are at least three sources for BB1 on the Antonine Wall: south-east Dorset (SED BB1); an industry probably located in Somerset, but possibly in east Dorset or even in east Devon (SOW BB1); and Cantley/Rossington Bridge in south yorkshire (ROS BB1). Pottery from the first two sources can usually be distinguished macroscopically, but it is difficult to distinguish between vessels from south-east Dorset and Cantley/Rossington Bridge. BB1 from south-east Dorset is often darker in colour and its fabric sometimes contains fragments of shale (Buckland et al 2001), but the ware in general displays a wide range of colours and inclusions. Most of the vessel-types made in south-east Dorset and south yorkshire are indistinguishable, and the criteria proposed for the identification of jars from the latter source have been rejected by Buckland (ibid 66). However, there is one type – the bead-rimmed bowl with a markedly chamfered base – made in south yorkshire and common throughout the Roman North which does not occur in Dorset and the South-West. Details appear in the catalogue but it should not be assumed that all the examples on northern sites are Rossington Bridge products; petrological analysis has shown that there are examples which do not fit known production areas (see 7.4.1).

Bead-rimmed jar: 107, 110–13

Beaker: 108–9

Bowl, bead-rimmed: 135–6

Bowl and dish, flat-rimmed: 137–50, 233(?), 240(?)

Cooking pot: 113–31, 163, 233(?)

Dish, plain-rimmed: 132–4

Black Burnished Ware 2 (BB2)

Heavy mineral analysis of two BB2 sherds indicates that some, if not most, of the BB2 on the site came from Colchester (COL BB2; see 7.4.1), though cooking pots with bead rims (such as no 166) are probably from a different source.

For vessel types, see collectionsprojects.org.uk/archaeology/Ceramic%20Database/type%20series.html

Bowl and dish, plain-rimmed with groove: 170–2

Bowl and dish, rounded-rimmed: 181–90

Bowl and dish, triangular-rimmed: 173–80

Cooking pot: 151–62, 164–5

Cooking pot with beaded rim: 166, 237–8(?)

Dish: plain-rimmed: 167–9

East Anglian?

Grey ware, finely sandy with abundant silver mica.

Cooking pot: 21(?), 216

Storage jar: 218

Nar Valley

A rough, hard, very dark grey fabric, with moderate quartz inclusions and occasional flint fragments (Andrews 1 985: 89, RW1), produced at a number of different kiln sites in west Norfolk, near King's Lynn. The ware is mainly found in and around Norfolk, but individual vessels, transported as personal possessions or similar rather than traded commercially, are found further afield. The start date of the large-scale production of the ware is sometime in the late second or early third century, but there may have been smaller scale production earlier (Peachey 2008: 66), which would be supported by the presence of this vessel at Bearsden. There is a single cooking pot.

Cooking pot: 224

North Gaulish

Smooth, powdery, white fabric, with traces of creamy white slip on exterior. See Discussion (7.8.4).

Jar: 219

Verulamium? (VER WH)

Flagon: 256

Calcite-gritted

A single sherd with the inclusions leached out, in a dark grey fabric with an orange interior surface. Possible sherd of Knapton ware from yorkshire. Calcite-gritted ware generally had a restricted distribution until the late third century, but small quantities appear earlier outside the yorkshire region. There are a number of possible calcite-gritted ware vessels at Cramond (Ford 2003: illus 75, nos 2–10).

Non-local grey

There are a number of fabrics with inclusions (such as flint) that suggest or indicate they were not made locally.

Import?

Buff-brown fabric, burnished on interior and exterior. The fabric is hard, and has a more sandy texture than the locally produced

fabrics. There were a few sherds from a jar and a sooted body sherd that Swan identified as possibly coming from a casserole. She thought these might be imported vessels rather than local copies.

Unidentified

This category includes unidentified oxidised and reduced wares, but also a number of vessels that had been previously illustrated but which were no longer available for study, and whose identification therefore remains uncertain.

7.2.3 Catalogue

The entries include vessel type, fabric, context and general location. An asterix indicates that the vessel was not available for study by the authors; where possible, fabric identifications or descriptions for these sherds have been taken from Hird.

Local wares

FLAGONS AND STORAGE JARS

1. Flagon, LOC Ox (26).
   NK73CV and DD; bath-house, cold room, debris overlying flags.
2. Flagon 'of unusual form with an internal seating for a stopper' (Swan 1999: 467, no 41), LOC Ox (M5), with brown slip. Unevenly fired. Swan considered this a possible North-African type vessel, quoting a parallel from Uzita in Tunisia (Werff 1982: pl 47, no 9).
   NK80Du ; primary bath-house, destruction debris overlying floor.
3. Narrow-mouthed jar, possibly imitating a Severn Valley ware form, LOC RE (11). Tally marks on the rim.
   NK80BA and By; primary bath-house, fill of robber trench of south wall.

BEAKERS

4. Beaker, LOC Ox (14), in very poor condition. Swan considered this a possible North-African type vessel, with a parallel at Simitthus (Swan 1999: 467, no 42; Vegas 1994, form 176).
   NK76FR; annexe, south of changing room of bath-house, overlying cobbles.
5. Beaker, LOC RE (11). Imitation of a colour-coated ware beaker with an orange slip.
   NK79CT; primary bath-house, unstratified.
6. Beaker, LOC Ox (5).
   NK77Au ; annexe, silt overlying path to east of fort rampart and building 12.

COOKING POTS AND JARS

7. Small jar, LOC RE (15).
   NK76AI; building 11, north range, topsoil.
8. Small jar, LOC Ox (5). Thin-section sample BD010 (fabric 2).
   NK75CQ; building 4, rubble debris.
9.* Small jar, LOC? Exact diameter uncertain.
   NK77CJ; on road to east of building 14.
10. Small jar, LOC Ox (14), with thin creamy-white slip. Very poor condition, so exact diameter uncertain.
    NK73GE; south-west corner of building 1, topsoil.
11. Jar, LOC Ox (16).
    NK76GH; annexe, south of changing room of bath-house, clay overlying cobbles.
12.* Jar, LOC?
    NK73CA; intervallum road to west of building 3, topsoil.
13.* Cooking pot, LOC Ox ?
    NK73GW; annexe, topsoil.
14. Cooking pot, LOC RE (M11). Smoothed. Burnt on tip of rim.
    NK76DD and DV; annexe, south-west of bath-house, topsoil.
15. Cooking pot, LOC Ox (5).
    NK73EE; bath-house, hot dry room, debris.
16. Cooking pot, LOC Ox (10). Burnt on exterior.
    NK77Au ; annexe, silt overlying path to east of fort/annexe rampart south of Roman Road.
17. Cooking pot, LOC Ox (4).
    NK77EE; intervallum east of building 7, unstratified.
18. Cooking pot, LOC Ox (5). Thin-section sample BD013 (fabric 2).
    NK75CQ; building 4, rubble overlying granary.
19. Cooking pot, LOC Ox (5). Thin-section sample BD012 (fabric 3).
    NK73BT; *via praetoria* between buildings 3 and 7, topsoil.
20. Cooking pot, LOC RE (22).
    NK73EZ; annexe, south-west of bath-house, unstratified.
21. Cooking pot. Identified as LOC RE (15), although as the fabric is highly micaceous it could be East Anglian.
    NK77Au ; annexe, silt overlying path to east of fort/annexe rampart south of Roman Road.
22. Cooking pot, LOC RE (15).
    NK75Cu ; building 5, room 1, clay above burnt layer.
23. Cooking pot, LOC RE (M11) with black slip imitating BB2.
    NK76GO; annexe, south-west of bath-house, post-hole.
24.* Cooking pot, LOC?
    NK77Au ; annexe, silt overlying path to east of fort rampart and building 12.
25.* Cooking pot, LOC?
    NK76Au ; building 12, topsoil.

Illustration 7.2
Coarse pottery 1–44.

26. Cooking pot, LOC Ox (5). Slipped or burnished.
NK78CT; east of annexe defences, in fill of gulley.

27. Cooking pot, LOC RE (11).
NK77AL; intervallum road to east of building 7, topsoil.

28. Cooking pot, LOC RE (15), very pimply surface.
NK76FP; annexe, south of changing room of bath-house, overlying cobbles.

29.* Plain-rimmed storage jar, LOC Topsoil.

BAKING COVER?

30.* Rectangular vessel (?), LOC Ox (10). The angle of the rim is uncertain, but it must come from a rectangular vessel as the surviving fragment is straight. The rim is expanded, with a wide depression along the top surface. It could possibly be part of a baking cover or portable oven, as rectangular examples are known from Egypt and Pompeii (Williams & Evans 1991: 51). However, there is no sign of sooting or burning, and it could possibly be just an unusual tile fragment.
NK76Au ; annexe, silt overlying path to east of fort/annexe rampart south of Roman Road.

CARINATED BOWLS

31. Flat-rimmed carinated bowl, LOC RE (11). Swan considered this a possible North-African type form, as 'no contemporary parallels [are] known in Britain' (Swan 1999: 467, no 34). However, there are other examples at Old Kilpatrick (Miller 1928, pl x x II, nos 14–15).
NK77FM, building 5, north-west corner, up-turned in a small hole.

32. Flat-rimmed carinated bowl, LOC RE (11), self-slipped.
NK76CD and EN; annexe, south of changing room of bath-house, overlying cobbles.

33. Flat-rimmed carinated bowl, LOC Ox (5). Burning on top of rim.
NK77AL; intervallum east of building 7, over drain, unstratified.

NORTH-AFRICAN TYPE BOWLS

34. Flat-rimmed bowl, LOC Ox (16).
NK73AJ; annexe, south-west of bath-house, topsoil.

35. Flat-rimmed dish, LOC Ox (5). Brownish slip and sooting on the exterior. 'Flat-rimmed bowl with burnished surfaces and a gently rounded base in Bearsden oxidised ware; not a British form, but cf a similar cooking-vessel at Ostia (Ostia II, tav xx, no 361). It is just possible that this form was ancestral to the slightly later African red slip ware bowls, Hayes Forms 42 and 45' (Swan 1999: 467, no 37). Bonifay's (2004: 263, fig 143) subsequent study of North-African pottery defines a similar type, 'Commune Type 21 (Bassins Uzita 2)', the rim of which is similar to no 35.
NK77BB and BJ, overlying charcoal spread outside fort/annexe rampart interpreted as a breastwork.

36. Flat-rimmed bowl, LOC Ox . Thin-section sample BD007 (fabric 2).
NK77BZ; building 9, unstratified.

37. Flat-rimmed bowl, LOC? Cf Cadder: Clarke 1933: fig 15, no 2.
NK74CZ; building 3, wattle and daub fill of gulley outside north-west corner.

38. Flat-rimmed bowl, LOC Ox (M10).
NK77BH, BS and BV; soil overlying daub to north of officer's quarters of building 7.

39. Flat-rimmed bowl or dish, LOC Ox (M8). Exterior abraded. Sooting on exterior and on outer edge of rim.
NK77BZ; building 9, unstratified.

40. Flat-rimmed bowl or dish, LOC Ox (5). Underfired. Thin-section sample BD006 (fabric 2).
NK77EZ; daub between buildings 5 and 7.

OTHER BOWLS AND DISHES

41. Flat-rimmed bowl or dish, LOC Ox (M10). Smoothing on exterior. Underfired and cracked.
NK73AW; annexe, south-west of bath-house, topsoil.

42. Triangular-rimmed bowl, LOC RE (11). Sooted up to rounded angle.
NK76FR and FP; annexe, south of changing room of bath-house, over cobbles.

43. Triangular-rimmed bowl, with very thin base, imitating a BB2 form. Possible traces of lattice, but extremely faint. Swan thought that the convex wall and rounded wall/base junction (not found on the BB2 form) might suggest a North-African tradition of manufacture (Swan 1999: 467, no 35), LOC RE (11).
NK73BH; annexe, south-west of bath-house, topsoil.

44. Triangular-rimmed bowl, LOC RE (11).
NK73AZ**;** building 3, room 4, burnt patch lying on clay.

45. Triangular-rimmed bowl, LOC RE (11). Slipped. Local BB imitation.
NK73 DQ; annexe, south-west of bath-house, unstratified.

46. Triangular-rimmed bowl, LOC RE?
NK73BG; annexe rampart, topsoil.

47. Plain-rimmed bowl, LOC RE (15). Swan considered this could be a BB imitation with a North-African type rounded base (as no 43 above; Swan 1999: 467, no 36). Burnt on exterior and on underside.
NK73CA; intervallum road to west of building 3, topsoil.

48. Plain-rimmed bowl with groove, LOC RE (15). Heavily sooted on exterior, and burnt on lower interior surface.

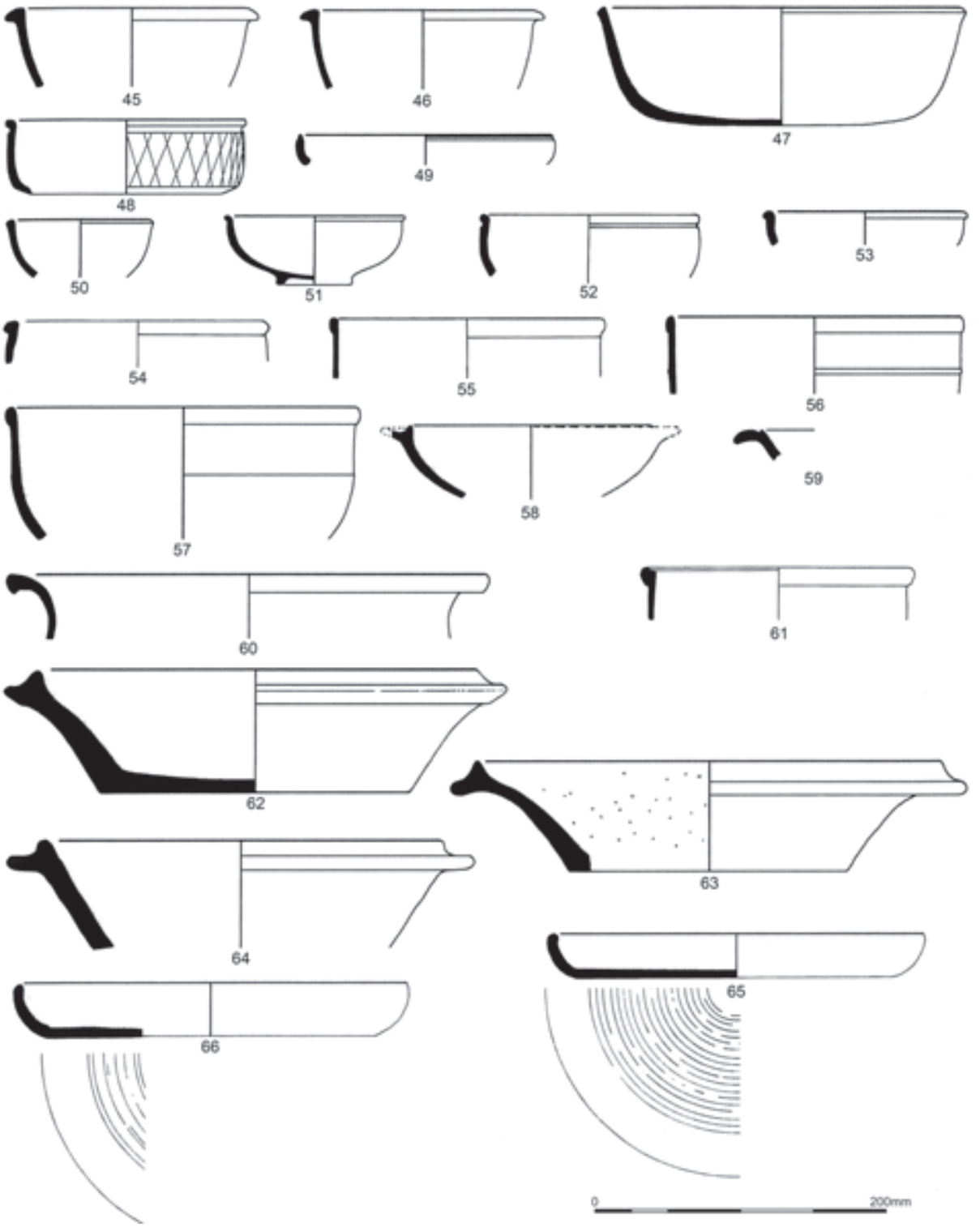


Illustration 7.3
Coarse pottery 45–66.

NK76FP; annexe, south of changing room of bath-house, over cobbles.

49.* Plain-rimmed bowl with groove and curved walls. LOC?
NK77AL; intervallum road to east of building 7, topsoil.

50. Hemispherical bowl, LOC Ox (M5). Pale reddish slip.
NK73CO; annexe, south-west of bath-house, unstratified.

51. Hemispherical bowl, LOC Ox (16). Swan has identified this as a possible 'tulip bowl', a type common in Mauretania (Swan 1999: illus 11, no 44), but it lacks the exaggerated features of other examples (Swan 1999). She also identified it as a possible North-African import, but it is likely to have been produced locally as other, non-North-African vessels have now been found in the same fabric. Cf Holt: Grimes 1930: fig 70, no 168.
NK76GG; building 16, pit.

52. Hemispherical bowl, LOC RE (11).
NK73AJ; annexe, south-west of bath-house, topsoil.

53. Hemispherical bowl with beaded rim, LOC RE (11). Facetting on rim.
NK76FP; annexe, south of changing room of bath-house, over cobbles.

54. Hemispherical bowl with beaded rim, LOC Ox (16).
NK76BB and CH; silt fill of gulley crossing *via praetoria*.

55. Dr. 37 imitation, LOC Ox (5). Thin-section sample BD004 (fabric 2).
NK77CF; building 9, unstratified.

56. Dr. 37 imitation, with small raised cordon, LOC Ox (14). Self-slipped, with smoothing on the interior. Almond-shaped rim.
NK79Bu ; annexe, between bath-house and latrine, topsoil.

57.* Dr 37 imitation, LOC? Swan suggested this form had North-African affinities (Swan 1999: illus 4, no 38).
NK77Cu ; building 6, east end.

58.* Flanged bowl, LOC? Cf Rossington Bridge: Buckland et al 2001: fig 41, nos 103, 105.
NK76Cx , fill of gulley crossing *via praetoria*, which included charcoal and daub.

59.* Flanged bowl, LOC?
NK73AD; annexe, over gravel path south of changing room.

60. Wide-mouthed bowl, with smoothed exterior, LOC RE (M11) with grey exterior, brown margins and dark grey core. Apparently a local imitation of a Severn Valley ware form, although the type is rare on the Wall (Webster 1977: fig 11. 2, no 36; cf Swan 1999: 459). Vessel found in two different areas; sherds from context CI more abraded.
NK75CI; building 3, east end; NL75CK; overlying cobbled surface between buildings 7 and 8.

CASSEROLE

61. Casserole, LOC RE (21). Burnt. This is the only definite example of a casserole in the assemblage. Together with this vessel, Swan (1999, illus 9, nos 2, 8, 33, 52 and 55) illustrates four other examples from the Antonine Wall, found at Mumrills, Bar Hill (including at least six sherds from the kiln), Duntocher and Old Kilpatrick. These are the only examples known from the Wall. The example from Duntocher was judged to be 'not necessarily local to the Antonine Wall' (Swan 1999: 461, no 52); there was nothing to indicate that the others were not locally produced and the Bar Hill example was from the pottery kiln at the bath-house.
NK76BM; annexe, south-west of bath-house.

BASINS

62. Flanged basin with scoop inside rim, LOC Ox (M5), with brown slip. Thin-section sample BD001 (fabric 1) (Swan 1999: illus 11, no 104).
NK74Cy; building 1, fill of gulley to north-west.

63. Flanged basin, with scoop inside rim. LOC Ox (5). Thin-section sample BD002 (fabric 1) (Swan 1999: illus 4, no 39).
NK75Cu ; building 5, overlying burnt layer at east end.

64. Flanged basin, LOC Ox (M8), with white specks. Thin-section sample BD003 (fabric 1) (Swan 1999: illus 11, no 105). The closest parallels for the form come from Tipasa (Anselmino et al 1989: fig 33, nos 116–18), although the general type is also 'found in Mauretania and central Tunisia' (Swan 1999: 467, no 39).
NK76BJ; overlying metalled surface south of building 12.

PLATTERS

65. Convex-walled platter with internal angle groove, LOC Ox (M10). Combed lines on the underside. Sooting on the base, which is cracked and abraded.
NK76DD; annexe, south-west of bath-house, unstratified.

66. Convex-walled platter, with internal angle groove, LOC Ox (M10) with slip. Combed lines on the underside. Sooting on exterior up to the rim, showing one or two worn patches on the angle, which could possibly be where a brazier has rubbed (Swan 1999: illus 4, no 31; illus 10, no 31).
NK73AW; annexe, south-west of bath-house, topsoil.

67.* Convex-walled platter, LOC Ox ?
NK77AO and AP; overlying gulley to north of intervallum road south of building 16.

68. Convex-walled platter, LOC RE (15). Rilled base, sooted on exterior just below the rim.
NK76FC; building 12, fill of post-hole.

69. Convex-walled platter, LOC Ox (5).
NK77Bu ; gulley to north of intervallum road south of building 16.

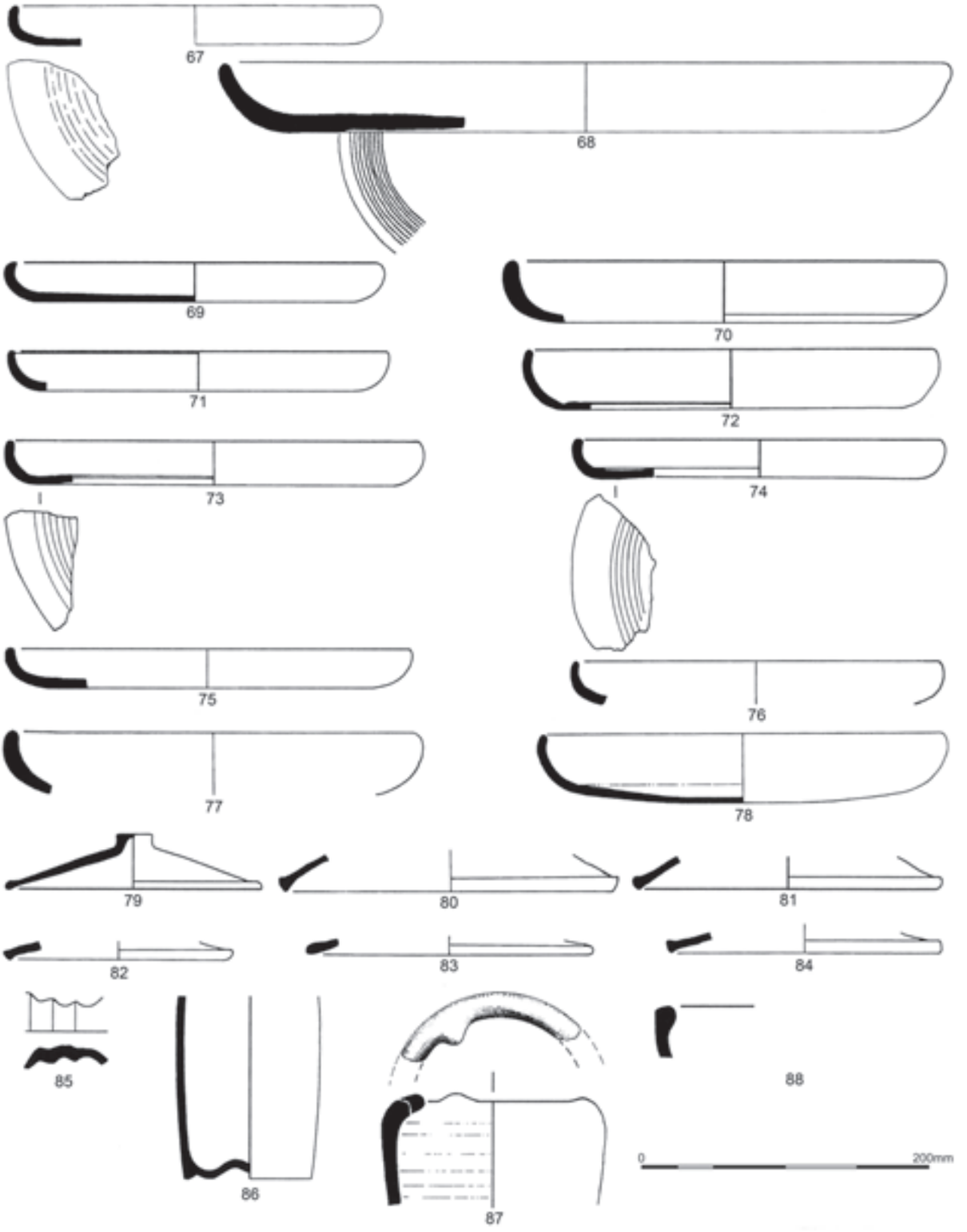


Illustration 7.4
Coarse pottery 67–88.

70.* Convex-walled platter, LOC?

NK77AP; overlying gulley to north of intervallum road south of building 16.

71. Convex-walled platter, with internal angle groove, LOC Ox (5). Facetted burnishing on exterior, and combed lines on the underside with the rills beginning on the lower wall. Self-coloured slip, thicker on the interior.

NK73ER; bath-house, overlying drains to east of cold bath, topsoil.

72. Convex-walled platter, with internal angle groove, LOC Ox (M10). Facetted burnishing, and light combed lines on underside. Sooting on side and over rim. Thin-section sample BD019 (fabric 2).

NK73BS; building 3, room 1, topsoil.

73. Convex-walled platter, with internal angle groove, LOC Ox (M5), with brown slip. Strongly combed lines on underside. Sooting on underside, wall and over the rim.

NK80DH; bath-house, hot dry room, unstratified.

74. Convex-walled platter, LOC Ox (5), with traces of slip on interior and faint rilling on the underside. Partial sooting on base.

NK77AO; overlying gulley to north of intervallum road south of building 16.

75. Convex-walled platter, LOC Ox (5), with smooth red slip. Faint rilling on base. Little or no use.

NK77AO; overlying gulley to north of intervallum road south of building 16.

76. Convex-walled platter, LOC Ox (5), with red slip. Facetted burnishing on exterior.

NK80DH; bath-house, hot dry room, unstratified.

77. Convex-walled platter, LOC RE (10). Thin-section sample BD017 (fabric 2).

NK77AP and AW; overlying intervallum road south of building 16.

78. Convex-walled platter, with internal angle groove, a sagging base and light combing on the underside, LOC Ox (5) with red slip. Unused. The only other examples of platters with a sagging base from the Antonine Wall are from Bar Hill (Swan 1999: illus 10, nos 9 and probably 10). There is a second platter from Bearsden very similar to the first Bar Hill platter (not illustrated, NK76FC; building 12, fill of post-hole) (Swan 1999: illus 4, no 32; illus 10, no 32).

NK76DD; annexe, south-west of bath-house, unstratified.

There were at least 14 examples from Bearsden, and they are common at some other Antonine Wall forts: Mumrills (1); Westerwood (1); Croy Hill (5 in Croy oxidised ware, up to 8 'in other grey and orange fabrics'); Bar Hill (many sherds from the kiln, at least 7 from elsewhere in the fort); Cadder (1); Balmuildy (2); Duntocher (3 or 4); Old Kilpatrick (21, some with under-rilling); total 49, excluding Bar Hill kiln and Bearsden.

Types:

A: internal offset at junction of wall and base with or without rilling (R) under base ('the internal groove at the junction of wall and base of the vessel is always present': Swan 1999: 417).

B: as 'A' but with a recessed base with or without rilling (R).

Swan (1999: 412) noted the British series of plain-rimmed dishes with curved walls (as Gillam 1970: Types 336–7), apparently derived from the Gallo-Belgic platter *Cam* 16. The series did not outlast the Trajanic period, and there was a 'significant hiatus' between the production of these dishes and those occurring on the Antonine Wall. Swan argued that the latter were copies of North-African dishes, in African red slip ware and local wares, which in turn represented a continuation and development of Pompeian red ware dishes or platters. In northern Britain copies of Pompeian red ware platters occur in the Hadrianic period at Hardknott (Bidwell et al 1999: fig 36, nos 67, 114, with grooves on the inner surface of the base); a rim cited by Gillam in the 1929 alley deposit at Birdoswald (Birley 1930: E: fig 16, no 82) and, from the same fort, Hird 1997: fig 156, no 42, from a group containing mainly late-Hadrianic to early Antonine pottery. There is a dish-rim from Inveresk in Inveresk ware (Dore 2004: fig 85, BO48). The type is not represented in the original type series of Inveresk ware (Swan 1988), and no certain North-African types are known from the site. Rilling under the base is sometimes a feature of *Eifelkeramik* dishes ultimately derived from the Pompeian red ware tradition (cf Bidwell & McBride 2010: fig 45, no 53).

LIDS

79. Lid. LOC RE (15). Sooted on both exterior and interior of rim.

NK76BM; annexe, south-west of bath-house, topsoil.

80. Lid, LOC RE (15). Rim blackened.

NK77AD and AE; intervallum east of building 7, topsoil.

81. Lid. LOC RE (15).

NK73CT; south of east end of building 7, topsoil

82. Lid, LOC Ox (14).

NK73AR; centre of building 3, topsoil.

83. Lid, LOC Ox (16). Light buff in colour, with traces of a thin red red slip.

NK73BB; annexe, south-west of bath-house, in gulley.

84. Lid, LOC Ox (14), with traces of red slip.

NK76GN; building 16, fill of pit.

All the lids from the site are made in locally produced ware, apart from one in Balmuildy oxidised ware and two in unidentified fabrics (illus 7.9.254–5). There are no examples of the North-African type large domed lids for use with platters (Cf Swan 1999: illus 2, no 18).

PATERA AND FLAGON

85. Probable *patera* handle, LOC Ox (M5), cracked or underfired. (Cf Towcester: Woodfield 2005: fig 1, no 3; Rossington Bridge: Buckland et al 2001: fig 51, no 335).

NK73GC; annexe, south-west of bath-house, topsoil.

86. Cylindrical flagon with omphalos base, LOC Ox (M13). Rare form. (Cf Holt: Grimes 1930: fig 68, no 125).

NK76DC and DH; fill of gulley between buildings 7 and 8.

BRAZIERS

87.* Brazier, with one surviving horn luted to the rim, LOC RE. 'The vessel is cracked and sintered and has broken off at the probable junction with the fire-basket' (Swan 1999: 467, no 43; illus 4, no 43; illus 8, no 43).

NK76EQ; building 16, patch of burning.

88.* Brazier? LOC?

Swan identified one certain brazier from the site, and three possible brazier fragments (cat nos 88; 239; 252). Two are made in the local fabrics and the other two may well have been but are no longer available for re-examination. None of the three possible brazier fragments has any diagnostic features, and they cannot now be checked for signs of internal burning, so their function must remain speculative. The profile of no 239 is similar to the possible baking cover (illus 7.2.30), but is drawn as being circular, and could possibly be a storage jar (cf illus 7.2.29).

OTHER VESSEL FORMS

89. Triple vase, LOC RE.

NK76FR and GH; annexe, south of changing room of bath-house, overlying cobbles.

90.* Described as a crucible (Swan 1999: illus 4, no 40), LOC RE.

NK78CF; building 2, daub overlying north wall at east end.

91. *Tettina* spout, LOC Ox (5). Smoothed or self-slipped on exterior.

NK73EL; annexe, south of bath-house, topsoil.

92. Handle, LOC RE (11). Of the three surviving handles in local wares, two have roughly circular cross-sections like this and only one is a strap handle with two grooves of the type more commonly used on flagons.

NK77Au ; silt overlying path to east of fort/annexe rampart south of Roman Road.

93–4, 95.* Three sherds, very abraded but probably from the same vessel, possibly a Dr 37 imitation, LOC Ox (14). Animal appliqué over rouletting, with a band of slashed incisions near the shoulder or base. No traces of a slip.

NK73AB, AD and EB; annexe, south-west of bath-house, topsoil.

Oxidised wares with barbotine decoration are known from Inveresk and three forts on the Antonine Wall in addition to Bearsden, but all the vessels are represented only by fragments and there is nothing preserved which approaches a complete scheme of decoration. Four bowls are known from Inveresk, apparently in the ware made at the site: one is a Dr 30 imitation decorated with dolphins (Dore 2004: fig 79, BO10), which also appear on another bowl of indeterminate form (Swan 1999: illus 20, no 1.235); there is also a Dr 37 imitation, the details of its decoration uncertain (Swan 1999: illus 21, no 1.231), and a fourth bowl decorated with a leaf-motif (Dore 2004: fig 79, BO12). Animals described as dogs appear on two bowls from Balmuildy (Miller 1922: pl x LIV, nos 7 and 16, the former in 'rather coarse grey-black ware', perhaps a burnt oxidised vessel); there were some 20 pieces of this ware, including sherds with 'notched ornament clearly intended to suggest the ovolo border of the samian prototype' (Miller 1922: pl x LIx , nos 14–15). From Cadder came a jar apparently with a leaf scroll (Clarke 1933: fig 16, n. 8), and from Old Kilpatrick there was a cornice-rimmed jar decorated with a lobate bud and leaf (Miller 1928: pl x x III, no 9); the latter had a 'pale paste' and a brownish-red slip, and so might have been an imported beaker, but the chaotic style of the decoration is reminiscent of the other vessels discussed here.

The Bearsden and Inveresk vessels are regarded as products made at those forts, but the thin distribution of other examples amongst the forts on the Wall might be taken to indicate that they were from one source.

96. Identified as a possible open lamp, but it is not as crude as the two certain examples, and may just be a burnt dish, LOC RE (21).

NK73AWW; annexe, south-west of bath-house, topsoil.

97. Open lamp, LOC RE (21). Crudely hand-made, with patches of soot on both interior and exterior of nozzle.

NK73AWW; annexe, south-west of bath-house, topsoil.

98. Open lamp, LOC Ox (8). Crudely hand-made, with thick base. Sooting on the whole of the surviving interior wall of body and not just the nozzle, and patch of bruning of exterior of nozzle.

NK76AG; *via praetoria*, topsoil.

ANTONINE WALL PRODUCTS

99. *Unguentarium*, orange fabric with grey core and thick cream slip. *Cam* 389. Possibly an Antonine Wall product, but more likely to come from Colchester, where they were made from the mid-second century (Bidwell & Croom 1999: 485).

NK73AA; annexe, south-west of bath-house, topsoil.

100. Possibly from a triple vase, mortarium fabric 9.

NK76BM; annexe, south-west of bath-house, topsoil.

101. Cooking pot, Balmuildy oxidised. Very thick-walled.

NK77AL; over capstones of drain through rampart east of building 7.

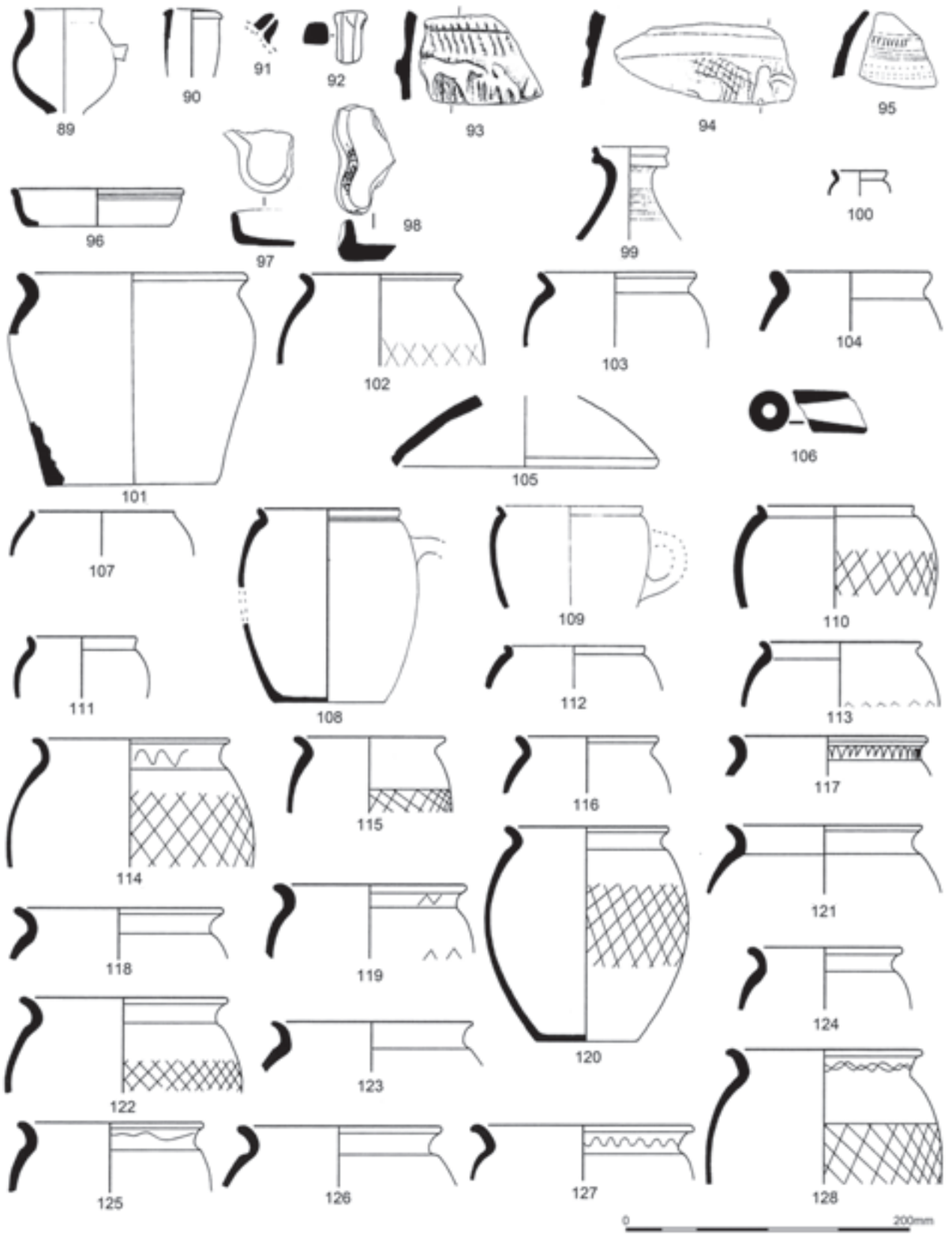


Illustration 7.5
Coarse pottery 89–128.

102. Cooking pot, Antonine Wall blue-grey fabric. The vessel is smoothed in facets on the shoulder and the interior of the rim.
NK73BM and CE; annexe, south-west of bath-house, topsoil.

103. Cooking pot, mortarium fabric 9. Smoothed.
NK74Cu ; area between buildings 3 and 4, topsoil.

104. Imitation BB2 cooking pot, Balmuildy oxidised.
NK77AL; over capstones of drain through rampart east of building 7.

105. Lid, Balmuildy oxidised.
NK77AE; intervallum east of building 7, topsoil.

106.* Self-slipped, plain cylinder, mortarium Fabric 4. Probably a *patera* handle (cf Marsh 1978, fig 614, nos 32.8–10).
NK73FR; bath-house, hot room, topsoil.

BB1

BEAKERS AND COOKING POTS

107.* Beaker, possibly BB1. Exact diameter uncertain.
NK77AJ; south ditch, topsoil.

108. Beaker with handle, BB1, possibly SOW BB 1, but in poor condition. With vertical burnishing round handle.
NK75CM and CQ; building 4, rubble overlying granary.

109.* Beaker with handle, SED BB1. Exact diameter uncertain.
NK76Cx ; drain to north-east of building 4.

110.* Beaker, BB1.
NK73GA; annexe, west of bath-house, fill of western pit.

111.* Beaker, BB1.
NK76AI; building 11, north range, topsoil.

112. Beaker, SED BB1.
NK74AS; intervallum east of building 6, topsoil.

113. Beaker, SED BB1.
NK76GP; annexe, south of changing room of bath-house, over cobbles.

114.* Cooking pot, BB1.
NK73DP; annexe, west of bath-house, fill of western pit.

115.* Cooking pot, BB1.
NK76FR; annexe, south of changing room of bath-house, overlying cobbles.

116.* Cooking pot, BB1.
NK76CJ; annexe, south-west of bath-house, topsoil.

117.* Cooking pot, BB1.
NK77BS; building 6, immediately over burnt daub.

118. Cooking pot, SED BB1.
NK73AWW and BH; annexe, south-west of bath-house, topsoil.

119.* Cooking pot, BB1.
NK76BQ; building 8, topsoil.

120. Cooking pot, BB1 (displayed in Hunterian Museum, GLAHM 138408).
NK74CZ; wattle and daub filling gulley to north-west of building 3.

121.* Cooking pot, BB1.
NK73AW; annexe, south-west of bath-house, topsoil.

122. Cooking pot, SED BB1.
NK76EN; annexe, south-west of bath-house, topsoil.

123. Cooking pot, SED BB1, in poor condition. Exact diameter uncertain.
NK76FR; annexe, south of changing room of bath-house, overlying cobbles.

124. Cooking pot, SED BB1.
NK73Cu ; intervallum east of building 7, topsoil.

125. Cooking pot, SED BB1.
NK77AE; intervallum east of building 7, topsoil.

126.* Cooking pot, BB1.
NK77AE; intervallum east of building 7, topsoil.

127.* Cooking pot, burnt BB1?
NK73BJ; building 3, unstratified.

128. Cooking pot, SED BB1. Abraded.
NK76CJ; annexe, south-west of bath-house, unstratified.

129. Cooking pot, SED BB1.
NK75DB; building 4, topsoil.

130.* Cooking pot, BB1.
NK73Cu ; intervallum east of building 7, topsoil.

131. Cooking pot, SED BB1. Burnishing lost. Williams 3.
NK73BH and AO; annexe, south-west of bath-house, topsoil.

PLAIN-RIMMED DISHES

132.* Plain-rimmed dish, BB1.
NK74Cx ; east fort rampart north of Roman Road, topsoil.

133.* Plain-rimmed dish, BB1 or local imitation. Williams 5.
NK73BJ; building 3, above natural.

134. Plain-rimmed dish, SED BB1. Scribing on base.
NK73DO; building 7, in sand fill of gulley to north of building.

The earliest contexts for this type in BB1 are sites on the Antonine Wall (Holbrook & Bidwell 1991: 99–100). The general scarcity of well-dated Hadrianic groups in the North and even more so in the South-West admits the possibility of a pre-

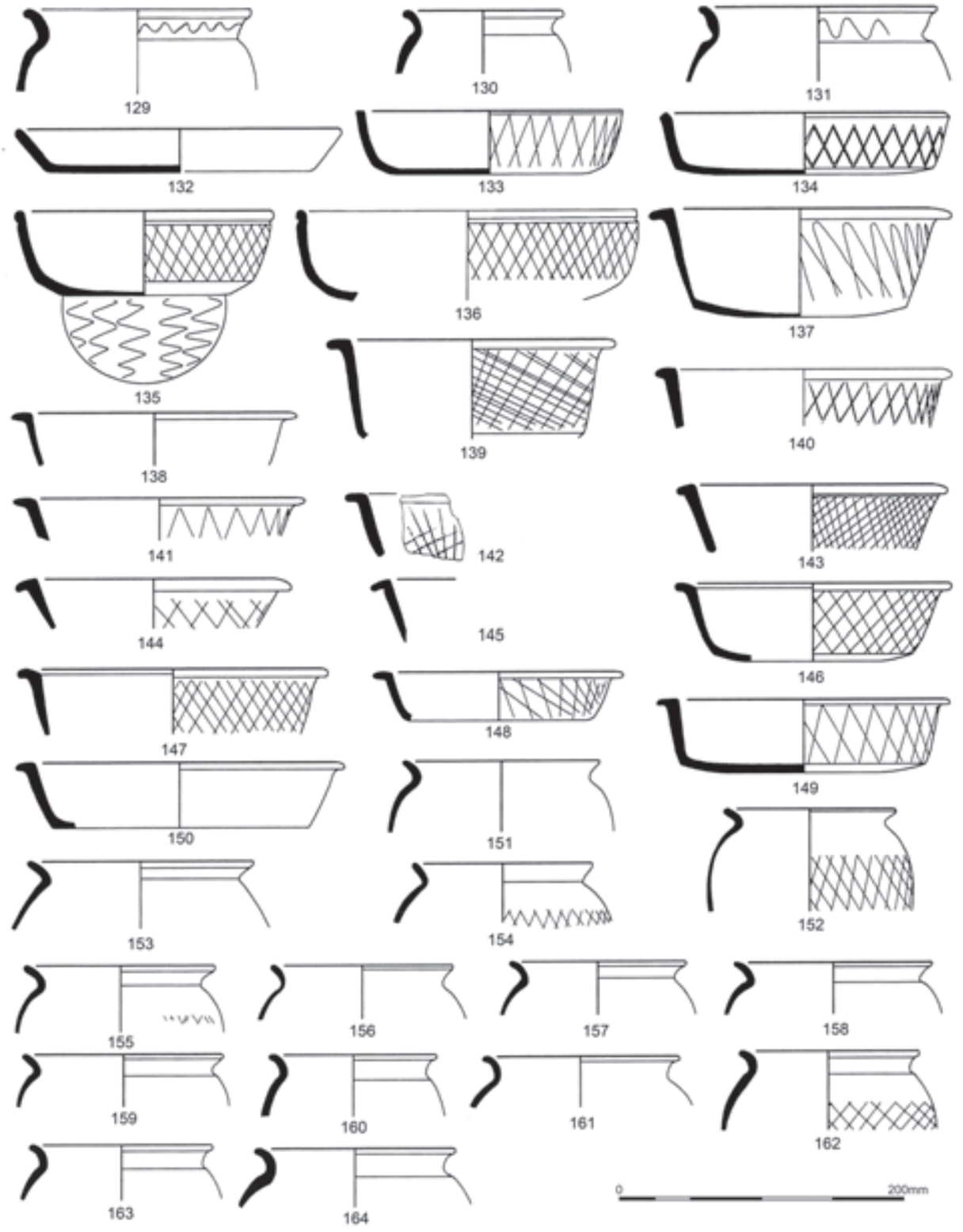


Illustration 7.6
Coarse pottery 129–64.

Antonine date for the emergence of the type; on the other hand, the small numbers known on the Antonine Wall compared with the common occurrence of the type in later contexts on Hadrian's Wall perhaps means that it emerged only a few years before the Antonine Wall was abandoned. The squared-off rim of no 133 has been recognised as a common feature of early Antonine examples (Bidwell & McBride 2010: fig 43, no 10, and note also examples from Inveresk in Thomas 1988: MF 1: E5, illus 35, 1.125, 1.126, the latter with a handle). No examples have been published from Cantley/Rossington Bridge. The top of the rim of no 134 is rounded. Later plain-rimmed dishes also have rounded tops, but the thickness of their walls often taper towards the top; in Antonine Scotland, the only possible example is from Inveresk (Dore 2004: fig 80, DI 3, apparently undecorated).

PLAIN-RIMMED BOWLS

135. Plain-rimmed bowl with external groove, BB1 in a fine fabric, but not SOW BB1. Sooting on exterior. Bowls of this type are probably Cantley/Rossington Bridge products (Bidwell 1985: fig 71, no 135; for Rossington Bridge, now see Buckland et al 2001: figs 40, nos 38, 41). Williams' heavy mineral analysis confirms the presence of Rossington Bridge products at Bearsden (samples no 4 and 5). Bowls as nos 135–6 are not known in the south-west and do not figure in the extensive BB1 type-series from Dorchester (Seager Smith & Davies 1993).
NK73GC and AW; annexe, south-west of bath-house, topsoil.

136. Plain-rimmed bowl with external groove, heavily burnt BB1.
NK76AP; building 8, topsoil.

FLAT-RIMMED BOWLS AND DISHES

137. Flat-rimmed bowl, SED BB1.
NK76EN; annexe, south of changing room of bath-house, overlying cobbles.

138. Flat-rimmed bowl, BB1. Abraded and burnt.
NK74AV; building 1, cleaning over natural.

139.* Flat-rimmed bowl, BB1.
NK76EN; annexe, south of changing room of bath-house, overlying cobbles; NK76ED, building 12, on road surface south of building.

140.* Flat-rimmed bowl, BB1. Williams 4.
NK73AQ; building 3, room 4, cleaning over natural.

141.* Flat-rimmed bowl or dish, BB1.
NK75AW; building 7, west end, topsoil.

142.* Flat-rimmed bowl, BB1.
NK77Au ; silt overlying path to east of rampart east of building 12.

143. Flat-rimmed bowl, SED BB1.
NK77AL; topsoil above drain capstones to east of bulding 7.

144. Flat-rimmed bowl or dish with drooping rim, SED BB1.
NK76FR; annexe, south changing room of bath-house, overlying cobbles.

145.* Flat-rimmed bowl with drooping rim, BB1. Burnt; no decoration visible.
NK73AW; annexe, south-west of bath-house, topsoil.

146. Flat-rimmed bowl, SED BB1. Loop decoration on the underside.
NK80Dy and EJ; burnt layer outside west wall of latrine.

147.* Flat-rimmed bowl or dish, BB1. Sooting on exterior.
NK76FR; annexe, south-west of bath-house, overlying cobbles.

148. Flat-rimmed dish, SED BB1.
NK76FR; annexe, south of changing room of bath-house, overlying cobbles.

149.* Flat-rimmed dish, BB1.
NK76GN building 16, fill of pit.

150.* Flat-rimmed dish, BB1. Abraded or burnt.
NK79CO; bath-house, pit south of first warm room.

BB2

COOKING POTS

151.* Cooking pot, BB2.
NK76Du ; overlying cobbles to south of building 7.

152.* Cooking pot, BB2.
NK77FH; fill of drain on north side of east end of building 7.

153.* Cooking pot, BB2.
NK77AE; intervallum east of building 7, topsoil.

154. Cooking pot, BB2. Fine lattice and silky burnishing.
NK78AJ; intervallum west of building 4, topsoil.

155.* Cooking pot, assumed to be BB2.
Unstratified.

156.* Cooking pot, BB2.
NK74Cu ; intervallum west of building 4, topsoil.

157. Cooking pot, BB2.
NK74AL; surface of intervallum road west of buildings 1 and 2.

158.* Cooking pot, assumed to be BB2. Williams 2.
NK73AW; annexe, south-west of bath-house, topsoil.

159.* Cooking pot, BB2.
NK74Cu ; surface of intervallum road west of buildings 1 and 2.

160.* Cooking pot, BB2. Williams' heavy mineral analysis places this vessel (sample 6) in an undesignated group of BB1 fabrics which are products neither of south-east Dorset nor of Rossington Bridge.
NK74BR; building 1, overlying natural.

161.* Cooking pot, BB2.
NK73BH; annexe, south-west of bath-house, topsoil.

162.* Cooking pot, BB2.
NK77DZ; fill of gulley to south of south intervallum.

163. Cooking pot, BB1.
NK77AL; above drain capstones east of building 7.

164.* Cooking pot, BB2.
NK76BC; topsoil immediately north of east end of building 8.

165.* Cooking pot, BB2.
NK76FR; annexe, south of changing room of bath-house, overlying cobbles.

166. Cooking pot with beaded rim, BB2, *Cam* 328 (Bidwell & Croom 1999: 483). The type was not produced in the Thameside kilns but is not common at Colchester. See also nos 237–8.
NK77AE; topsoil over intervallum to east of building 7.

PLAIN-RIMMED BOWLS AND DISHES

167.* Plain-rimmed dish, BB2.
NK73AW; annexe, south-west of bath-house, topsoil.

168. Plain-rimmed dish with chamfer, BB2.
NK76GH; annexe, south-west of bath-house, grey clay overlying cobbles; NK76GM, burnt material lying between north wall of north granary and internal dwarf wall.

169.* Plain-rimmed dish, BB2 or imitation.
NK73AWW; annexe, south-west of bath-house, topsoil.

170. Plain-rimmed dish with two grooves and chamfer, BB2.
NK77AL, AE and BL; brown soil overlying drain capstones east of building 7.

171. Plain-rimmed bowl with groove and chamfer, BB2. Sooted underside.
NK76EN; annexe, south of changing room of bath-house, overlying cobbles.

172.* Plain-rimmed dish with groove, BB2.
NK77CB and Cx; fill of gulley to north of east end of building 7.

TRIANGULAR-RIMMED BOWLS AND DISHES

173.* Triangular-rimmed dish with chamfer, BB2.
NK79DJ; silt south of latrine.

174. Triangular-rimmed dish with slight chamfer, BB2.
NK79BR; rubble south of bath-house.

175. Triangular-rimmed dish with chamfer, BB2.
NK76EN; annexe, south-west of bath-house, topsoil.

176. Triangular-rimmed dish, BB2 (unclear if it had a chamfer).
NK76EN and FP; annexe, south-west of bath-house, topsoil.

177. Triangular-rimmed dish with chamfer.
NK76EN; annexe, south-west of bath-house, topsoil

178.* Triangular-rimmed bowl or dish, BB2.
NK80BN; area between bath-house warm rooms and drain to south, topsoil.

179.* Triangular-rimmed bowl or dish, BB2.
NK76FR; annexe, overlying cobbles to south of bath-house.

180.* Triangular-rimmed bowl, BB2.
NK76CS; building 16, unstratified.

ROUNDED-RIMMED BOWLS AND DISHES

181. Rounded-rimmed dish with drooping rim and slight chamfer, BB2.
NK77AE; brown soil overlying intervallum east of building 7.

182.* Rounded-rimmed dish, assumed to be BB2. Williams 1.
NK73AB; annexe, overlying path to south of bath-house, topsoil.

183. Rounded-rimmed bowl with chamfer, BB2.
NK78CG; fill of gulley to north of east end of building 1.

184. Rounded-rimmed bowl with chamfer, BB2.
NK76CV; fill of drain between buildings 3 and 4.

185. Rounded-rimmed bowl with chamfer, BB2. There are seven surviving drilled holes where the pot has been mended.
NK75CR; daub between buildings 3 and 4.

186. Rounded-rimmed bowl or dish, BB2.
NK76EN; annexe, south-west of bath-house, topsoil.

187. Rounded-rimmed bowl or dish, BB2.
NK73AWW, annexe, south-west of bath-house, topsoil.

188. Rounded-rimmed bowl or dish, BB2.
NK76FR; annexe, south of changing room of bath-house, overlying cobbles.

189. Rounded-rimmed bowl, BB2. The sherd is in very poor condition, with too little of the surface surviving to show any decoration.
NK74CB; building 1, topsoil.

190. Rounded-rimmed bowl or dish, BB2.
NK73BJ; building 3, men's quarters, topsoil.

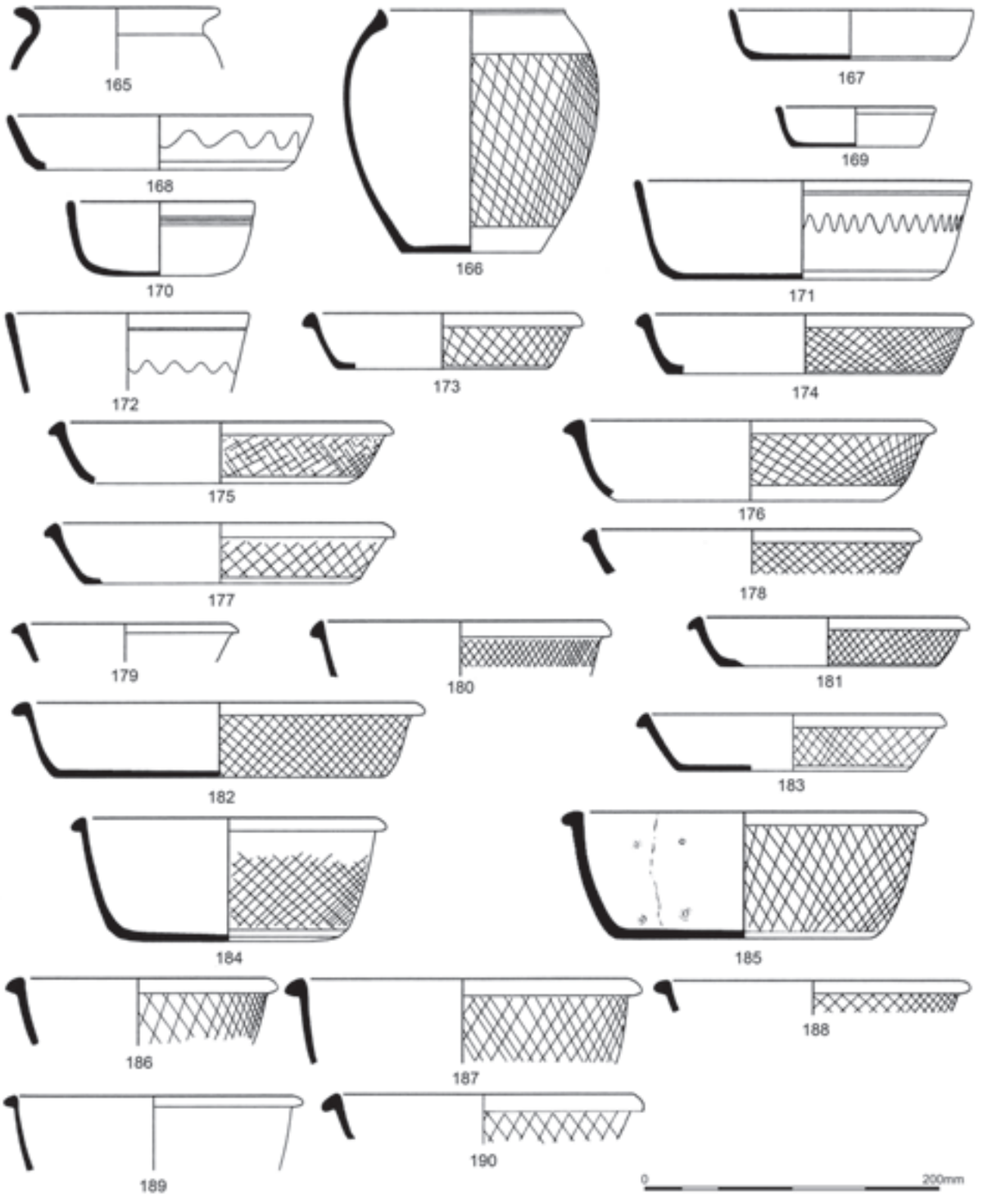


Illustration 7.7
Coarse pottery 165–90.

The rounded rims are of the type called 'beaked' by Dore (2009: 503), and can sometimes be difficult to distinguish from the triangular rims. The beaked rims are similar to the triangular rims in usually having a longer upper face than the lower face, in contrast to the more rounded, P-profile rims that appear from the 160s or 180s. Dore has suggested that a few rounded rim vessels occur on the Antonine Wall (Dore 2009: 503), perhaps coming from a different supplier than the beaked rims, but there are no examples from this site. As far as can be seen, taking into consideration the poor condition of the sherds, all the bowls and dishes have some form of decoration. This supports the suggestion that the absence of decoration is a feature of the bowls and dishes produced after about180 (Monaghan 1987: 226).

SEVERN VALLEY

191.* Narrow-mouthed jar, assumed to be SVW.
NK77BV; building 7, immediately north of officer's end.

192. Narrow-mouthed jar, SVW.
NK80CC; annexe, overlying path south of second warm room of bath-house.

193. Narrow-mouthed jar, SVW. Webster type 1. Burnt on rim.
NK73FP, beside buttress south of bath-house below rubble.

194.* Narrow-mouthed jar, SVW.
NK80AL; annexe, between bath-house and latrine, unstratified.

195.* Narrow-mouthed jar, SVW.
NK75BK; soil overlying intervallum road east of building 6.

196. Narrow-mouthed jar, SVW.
NK76AN; building 4, topsoil.

197.* Narrow-mouthed jar, assumed to be SVW.
NK76Cx , fill of gulley beyond north-east corner of building 4.

198.* Narrow-mouthed jar, assumed to be SVW.
NK78BG; intervallum west of building 3.

199. Narrow-mouthed jar, SVW.
NK78BH; intervallum west of building 3.

200.* Narrow-mouthed jar, SVW. Probably the rim mentioned by Webster (1977: 171).
NK73AR and AK; building 3, room 4, topsoil.

201.* Narrow-mouthed jar, assumed to be SVW.
NK80?GZ; annexe, south-west of bath-house, topsoil.

202.* Narrow-mouthed jar, assumed to be SVW.
NK73AN and NK76CD; annexe, south-west of bath-house, topsoil.

Other fabrics

FLAGONS AND BEAKERS

203. Single-handled flagon in sandy pinkish-orange fabric with cream slip.
NK76Dx ; annexe, south-west of bath-house, under boulders.

204. Jug in a hard sandy black fabric, with gold mica plate inclusions and buff surfaces, with patches of black. Heavily burnt.
NK73AJ; annexe, south-west of bath-house, topsoil; NK73FH; rubble in bath-house hot room.

205. Indented beaker in a hard grey-white fabric with orange-red colour coat. COL CC?
NK77BR; to north of east end of building 7.

206. Cornice-rimmed beaker, red-brown slip, KOL CC.
NK75DE; between buildings 7 and 8, topsoil.

207. Cornice-rimmed beaker, dark olive slip, KOL CC. NK73BB; annexe, south-west of bath-house, in east–west gulley.

208. Beaker, moderately fine grey fabric, with heavy burnishing in facets.
NK78EO; intervallum west of building 4.

209. Poppy-head beaker, UPC FR.
NK80DC; in pit beside buttress on south wall of bath-house.

STORAGE JARS

210. Storage jar, sandy grey fabric, with no surviving surfaces. Possibly a Colchester product. Cf Bar Hill: Webster 1977, fig 11.2, no 28; Corbridge: Bishop and Dore 1988: fig 117, no 12.
NK75AC; building 3, men's quarters, room 7 or 8, topsoil.

211. Storage jar, moderately fine grey fabric, with heavy burnishing in facets.
NK76AO; AT; BB; CH and CI; in silt fill of drain crossing *via praetoria* east of building 4 and in topsoil above.

212. Narrow-mouthed jar, grey fabric similar to a reduced version of SVW.
NK80AC; south of second warm room of bath-house, unstratified.

213. Narrow-mouthed jar, in a soft, sandy light grey fabric.
NK80DM; gulley of annexe rampart north of latrine.

COOKING POTS AND JARS

214.* Jar in an unidentified fabric.
NK75CQ; building 4, rubble.

215. Jar, in a non-local grey ware. Hard buff fabric with dark grey surfaces, plentiful rounded quartz inclusions, up to 2mm across, and possible flint inclusions. The base has been cut into a disc (D: 47mm).
NK73CA; west intervallum beside building 4, topsoil.

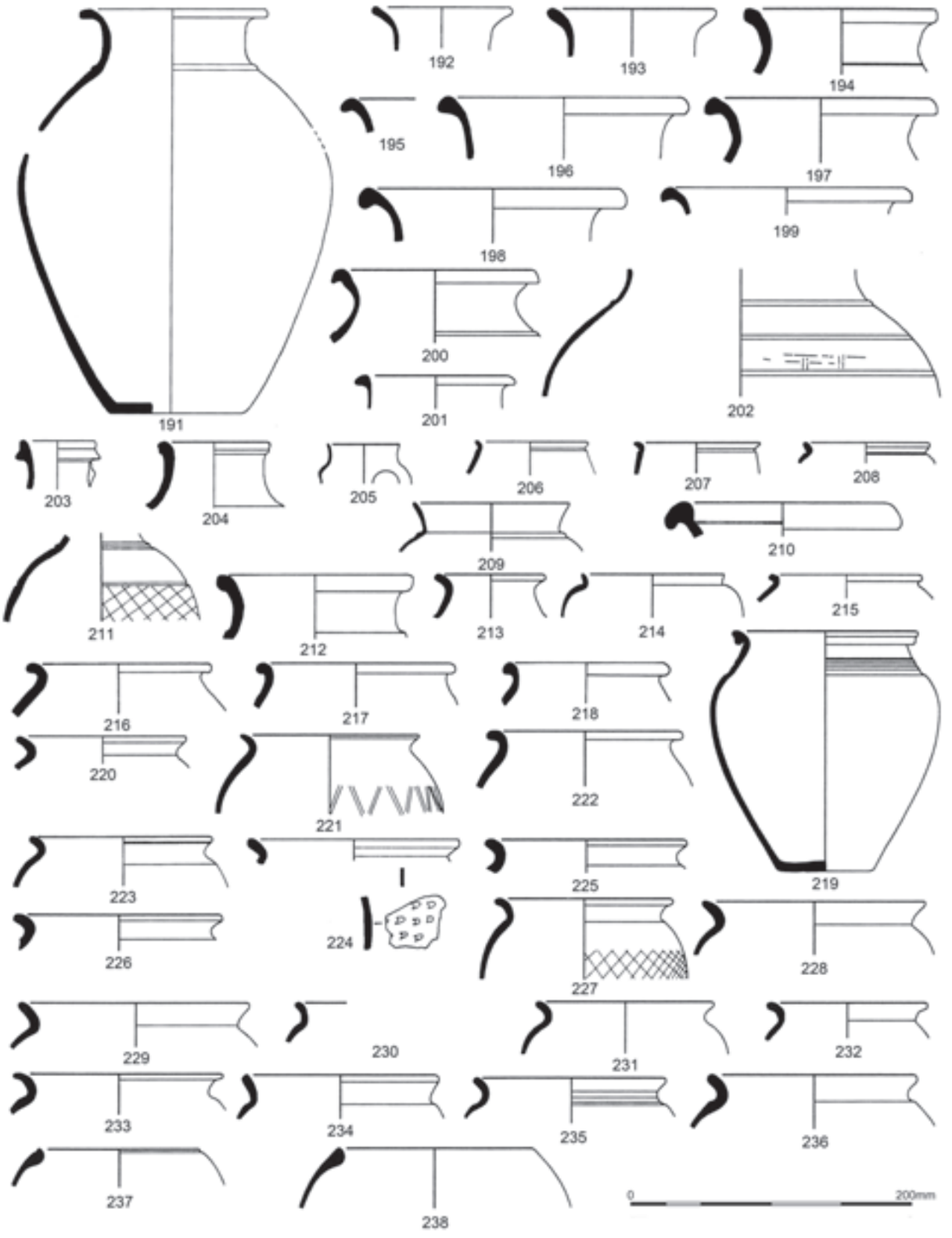


Illustration 7.8
Coarse pottery 191–238.

216. Jar, in East Anglian grey ware.
NK77AE; intervallum next to building 7, topsoil.

217.* Jar in an unidentified grey ware.
NK77BR; overlying burnt wattle and daub in drain north of east end of building 7.

218. Narrow-mouthed jar, East Anglian grey ware.
NK77Cu ; brown soil in interior of building 6; NK77FL; gulley to north of officer's quarters of building 7.

219. A double-lipped jar with a rilled neck above a high shoulder, which can be identified as an import from North Gaul (illus 7.8). The vessel is largely complete and is displayed in the Hunterian Museum (GLAHM 138047). Its fabric description (Hird's fabric 23: 'smooth, powdery, white fabric. Trace of creamy white slip on outer surface') is similar to that of similar rims from Mumrills ('unusual jar in cream-coloured fabric; one fragment is sooty', Gillam 1961: fig 15, no 91) and Cramond (Ford 2003: illus 61, no 51, identified as a North-Gaulish import), where the rim could be either of early Antonine or Severan date. These three vessels find parallels in the Hadrian's Wall zone at South Shields, but in Severan and later deposits (unpublished), and at Housesteads (Dore 2009: fig 16.16, nos JA 108–108B). The type also occurred in the New Fresh Wharf deposit at London, which was of third-century date but incorporated earlier material. Richardson (1986: 109, 1.55–57) included the London vessels under the general heading 'Pottery from North West Gaul (Pas-de-Calais/ Picardy Region)'. French publications, mostly subsequent to Richardson's report, support this identification of their source, though with more emphasis on Picardy and areas to its south-west. A vessel-type from the general area of Amiens is very similar to the Bearsden jar, though with a flatter shoulder and a groove around its point of maximum girth (Bayard 1980: pl 27, no 45). The fabric description also corresponds to those of the British vessels: it has been classified as an example of 'le groupe de pâtes blanches à quartz', which had a wide distribution to the south of the Somme basin from the first half of the second century, if not the Flavian period; in the areas north and west of Beauvais it represented more than 30% of the coarse wares in the second quarter of the third century (Bayard 2001: 46, fig 11, Type 45 and earlier variant, fig 12 (distribution map); for petrological analysis of the fabric, see Dubois & Mille 1995).
NK73CR; building 3, room 1, layer above natural.

220. Cooking pot, in a non-local sandy grey ware with sparkling sand grains.
NK73CR; building 3, room 1, layer above natural.

221.* Cooking pot, in an unidentified grey ware.
NK73AJ; annexe, south-west of bath-house, topsoil.

222.* Cooking pot, in an unidentified fabric.
NK77AE; building 8, topsoil.

223. Cooking pot, in a hard, gritty dark grey fabric, with plentiful white specks and occasional black inclusions and voids.
NK76FP; annexe, south of changing room of bath-house, overlying cobbles.

224. Cooking pot, Nar Valley ware. Body sherd has stabbed decoration made by a crescent-shaped implement.
NK77AE; building 8, topsoil.

225.* Cooking pot, in an unidentified fabric.
NK76Dy; building 11, fill of post-hole.

226.* Cooking pot, in an unidentified grey ware.
NK76DD; annexe, south-west of bath-house, topsoil.

227.* Cooking pot, in an unidentified grey ware.
NK77DZ; gulley between south rampart and intervallum.

228.* Cooking pot, undistinguished grey ware with whitish slip.
NK76FR; annexe, south of changing room of bath-house, overlying cobbles.

229.* Cooking pot, in an unidentified grey ware.
NK76FR; annexe, south changing room of bath-house, overlying cobbles.

230.* Cooking pot, in an unidentified fabric.
NK75DC; building 6, unstratified.

231.* Cooking pot, in an unidentified grey ware.
NK76FR; annexe, south of changing room of bath-house, overlying cobbles.

232.* Cooking pot, in an unidentified grey ware.
NK73BF; building 7, men's quarters, soil overlying natural.

233.* Cooking pot, BB1 or imitation.
NK76DC; gulley north of building 8.

234.* BB1 imitation cooking pot, in an unidentified fabric.
NK73BS; building 3, room 1, topsoil.

235.* Cooking pot, in an unidentified grey ware.
NK77BS; building 6, immediately over burnt daub.

236.* Cooking pot, in an unidentified fabric.
NK76FP; annexe, south of changing room of bath-house, overlying cobbles.

237.* Cooking pot with beaded rim, in an unidentified fabric (BB2?). Cf no 166 above.
NK75CK; overlying metalling between buildings 7 and 8.

238. Cooking pot with beaded rim, in a soft sandy fabric, with light grey core, darker surfaces and traces of a decayed slip. Probably abraded BB2. Cf no 166 above.
NK78EQ; daub to north-west of building 5.

239.* Jar or brazier, in an unidentified fabric, possibly similar to a tile fabric. For other possible braziers see nos 87–8, 252.
NK73GC; annexe, south-west of bath-house, topsoil.

BOWLS AND DISHES

240.* Flat-rimmed bowl, possibly BB1.
NK75BM; east of east annexe ditches.

241.* Flat-rimmed bowl or dish, possibly in a local oxidised fabric.
NK73AJ; annexe, south-west of bath-house, topsoil.

242.* Triangular-rimmed bowl or dish in an unidentified grey fabric.
NK73CT; over metalling between buildings 7 and 8.

243.* Rounded-rimmed bowl or dish in an unidentified grey fabric.
NK73GA; annexe, west of bath-house, fill of west pit.

244.* Dish in grey fabric with a black slip.
NK76FP; annexe, south of changing room of bath-house, overlying cobbles.

245. Dr 37 imitation, in a hard light grey fabric with mid-grey surfaces, slightly micaceous.
NK77AL; above capstone of drain through east rampart of fort.

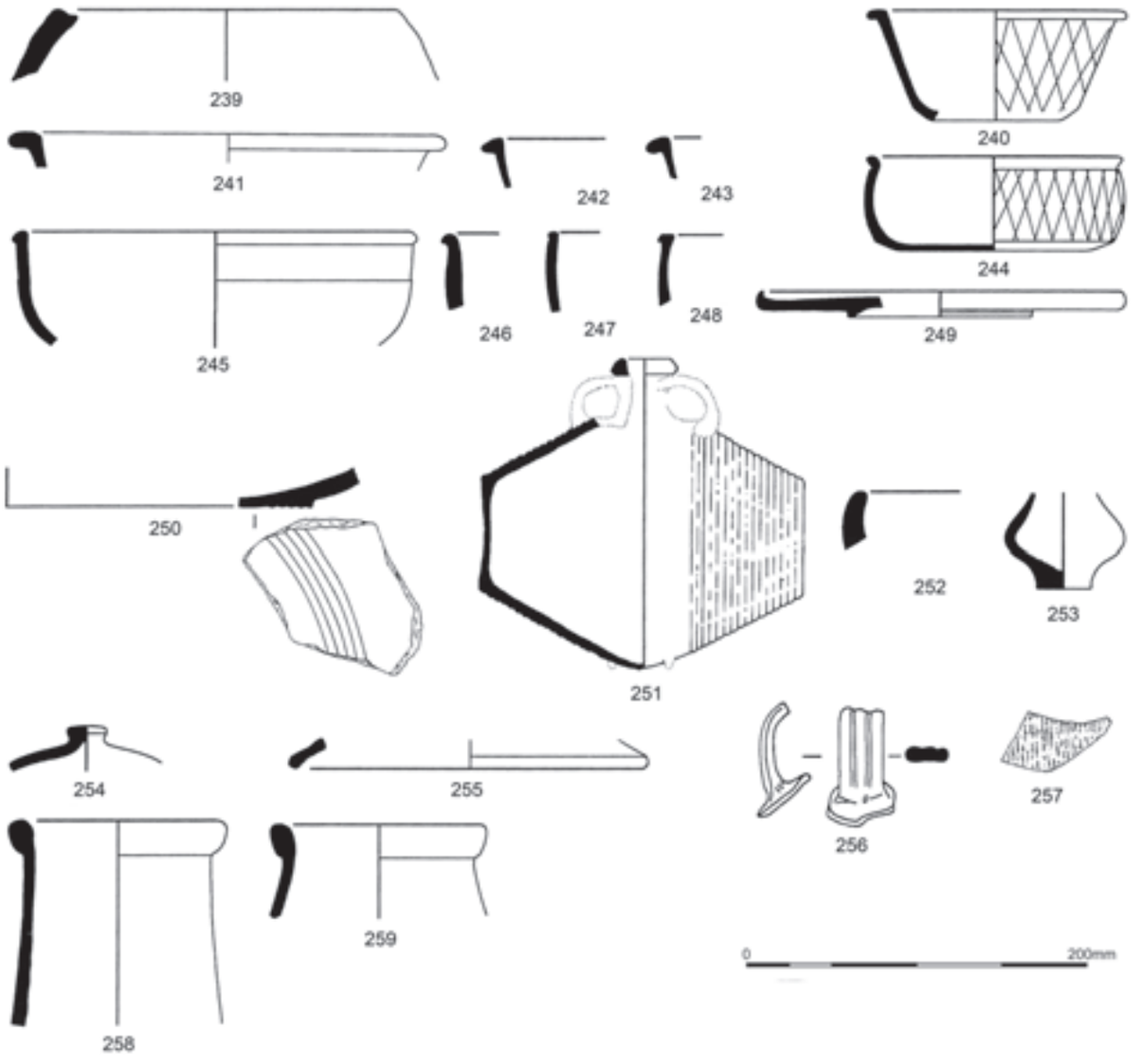


Illustration 7.9
Coarse pottery 239–59.

246.* Bowl, self-coloured, soft, sandy and slightly micaceous fabric. Probably a local oxidised fabric.
NK73AB; annexe, south-west of bath-house, topsoil

247.* Bowl, in an unidentified fabric.
NK76AP; building 8, topsoil.

248.* Bowl in a sandy pink fabric with plentiful soft red inclusions and less common opaque white inclusions.
NK78CT; fill of gulley in area to east of annexe.

249. Shallow tableware dish, in a fine brick-red fabric with very fine sand inclusions. Carefully burnished red-slipped surfaces, burnt on the rim and interior. 'Both Mercedes Vegas and Jaap van der Werff (pers comm) have suggested that this may be a local copy of a non-standard African Red Slip ware form' (Swan 1999: 468, no 45).
NK76DD; FP and EN; annexe, south of changing room of bath-house, overlying cobbles.

OTHER VESSEL FORMS

250. Closed form, in a micaceous, hard off-white fabric with white margins and a smooth, dark grey slip.
NK77AL; above capstone of drain through fort rampart east of building 7.

251. Costrel in fairly fine, off-white fabric with sparse red and grey inclusions and fine silver mica. Non-joining sherds from the rim and neck also survive. Probably Eastern Mediterranean in origin (Swan 1999: 468 and illus 4, no 46). Rilled.
NK73AW, CK and FZ; annexe, south-west of bath-house, topsoil; NK79AF; annexe, south of latrine, topsoil.

252.* Possible brazier, in an unknown fabric. See also nos 87–8, 239.
NK73AA, annexe, south-west of bath-house, topsoil.

253.* Possible *unguentarium*, in an unknown fabric.
NK77DA; area of gulley between south rampart and intervallum, topsoil.

254.* Lid, possibly in a local oxidised ware.
NK77ED; on intervallum east of building 7.

255. Lid, in a reddish-brown fabric with fine multi-coloured inclusions and plentiful mica on the surface.
NK76AI; building 10, overlying natural.

256. Flagon handle, VER WH?
NK74AE; Building 6, topsoil.

257.* Decorated body sherd, in an unknown fabric.
NK78Cu ; area east of annexe.

258.* Hard pink fabric with pinkish-cream surface.
NK73ET; bath-house, hot room.

259.* Sandy, soft creamy-buff fabric.
NK73AA; annexe, south of changing room of bath-house, topsoil.

Nos 258 and 259 were originally classified as jars but are possibly amphorae, though neither their rim-forms nor their fabrics correspond to common types.

7.3 MORTARIA

KATHARINE F HARTLEY

7.3.1 Summary

The mortaria from these excavations constitute one of the largest assemblages in Scotland, and the biggest in the western sector of the Antonine Wall. No mortarium made outside Britain is present in the sample and, perhaps more surprisingly, none made in the north of England. These factors alone make it of considerable significance, but its outstanding importance lies in the evidence for the presence of a pottery workshop of substance. The mortaria in Fabric 5, attributable to the potter Sarrius, provide a unique assemblage and proof of the presence of a workshop, one which had potters from up to four different potting traditions for making mortaria, not to mention the production of many other kinds of coarseware (see Bidwell & Croom above), a workshop, whose inception dated from very early in the fort's history. The purpose of this workshop was clearly to service the local military, but there is a strong possibility that it was also intended to serve a wide spectrum of the western sector of the Antonine Wall. Its presence gives the site a significance which merits further exploration. It also raises, not for the first time, the question of the precise nature of the involvement of Sarrius, who may well have been the most important single potter in Britain making mortaria in the mid-second century, as is discussed below (for his general production and his involvement in another pottery workshop at Rossington Bridge, near Doncaster, see Buckland et al 2001: 42–8 and 86–7).

7.3.2 Methodology

A paper database was compiled in the 1980s by y vonne Boutwood who also did valuable initial work on fabric descriptions and on the quantifying of sherds in Fabric 5 (ie Sarrius). The pottery was quantified by weight, sherd count and rim percentage. All other work on the report, including a recent complete re-examination of all of the sherds and the fabrics, has been done by the author. The database has been transferred to computer and as much detail as possible included. Entries in the database are under random archive numbers, but the Catalogue entries below have been arranged under fabrics with the database archive numbers added at the end of each entry, before the excavation code and context details, eg:

49 (illus 7.20.34) Diam 270mm. Two joining sherds from a hard mortarium, fired throughout to dark grey except for its surface which is oxidised to orange-brown; the slip on the flange is scuffed. Archive no 1/115.
NK73AS; east end of bath-house, unstratified. NK80BD; primary bath-house building, hearth.

Table 7.2
Quantification of all the mortaria from Bearsden

Fabrics and sources	*Wt in gms*	*Sherds*	*% rim*	*Vessels*
Fabric 1: Verulamium region	690	14	30	1
Fabric 2: Mancetter-Hartshill, Warks	3,000	29	206	13
Fabric 3: Colchester	765	18	69	10
Fabric 4: Mascel(l)io, etc: Bearsden?	370	5	49	2
Fabric 5: Sarrius: Bearsden	10,456	344	820	57
Fabric 6: raetian: Bearsden	1,200	18	69	8
Fabric 7: raetian: Bearsden	495	17	41	5
Fabric 8: raetian: Bearsden	489	6	3	1
Fabric 9: raetian: Bearsden	240	8	21	2
Fabric 10: raetian: Bearsden	340	6	43	4
Fabric 11: Cicu(s), etc: Bearsden?	930	27	95	8
Fabric 12: unidentified stamps, etc: Bearsden?	150	6	9	3
Fabric 13: western sector, Bearsden?	505	12	0	3
Fabric 14: Scotland, western sector	245	4	0	1
Totals	19,875	514	1,455	118

Joining sherds are shown as archive nos 1/115, but 105/25 and 18 for example, means that archive nos 105 and 25 join while archive no 18 belongs to the same vessel but does not join. It has not been possible to eliminate certain anomalies which resulted from transferring the old paper database to a computer. Joining sherds with differing excavation codes were sometimes given the same number on paper and treated as a single entry because they joined or were from the same vessel. In order to make sorting on an excavation code or context basis possible, the joining sherds retain the same archive number, but are entered on separate lines and the forward slash which indicated the join in the paper archive has been removed, so that the archive number 127 for example, appears four times consecutively in the archive number column.

Numbers like (1K) are my personal record numbers for individual stamps; these have been retained in the archive and the catalogue because of their convenience in keeping a check on the large number of fragmentary and some unidentified stamps. A full list of the abbreviations found in the database and sometimes used in the catalogue can be found at the end of this report.

Where possible, the National Roman Fabric Reference Collection by Tomber & Dore (1998) has been referred to for fabrics, with additional information being added for the unusual Verulamium region fabric and some Mancetter-Hartshill mortaria which have an early type of trituration grit which it is important to distinguish from that used later. Descriptions have been provided for all of the Scottish fabrics, with help from Paul Buckland for Fabric 5, the fabric of the Sarrius mortaria.

Samples from the mortaria at Bearsden were subjected to petrographical examination by G H Collins (7.4.2), but due to his sudden death it has not been possible to make maximum use of his work. G D Gaunt has made a very useful study of the trituration grit used in a selection of the mortaria (7.4.3). Both support the belief that Fabrics 4–14 were produced in the western sector of the Antonine Wall and that all could, in theory, have been produced at Bearsden. Mark Gillings made a chemical and petrological analysis of local oxidised ware (7.4.4), but did not include mortaria in his analyses. He did, however, remark on the very close affinities between other coarse ware and the daub samples, which 'implies the exploitation of a close clay source'. His conclusion, taking all of his analysis into consideration, was that oxidised ware was manufactured in the immediate vicinity of the fort.

7.3.3 Quantification

The assemblage quantified consists of 514 mortarium sherds weighing a total of 19.875kg. Eighteen extra sherds weighing 135gms are excluded from the quantification: four of these (archive nos 143, 161–2, 289) appear to be shapeless pieces of clay while 14 small body sherds are of indeterminate fabric. The sherds quantified are from a total of *c* 118 mortaria. The details for all quantified sherds are summarised in table 7.2 and in the summary

Summary of Table 7.2

Sources and fabrics	*Weight gms*	*Sherds*	*% rim*	*Vessels*
Mancetter-Hartshill	3000	29	206	13
Verulamium region	690	14	30	1
Colchester	765	18	69	10
Sarrius	10,456	344	820	57
Mascel(l)io	370	5	49	2
raetian	2,764	55	177	20
Cicu *et al*	930	27	95	8
Scotland: other	900	22	9	7
Totals	19,875	514	1,455	118

Table 7.3
Mortaria from sources inside Scotland

	Weight	*Sherds*	*% rim*	*Vessels min-max*
Sarrius	10,456	344	820	37–57
raetian	2,764	55	177	20
Mascel(l)io	370	5	49	2
Cicu, etc	1,080	33	104	11
Others	750	16	0	4
Totals	15,420	453	1,150	74–94

Table 7.4
Mortaria from sources outside Scotland

	Weight in grams	*Number of sherds*	*% of rim*	*Min-max vessels*
Mancetter-Hartshill	3,000	29	206	13
Verulamium	690	14	30	1
Colchester	765	18	69	10
Totals	4,455	61	305	24

of table 7.2. Illus 7.10–7.12 show the percentages of mortaria from different sources according to weight, sherd count, and surviving rim-percentage. With most of the fabrics the number of vessels can be assessed exactly because so few sherds are involved, but with Fabric 5 the large number of sherds (344) make this impossible; the number of vessels range from an absolute minimum of 37 up to *c* 57. Illus 7.14 and 7.15 show the relative number of vessels from different sources using these maximum and minimum estimates for Fabric 5 (Sarrius). With Fabrics 13 and 14, base sherds and incomplete rim fragments had to be used to estimate vessels in the absence of adequate rim sherds.

7.3.4 Mortarium fabrics

Fabrics produced outside Scotland Fabrics 1–3

Fabric 1

Verulamium region, ie at workshops alongside Watling Street between Verulamium and Radlett (Tomber & Dore 1998: 154–5; Hartley, K F & Tomber 2006: 95–6).

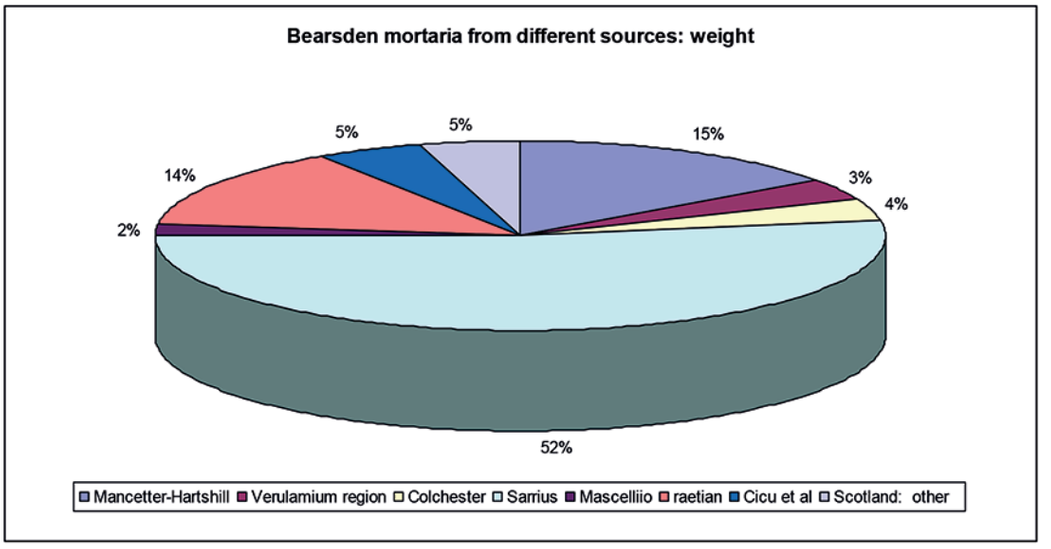


Illustration 7.10
Bearsden mortaria from all sources by weight.

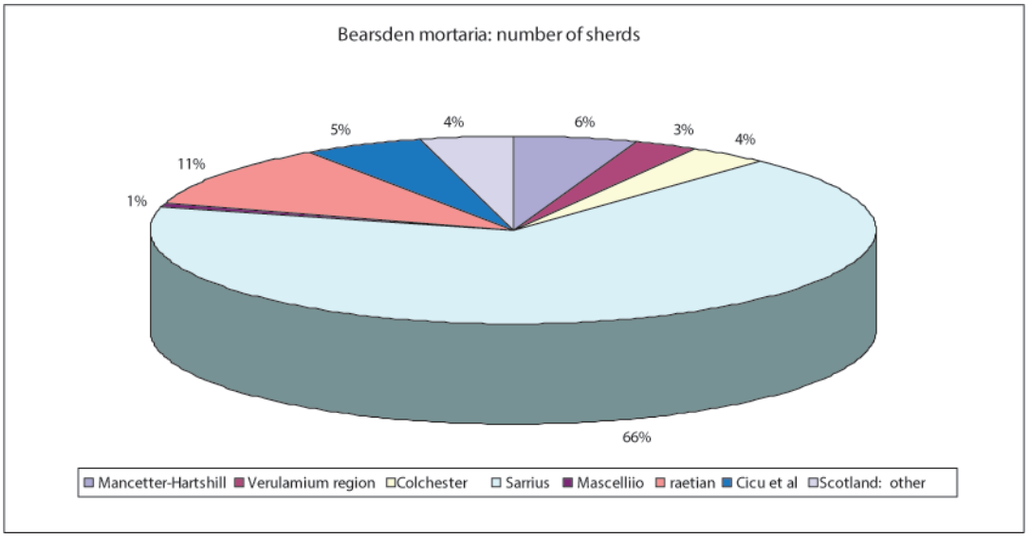


Illustration 7.11
Bearsden mortaria from all sources by number of sherds.

The single mortarium from this source is in hard, granular brownish-orange fabric with thick cream slip. Inclusions are frequent, mostly tiny, fairly well-sorted, sub-rounded and angular quartz with occasional flint and rare black slag and orange-brown material. The trituration grit has not survived, but was probably mainly flint with occasional quartz and rare red-brown material. The mortarium fabrics produced in the potteries south of Verulamium were mostly greyish-cream and were either self-coloured or had a self-coloured slip, but a few potters produced orange- to red-brown fabrics. Two minor red-brown fabrics with cream slip were also produced at Radlett (unpublished) and at Brockley Hill (Castle 1973: 82, MS12). The Bearsden example is in the much coarser red-brown fabric with cream slip which is very rarely found.

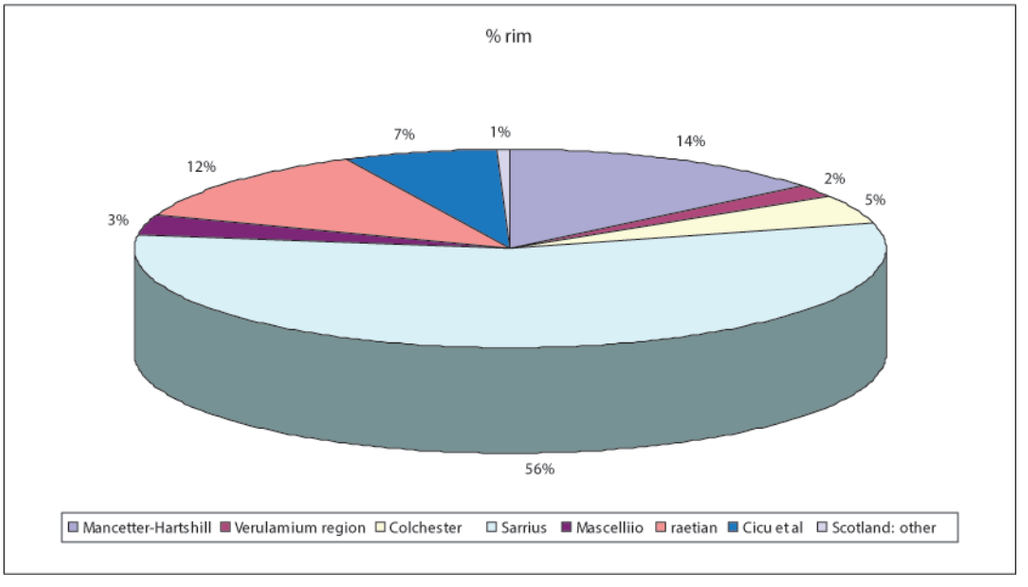


Illustration 7.12
Bearsden mortaria from all sources by rim percentages.

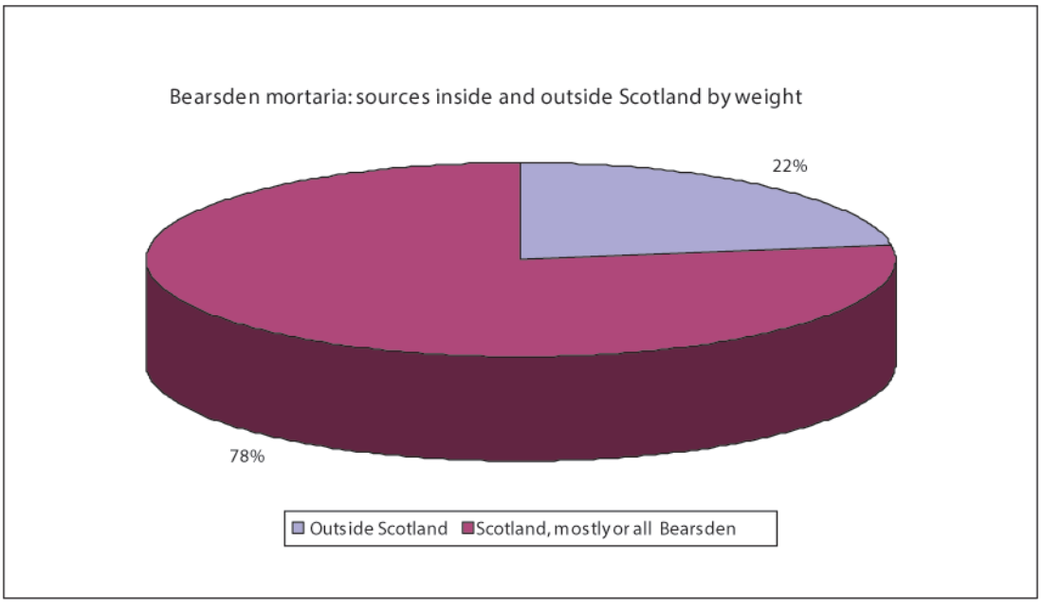


Illustration 7.13
Bearsden mortaria from sources inside and outside Scotland by weight.

Fabric 2

Mancetter-Hartshill potteries in Warwickshire (Tomber & Dore 1998: 189)

A usually fine-textured, cream fabric, varying from softish to very hard, sometimes with pink core. Inclusions are usually moderate, fairly small, transparent, and translucent white and pinkish quartz with sparse orange-brown fragments. The range in fabric is, in fact, quite wide, from that with scarcely any inclusions to fabrics with a fair quantity and fabrics with hard, ill-sorted black inclusions. The trituration grit after some point in the period 130–40 consisted of hard red-brown shale (Roberta Tomber, pers comm), and/or hard blackish, fragments; quartz fragments are very rare indeed after 130–40. Earlier mortaria (archive nos 275–8 is probably one of these) usually have a well-mixed trituration grit in which quartz and sandstone are normal components.

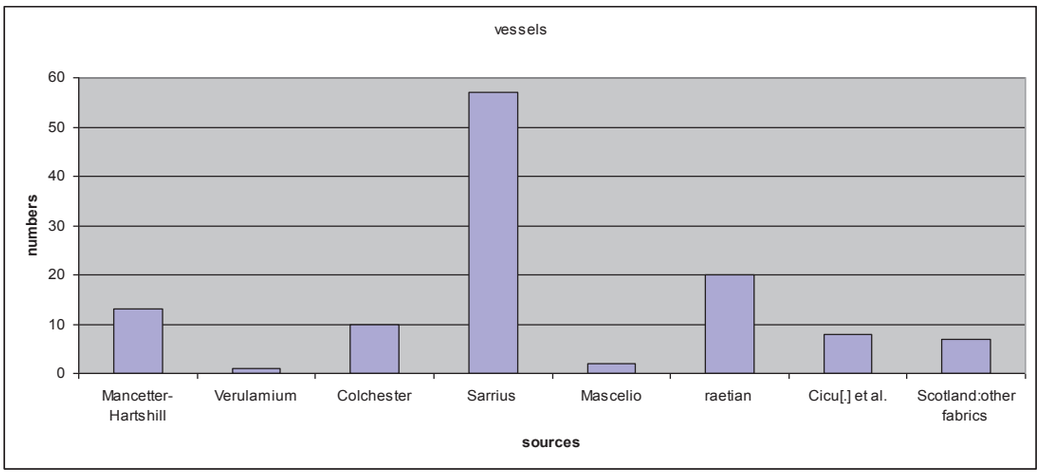


Illustration 7.14
Bearsden mortaria from all sources using the maximum figure of 57 vessels for Fabric 5 (Sarrius).

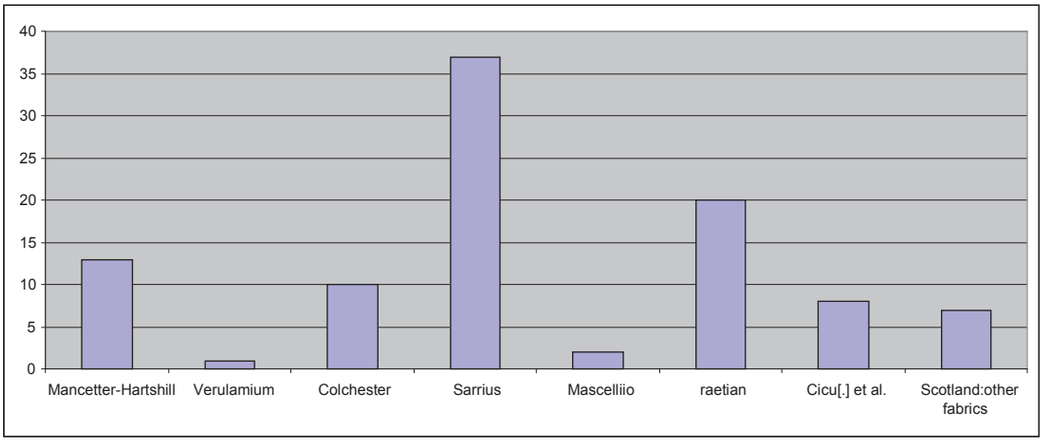


Illustration 7.15
Bearsden mortaria from different sources using the minimum figures of 37 vessels for Fabric 5 (Sarrius).

Fabric 3

Colchester (Tomber & Dore 1998: 133–4; Hull 1963)

The fabric colour intended was cream, but it could vary through yellowish-cream to brownish-cream and could have a pink core. The fabric is always badly affected by chemical weathering in acid and/or wet conditions and many of the Colchester mortaria in Scotland are in the process of disintegration; those found at Bearsden are no exception. The colour of some fragments can also be affected. The inclusions consist of angular and ill-sorted quartz, flint and black slag fragments. Trituration grit consists of opaque quartz, flint and occasional black slag fragments. Colchester had the major workshop for these mortaria, but a smaller workshop in Kent probably in the vicinity of Canterbury made similar mortaria. Some Kent products can be distinguished, mostly because of the stamp used; distinction by fabric alone is very difficult.

Fabrics produced inside Scotland Fabrics 4–14

All the remaining sherds are in the oxidised range, and have been divided by macroscopic examination into eleven fabrics. Various analyses were undertaken by G H Collins (7.4.2), G D Gaunt and M Gillings (7.4.3 and 7.4.4). All agreed that all the rocks present could be found in the western sector of the Antonine Wall and within a comparatively small radius of Bearsden so that manufacture in the immediate vicinity of the fort was possible.

Fabric 4

Probably Bearsden

Softish, powdery and friable; the fabric is very orangy brown (Munsell 5y R 6/8) with a fair amount of sand in the matrix. Archive no 320, Mascel(l)io, has tiny traces of cream slip, but many sherds are in too poor a condition for any slip to have survived. Inclusions are moderate, random, sub-rounded, but ill-sorted quartz, with occasional black fragments. No trituration grit survives.

Fabric 5

Bearsden – the fabric produced by Sarrius in the Bearsden workshop (including putative waste pottery from a kiln).

A detailed description of the fabric has been provided by Buckland: 'An orange-brown fabric, often with thick dark grey core. The temper includes much fine angular quartz, derived from a fine grained sandstone/siltstone, occasional coherent fragments of which appear in the fabric and which forms the bulk of the trituration grit. Subrounded clear quartz grains and occasional angular fragments of vien quartz are also evident in the trituration grit, with angular fragments of a fine-grained black metamorphic rock and some red brown sandstone; occasional fragments appear to be a metaquartzite. These characters are sufficient to distinguish this group from the Rossington Bridge products of Sarrius (Buckland et al 2001: 39, "Fabric 1") and a local source in the Drift of the Clyde Valley is probable'.

More than half of the sherds in Fabric 5 have a powdery surface but sufficient are in hard and good condition, with cream slip intact, to show the standard being sought. At its best, the fabric is a hard orange-brown throughout with a grey core only in thicker areas where the flange joins the side and where the side joins the base. There are, however, many with a well-defined, very thick grey core in the body and others where the fabric is grey throughout or have only patches of orange-brown at the surface. All were clearly intended to have a cream slip.

Fabric 6

Bearsden

An unusual fabric, reddish- to orange-brown with well-defined, black or near black core and little pockets of red and yellow clay; a moderate amount of quartz inclusions. The trituration grit consists of quartz (3–4mm). Some have cream slips like nos 97, 98, and one bodysherd, but nos 100, 102 and103 have traces of red-brown slip on the upper surface of the flange; no 99 has only

self-coloured slip on the flange, but is otherwise identical. This red-brown slip is being used as a raetian-type slip. No 104 is the base of a waster.

Fabric 7

Bearsden

Hard, buff to pale orange fabric, sometimes with deeper orange core; inclusions are quartz (sub-angular ill-sorted grains), red-brown fragments and sparse black fragments. Trituration grit consists of quartz and red-brown material. Nos 105 and 108 have traces of buff-brown slip apparently used as a raetian slip.

Fabric 8

Bearsden

It can be assumed that this fabric was intended to be orange-brown, but it was fired to grey with paler centre; the slip is reduced to grey. The sparse, ill-sorted inclusions are quartz with red-brown and black rock fragments. The trituration grit consists mainly of quartz with some pale sandstone and black rock. The greyness of this fabric is probably the result of accidental reduction and to its being a waster rather than to deliberate reduction.

Fabric 9

Bearsden

Dense, fairly fine textured orange-brown fabric; fairly frequent, tiny to small inclusions, mostly quartz, with rare black and red-brown material. The trituration grit is a well-mixed assemblage of quartz, reddish-brown sandstone, black and other rocks, moderately well-sorted in size and extending throughout the interior. Patches of good red-brown raetian slip survives on the flange of no 111.

Fabric 10

Bearsden

Orange-brown fabric with rather open texture; any slip used has survived on only one sherd where it is of the red-brown raetian type. There are fairly frequent, ill-sorted and random inclusions, mostly quartz (some angular quartz up to 4mm), with rare red-brown and black material. Trituration grit included quartz with some red-brown material.

Fabric 11

Western sector of Antonine Wall, probably Bearsden.

The softish, fine-textured fabric is orange-brown; it has few, ill-sorted, but mostly tiny quartz, red-brown and black inclusions. Trituration grit consisted of quartz, sandstone and opaque black material. Slight traces of cream slip sometimes survive. The fabric is now powdery and abrades easily giving surfaces an abraded appearance; some sherds are badly degraded.

Fabric 12

Western sector of the Antonine Wall, probably Bearsden

Brownish-orange fabric, sometimes with bright orange core; fine-textured, but with distinctly more sand in the clay than Fabric 11; surface powdery. Inclusions are sparse, random, ill-sorted, consisting mainly of quartz with rare pale sandstone, and red-brown and opaque black material. Trituration grit consists of quartz, sandstone and rare opaque black material. Small traces of cream slip survive on some sherds.

Fabric 13

Western sector of the Antonine Wall, perhaps Bearsden

Slightly abrasive, bright orange-brown fabric with a fair amount of angular and sub-rounded, extremely ill-sorted quartz, and, less common, ill-sorted, opaque black and red-brown inclusions. Trituration grit consists mostly opaque white quartz (5mm) with rare red-brown material. No certain traces of slip have survived.

Fabric 14

Western sector of the Antonine Wall

Very hard, yellowish-brown fabric fired to a more orange-brown colour at the surface, with a red-brown slip. Inclusions consist of abundant tiny quartz and black rock, with some large, ill-sorted, white quartz grains and rare red inclusions. Trituration grit consists of quartz, quartz sandstone, grey and red-brown sandstone, and black material. The texture and colour of this fabric is quite different from any of the other fabrics.

7.3.5 Catalogue of stamped mortaria

Mortaria made outside Scotland

1–3. Gratinus Fabric 2 (illus 7.18.4–5; illus 7.16.1–3 scans) Catalogue nos 6, 7, 9

Three different mortaria, which have incompletely impressed stamps reading [.]RATIN[.], [.]RATINI and [.]RATINI respectively, with N sloping to the right. All are from the commonest die of Gratinus who worked in the Mancetter-Hartshill potteries in Warwickshire. Over 70 of his mortaria have now been noted from occupation sites in the north and midlands of England and 10–11 from sites in Scotland: Balmuildy; Bearsden (3); Birrens (2); Cappuck; Kirkintilloch and Newstead (2–3). Such evidence as is provided by his distribution, rim profiles and the kilns he used at Hartshill point to his main activity being marginally earlier than that of Sarrius though there was some overlap in date: 130–60 should cover it. Nos 8 and 10 are so close to the mortaria with stamps of Gratinus (nos 6, 7 and 9) that it is reasonable to suppose that they could also be mortaria made by this potter. It is unusual to find even three mortaria of the same potter and to have the real possibility of five mortaria by one potter is truly surprising. For other details of this potter's activity see Cooke et al 2014: 190.

4. Imemituobon[...] Fabric 2 (illus 7.18.2; illus 7.16.4 scans) Catalogue no 2 (29K) 4.

Illustration 7.16
Stamps of potters other than Sarrius recorded at Bearsden, together with the rubbing of a complete stamp of Sarrius from Catterick.

The fragmentary, left-facing stamp shows parts of the upper and left-hand borders of a two-line stamp which, in complete examples, reads IMIIMI/TVOBON, both lines retrograde, though the upper one is the same whether read as retrograde or from left to right. The two verticals represent E while the second 'O' is very small. The two borders surviving in the Bearsden stamp can be identified as his, only because they are distinctive in this stamp. He worked in the Mancetter-Hartshill potteries and his mortaria are now recorded in England from: Aldborough, yorks; Burton by Lincoln; Corbridge (2–4); Leicester (3–5); Little Chester, Derbyshire; Market Overton, Leicestershire; Saxondale, Nottinghamshire; Tiddington, Warwickshire; Toad's Hole Piece, north of Lichfield; and Wall, Staffordshire; and in Scotland from Ardoch; Bearsden; Camelon; Mumrills (2); and Newstead (1–2). His date is assessed from his presence at Antonine forts in Scotland, his rim-profiles, spouts and from the fact that some of his mortaria have the mixed trituration grit commonly used in these potteries before *c* 140. He worked within the period 130–60. This mortarium has the remains of a pale orange-brown slip which may have covered all surfaces, a slip similar to those often used in east midland workshops. No other example of such a slip is recorded on Mancetter-Hartshill mortaria, and no explanation can be offered.

5. Minomelus Fabric 2 (illus 7.18.6; illus 7.16.5 scan). Catalogue no 13
   The right-facing stamp reads [M]INOM[E]LVS retrograde, the E is slightly unclear. This is one of only three stamps known for this die, the other two being from Hartshill, Warwickshire, where one of his kilns was excavated in 1960 (unpublished). Up to 69 of his mortaria have now been noted from occupation sites in England and six from sites in Scotland at: Bearsden; Inveresk; Mumrills; Newstead (2), and Rough Castle. Several factors point to activity within the period 130–60, possibly ending somewhat earlier than 160. These include possible associates at the Hartshill kiln; his rim-profiles; the larger number of his mortaria in Antonine Scotland compared to those on Hadrian's Wall and those at Pennine sites believed to have been abandoned when the Antonine Wall was built (Hartley, B R 1972; Hartley, B R 1961: 113; Hartley, B R 1966: 42). (24K)

6. Herringbone stamp Fabric 3 Too fragmentary for illustration. Catalogue no 19

Part of a herringbone type stamp. Most herringbone type stamps from the Colchester pottery have two raised central spines, but this one has only one; this makes it possible to suggest that it is probably from the same die as Hull 1963: fig 60, no 38. The distribution of Colchester herringbone type stamps could be consistent with their production being linked specifically with the occupation of Scotland and it is worth considering whether the production could have been initiated deliberately for this 'market' (Maxfield forthcoming, Chapter 17, 114–17). The proportion of Colchester mortaria in the central and eastern parts of the Antonine Wall is far higher than at forts in the western sector (Hartley, K F 1980: 267–8). This and the distribution further south which was largely concentrated at Corbridge and in north-east yorkshire points to transport by coastal traffic. Whatever the precise date at which their production commenced and ended, their *floruit* was within the period 140–70 with production tailing off afterwards and their presence in the north being rare to absent thereafter. For other comments on these stamps, see Hartley, K F 1999: 205 and 209. (28K)

Stamped mortaria manufactured in Scotland, perhaps all at Bearsden

7–29. Sarrius Fabric 5 (illus 7.19.12–26; 7.19.28–37; 7.19.38–45) All stamps which were not too fragmentary or abraded are drawn on illus 7.17.1–27 and, for comparison illus 7.16 shows a scan of a complete stamp from the same die-type on a midland mortarium found at Catterick (Wilson 2002: 339, fig 167, MS60), which has an almost complete impression of this stamp. Catalogue nos for the stamped mortaria: 27–42 (flanged); 82–7 (wall-sided).

QUANTITY

The stamps of Sarrius at Bearsden are mostly fragmentary (some join), but they provide absolute evidence for the presence of 16 flanged mortaria and six wall-sided mortaria, giving a total of 22 stamped vessels. All are in Fabric 5 which is easy to recognise and all the mortarium fragments in Fabric 5 can be attributed to this potter. Careful examination of the remaining rim sherds in Fabric 5 suggests that this assemblage includes at least ten more flanged mortaria and five more wall-sided mortaria, giving a minimum total of 37 mortaria. There are 54 other rim sherds in Fabric 5; some of these may belong to the above, but some will belong to other vessels. These include seven spout fragments from flanged mortaria and one from a wall-sided mortarium. The unusual conformity of the mortaria, makes it difficult to be precise about the total number of vessels. The figures, therefore, give a total of 22 vessels with their stamps surviving, but judging from all the fragments present, an absolute minimum total of 37; the true total could be higher, possibly as high as 57 (the number used in table 7.2); illus 7.14 and 7.15 illustrate proportions from different sources using maximum and minimum numbers, 57 and 37, for Sarrius.

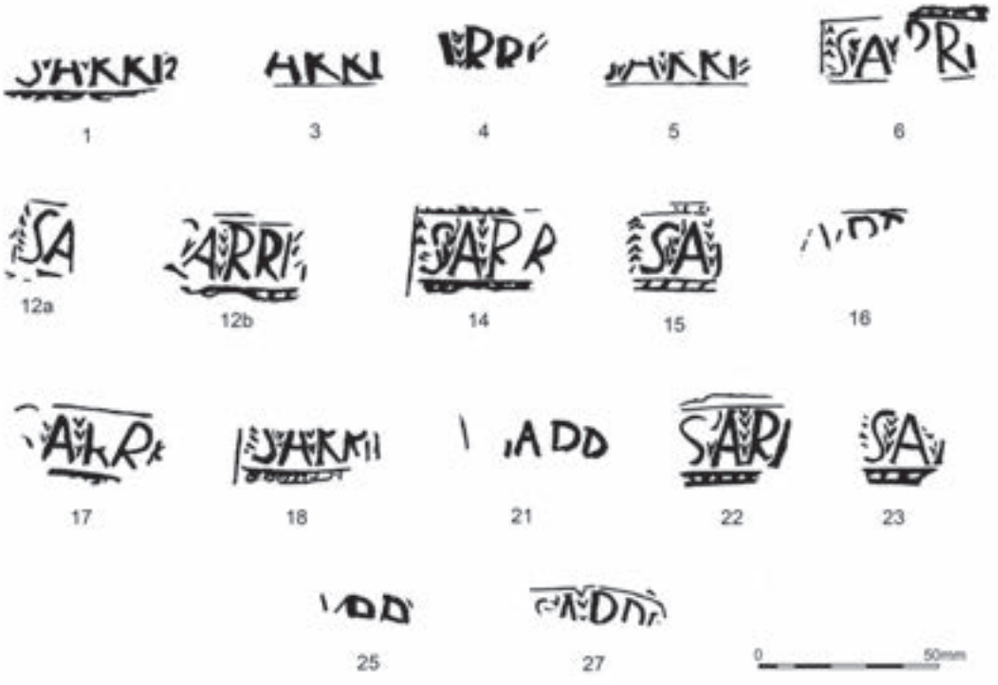


Illustration 7.17
Reduced representations of the stamps of Sarrius found at Bearsden.

UNIFORMITY OF RIM-PROFILES

A large selection of the form-profiles are illustrated on illus 7.19–7.21. These illustrate at a glance the remarkable homogeneity of the rim-profiles, both flanged and wall-sided. The sherds which are not illustrated echo exactly the forms illustrated. The flanged mortaria have a relatively wide, shallow flange often slightly incurved at the distal end. The bead is slightly below the top of the flange, level with it and on rare occasions marginally above the flange. One noticeable feature of most of the rim-sherds, is the marked change of angle often visible underneath the flange at the distal end. The cracking along this line in many sherds shows that this was a point of weakness; it is consistent with many being wasters, but it is out of sight and would not have made vessels unsaleable. The keying for adding the extra clay used in forming the spouts on these flanged mortaria was made by deep slashing across a wide area of the flange; this is sometimes visible through the slip as on illus 7.19.12–13; it is the type of keying used on his midland mortaria. All the Bearsden spouts on flanged mortaria are of a single type, used by Sarrius and other contemporary potters in the Mancetter-Hartshill potteries *c* 135–50. The productive life of different potters overlapped in date and some might be more conservative than others, but each had tendencies to favour certain spout-types which can be identified and these have some chronological value. The type favoured by Sarrius (and, for example, Bruscius) for his flanged mortaria post-dates most of those used by potters like Gratinus, pre-dates many favoured by Iunius, and probably pre-dates all used by Maurius, Sennius and Carita[…]. Further work needs to be done on the Mancetter-Hartshill mortaria for more definitive comparison to be made. The precise, slightly clumsy wall-sided mortaria are again very uniform and the bottom of the rim-wall seems to be finished off by curling excess clay underneath; there was a tendency at Bearsden for this clay to come adrift. Illus 7.21.45, is exceptional among the wall-sided mortaria; no other parallel for this rim-profile has been found at Bearsden or at Mancetter-Hartshill.

DIAMETERS

The diameters of the flanged mortaria vary between 230mm and 310mm, the majority being 260–280mm. Mortaria made in Sarrius's Warwickshire workshop tend to be marginally larger and any equivalent, casually assembled number of his midland products, show much less uniformity both in diameter and in rim-profile. The diameters of the wall-sided mortaria vary between 190mm and 220mm; the majority being 190–200mm. The small wall-sided mortarium has a diameter of 160mm (illus 7.21.45, Catalogue no 92).

SIGNIFICANCE OF HIS WALL-SIDED FORMS AND THEIR SPOUTS AT BEARSDEN

A key factor in dating Sarrius's mortaria at Bearsden lies in the wall-sided forms and the small projecting spouts associated with them. This precise profile and spout are very rare because it is a transitional form which had a very limited life. Although later unstamped hammerhead forms did eventually develop from this humble beginning, this form itself was short-lived. Very few examples are known and all of those from Mancetter-Hartshill are stamped by Sarrius, Iunius, Iunius Loccius or Maurius. Six stamped mortaria survive at Bearsden while only six are known in the Mancetter-Hartshill fabric for all four potters known to use the form: Sarrius (2); Iunius (2); Iunius Loccius (1) and Maurius (1). They are almost rare enough to be oddities! Thus the stamped mortaria of this type recorded from Bearsden equal the number known for all four producers in the Warwickshire potteries. Sarrius may well have been the first to experiment in making it, but all available evidence suggests that Iunius, Maurius and probably Iunius Loccius overlapped with Sarrius in date and continued working later than him. A date near to 145 is as early as could easily fit the evidence for all three potters to be simultaneously active.

ABSENCE OF WEAR

The white slip is moderately well-preserved and clearly or partially covers the trituration grit on a large number of the sherds. The first result of use of slipped mortaria was the loss of the slip on the internal surface; in used mortaria it commonly survives only one to two centimetres below the bead ending in a clear line around the interior. The slip on the underside of the base was similarly subject to early wear and this also has survived on many sherds despite difficult soil conditions. There is no certain sign of wear on the trituration grit in many of the Bearsden mortaria. This absence of obvious wear suggests that, where it was possible to check, many of the mortaria had never been used.

THE STAMPS

The stamps on all of the flanged mortaria were impressed at right-angles to the flange and on all occasions where it was possible to verify it, they were impressed to read from the bead outwards. All of the stamps on the wall-sided mortaria were impressed along the collar and all were impressed upside down.

All of the stamps are from one die. Complete stamps read SARRI and show well-formed letters with serifs and decorative, chevron motifs between S and A, and, between A and R. The letter panel has neat chevron motifs at the beginning and end of the panel which are rarely fully impressed (see scan on illus 7.16); on incomplete impressions they can resemble the upper and lower borders which have neat diagonal bars. They are from the same die-type as stamps reading SARRI on mortaria made in the potteries at Rossington Bridge near Doncaster (Buckland et al 2001, 39–47, there described as Die 4[1]); they are also identical with the stamps from one of five dies giving SARRI which were used in the Mancetter-Hartshill potteries in Warwickshire (two other dies give his name in full). It is virtually impossible for the stamps from all three sites to be from one actual die. Sister-dies must have been made from a single matrix which may have been created by a specialist craftsman (Hartley, K F 1996: 147–8).

DETAILED DISTRIBUTION OF SARRIUS MORTARIA IN SCOTLAND

A Mancetter-Hartshill workshop: Ardoch; Balmuildy; Bar Hill (2); Birrens (1–2); Camelon (2); Carzield; Croy Hill; Inveresk; Mumrills; Newstead; Rough Castle; Strageath (2); and Wilderness Plantation;

B Unlocated workshop in northern England (linked to a different die): Birrens (Robertson 1975, fig 84, no 7, wrongly attributed to Rossington Bridge);

C Clyde Valley workshop at Bearsden: 22 with stamps surviving, many are likely to be kiln-waste, but some would have been in use on the site; Balmuildy (3; plus 3 unstamped sherds); Camelon (old find, Fx 598)

D Rossington Bridge, Doncaster: none

NB: Published references to the mortaria at Bearsden which attributes them to Rossington Bridge should be regarded as incorrect (eg Hartley, K F 1980: 268). They are the result of unjustified assumptions made soon after the excavations at Bearsden took place and before they were examined closely. Stamps on mortaria from Birrens and Carlisle were also mistakenly attributed to Rossington Bridge (Robertson 1975: 237–8 and fig 84, no 7; Taylor 1991: fig 303, nos 12 and 367)

COMMENTS ON THE DISTRIBUTION OF MORTARIA OF SARRIUS

For a summary of Sarrius mortaria see table 7.5. With very few exceptions, the 125 stamped mortaria of Sarrius, which are attributable to his workshops in Warwickshire, have been found at sites in the midlands, northern England and in Scotland (for further details and a distribution map, see Buckland et al 2001, 46–7 and fig 36). His output from the Warwickshire potteries, compared with that of other potters, leaves no doubt that he had a dominant position at some point in the mid-second century, within the period 135–45/150. This in itself gives him exceptional importance, but what marks him out from other potters in these potteries and from all but a handful of potters throughout Britain, is his involvement in at least three subsidiary productions elsewhere: at Rossington Bridge, near Doncaster (Buckland et al 2001), at Bearsden and at an unlocated site in northern England. In table 7.5 the totals of his mortaria manufactured at the subsidiary sources appear on the surface to indicate that production in these was, for whatever reason, relatively limited or short-lived.

DATE

The overall date of Sarrius's activity is assessed from the abundance of his work at forts on the Antonine Wall, its relative absence from Pennine forts believed to be unoccupied from *c* 120–60, his rim-forms and his possible association with Iunius at one of the Mancetter kilns. A stamp from Verulamium is from a context dated about 155–60 (Frere 1972: no 35) and one is recorded from a Hadrianic deposit at Birdoswald (Birley 1930: 187, no 2, described as 'illegible'). Comparison of his mortaria and their spouts, with those of Gratinus and Imemituobon[..] suggest that his midland production began slightly later than theirs. The evidence as a whole suggests activity within the period 135/140–65. His wall-sided mortaria, like those at Bearsden cannot date much earlier than 145.

Although we do not know the order in which they were set up, all of his northern workshops were active during the Antonine period and their activity almost certainly overlapped in time. Bearsden was a secondary fort on the Antonine Wall and a small sherd undoubtedly from a Sarrius mortarium (catalogue no 49, 7.20.34) was found in the burning around the hearth in the primary bath-house, a context which cannot be forced later than 145 and which may be earlier (see pp 346–8; 376–8). This certainly suggests that pottery production was established at Bearsden

Table 7.5
Summary of mortaria stamped by Sarrius which can be attributed to all of the workshops in which he was involved (excluding all on production sites). Fabric numbers are taken from the Bearsden Fabric list

Fabric	*Source*	*Die used*	*England*	*Scotland*	*Totals*
Fabric 2 white	Mancetter-Hartshill	die 4[1] as Bearsden	33	05	38
Fabric 2 white	Mancetter-Hartshill	6 other dies	75	12	87
Fabric 5 oxidised	Bearsden	die 4[1]	00	04	04
oxidised	Rossington Bridge, Doncaster	die 4[1]	05[2]	00	05
oxidised	unknown source in north-east England	new die specific to a new fabric	02–03	01 (Birrens)	03–04
oxidised	source being assessed[3]	die 4[1]	04	00	04
Totals			119–120	22	141–142

Notes:

1. die '4' is an arbitrary recording number; it is NOT a final die number.
2. no mortaria with only the stamp of Setibogius or Secundua have been included. Six such mortaria have been recorded at sites other than the Rossington Bridge production site and at least four from the production site itself (Buckland et al 2001: 45).
3. these are from Aldborough; Castleford and Healam Bridge (2): analyses of fabric and trituration grit are needed to assess whether they constitute a new group.

NB: Any published references to the mortaria at Bearsden which attributes them to Rossington Bridge is incorrect (eg Hartley in MacIvor, Thomas & Breeze 1980: 268). They are the result of unjustified assumptions made soon after the excavations at Bearsden took place and before they were examined closely. Stamps on mortaria from Birrens and Carlisle were also mistakenly attributed to Rossington Bridge (Robertson 1975: 237–8 and fig 84, no 7; Taylor 1991: fig 303, no 12 and 367).

very early in the fort's history. We do not know if his production at Bearsden spanned the whole period of its occupation, but the distribution of his work throughout the fort and the large amount of probable kiln-waste in the eastern intervallum area could fit this proposition.

SUMMARY OF THE EVIDENCE FOR ATTRIBUTING FABRIC 5 TO A WORKSHOP AT BEARSDEN

Paul Buckland describes the inclusions and trituration grit in Fabric 5 as likely to be from a local source in the Drift of the Clyde Valley. All methods of quantification show that mortaria in Fabric 5, a fabric unknown elsewhere, are in an overwhelming majority on the site (table 7.2, illus 7.10–7.13); there is a marked uniformity of form; many appear to be unused and, they are not only stamped by one potter, but all are stamped with the same die. Furthermore, the condition of the fabric with its wide variation in texture and varying degrees of reduction in an otherwise homogeneous group, suggests inadequate firing-control and the possibility that much of the pottery could be redeposited kiln waste. The concentration of 122 sherds on the east intervallum and some others in the vicinity could best be explained as redeposition at a time when the fort was being abandoned. It could also explain a finding by Bidwell & Croom below (p 177) that the break-down of pottery by vessel types in table 7.18 shows that mortaria are about twice as common as would be expected from a military assemblage; this imbalance is primarily caused by the excessive number of sherds in Fabric 5. As one would expect, some mortaria were found in contexts which suggest that they were in normal use: for example, barrack 3 (15 sherds); building 5 (3 sherds); building 11, headquarters building (1 sherd); bath-house (5 sherds including one in the hearth of the primary bath-house) (illus 21.32).

OTHER POTTERS LIKELY TO HAVE WORKED AT THE BEARSDEN WORKSHOP

30. Mascel(l)io Fabric 4 (illus 7.22.46 and illus 7.16.6) Catalogue no 25

    A badly eroded right-facing stamp of Mascel(l)io survives. Complete impressions of this stamp read MASC retrograde, with blind or dotted A; see Taylor 1991; fig 303, no 6 and Robertson 1975; fig 84, no 15 for examples from the same die. In better preserved examples a border is visible after the C showing that MΛSC was being used as an abbreviated form of his full name which is likely to be Mascel(l)io. Four die-types are directly attributable to him and a fifth, which may be his, gives the name 'Mascelio' in full. Mortaria stamped with the same die as the Bearsden example are now recorded, in Scotland from Bar Hill (1–2); Bearsden; Birrens; Inveravon; Mumrills; and Old Kilpatrick; and, in England from: Carlisle (1–2); Corbridge; and South Shields. Mortaria stamped with other dies of Mascel(l)io are known from Bainesse (2); Brompton-on-Swale; Catterick (4); Chesters (Mascelio); Corbridge; Healam Bridge; Housesteads; and Piercebridge. For further details and a distribution map of his mortaria including all but the mortarium from Healam Bridge, see Wilson 2002: 446, MS5; 449, fig 206. The distribution of stamps from particular dies shows interesting groupings: the nine stamps in the Bainesse/Piercebridge area are from two dies; only one stamp from one of these has been recorded from outside that area, at Housesteads (Wilson 2002: 446). All of the stamps from Scotland are from one die and the stamps in England from that same die are recorded only from Carlisle, Corbridge and South Shields with none further south. No stamps from any of his other dies have been recorded from Scotland. The evidence suggests that he began stamping mortaria in the Bainesse/Catterick area, where there was a considerable pottery-making industry from early in the second century; at some point within the period 125–40, he moved north to an unlocated site. The concentration of stamps from specific dies suggests that Mascel(l)io moved from the Catterick area rather than being involved in more than one workshop simultaneously like Sarrius. The single die used for his stamps in Scotland indicates that this die was in use only after he had left the Catterick area, since no stamps from it have been recorded south of Corbridge, South Shields and Carlisle. The fact that all of his stamps in Scotland are from this one die had already given rise to the idea that he may have become involved in a workshop in Scotland during the Antonine occupation. The die used on mortaria found in Scotland must have been in use in the latter part of his lifetime and is likely to have been his latest one.

    The location of his activity after leaving the Catterick area is uncertain, but other potters who were active in England and for whom there is evidence suggesting production in Scotland are Austinus and Docilis 3, who had been active in multi-potter workshops at Wilderspool, Cheshire (Hartley, K F & Webster 1973), Walton-le-Dale, Lancashire (unpublished) and Carlisle (Hartley, K F 2012b). The workshop which provided any springboard into Scotland for them was undoubtedly at Carlisle (Hartley, K F 2012b: 106–14). Carlisle is just a possibility for Mascel(l)io's activity, but the mortaria made there were habitually very hard-fired, quite unlike the texture of his mortaria in Scotland. The evidence available suggests that Austinus and Docilis 3 could have been involved in at least one workshop in Scotland at Newstead (Hartley, K F 1976; Hartley, K F in Maxfield forthcoming; Hartley, K F 2012b: 113). Mascel(l)io's distribution in Scotland is not only more limited than theirs, but it is quite different in character, being confined to sites on the Antonine Wall except for one mortarium at Birrens. Although the evidence is sparse, the Bearsden workshop was very well-placed for his activity in Scotland (see below for further discussion).

31. Unidentified stamp (not illustrated) Fabric 6 (illus 7.22.49) Catalogue no 98

    An eroded stamp on a mortarium in Fabric 6 with traces of cream slip. The stamp cannot be identified, but the discovery of clearer examples should make that possible in the future. The fabric almost certainly points to manufacture at Bearsden. (31K)

    CICV[..] and unidentified stamps on generally similar mortaria. Fabrics 11 and 12, nos 32–6. (illus 7.22.58–60)

Stamp 32 can be attributed to Cicu[..]; stamp 33 has the same, unusual type of border and is likely to be his; stamps 34–5 (Fabric 12) are unlikely to be his, but they are on similar rim profiles. In all, there are at least six mortaria in Fabric 11 and two in Fabric 12 with small rounded rims similar to illus 7.22.58–60. This is a large enough number to be significant and it is likely that some of the rims belong to mortaria of Cicu[..]. Given that his stamp distribution points to a source in the western sector of the Antonine Wall, the presence of a pottery workshop of some significance at Bearsden makes his presence there the more likely; the number of vessels of similar type and fabric supports this. The mortaria of the same type with other stamps would suggest that other local potters who may be unknown, were working in the same tradition. Cicu[..] is the typical 'local' potter with no association away from the Antonine Wall and with no stamps east of Croy Hill or outside Scotland. Balmuildy was a primary fort on the Wall and it is, of course, possible that he was active there at some time, perhaps before the workshop at Bearsden was set up; careful examination of the rim-profiles, individual vessels and fabrics at Balmuildy would help to clarify these issues.

32. Cicu[..] Fabric 11 (profile not illustrated; 7.16.7) Catalogue no 117
The partly disintegrated stamp is from the single die of a potter whose stamps can be read from lef t to right as CICV[..] for some name like Cicuro; because the initial letter is more like a G than a C, it can also be read as a retrograde stamp, giving GICΛ though this seems an unlikely name. Only […]V and part of the preceding C, together with part of his unusual borders, survive in the present example. His mortaria are now recorded from Balmuildy (3 stamps, probably from 2 mortaria; Miller 1922: pl xl, B, no 7); Bar Hill (Robertson et al 1975, f ig 49, no 9); Bearsden (2); Croy Hill; Duntocher (Robertson 1957, f ig 15, no 7); Old Kilpatrick (1–2; Miller 1928: pl xviii, no 3). His distribution clearly indicates production in the western sector of the Antonine Wall (Hartley, K F 1976: 84–5). Present evidence does not prove that he was making pottery in the Bearsden workshop, but the very presence of the workshop, the number of mortaria from these excavations which are of the type which he made (illus 7.22.58–60) and their condition, makes it likely. This stamped sherd is too sof t and abraded for its prof ile to be drawn, but it is similar to illus 7.22.59. The clearest and most complete published examples of this stamp are from Bar Hill and Balmuildy (see above). (20K)

33. Probably Cicu[..] Fabric 11 (illus 7.22.58; stamp not illustrated) Catalogue 119
A right-facing stamp which is too abraded to identify with certainty, but which has the unusual double border used by Cicu[..]. This border and the rim-profile makes this stamp likely to be one of Cicu[..], and this mortarium has a small rounded rim closely similar to that of Cat no 117 above. (30K)

34. Unidentified stamp (illus 7.22.61; stamp not illustrated) Fabric 11 Catalogue no 124
The broken, left-facing stamp, is too abraded for identification; the border is not clear enough to show a link with Cicu[..] stamps. The rim-profile and spout type are close enough to his known products for there to be a possibility that the stamp is his. (12K)

35. Unidentified stamp (not illustrated) Fabric 12 Catalogue no 125
A broken and abraded stamp on a fragmentary, small, but thick, rounded flange, which could be similar to illus 7.22.58–60. The stamp seems unlikely to be of Cicu[..]. (38K)

36. Unidentified stamp (not illustrated) Fabric 12 variant no 126
The details on the incomplete stamp are too smoothed to identify, but it appears to have upper and lower borders filled with very fine diagonal bars, which may help to identify it in the future. This flange fragment in Fabric 12 has a brown slip on the upper surface and no slip on the lower surface suggesting that the slip has been used as a raetian type slip. It is very rare in Britain to find this usage combined with a stamp, but it is essentially an ordinary mortarium which has just had the slip added and this could happen if it was made in a workshop where raetian mortaria were being made. (32K)

UNSTAMPED, RAETIAN MORTARIA ATTRIBUTED TO MANUFACTURE AT BEARSDEN

Raetian type mortaria in Fabrics 6–10 (illus 7.22.50–57). See Hartley, K F 2012a for further details of the classic types A, B, C, and E, the derived type D and the sub-raetian F forms. Table 7.6 shows the distribution of mortaria of different raetian types at sites throughout Scotland.

It should be noted that the distinctive features which make these mortaria recognisable are limited to the rim, the concave area below the rim and the spout so that illus 7.14 and 7.15 which relate to vessels might be more reliable than illus 7.10–7.13. In fact, they correspond well and it is likely that most or all of the body and base sherds in Fabrics 6–10 are from raetian mortaria, which consistently appear in all charts as the next commonest to those in Fabric 5 (Sarrius).

Raetian mortaria were initially so-called because they were believed to have been imported from the Danubian Provinces where mortaria with their distinguishing features are common (Hartley, K F 2012a). It has long been apparent that all of those in Britain were made here, initially, at least, by potters who had come from those provinces. Their distribution is limited to the military zone or to areas like Wroxeter which have distinct links to it and all are in orange-brown fabrics. Most of those made in England and Wales were produced at sites on the Bunter sandstone in the legionary depot at Holt, Denbighshire, and in workshops at Chester, Wroxeter, Wilderspool in Cheshire, Walton-le-Dale in Lancashire, and Carlisle. There is growing evidence to suggest that they were also made at many other sites, but perhaps on a much smaller scale. It used to be thought that raetian mortaria in Scotland had been imported from south of the border, but it

has become increasingly clear that any such mortaria would be the exception not the rule. Carlisle would have been the obvious import source for Birrens, but the numbers of raetian mortaria present at Birrens together with differences in fabric and subtle differences in form from those at Carlisle, leaves no reasonable doubt that there was production at Birrens even though no kilns have yet been located (Hartley, K F 2012a; Robertson 1975: 204–10). If my suggestion that the potters Docilis iii and Austinus became involved in a workshop at Newstead is true (Hartley, K F 1976; Hartley, K F 2012b: 113), then potters making raetian mortaria may have been with them as they were at previous workshops at Wilderspool, Walton-le-Dale and probably Carlisle. The present distribution on table 7.6 shows Birrens, Newstead, Bearsden and possibly even Old Kilpatrick standing out as likely production sites in Scotland.

Table 7.6 shows that sites in eastern Scotland have few raetian mortaria, and, that they are much better represented on sites in the western sector like Bearsden and Old Kilpatrick. No

Table 7.6
Raetian mortaria in Scotland (for details of the classic and derived types (see Hartley, K F 2012a)

	Type A	*Type B*	*Type C*	*Type D*	*Type E*	*Type F*	*Type unrecorded or fragmentary*	*Totals*
Bearsden	**0**	**0**	**1**	**0**	**13**	**0**	**1**	**15**
Ardoch	0	0	4	0	0	2	1	7
Balmuildy	0	0	0	0	1	1	1	3
Bar Hill	0	0	8	0	0	0	0	8
Birrens*	0	0	30	0	4	19	4	57
Bothwellhaugh	0	0	1	0	0	0	1	2
Cadder	0	0	1	0	0	0	1	2
Camelon	0	0	1	0	0	1	0	2
Cappuck	0	0	1	0	0	0	0	1
Cardean	0	0	0	0	0	0	0	0
Carzield	0	0	1	0	0	0	0	1
Castledykes	0	0	0	0	0	1	0	1
Cramond	0	0	0	0	0	0	0	0
Duntocher	0	0	0	0	1	0	0	1
Inveresk*	0	0	0	0	0	0	0	0
Mumrills	0	0	0	0	0	0	0	0
Newstead*	0	0	3	0	7	0	6	16
Old Kilpatrick	0	0	1	0	5	2	1	9
Raeburnfoot	0	0	1	0	0	1	0	2
Rough Castle	0	0	0	0	0	0	0	0
Strageath	0	0	0	0	0	0	1	1
Totals	0	0	55	0	31	27	17	130

This table includes all the records I have of raetian mortaria in Scotland. The numbers refer as far as possible to individual vessels and are reasonably accurate, although further study, not to mention, further excavation would improve them. They have been compiled from notes made several years ago when examining raetian mortaria to write 'Raetian mortaria in Britain' (ibid), and, from mortaria seen since then. An asterisk denotes probable numbers at sites which presented some difficulty: I have seen a good proportion of the mortaria from Inveresk, but not all; all from Newstead except for those at Melrose. Unfortunately the Birrens mortaria were not recorded in order of Types when writing the report; these numbers have been reached by later observation in the Hunterian Museum. Some sites, like Inveravon are not listed because no raetian mortaria have yet been found there.

Type A mortaria have yet been found in Scotland and they are uncommon in England and Wales though at least two are now recorded at Carlisle (Hartley, K F 2012b: 111), one at york and one at Brough-on-Humber; their production may have ceased by 140. Type D is an aberrant form linked only to Carlisle. Of the 'classic' forms, A, B, C and E, the commonest by far throughout England is Type C. Type E was the norm only at the legionary depot at Holt (Grimes 1930: fig 61, nos 2–8 (no 21 is Type A); Hartley, K F 2012b: 84 and fig 5), but it was common at nearby Chester which is likely to have had potters from Holt (Hartley, K F 2012a: 90–1 and fig 6). Everywhere else Type E was an uncommon form, appearing in very small numbers. This makes their presence in number at Bearsden (13) particularly outstanding, especially as only one of the common Type C is present. The body and base fragment in Fabric 6, no 104, has radial cracks coming up from the base which clearly fits with production at Bearsden, but, being only the base, it cannot be as directly associated with raetian mortaria as one would wish. Some of the mortaria in Fabric 6 show the same wide variations in firing as those in Fabric 5. No 110 in Fabric 8 is reduced throughout to pale grey with reduced slip; this reduction is virtually certain to be the result of faulty firing since deliberate production of reduced mortaria belongs to the third and fourth centuries and took place mainly in East Anglia. One of the rims in Fabric 10 (no 115) has what appears to be a waster crack and no 113 has crazed surfaces likely to be the result of misfiring. Although the numbers of raetian mortaria are paltry compared with the numbers in Fabric 5, they nevertheless stand out as a distinct group, which is certainly large enough to indicate production at Bearsden. Some of the fabrics described as Fabrics 6–10 could represent merely variations in the treatment of the clay and in the firing, though there could have been more than one clay source available. It is also evident that the occasional mortarium does not fit the pattern: eg no 98 in Fabric 6, has an ordinary profile and a cream slip while no 126 in Fabric 12 (with a stamp) has an ordinary profile and a raetian type slip although Fabric 12 is not considered to be a raetian fabric. Oddities like these did occur where raetian mortaria were being made: both variants can be mirrored at Wilderspool (Hartley, K F & Webster 1973: 98–101 and the mortarium of Nanieco, Hartley and Webster 1973: 93, G).

The large number of raetian Type E mortaria at Bearsden show a clear link with the legionary depot at Holt in north Wales (Grimes 1930: fig 61) where production of this form was the norm. The extreme slenderness of the flange and wall of illus 7.22.50–1 and 54, is a characteristic unrecorded in any mortaria in Britain, but the closest parallel is still from Holt (Grimes 1930: fig 61 no 3). It seems likely that any potter or potters producing these mortaria at Bearsden would have come from Holt. Holt produced tiles and pottery for the Twentieth Legion, stationed at Chester, and a building inscription found at Bearsden in 1976 records that the fort there was built by the legion x x Valeria Victrix (5.2.1.1). This provides an interesting link, but it has also to be remembered that there are seven 'raetian' mortaria of Type E at Newstead. Type E could have been produced at both sites. The numbers in table 7.6 obviously reflect the amount of excavation undertaken at the various sites. The relatively large numbers at Old Kilpatrick (8 including 5 of Type E) could indicate further production there of raetian mortaria.

7.3.6 Final comments

A multi-potter workshop at Bearsden?

There is evidence for a number of small productions at sites on the Antonine Wall, for example at Balmuildy (Hartley, K F 1976: 85 and fig 2, 19–23); at Bar Hill (Hartley, K F: 1976, 85, fig 2, 24–27; Swan 1999: 465 and fig 2, nos 11–12); at Croy Hill (in preparation); at Mumrills (Hartley, K F 1976: fig 2, nos 28–30 and 31–4). Evidence for another at Bearsden would have been interesting, but hardly exciting, except that raetian mortaria would have been involved. It is the quantity of Fabric 5 mortaria which provides the overwhelming proof, both for manufacture at Bearsden and for Sarrius's involvement in the workshop. One can now also posit the near certainty of it being a multi-potter workshop on the model of Rossington Bridge, including raetian production and probably manufacture by Mascel(l)io and Cicu(…); the manufacture would, of course, include production of wares other than mortaria, some by the aforementioned potters, but probably also by others. There is evidence to suggest that the workshop was set up very early in the fort's history, not later than 145 and possibly slightly earlier. The available evidence and the quantification (illus 7.10–7.16) are consistent with Sarrius being the dominating influence.

Why at Bearsden?

Sites at the eastern end of the Antonine Wall had large supplies of pottery apparently brought north by coastal traffic from Colchester, and a smaller workshop in Kent, believed to be at Canterbury (Hartley, K F 1980: 263, table 2). The heavy distribution of these mortaria in the eastern sector provides strong evidence to prove this. Transporting such pottery in quantity to forts like Balmuildy, Bearsden and further west on the Wall would have required a long transport link for easily broken, bulky material; the area was aceramic before the occupation, so no local civilian supplies were possible. Providing there was a good source of clay available, the establishment of a suitable workshop made excellent sense. Local kilns are known to have existed at some time at Balmuildy, Croy Hill, Bar Hill and perhaps elsewhere; some may pre-date production at Bearsden; they may have served purely local needs – it would be useful to know if their products appear away from the production sites.

The multi-potter workshop at Rossington Bridge, near Doncaster

At some point in the Antonine period Sarrius became involved in a pottery workshop at Rossington Bridge where his stamp sometimes appears alongside a stamp of either Setibogius or Secundua (Buckland et al 2001). It has always been supposed that they were local potters who were acting as 'agents' for Sarrius, but it would make more sense if they were the two potters sent by him from his headquarters workshop in Warwickshire and if they were allowed to put their names on the vessels as well as his. Sarrius was also involved in production at Cantley, where his name has, so far, always appeared alone. Buckland et al (2001)

published a comprehensive array of other coarse and fine wares which were made at Rossington Bridge by potters from Dorset and possibly even Aquitania. There was likely to be production there at much the same time as at Bearsden if the presence there of the unusual, short-lived wall-side mortarium, stamped by Secundua, can be relied upon.

Sarrius's production at other sites in the north

There is undoubted evidence from fabric and a die used only in association with that fabric which points to another production centre in north-east England. Unfortunately, its location is still unknown.

The importance of Sarrius in the Mancetter-Hartshill potteries

Out of all the potters making mortaria in the mid-second century in the Mancetter-Hartshill potteries Sarrius has the largest number recorded to date from occupation sites (125). Judging from recorded mortaria, he was at some point within the period 135–50 probably the most important potter there and almost certainly one of the most important potters making mortaria in Britain. Although it is difficult to prove, both Buckland and myself came independently to the conclusion that he did not quit his prosperous production in the midlands when the workshop at Rossington Bridge was set up.

Multi-potter workshops?

Evidence is growing for the existence of multi-potter workshops involving potters from up to four or more different potting traditions in areas serving forts in the military zone. In the first century there is the workshop at Elginhaugh (Hartley, K F 2007). Swan and I both believed that there is evidence for at least four different potting traditions at Holt. Study of the pottery production at Wilderspool (Hartley, K F and Webster 1973), Walton-le-Dale, Lancashire (in preparation) and Carlisle (Hartley, K F 2012b; Maxfield forthcoming) shows not only a number of potters (many stamping their mortaria), with differing potting traditions at work in the same workshop but the presence of some or all of the very same potters involved in the other workshops. Moreover, these potteries overlap in date, at least, to some extent. Evidence from Scotland suggests that some of these potters were also involved in a workshop in Scotland, probably at Newstead (Hartley, K F 2012b: 113; Maxfield, forthcoming). Although present evidence is more nebulous than one would wish, there is a distinct possibility that these workshops had a link to Wroxeter.

The importance of Sarrius at Bearsden, Rossington Bridge and at least one other workshop in the north of England

Sarrius's production in Warwickshire marks him out as exceptional, clearly a man of substance. Why or how did such a man become involved in at least three and possibly more 'subsidiary' workshops in the north of England and in Antonine Scotland? Rossington Bridge and Bearsden are both Antonine in date and the other(s) are likely to be. The workshops at Rossington Bridge and Bearsden have other potters from divers potting traditions working there. Sarrius is the one common factor linking all of these productions, the unlocated workshop and his major workshops in Warwickshire; no other clear instance of this kind of link is known.

Organisation of workshops

The most detailed information about the organisation of ceramic workshops comes from the brickyards which supplied Rome. Dolia, mortaria and other ceramic products were also made though they formed a subsidiary part of the output. The stamps, especially on tiles can give considerable information about the potter who was sometimes, probably often, a slave; also about the workshop and even, on occasion, the date of manufacture. These enterprises were often on estates owned by members of the senatorial class, but there is enough detail to show that unless the landowner was directly involved, the land on which the workshops and kilns stood had to be bought or more probably rented. An infinite amount of study has been devoted to teasing out the meaning of all of these stamps. Much remains obscure, but a wealth of information has been obtained, though not always with universal agreement (Helen 1975; Setälä 1977; Aubert 1994). Aubert (1994: 200–321) stated that arrangements could be fairly fluid rather than having to follow a specific formula; he also mentioned the scarcity of information concerning 'agents' of *negotiatores*, suggesting that this might be ascribed to some members of the senatorial order not wanting to advertise their involvement in marketing (Aubert 1994: 73). It might be thought that details of these enterprises are not relevant to pottery workshops in Britain, but members of the wealthy classes on the Continent owned estates, enterprises and slaves throughout the Empire including Britain (for an example see Finley 1980: 123). Even in the military zone the same factors are involved. The land for the workshop had to be bought or more probably rented, in the case of Bearsden presumably from the army; the use of clay beds and access to a wood source had to be rented unless it was included with the land for the workshop. The relevant potters had to be brought in or bought in to man the enterprise. The workshop had to be run in a responsible manner and sales had to be arranged. During a very useful discussion about ceramic workshops in Britain, Ian Rowlandson pointed out interesting comparable information concerning small producers at Ticknall, Derbyshire in the Middle Ages (Spavold & Brown 2005).

Why or how was Sarrius involved?

We can only speculate. The amount of information we have about Sarrius and his pottery productions is unprecedented for a potter in Britain, but that only highlights just how little we still know of how pottery-making workshops were organised and who owned them. In the Rossington Bridge report, Buckland (Buckland et al 2001: 87) made a cogent argument, 'The presence on a single kiln-site of potters whose origins can be traced to a diversity of tribal units, Durotriges and Corieltauvi, and perhaps Aquitanians, requires an explanation which goes beyond the simplistic concept of migrating or wandering potters.' This becomes more blatantly true as more multi-potter workshops are identified (eg Elginhaugh, Hartley, K F 2007). In order to

get the required potters, the person setting it up needed know-how and to have wide contacts in pottery-making industries not only throughout most of Britain but on the Continent in Germany, the north of France, Aquitania, north Africa etc. In the Roman world slaves and skilled artisans could be acquired to order and readily moved about from one estate or enterprise to another since wealthy landowners often owned estates across the Empire. This is speculation concerning what may have happened at Bearsden and Rossington Bridge etc but it is, by far, the easiest way to explain the presence of potters from different and distant workshops. The people with appropriate knowledge and contacts were the *negotiatores* who could well have been funded by 'patrons' in the expectation of mutual profit. Sarrius was undoubtedly an important enough potter to be a well-known contact; it would have been absolutely normal to ask him to send a few potters with some suitable financial arrangement. This could have happened for all the 'subsidiary' workshops in question. The alternative possibility is that Sarrius himself opened the subsidiary workshops, but he would almost certainly have had to act in conjunction with a *negotiator* who would have known where the workshop should be located, would know what kinds of pottery were required and would have the necessary contacts and influence or power to get the relevant potters supplied. We do not know when Sarrius died or ceased manufacture or how far that would have any effect on the activity of subsidiary workshops (Hartley, K F 2012b: 113).

The significance of the Bearsden workshop for pottery studies in Britain

In the 1950s, eight kilns were excavated at Rossington Bridge with at least 15 others known, and up to 50 kilns were excavated at Cantley with the reasonable supposition that at least as many more existed. Black-burnished ware and mortaria stamped by Sarrius were being made in both areas and there is no geographic reason why they should not be parts of the same pottery-making complex (Paul Buckland, pers comm). The impact on the pottery world was such that there was an immediate assumption that this 'major' production, beginning in the mid-second century, was established to furnish the needs of the northward advance of the army to the Clyde–Forth frontier. Sarrius's link with these productions, surprising though it appeared, was just part of this.

Some black-burnished ware present at forts on the Antonine Wall may be linked to production in these potteries (see p 110 above), but apart from that, these prophesies have, not only, not been fulfilled, but have provided some salutary lessons about not jumping to conclusions. These potteries appear to be linked to Doncaster and south yorkshire more than to the occupation of Scotland. What they do demonstrate brilliantly is how extensive potteries of any importance could be. During the last 30 years there has been ever increasing knowledge of pottery production in Antonine Scotland (Hartley, K F 1976; Breeze 1986). The realisation that Sarrius was linked to a pottery production at Bearsden was a catalyst for further discovery. Detailed re-examination of his red-brown mortaria north of the Doncaster potteries soon revealed a third production probably in north-east England, which was linked with one specific die, a production still not located, though its existence is absolutely certain. It is hoped to examine a possible fourth production this year.

Sarrius's definite links with at least three subsidiary productions, presents what appears to be a unique situation and so it may be, but it may also appear unique because of the fragmentary nature of our knowledge about the organisation of pottery production and marketing in Roman-Britain. We are exceptionally lucky that his stamped mortaria are directly linked with two potteries, Mancetter-Hartshill and Rossington Bridge-Cantley, where excavations have taken place and that we have virtual proof of production at Bearsden – no kilns can be associated directly with the Flavian potter Albinus who has three times more mortaria recorded than Sarrius. It could also be a matter of good luck that the mortaria at each workshop actually carried his stamp. These workshops could not otherwise have been linked with complete certainty, the potters working there for Sarrius might have used their own stamps, or, the products of a workshop could have been left unstamped. However obscure details remain, this intriguing association surely represents a significant step forward in the understanding of how workshops could be organised in Roman Britain.

7.3.7 Catalogue of mortaria found at Bearsden arranged in fabrics

Abbreviations used in the Database and sometimes elsewhere in the Catalogue:

shds	=	number of sherds. So far as possible only breaks in antiquity have been counted. Where sherds have been joined and where fabric has disintegrated due to chemical weathering I have estimated the number.
'part'	=	the part of vessel surviving.
CR	=	complete rim-profile.
IRS	=	incomplete rim-profile, ie part of flange and bead or body.
FF	=	flange fragment.
SPT	=	spout fragment.
BS	=	body sherd.
BBS	=	body and base sherd.
/	=	joins.
and	=	belongs to the same vessel but does not join.

Column titles in database:

V	=	an individual vessel, ie '1' indicates either certainly or possibly an individual vessel
'joins'	=	archive numbers of other sherds which join.
'same'	=	archive numbers of sherds which are certainly or very probably from same pot, but do not join.
'wear in use'	=	estimated amount of wear at the point of discard.
z	=	the part surviving is inappropriate, ie the sherd is broken too high for the amount of

use to be estimated, or, the surface is too damaged or obscured for use to be assessed etc.

'condition' = burnt; crazed, eg Fabric 3 which deteriorates and disintegrates in acid/wet soils; but a crazed surface can also be the result of overfiring.

'date' = optimum date for manufacture; at Bearsden manufacture has to be dated within the date of the occupation of the site within the period *c* 140–65; with vessels known to have been made elsewhere, eg in the Mancetter-Hartshill potteries, the estimated extent of the production period is given.

'potter' = name of potter or to whom it is attributed if possible; all sherds in Fabric 5 can be attributed to Sarrius because the fabric is almost always easy to recognise and no other potter working Bearsden used closely similar fabric.

'Comments' = in addition to normal entries, this column includes details of the fabric of sherds in Fabric 5 (Sarrius) because of variations which have resulted from lack of control during the firing process.

K no = Numbers like (1K) etc which are my personal record numbers for individual stamps have been retained in the archive and Catalogue because of their convenience in keeping check on the large number of fragmentary and unidentified stamps.

Mortaria manufactured outside Scotland

FABRIC 1 *Verulamium region*

1. (illus 7.18.1) Diam 260mm. Thirteen joining sherds from a heavily worn mortarium. Generally similar rim-profiles were produced in the potteries between Verulamium and Radlett (Fabric 1 for further comments). The precise rim-profile with its unusually deep flange is also rare, though

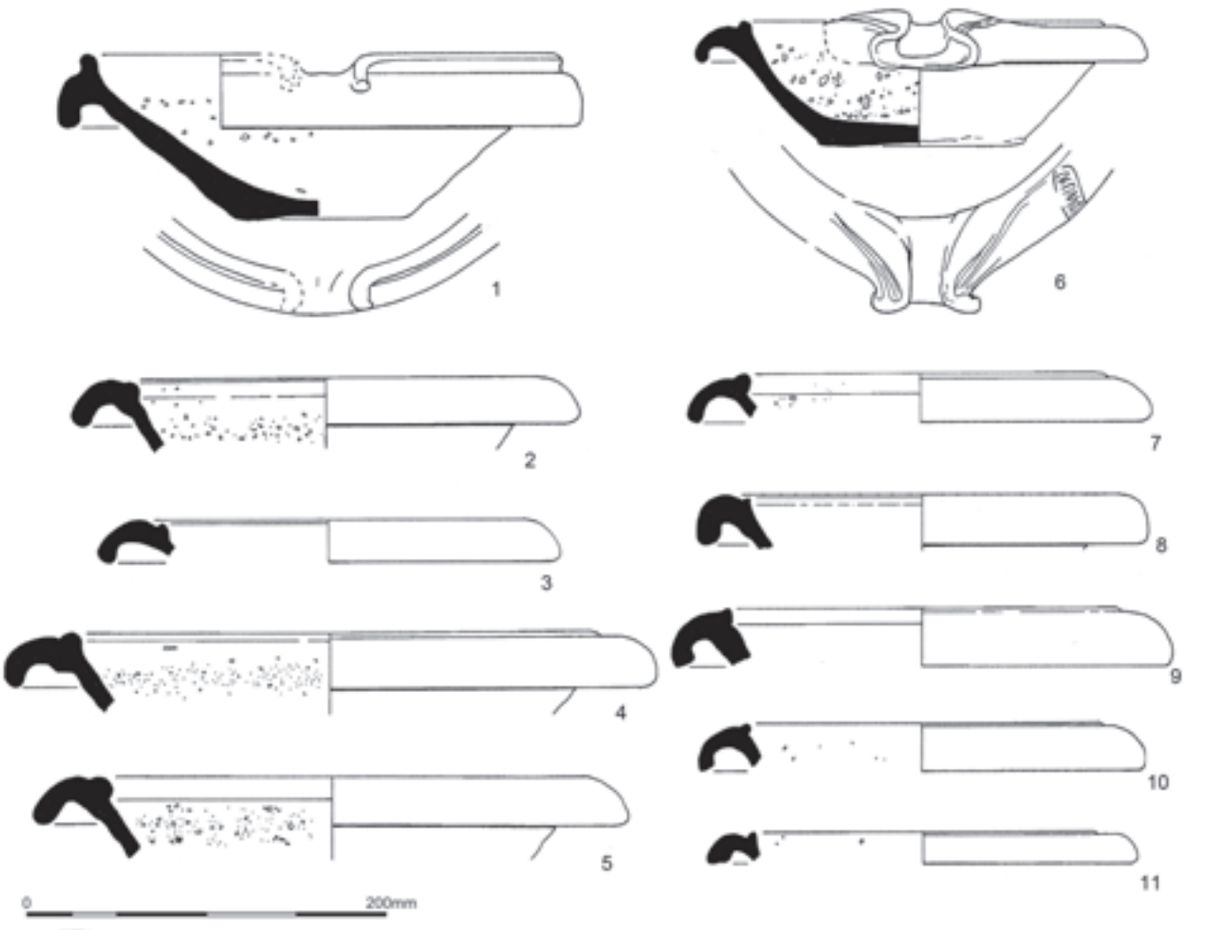


Illustration 7.18
Mortaria 1–11: mortaria made outside Scotland; 1 Verulamium region; 2–7 Mancetter-Hartsmill potteries; 8–11 Colchester.

related forms with shorter flanges, eg Frere 1972: fig 130, no 1037, are not uncommon at Verulamium, where they are recorded from deposits as early as 140–50, 150–55/160, and 160–75, but the type continued in production in some variants throughout the Antonine period. This mortarium is in a fabric which was very rarely produced in these potteries. Two other mortaria are known in this variant fabric, from Kelco cave, near Settle (unpublished) and another from Ashtead in Surrey (Bird, D in preparation); both have similar rim profiles to the Bearsden one. Archive no 109. An eroded rim fragment is from the same vessel. Archive no 160.

NK73Cu ; buildings 6 and 7; NK73Cu ; officer's quarters of building 7, overlying Roman layer.

FABRIC 2 MANCETTER/HARTSHILL POTTERIES, WARWICKSHIRE

2. (illus 7.18.2) Diam 290mm. A mortarium with left-facing stamp of Imemituobon[..], see stamp no 4 above. *c* 130–60. Archive no 319 (29K).

   NK74AG; buildings 1 and 2, topsoil.

3. Fragmentary rim sherd from a mortarium generally similar to no 2 above. *c* 130–60. Archive no 189.

   NK74BD; buildings 1 and 2, topsoil.

4. (illus 7.18.3) Fabric 2 (earlier version), soft and powdery. Diam 300mm. The few trituration grits surviving includes quartz sandstone suggesting that the mortarium was made before the general switch from mixed grit including quartz to the

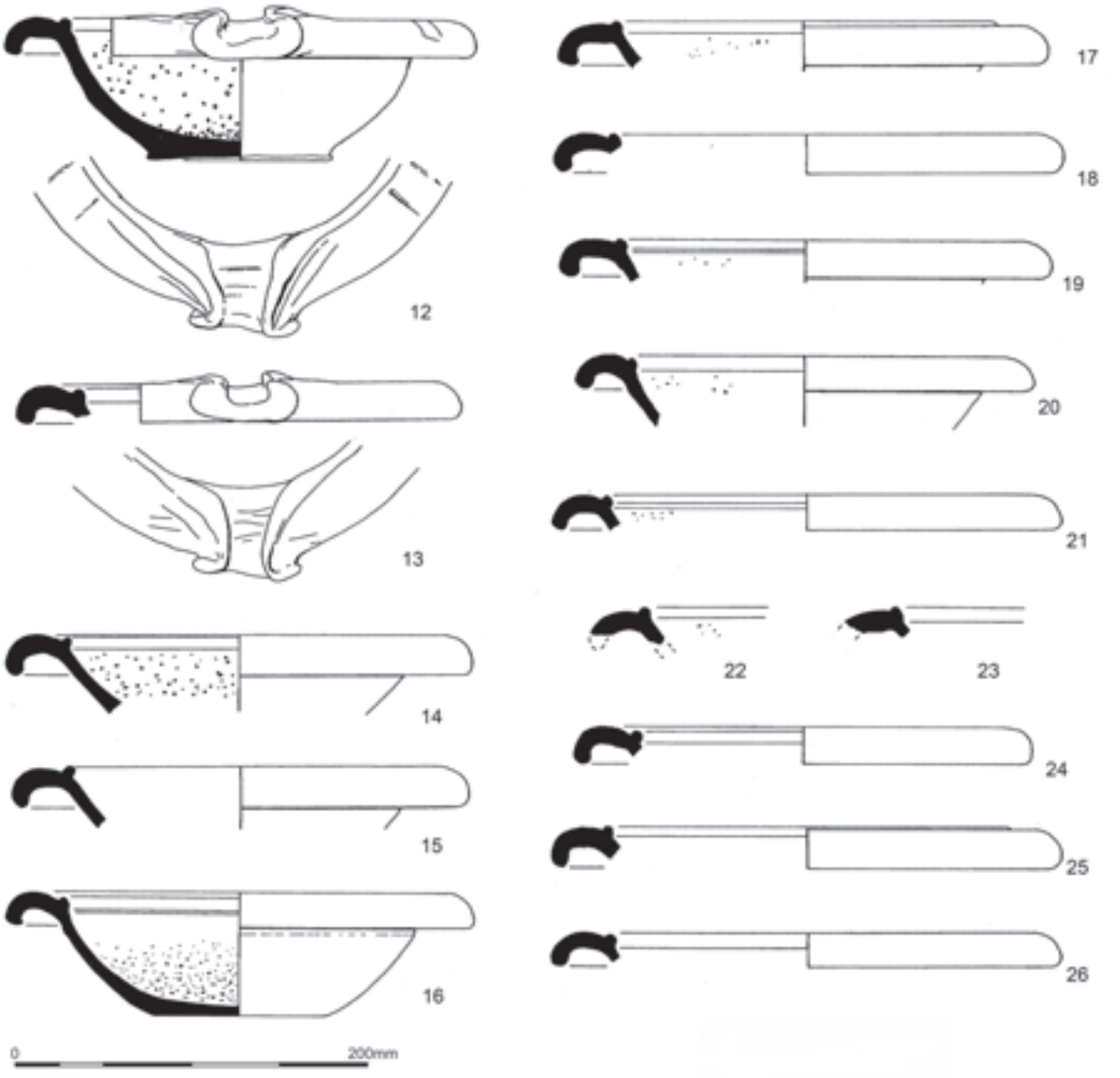


Illustration 7.19
Mortaria 12–26: mortaria made at Bearsden by Sarrius in Fabric 5.

well-known red-brown and/or black grit; this change seems to have occurred within the decade 130–40 and the timing could have varied between potters. The wide, shallow rim-profile with bead below the flange was also an early form in these potteries. A date of 130–50 is appropriate; typologically it should be amongst the earliest imports to Bearsden. The underside of the base has unusual, deep circular grooves. Archive nos 275–8; 16.

NK76BB; topsoil overlying *via praetoria* east of building 4; NK76FR; annexe, south-west of bath-house, overlying cobbles.

5. Diam 260mms. Flange fragment from a mortarium generally similar to no 4 above. *c* 130–50. Archive no 117.

   NK81AB; below floor of latrine.

6. (illus 7.18.4) Diam 420mm. Two joining rim sherds with a right-facing stamp of GRATINu S, stamp no 1 above. Archive no 298 (27K).

   NK76DT; pit to south of building 7.

7. (not illustrated) Diam *c* 380mm. A rim sherd with stamp, no 2 above, of GRATINu S, from a second similar mortarium, identical, except for having a slightly narrower flange. There is a brown accretion on the upper surface and some fractures. Archive no 303 (26K).

   NK75BI; topsoil overlying west end of building 7.

8. Diam 360mm. Two joining sherds from a mortarium identical with no 6, but smaller in diameter. It appears to have been very hard-fired and the surface and fabric are somewhat reduced. Archive no 134.

   NK75AO; BI; topsoil overlying west end of building 7.

9. (illus 7.18.5) Diam 340mm. A mortarium showing some wear with a stamp of GRATINu S, stamp no 3 above. Archive no 312 (25K).

   NK73FF; bath-house, topsoil.

10. Diam 350mm. Rim sherd identical in form with no 9, but from another mortarium. Archive no 9.

    NK73AJ; annexe, south-west of bath-house, topsoil. Nos 6, 7 and 9 all have stamps from the commonest die of Gratinus. Nos 8 and 10 are so close to these mortaria in form that it is reasonable to assume that they too were probably made by Gratinus.

11. A flange fragment from a mortarium different from any listed above. 140–70. Archive 199.

    NK77AK; building 3, officer's quarters, unstratified.

12. Two joining flange fragments similar in form to no 11 above, but probably from a different vessel. 140–70. Archive no 200.

    NK77AK; building 3, officer's quarters, unstratified.

13. (illus 7.18.6) Diam 250mm. Six joining sherds making up three-quarters of the rim and half of the base of a heavily worn mortarium, burnt after fracture. There are small oblique parallel cuts across the bead for about 45mm of the circumference. The right-facing stamp reads [M]INOM[E]Lu S retrograde, stamp 7.16.5. *c* 130–60 Archive no 127 (24K).

    NK77BR; overlying path north of building 6; NK77CB; gulley north of building 7; NK77CV; brown soil overlying intervallum; NK77FJ; clay floor of officer's quarters of building 7.

14. (illus 7.18.7) Diam 260mm. *c* 130–60. Archive no 19.

    NK76FR; annexe, south-west of bath-house, overlying cobbles.

    Not listed: details of four base/bodysherds, all worn. Archive nos 101, 108, 118, 178, 246.

    NK78EP; overlying intervallum road west of building 4; NK73FQ; annexe, under cobbles south of changing room; NK81AB; below latrine floor; NK74AE; west end of buildings 5 and 6, topsoil; NK74AC; intervallum east of building 6, topsoil.

FABRIC 3 COLCHESTER

15. (illus 7.18.8) Diam 240mm. This chunky little hooked rim with the flange rising well above the bead is likely to be an early form within the period 130/140–70. Archive no 182.

    NK75CM; rubble overlying building 4.

16. (illus 7.18.9) Diam 280mm. A typical Colchester profile. Within the period 130/140–70. Archive no 251.

    NK75DK; building 7, brown soil below topsoil at east end.

17. (illus 7.18.10) Diam 250mm. Fabric crazed and discoloured. Almost identical in form to no 16, but a smaller rim. 130/140–70. Archive no 232.

    NK78DG; building 2, south-west corner.

18. (illus 7.18.11) Diam 240mm. In unusually good condition for this source. 130/140–70. Archive no 112.

    NK80AF; bath-house, unstratified.

19. Three joining, but crumbling, rimsherds with incomplete rim-section, too fragmentary for illustration. The broken herringbone type stamp which is impressed across the rim is too fragmentary to be illustrated. Probably from the same die as Hull 1963: fig 60, no 38. 130/140–70. Archive nos 248/293/294. (28K).

    NK77AC; soil overlying intervallum east of building 7.

20. Rimsherd with incomplete rim-section. 130/140–70. Archive no 126.

    NK74Ay; officer's quarters of building 7, topsoil.

21–23. Flange fragments from three different mortaria. Within the period 130/140–70. Archive nos 3; 141; 211

    NK73AW; annexe, topsoil (2); NK73AZ; men's quarters of building 3, burnt patch overlying clay.

24. (not illustrated) Estimated diameter 240mm. A form which was never stamped; probably made in Kent rather than Colchester; see Maxfield forthcoming, M48–51 and M49 specifically, for a close parallel; another, similar, but an

unpublished parallel is known from Inveresk. Optimum date 150–80/90. Archive number 337.

Not listed: details of one base/bodysherd, and five bodysherds, all abraded, disintegrating or crazed can be found in the archive. 130/140–70. Archive nos 205; 191, 196, 212, 239, 241.

NK78BV; intervallum west of building 4, topsoil; NK74CW; overlying gulley to west of building 2; NK76AR; rubble to west of building 4.

Mortaria made in Scotland

These make up 78% (by weight) of the whole mortarium sample from these excavations; all can be attributed, with virtual certainty, to sources in the western-sector of the Antonine Wall (see illus 7.14).

FABRIC 4 PROBABLY BEARSDEN

25. (illus 7.22.46; 7.16.6 scan). Diam 280mm. One badly eroded sherd with very faint retrograde stamp of Mascel(l)io. Collins RP31 Grp 3. Archive no 320 (21K).

    NK76BM; annexe, south-west of bath-house, clay below topsoil.

26. (illus 7.22.47) Fabric 4. Diam 280mm. Two very friable sherds, not joining, from one mortarium. Archive nos 20–1.

    NK76BM; annexe, south-west of bath-house, clay below topsoil.

    Not listed: an abraded IRS sherd. Archive no 157.

    W10, Buildings 6 and 7.

FABRIC 5 BEARSDEN

52% (by weight) or 66% (by sherd count) of the whole mortarium sample from Bearsden are in the distinctive Fabric 5 and all of the sherds in this fabric can be attributed with certainty to the potter Sarrius and to production in a pottery workshop at Bearsden (illus 7.19–7.21).

Much of the pottery in fabric 5 appears to consist largely of redeposited waste so that successes and failures in the firing technique make for obvious colour and texture differences in the resulting fabric, ranging from being orange-brown throughout to being reduced except for a surface skin, and finally to being reduced throughout (see Fabric 5 and fragmentary stamps 7.17.1–27). Because of this, these differences are noted as far as possible in individual entries.

Sixteen individual flanged mortaria with one or both stamps of Sarrius surviving, nos 27–42.

27. (illus 7.19.12, for stamps see illus 7.17.12a and b) Diam 260mm. Thirteen joining sherds. Both sides of the spout survive with one partially impressed stamp and a second fragmentary one in the complementary position to the other side of the spout. The slashing to provide keying for extra clay added to form the spout is visible in the surface. Archive no 120 (34K).

    NK75BK; BT; By; CH; CZ soil overlying path between east ends of building 6 and 7; NK75CF; burnt material overlying intervallum east of buildings 6 and 7.

28. (illus 7.19.13) Diam 250mm. Two joining sherds in good condition. Both sides of the spout survive and the edge of the right-facing stamp (not illus). Again keying in the extra clay added to make the spout is visible in the finished surface. Archive no 295. (10K).

    NK76BF; overlying gulley north of building 4.

29. (illus 7.19.14) Diam 275mm. Four joining sherds with left-facing stamp, not illustrated. Orange-brown fabric, grey core; good condition. Archive nos 250/313/234 (7K)

    NK73Bx and By; soil overlying building 3; NK76AR; rubble and topsoil beside building 4.

30. (illus 7.19.15; for stamp illus 7.17.15) Diam 260mm. Eleven joining sherds with left-facing stamp. Apparently a waster reduced to grey throughout with patchy slip on both the inside and the exterior. Profile close to no 31. Archive no 321 (1K).

    NK74BQ; CA; GB; mixed clay deposits overlying intervallum east of building 8.

31. (illus 7.19.16; for stamp illus 7.17.16) Diam 260mm. Thirteen sherds from the same mortarium accidentally reduced to grey throughout; the slip is patchy but survives inside as well as outside and underneath the base showing that it was never used. A fragmentary right-facing stamp of Sarrius survives. Archive nos 314, 47 (3K).

    NK74BG; BK; BQ; CA; mixed clay deposits overlying intervallum east of building 8.

32. (illus 7.19.17; for stamp see illus 7.17.17) Diam 280mm. In good condition, orange-brown throughout with slip intact, but broken too high to show whether used or not. The broken stamp of Sarrius can be assumed to be right-facing because of its position; this has lost some slip and the letters are abraded. Archive no 297 (19K) .

    NK77FH; fill of gulley north of building 6.

33. (illus 7.19.18; for stamp see illus 7.17.18) Diam 290mm. In powdery condition; the upper half of the flange is greenish-grey, lower half orange-brown; the slip is patchy. There is some cracking under the flange and this is a typical waster fragment. A broken stamp of Sarrius, probably the left-facing one, survives. Archive no 302 (16K).

    NK75AL; building 3, unstratified.

34. (illus 7.19.19) Diam 280mm. Thick dark grey core with a clearly defined orange-brown skin and patchy white slip; in powdery condition. The edge of a right-facing stamp of Sarrius survives (not illustrated). Archive no 300 (9K).

    NK73DH; intervallum west of building 3, unstratified.

35. (illus 7.19.20) Diam 260mm. Fired to normal orange-brown at outside surface only, otherwise reduced with upper surface a muddy brown; traces of slip. Powdery with the upper surface eroded, so that the left-facing stamp (not illustrated) is barely visible. The slashing for keying on extra clay to make

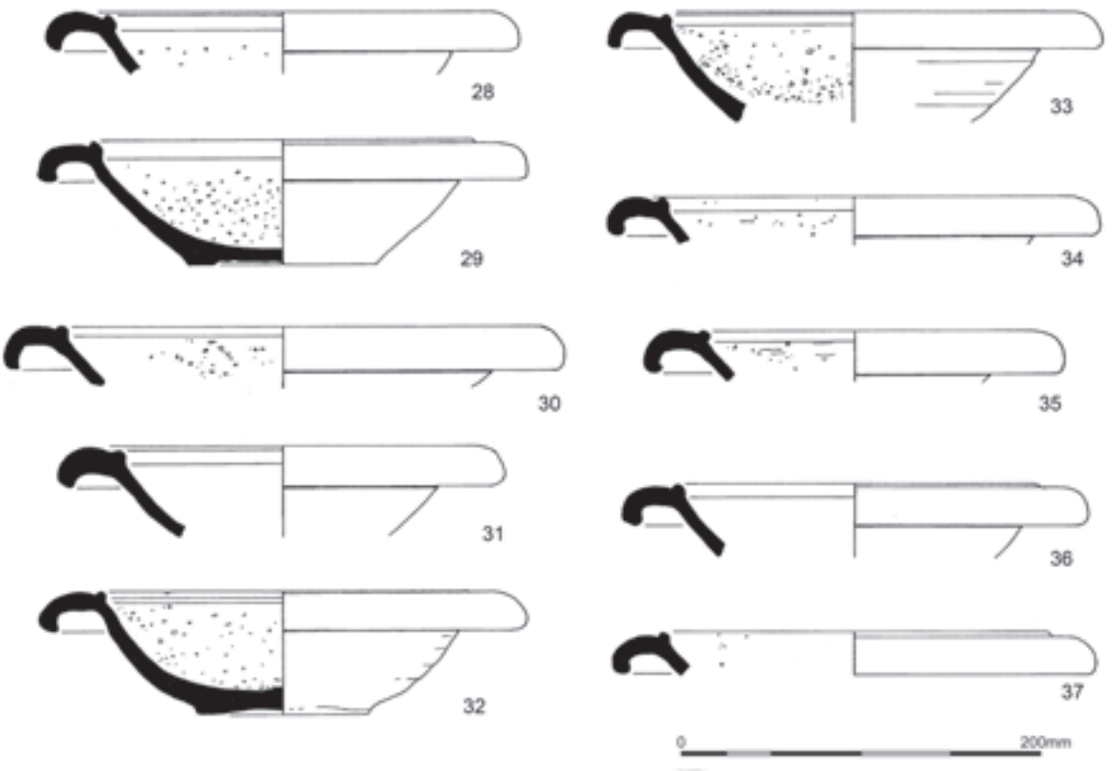


Illustration 7.20
Mortaria 28–37: mortaria made at Bearsden by Sarrius in Fabric 5.

the spout is just visible. Profile similar to no 28. Archive no 272 (22K).

NK76AG; *via praetoria*, topsoil.

36. (illus 7.19.21; for stamp see illus 7.17.21) Diam 290mm. Fired to muddy brown throughout; powdery condition; slip patchy. The left-facing stamp of Sarrius is badly abraded. Archive no 291 (18K).

NK74BC; soft clay overlying intervallum east of building 8.

37. (illus 7.19.22; for stamp see illus 7.17. 22) IRS fragment in hard fabric, reduced to dark grey and oxidised at surface only; slip surviving well. A broken, right-facing stamp of Sarrius survives. Archive no 304 (17K).

NK76EK; depression south of building 7, silty clay.

38. (illus 7.19.23; for stamp see illus 7.17.23) IRS fragment in identical condition, but from a different mortarium. A broken left-facing stamp of Sarrius survives. Archive no 299 (8K).

NK73CR; Roman level within officer's quarters of building 3.

39. (illus 7.19.24) Diam 260mm. A severely abraded rimsherd fired similarly to no 37 above. A badly battered stamp of Sarrius survives (not illustrated). Archive no 308 (6K)

NK74CD; building 5, topsoil.

40. (illus 7.19.25; for stamp see illus 7.17.25) Diam 290mm. A much abraded sherd in powdery condition, with slightly thinner grey core than the above, with fragmentary stamp of Sarrius. Some waster cracking under the flange. Archive no 307 (15K).

NK75AG; topsoil west of changing room of bath-house.

41. (illus 7.19.26) Diam 260mm. Heavily abraded rimsherd fired like no 36; traces only of slip. Only part of one border of the stamp survives (not illustrated); attributed to Sarrius. Archive no 110 (37K).

NK73FM; topsoil in inner west ditch.

42. Profile not illustrated (for stamp see illus 7.17.27). Hard grey throughout; presumed waster. Archive no 329 (2K)

NK74BG; mixed clay deposits overlying intervallum east of building 8.

u nstamped flanged sherds nos 42–51 are probably individual vessels, all attributable to Sarrius, but with no stamp surviving. Nos 51–81 are more fragmentary and may be from individual vessels, but some will be from nos 27–51.

43. (illus 7.20.28) Diam 270mm. Four joining sherds, fired orange-brown throughout and in good condition. Archive no 125/139.

NK73Cu ; east end of building 7 overlying Roman layer; NK77BH; soil overlying burnt daub at east end of building 6.

44. (illus 7.20.29) Diam 265mm. Twenty-six joining sherds from a mortarium whose colour varies from orange-brown to grey; the base survives with slip intact on the inside, a sure sign that it has never been used. This is clearly waste material. Archive nos 41/45/48.

    NK74BG; BQ; CA; CL; mixed clay deposits overlying intervallum east of building 8.

45. (illus 7.20.30) Diam 310mm. Slightly powdery, orange-brown throughout; slip in moderately good state. Archive no 149.

    NK73Cu ; east end of building 6, overlying Roman layer.

46. (illus 7.20.31) Diam 250mm. Hard, oxidised fabric with dark grey core and extensive grey in flange; wasterlike cracking under flange; slip intact on inside. Archive no 176.

    NK76Du ; soil overlying path south of building 7.

47. (illus 7.20.32) Diam 270mm. Eight joining sherds from an unused mortarium which is over hard, but otherwise in good condition and with slip intact, inside and out. The base is unusually concave and poorly finished off. Archive no 133.

    NK75BT; soil overlying path between east ends of buildings 6 and 7; NK77BR; BV; soil overlying path between buildings 5 and 6; NK77FH; gulley north of building 6; NK77CN; building 6, topsoil; NK76By; overlying cobbles, building 10.

48. (illus 7.20.33) Diam 275mm. Eight joining sherds from a mortarium in fairly normal condition and with slip intact inside and out, pointing to lack of use. Archive nos 121/35/36.

    NK77AE; intervallum east of building 7, topsoil.

49. (illus 7.20.34) Diam 270mm. Two joining sherds from a hard mortarium, fired throughout to dark grey except for its surface which is oxidised to orange-brown; the slip on the flange is scuffed. Archive nos 1/115.

    NK73AS; east end of bath-house, unstratified. NK80BD; primary bath-house, burnt debris around hearth.

50. (illus 7.20.35) Diam 230mm. Two joining sherds from an abraded mortarium (orange-brown throughout); slip scuffed. There is waster cracking under the flange. Archive nos 142/237.

    NK76DB; building 7. NK74 BW; topsoil overlying gulley between buildings 3 and 4.

51. (illus 7.20.36) Diam 260mm. Four joining sherds fired to hard, dark grey with orange-brown skin only at surface; slip poor, but intact. Archive no 151.

    NK73Cu ; overlying Roman layer at east end of buildings 6 and 7.

52. (illus 7.20.37) Diam 270mm. Fired as no 50, but in better condition. Archive no 281.

    NK75CN; building 7, brown soil overlying occupation layer.

Flanged fragments, not illustrated

53. Two joining spout and body sherds. Grey throughout; slip survives inside, patchy elsewhere. Archive nos 46/50.

    NK74CA; BC; mixed clay deposits below topsoil and above intervallum road and drain to the east of building 8.

54. Five sherds making up an entire spout. Fired grey throughout; slip scuffed. Archive no 42.

    NK74GB; NK74CA; mixed clay deposits below topsoil and above intervallum road and drain to the east of building 7.

55. Diam 270mm. Three joining sherds near to the left-facing side of the spout; grey throughout, slip nearly intact; cracking under rim. Archive no 43.

    NK74CA; NK74 BQ; mixed clay deposits below topsoil and above intervallum road and drain to the east of building 8.

56. Five joining flange and bodysherds. Grey throughout; slip intact. Archive no 44.

    NK74BG; BQ; CA: mixed clay deposits below topsoil and above intervallum road and drain to the east of building 7.

57. Diam 260mm. Sherd from left-facing side of the spout. Hard, grey throughout except for surface skin of orange-brown; slip intact; cracking under flange. Slashing visible through the slip, for adding extra clay to make the left-facing side of the spout. Archive no 97.

    NK73DN; west rampart.

58. Diam 260mm. Orange-brown throughout; slip badly scuffed; powdery. Archive no 99.

    NK73CL; west intervallum area.

59. Diam 260mm. Hard, grey throughout except for orange-brown surface skin; slip intact; cracking under flange. Slashing visible through the slip, for adding extra clay to make the left-facing side of the spout. Archive no 124.

    NK73Cu ; building 7, room 1.

60. Diam 270mm. Orange-brown throughout; slip badly scuffed on flange; powdery Archive no 135.

    NK75BT; brown soil below topsoil and above path between the east end of buildings 6 and 7 beside intervallum space.

61. Small rimsherd, very battered and abraded. Hard, dark grey except for surface skin; traces of slip. Archive no 146. Small sherd archive no 327 is probably part of it.

    NK75CA; brown soil below topsoil in intervallum area to the east of building 7.

62. Diam 260mm. Orange-brown throughout; slip patchy; powdery. Archive no 167.

    NK73Bu ; building 7, rooms 4/6.

63. FF Fabric and condition as no 61. Archive no 168.

    NK73Bu ; building 7, rooms 4/6.

64. Diam 270mm. Hard, dark grey except for surface skin; traces of slip. Archive no 177.

    NK77Au ; annexe, path to east of fort/annexe rampart.

65. IRS. Dark grey except for muddy brown surfaces; traces of slip; abraded. Archive no 181.
NK76AO; building 4, north-east corner, topsoil.

66. Diam 310mm. Hard, dark grey core; trace of slip. Badly abraded. Archive no 186.
NK73BS; building 3, room 1/2, topsoil.

67. Diam 270mm. Hard, dark grey except for surface skin; slip patchy. Archive no 190.
NK74Bx ; west intervallum road, topsoil.

68. Sherd from the right-facing side of a spout. Fabric similar to no 67. Abraded. Archive no 214.
NK73BT; *via praetoria*, topsoil.

69. One sherd forming the right-facing half of a spout. Orange-brown throughout; traces of slip. Some cracking under the spout. Badly abraded and upper surface exfoliating. Archive no 224.
NK73BS; building 3, rooms 4/5, topsoil.

70. Diam 270mm. One sherd near the left-facing half of the spout. Dark grey core; traces of slip. Badly abraded and upper surface exfoliating. Archive no 225.
NK73CH; building 3, rooms 4/5, topsoil.

71. Diam 280mm. Thick grey core; only traces of slip. Surface powdery and badly abraded. Archive no 227.
NK73AK; building 3 rooms 4/5, topsoil.

72. Diam 240mm. Surface powdery and abraded; thick grey core; slip patchy. Archive no 229.
NK73FF; path outside fort/annexe rampart to west of bath-house.

73. Diam 250mm. The end of the spout has flaked off from the flange at the junction where extra clay was added, showing the deeply scored keying underneath; there is continuous cracking underneath the flange. Orange-brown throughout; fabric powdery and much of the slip has been abraded away. Archive no 231.
NK79AK; west intervallum, topsoil.

74. Diam 260mm. Entire spout survives with cracking under the spout. Dark grey core; some abrasion of the slip, otherwise in fairly good condition. Archive no 233.
NK76BA; building 4, destruction level.

75. IRS. Fabric with heavy grey core in upper part; powdery and some of slip abraded. Archive no 235.
NK74CO; building 4, rubble.

76. Diam 270mm. FF In good condition. Archive no 255.
NK75CF; burnt material overlying road between buildings 6 and 7.

77. Diam 260mm. Thick grey core; powdery and all but the tiniest specks of slip have been abraded away. Archive no 273.
NK76CK; south of building 7, topsoil.

78. Diam 300mm. Hard fabric; very thick grey core; some of slip abraded away. Archive no 274.
NK76BB; *via praetoria*, topsoil.

79. Diam 270mm. Fabric beige-brown throughout; powdery, much of slip abraded away. Similar to no 32 above. Archive no 280.
NK75BC; building 3, east end, topsoil.

80. Diam 260mm. FF with heavy abrasion and accretion similar to no 38 above; only specks of slip survive. Archive no 282.
NK75BC; building 3, east end, topsoil.

81. IRS Fabric orange-brown throughout; surface very powdery and all but a few specks of slip have been abraded away. Archive no 247.
NK76DJ; topsoil to south of building 7.
Unlisted IRS and FF fragments from flanged mortaria in Fabric 5.
Three tiny, unrelated FF sherds, all in fabric with thick dark grey core, all abraded and with little slip surviving. Archive no 159, 283 and 326.
NK73Cu ; building 7, room 1, overlying Roman level; NK75BH, building 3, east end, topsoil.
Five small IRS sherds, four in fabric with thick dark grey core, the fifth grey throughout. Archive nos 217, 228, 230, 286 and 52.
NK73CB; *via praetoria*, surface; NK73CD; bath-house cold room, above paving; NK73EQ; rubble overlying building 4; NK75 BC; building 3, east end, topsoil; NK74BQ; mixed clay deposits overlying intervallum east of building 8.

WALL-SIDED MORTARIA IN FABRIC 5; NOS 82–87 WITH ONE OR BOTH STAMPS SURVI VING.

82. (illus 7.21.38; for stamp see illus 7.17.1) Diam 190mm. Twelve joining sherds of a slightly distorted mortarium with a neat projecting spout; both stamps survive, though one is very faint. There are no obvious signs of wear. Archive no 119 (33K).
NK75BI; building 7, western end, unstratified; NK75By; soil overlying path between east ends of buildings 6 and 7; NK75BE; bath-house, western pit west of changing room; NK75DK; brown soil below topsoil at east end of building 7. With only one stamp surviving

83. (not illustrated) IRS Two minute fragments which have been fired to grey throughout, with part of a stamp on the rim fragment, possibly from the above mortarium, but too tiny for certain attribution. The stamp is unlikely to belong to any of the other stamped sherds present. Archive nos 66 (14K) and 67 (23K).
NK74CL; intervallum east of building 8.

84. (illus 7.21.39; for stamp see illus 7.17.3) Diam 220mm. A rim sherd from a mortarium with powdery surfaces. Archive no 292 (35K).
NK77AE; intervallum east of building 7, topsoil.

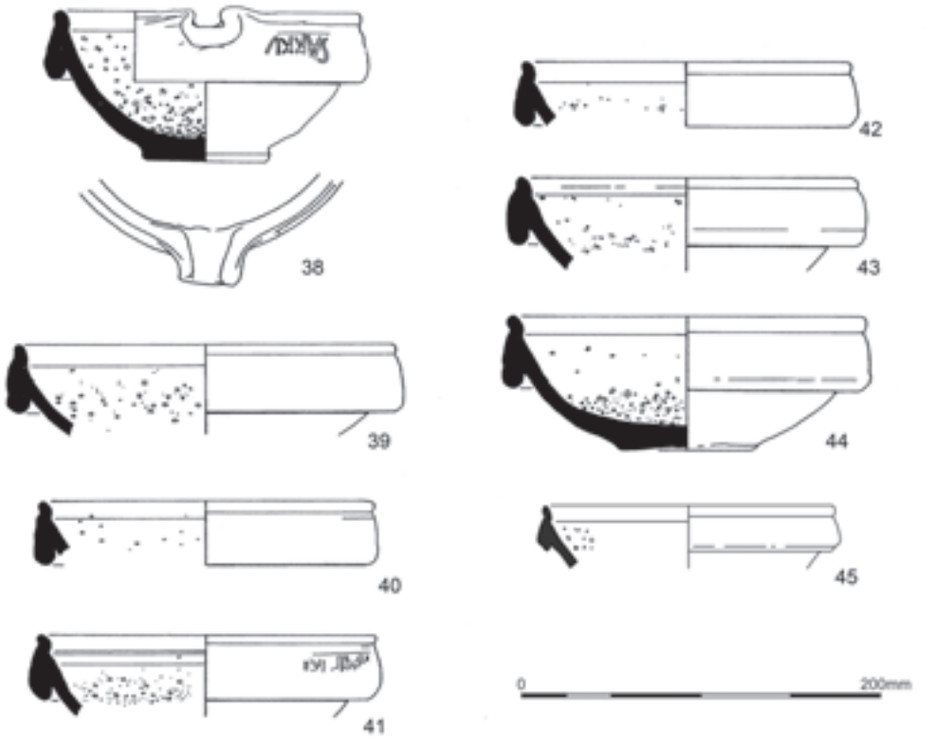


Illustration 7.21
Mortaria 38–45: wall-sided mortaria made at Bearsden by Sarrius in Fabric 5.

85. (illus 7.21.40; for stamp see illus 7.17.4) Diam 190mm. Four joining sherds with one fragmentary stamp. Similar condition to no 84. Archive nos 315/39 (13K/36K).

    NK75BA; east end of buildings 6 and 7, topsoil; NK75BK; soil overlying path between east ends of buildings 6 and 7; NK77AE; intervallum east of building 7, topsoil.

86. (illus 7.21.41; for stamp see illus 7.17.5) Diam 190mm. Four sherds, three of them joining, from a mortarium with powdery surfaces. The slip is intact on the interior and the surviving upper half shows no sign of use. Archive nos 316/301 and 150. (5K)

    NK73Cu ; building 7, room 1 overlying Roman layer.

87. (illus 7.21.42; for stamp see illus 7.17.6) Diam 190mm Three sherds from a mortarium with powdery surfaces. Archive no 317 probably joins archive no 318 (11K/4K).

    NK75By; soil overlying path between east ends of buildings 6 and 7; NK74Ay; east end of building 7, topsoil.

Other sherds from wall-sided mortaria, many, individual vessels, all attributable to Sarrius, but with no stamps surviving; nos 88–96.

88. (illus 7.21.43) Diam 200mm. Seven sherds, five joining, from a mortarium in orange-brown fabric with thick very pale grey core; slip intact on the inside. Archive nos 26/242 and 40.

    NK77AE; intervallum east of building 7, topsoil; NK77AC; soil overlying intervallum east of building 7.

89. (illus 7.21.44) Diam 200mm. Ten joining sherds from a mortarium in orange-brown fabric throughout; surfaces are powdery, but the slip on the underside of the base is intact which indicates lack of use. Archive nos 30, 122, 175, 244, 260.

    NK77AL; topsoil overlying drain through rampart east of building 7; NK77FH; fill of gulley north of building 7; NK75CF; burnt material overlying path between buildings 6 and 7; NK75Cu ; clay overlying burnt material east of building 5; NK75BK: soil overlying path between east ends of building 6 and 7; NK75BA; topsoil overlying east ends of buildings 6 and 7.

90. Diam 200mm. IRS with the complete spout surviving which is of exactly the same type as in no 82 above. Two other sherds are probably from the same mortarium; the bottom of the wall has become detached from both sherds. The fabric is reduced to grey but slightly oxidised at surface where the colour ranges from orange-brown to muddy brown and grey; small patches of slip survive. The surface is powdery and abraded. Archive nos 53 and 59.

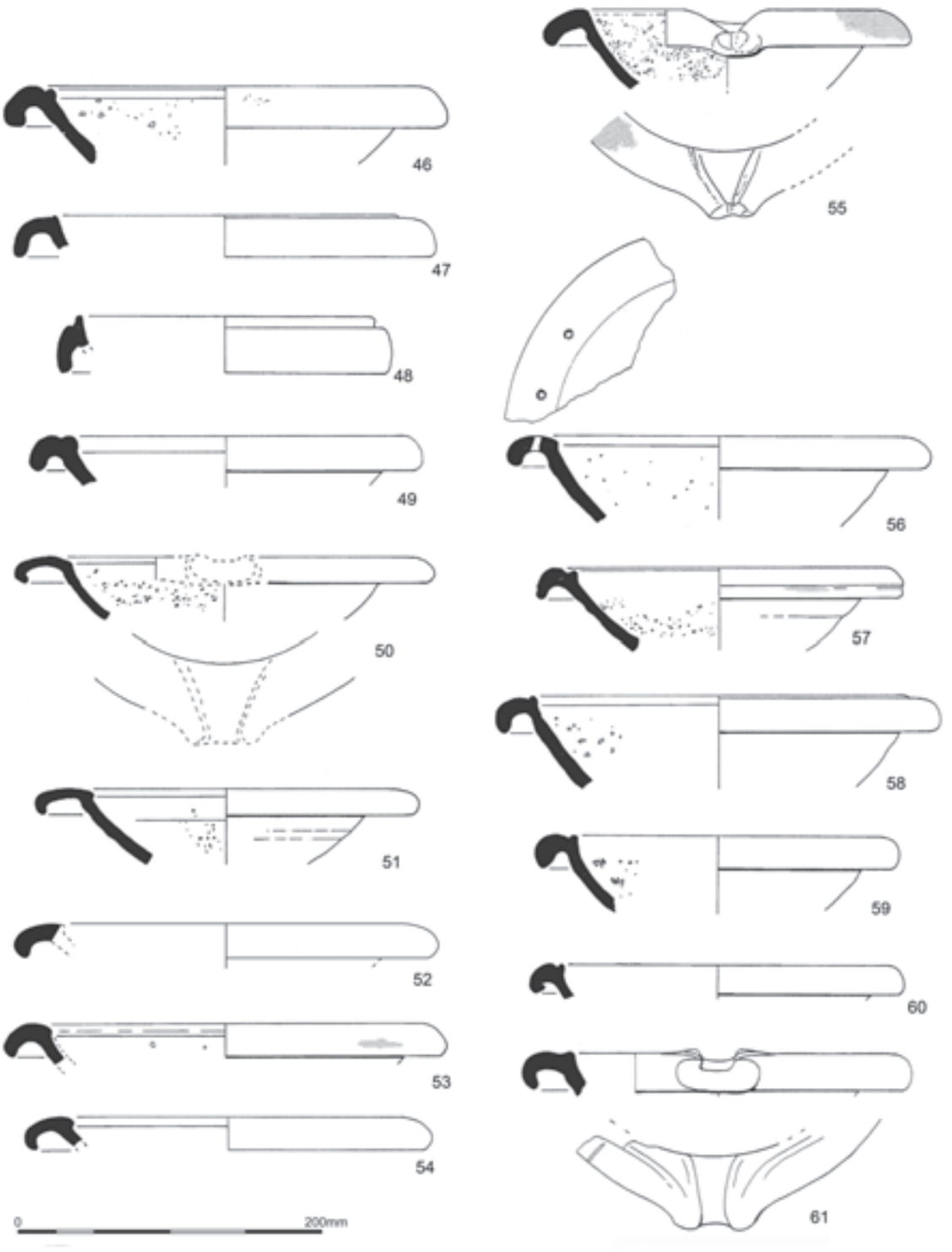


Illustration 7.22
Mortaria 46–61: mortaria made in Scotland, possibly all at Bearsden in Fabrics 4, 6–12.

NK74DE; overlying intervallum east of building 8; NK74BC; soft clay below topsoil and overlying intervallum east of building 8.

91. Diam 200mm. Two joining rimsherds from either no 88 above or from a similar mortarium. Archive no 253.

    NK75CF; burnt layer overlying path between buildings 6 and 7.

92. (illus 7.21.45) Diam 160mm. A small sherd, orange-brown throughout with only specks of white slip surviving, from a mortarium with unusually short rim and a smaller diameter than any other mortarium in the sample; it is very like a small bowl, but it has a gritted surface and is therefore just a very small mortarium; no other example known. Archive no 2.

    NK74BG; mixed clay deposits overlying intervallum east of building 8.

93. Four joining sherds from a mortarium generally similar to no 88, but a different vessel. The powdery fabric is partially reduced and little patches of slip survive. Archive nos 81, 58, 71.

    NK74BC; BG; CA; mixed clay deposits overlying intervallum east of building 8.

94. Diam 200mm. Heavily abraded rimsherd; reduced with surface varying from muddy to orange-brown; traces of cream slip. A second sherd from the same or a similar mortarium is in similar condition. Near to no 86 in profile. Archive nos 222 and 221.

    NK75BC; east end of building 3, topsoil.

95. IRS Three joining sherds in fabric with thick grey core, orange-brown skin and traces of slip. Archive no 60.

    NK74Cx ; fort east rampart, rubble.

96. Two joining sherds; orange-brown throughout; powdery condition; traces of slip. Archive nos 82.

    NK74BG; mixed clay deposits below topsoil and above intervallum road and drain to the east of building 8.

    Not listed: rim fragments from wall-sided mortaria (details in database):

    Nineteen very small rim fragments from the above or other wall-sided mortaria:

    Eight fired to orange-brown throughout, six reduced with thin orange-brown skin and five mostly reduced. Archive nos 68, 80, 84, 90–2, 104; 33–4, 38, 88–9, 254; 64–5, 51/74, 331.

    NK74CA; BG; BQ; BK; CL; mixed clay deposits below topsoil and above intervallum road and drain to east of building 8; NK78AK; west intervallum, surface; NK77AE; intervallum east of building 7, topsoil; NK77AL; annexe, topsoil; NK75BA; topsoil overlying east ends of buildings 6 and 7; NK74Cx ; fort east rampart, rubble.

For unattached bodysherds in Fabric 5, see database only for details.

Fabric 6 Bearsden

97. (illus 7.22.48) Orange-brown skin with thick dark grey core and traces of cream slip. Diam 220mm. This may be a bowl rather than a mortarium, but it is broken too high up to show whether the odd grits present are trituration grit or inclusions in the fabric. It should be dated by its presence on the site. Archive no 236.
    NK74BW; topsoil between buildings 3 and 4.

98. (illus 7.22.49) In identical fabric to no 97 with traces of cream slip. Diam 280mm. A mortarium with a thick hooked rim and a slight indication of a distal groove. There is an eroded stamp which cannot be identified, although the discovery of a clearer example might make that possible in the future. Archive nos 311/252. A base sherd, archive no 213 could belong to this vessel. (31K).
    NK75CA; brown soil overlying path between buildings 7 and 8; NK77Cu ; brown soil overlying Roman level within east end of building 6; NK75DB; building 4, topsoil.

99. (illus 7.22.50) Fabric 6 with thinner grey core and no visible slip. Diam 270mm. This is a highly unusual mortarium of raetian-type. It is very delicate in its general appearance, especially in the slender wall and slender, wide, shallow and flat flange. In its general form and lack of bead it is clearly a raetian-type mortarium of type E though the above characteristics make it a very unusual one; this example appears to have had a self-coloured slip instead of the almost samian-like, red-brown one which was commonly applied to the upper surface of the flange; it was used for the illustration in Hartley, K F (2012a: fig 11, no 6). Archive no 204. Bodysherd possibly from the same vessel. Archive no 264.
    NK73DO; fill of gulley to north of east end of building 7; NK75CF; burnt material overlaying intervallum east of building 6.

100. (illus 7.22.51) Traces of matt, red-brown slip limited to the upper surface of the flange. Incomplete rim-section, identical in form to no 99. The outer surface has begun to craze. Probably unused. Archive no 10 has been used with Archive 7 below to complete illustration no 51. NK73AW; annexe, south-west of bath-house, topsoil.

101. (Used to complete illus 7.22.51) A flange fragment from a mortarium identical in form and fabric to nos 99–100 above, but all of its surfaces are crazed which would fit with being a waster. Archive no 7, used with Archive 10 above to complete drawing of illustration 51.
    NK73AJ; annexe, south-west of bath-house, topsoil.

102. (not illustrated) Flange fragment with traces of red-brown slip on its surface; probably from a different mortarium of the same type as nos 99–101 above; a small part of the right side of the spout survives. Archive no 15.
    NK76AC; annexe, bath-house, topsoil.

103. (not illustrated) Flange fragment with traces of red-brown slip on its surface, from a different, thick mortarium of the

same type as nos 99–102 or no 110, but in a hard variant of Fabric 6. Archive no 6.

NK73AO; annexe, south-west of bath-house, topsoil.

104. Fabric 6. A complete base from a different mortarium; thick, and very heavy, with at least six radial waster cracks while the inside surface is completely crazed. Archive no 132.

NK76FA; at Roman level, south of building 7.

Not listed: unattached body and body and base sherds see archive. Archive nos 14; 144, 184 (with traces of cream slip) and 207.

NK73AQ; building 3, men's quarters, cleaning over natural; NK75CA; brown soil overlying path between buildings 7 and 8; NK73BS; building 3, topsoil.

Fabric 7 Bearsden

105. (illus 7.22.52) Traces of buff-brown slip on upper surface of flange. Diam *c* 280mm. Flange fragment from a mortarium of similar type to no 99, but narrower and thicker. Archive no 245.
NK74AS; brown soil overlying Roman layer at east end of building 6.

106. No slip apparent. This is a typical raetian-type spout with sharply cut sides; there is enough of the flange surviving to show that the mortarium was of the same type as nos 99–103 and 105 above. This spout was used to restore the drawing in Hartley, K F (2012a: fig 11, no 6). Archive no 243.
NK78DL; area beyond the western ditches.

107. No slip apparent; with surface cracking. Abraded fragment of a second spout of identical type. Archive no 226.
NK73AK; building 3, room 4, topsoil.

108. Traces of red-brown raetian slip. Diam 310mm. Two flange fragments, probably joining, from a mortarium of generally similar type to no 105. Archive nos 22 and 23.
NK76CE; annexe, south-west of bath-house, topsoil.

109. (illus 7.22.53) Ordinary, matt brown slip not only on the flange, but also on the exterior, ending in a straight line just below the flange; the internal surface does not survive. Diam 300mm. Three joining sherds. This raetian mortarium (Hartley, K F 2012a: fig 11, no 3) is the more normal, curved, Type E. Archive no 123.
NK77AL; brown soil over drain capstones in intervallum east of building 7.
Not listed: 2 indeterminate flange fragments from a different vessel. Archive nos 197 and 328 (with red-brown slip).
NK73AK; topsoil overlying men's quarters of building 3. Unattached bodysherds see archive: Archive nos 17, 24; 208; 240; 330 and 334.
NK76CE, annexe, south-west of bath-house, topsoil; NK73BS; building 3, topsoil; NK74CF; burnt daub between buildings 3 and 4; NK73AK; AR; topsoil within men's quarters of building 3; NK74BK; mixed clay deposits below topsoil and above intervallum road and drain to the east of building 7.

Fabric 8 Bearsden

110. (illus 7.22.54) (Hartley, K F 2012a: fig 11, no 4.) Diam 270mm. Two, non-joining rimsherds probably from the same raetian-type E mortarium, (Hartley, K F 2012a: fig 11, no 4), which has a small, rather delicate rim. No other examples are known in this fabric because it had been accidentally reduced to grey throughout. Archive nos 249 and 309. Four joining sherds (archive nos 202) making up a complete base probably belong to this vessel, but it is thick and heavy considering the delicate flange. This mortarium has been smoothed on the outside and on the flange. All body and base parts show evidence of wear suggesting that it was waster only in its colour. Archive nos 202, 249 and 309. (Collins RP40, Group 1, pp 163–4.)
NK75By, BT; brown soil overlying path between east ends of buildings 6 and 7;
NK77Ay; brown soil overlying Roman layer at east end of building 7; NK75CF; burnt material overlying intervallum east of building 6.
Not listed: archive no 201.

Fabric 9 Bearsden

111. (illus 7.22.55) (Hartley, K F 2012a: fig 11, no 2.) Traces of good quality, red-brown raetian slip on the flange. Six joining sherds. Diam 240mm. Of all the raetian type mortaria at Bearsden this is the best preserved, despite a little surface abrasion (Hartley, K F 2012a: fig 11, no 2). It is again a Type E; the spout varies from nos 106–7 above, but it is again a typical raetian spout. Archive no 310. A base sherd, archive no 29 is clearly from this vessel which has probably been used. (Collins RP41, Group 3, p 164.)
NK77AL; brown soil drain capstones in intervallum east of building 7.

112. (not illustrated) Traces of raetian type slip. Flange fragment. Archive no 116.
NK79Bx; brown soil overlying cobbling south of bath-house.

Fabric 10 Bearsden

113. (illus 7.22.56) (Hartley, K F 2012a: fig 11, no 5.) Diam 290mm. A raetian-type mortarium of Type E but none of the raetian slip survives. The fabric is friable and all of the surfaces are crazed probably due to misfiring. The upper surface of the flange has a burnt area. Two circular holes have been drilled through the flange 35mm apart. (See Hartley, K F 2012a: fig 11, no 5 for a drawing.) Archive no 8. A body sherd, archive no 215 is probably from this vessel.
NK73DG; immediately north of the mens' quarters of building 3, topsoil; NK73CB; lying on *via praetoria*, east of building 4.

114. (illus 7.22.57) (Hartley, K F 2012a: fig 11, no 1.) Diam 240mm. Two sherds. A raetian mortarium with tiny traces of the red-brown, raetian slip on the upper surface of the flange. This is the only example at Bearsden of the more common Type C raetian mortarium. Burnt before fracture. Archive no 4.

NK73Cx ; annexe, south-west of bath-house, below cobbles.

115. Traces of indeterminate slip. Flange fragment with groove in upper surface near distal end, a feature often present on Types B and C raetian mortaria; this is from a largish mortarium not otherwise represented. There is a waster crack in the flange. Archive no 13.

NK73AJ; annexe, south-west of bath-house, topsoil.

116. Patch of red-brown, raetian-like slip on the upper surface only. A flange fragment from a large mortarium. The slip would fit with it being raetian, but not enough of rim survives to identify the form as raetian. Archive no 12.

NK73AD; bath-house, topsoil.

Fabric 11 western sector of the Antonine Wall

117. Too powdery, eroded and disintegrating for the profile to be illustrated, but it is very close to no 118. Diam *c* 290mm A mortarium with a small rounded rim; partly disintegrated stamp of CICV[.]. Illus 7.16.7 scan. Archive no 305. (20K) Flange fragment. Archive no 140 is probably part of same vessel.

NK77BH; brown soil overlying burnt daub fill of drain north of building 8.

118. (illus 7.22.59) Fabric 11 Diam 240mm. In similar deteriorated condition to no 117, and with near identical rim-profile. Archive no 114.

NK79DA; bath-house, unstratified.

119. (illus 07.22.58) Diam 290mm. Eight joining sherds from a mortarium with a small rounded rim generally similar to no 117, but in much better condition. The right-facing stamp is too abraded to identify with certainty, but it has the two-line border used by Cicu[.], not illustrated. The rim-profile is entirely typical of his work. Archive no 296. (30K).

NK75By; brown soil overlying path between east ends of buildings 6 and 7.

120. Slight traces of cream slip. A flange fragment from a mortarium generally similar to no 119. Abraded. Archive no 216.

NK73CB; overlying *via praetoria* east of building 4.

121. Diam 270mm. Mortarium of generally similar profile to nos 117–19, but a different mortarium. Archive no 100.

NK78BA; west rampart and intervallum area.

122. (illus 7.22.60) Diam 230mm. Two sherds from the same very small mortarium with tiny curled under flange. Collins RP50 Group 3. Archive nos 188 and 148.

NK76BW; building 4, topsoil; NK76DJ; topsoil south of building 7.

123. Two joining base/bodysherds and one bodysherd. Abraded. Archive nos 105/25 and 18.

NK76CE, annexe, south-west of bath-house, topsoil; NK73AB; bath-house, topsoil.

124. (illus 7.22.61) With tan brown with orange-brown core; traces of cream slip. Diam 260mm. A hooked rim mortarium with broken, left-facing stamp, which is too abraded to be identified. An abraded bodysherd from the same vessel shows wear in use. Both sherds are slightly singed. Archive nos 306 and 11. (12K).

NK73AD; bath-house, topsoil.

Not listed: IRS, archive no 166; NK73Bu ; building 7, east end, topsoil.

Unattached bodysherds in Fabric 11: archive nos 106; 113; 194–5 and 107;

NK73AD; bath-house, topsoil; NK73AE; annexe, south-west of bath-house, topsoil; NK79Bu ; annexe, area south of steam range, topsoil; NK74Cy; topsoil overlying intervallum to east of building 7.

Fabric 12 western sector of the Antonine Wall

All sherds are abraded.

125. Fabric 12. Two flange fragments, not joining, from a mortarium with thick rounded flange, not otherwise represented. There is a broken and abraded, unidentified stamp. Archive nos 261 and 256. (38K).

NK75BT; brown soil overlying path between east ends of buildings 6 and 7.

126. With opaque brown slip on upper surface of flange only, in the raetian fashion. A flange fragment with unidentifiable stamp. Archive no 290. (32K).

NK77AI; below intervallum road east of building 12.

127. Variant of fabric 12. IRS from a very large mortarium indeed, with thick body and flange, unlike any other represented on the site. It is reminiscent in thickness and size (but not fabric) to mortaria of Verecundus 2 made at Soller in Lower Germany (Miller, Schofield and Rhodes 1986: 111, nos 1.75, 1.76); this is even thicker in the body. Too little survives to give any idea of the rim-profile. Archive no 137. NK77BH; brown soil overlying burnt daub covering gulley north of building 7.

Unlisted: disintegrating bodysherd with crazed surfaces. Archive 102.

NK78BV; intervallum west of building 4, topsoil.

Fabric 13 western sector of the Antonine Wall

128. Fabric 13 Three joined sherds making up the whole of one large, thick and heavy, base with a diameter 105mm and 20mm thick; abraded. Also five sherds from other bases, substantial, but not as thick (one showing wear as opposed

to abrasion which is common to all). Archive nos 180; 103; 155; 156; 193 and 279.

NK76AT; topsoil overlying *via praetoria* east of building 4; NK78DW; brown soil overlying intervallum west of building 4; buildings 6 and 7; NK73Cu ; NK73CL; brown clay between west fort rampart and intervallum road west of building 4; NK77AK, topsoil overlying west end of officer's quarters in building 3; NK76AT; topsoil overlying *via praetoria* east of building 4.

Not listed: One flange fragment; bodysherds (break modern). Archive no 57; Archive nos 111/128; 198

NK74DE; overlying intervallum east of building 6; NK76EZ; building 11, under cobbling; NK77AK; topsoil overlying west end of officer's quarters in building 3.

Fabric 14 western sector of the Antonine Wall

129. Fabric 14 Four bodysherds from one, heavily worn mortarium; no rim sherd survives and there is no other mortarium present in this fabric. The exterior had some minimal smoothing while the lower zone near the base was left rough. Collins RP47, Group 2. Archive nos 129–31.

NK76DQ; building 16; NK76BL; buildings 13 and 14, topsoil, NK76CS; building 16, grey silt.

7.4 SCIENTIFIC ANALYSIS OF THE POTTERY

7.4.1 Heavy mineral analysis of black-burnished ware

DAVID F WILLIAMS

A macroscopic examination was made of the black-burnished wares 1 and 2 (BB1 and BB2) recovered from excavations carried out from 1973–5. In addition, six sherds were selected for heavy mineral analysis. The BB1 sherds from Bearsden (possibly representing some 25 vessels) are in a number of fabrics, suggesting several different centres of production. BB1 from the Wareham-Poole Harbour area of Dorset seems to account for about half of the vessels present. The fabric of these latter sherds is black, or very dark grey throughout, and they contain a considerable amount of quartz sand temper. A cooking-pot rim (table 7.8.3) was chosen from amongst this group for heavy mineral separation and it produced an assemblage with a high tenor of tourmaline and no garnet, identical to the results associated with the Dorset production centre (Williams 1977: Group I).

Also present are a number of likely products from the Rossington Bridge kilns located near Doncaster, especially a dish (table 7.8.2), which has a series of zigzag basal lines which seem to be peculiar to this centre (Williams 1975: 299). It has been recognised for some time that the Rossington Bridge kilns were making BB1 from about the middle of the second century, and were possibly connected in some way with the Dorset production area, since there are similarities of form and decoration between the wares of both centres (Williams 1977). The predominant colour seems to be dark grey, the cooking-pots having a slight 'lustre' to them; also less sand temper is used than is normal, for instance, in Dorset BB1. Two of the sherds thought likely to have been made at Rossington Bridge were analysed (table 7.8.4 and 5), and both produced assemblages similar to those obtained from 'wasters' from the Rossington Bridge kilns, with a fairly high percentage of garnet recorded (Williams 1977: Group II). Possible Rossington Bridge BB1 has also been recognised by the writer in small amounts at Balmuildy, Bar Hill and Castledykes, though none seems to be present in the large group of BB1 from the west ditch at Mumrills (Williams 1977). The relatively small amount of Rossington Bridge BB1 on the Antonine Wall compared with Dorset BB1 may be due in part to the Wall's early abandonment, before the BB1 wares from the more conveniently situated Rossington Bridge site could get properly established there. The remainder of the BB1 fabrics appear different from those described above, with far less sand temper employed, and with rougher tooling and thickish lattice lines on the bowls and dishes. This suggests that other, probably smaller, kiln sites were also involved in making BB1 at this time, perhaps situated closer to the northern military sites than the large Dorset production centre. One of these sherds was analysed (table 7.8.6) and the resulting suite of minerals shows a moderate amount of garnet, but with fairly high percentages of rutile and kyanite, and falls into an undesignated group of BB1 vessels from Mumrills and Birdoswald (Williams 1977: Group III). The cooking-pot from Mumrills in this group (unstratified from the 1928 excavations) is identical to that from Bearsden. The form is similar to Gillam 1970: Type 120, but lacks the wavy line decoration round the neck. The variety of BB1 fabrics at Bearsden clearly shows that at this time BB1 in the north was being produced by several centres, although the main suppliers were Dorset and Rossington Bridge. The BB2 sherds from Bearsden (possibly representing some 11 vessels) are all well burnished and slipped, the normal colour being either black or pinkish-grey, with the core tending to have a dark brown central zone sandwiched between two thin darker layers. All of the sherds have been tempered with a medium amount of quartz sand. The bowls (mostly Gillam 1970: Type 222) outnumber the cooking-pots (Gillam 1970: Type 139) by about 3:1. BB2 vessels are outnumbered by BB1, as they are in Antonine I levels at Birrens and Castledykes. It is only in Antonine II levels, or in undivided Antonine deposits, that BB2 first occurs in excess

Table 7.7
Vessels sampled for heavy mineral analysis

No	*Context*	*Vessel type*	
1	NK73AB	BB2	triangular-rimmed bowl (G 222)
2	NK73AW	BB2	cooking pot (G 139)
3	NK73BH	BB1	cooking pot (G 127)
4	NK73AQ	BB1	flat-rimmed dish (G 308)
5	NK73BJ	BB1	plain-rimmed dish with groove (G 316)
6	NK74BR	BB1	cooking pot (G 120 variant)

G = Gillam 1970 Type.

Table 7.8
Percentages of non-opaque minerals of samples

No	*Zircon*	*Tourmaline*	*Rutile*	*Kyanite*	*Andalusite*	*Staurolite*	*Garnet*	*Apatite*	*Anatase*	*No grains counted*
1	75.9	6.8	4.6	2.9		2.8	5.7	1.3		517
2	81.9	4.1	3.3	3.5	0.6	0.6	6.0			436
3	37.7	51.4	4.5	0.9	2.2	2.7		0.6		513
4	76.1	8.2	0.6		1.3		13.2		0.6	326
5	70.9	10.7	1.4		0.9		15.3		0.8	401
6	63.7	6.9	5.6	2.7	2.9	3.8	9.7	2.9	1.8	287

of BB1 in the north. The BB2 fabric at Bearsden is fairly uniform and suggests a single origin for all the sherds. The heavy mineral assemblage produced by two of these sherds (table 7.8.1 and 2), is characterised by a high tenor of zircon combined with almost equal amounts of tourmaline and garnet, and with a moderate amount of rutile, which agrees very well with the analysis of a large group of BB2 vessels shown to have been made at Colchester (Williams 1977: Group x II). Samples of BB2 analysed from Mumrills, Newstead and now Bearsden, have all indicated a probable Colchester origin (Williams 1977).

7.4.2 Petrographical examination of pottery

G H COLLINS†

Twenty-five sherds were thin sectioned with the aim of determining if any of the rock and/or mineral fragments (grits) present in the pottery could be identified, and a possible Scottish source given. It should be emphasised that this research is dependant on the slide containing a representative selection of grits present in the pot and that the actual plane of the slide is determined to a large extent by chance. Since the grits were almost certainly obtained from glacial or recent sedimentary deposits, it necessarily follows that geological knowledge is required of a considerable greater area than that in which the pottery was found, or may have been manufactured.

Of the 25 slides examined, 16 have produced an assembly of rocks which, while not unique to Scotland, can be found within a 50km radius of Bearsden. The grits in the remaining nine are predominantly quartz and have been ignored as this mineral is too ubiquitous.

Group 1 Slides containing basic igneous rock fragments

Rounded grams of basalt, up to 4mm in diameter, are found. They contain labradorite feldspar, olivine altered to iddingsite and ilmenite altering to leucoxene. In two samples the rock is not so fresh, the feldspar being altered to secondary minerals. This basalt may be related to the lavas of Lower Carboniferous Calciferous Sandstone age, the rocks of which the Campsie Fells and the Kilpatrick Hills are composed (Macgregor & MacGregor 1948: 2). These are areas of high ground to the north and west of Bearsden.

Group 2 Slides containing rocks similar to those found along the Highland Border

These slides contain fragments of chert, chloric-schist, and serpentinites. Two samples contain rounded grains of serpentinite, pale yellow in colour, up to 0–3mm in diameter. Chert, sometimes mottled with veinlets of quartz in cryptocrystalline silica is present. Schistose-grit and chloritic-schist are found in two samples.

These rocks may be compared with rocks of Cambro-Ordovician age from the Highland Border (Johnstone 1966: 60). The nearest outcrops are in Balmaha and Aberfoyle.

Group 3 Slides containing quartzites, psammites and greywackes, similar to those of the Dalradian Assemblage

These slides contain rock fragments of quartzites, schistose-grits, alkali-feldspar and greywackes, some of which are diagnostic in themselves, but when taken together, may have been derived from the Upper Psammitic Group of the Dalradian Assemblage (Johnstone 1966: 38). Five samples contain alkali-feldspar (orthoclase and, rarely, microline) and quartz rock, similar to psammitic-schists and schistose grits. The rock crop-out in a band, from 2 to 5km wide, stretching from the Clyde to the coast of Aberdeenshire (Johnstone 1966: pl VI). One sample also contains a fragment of biotite-granite of obscure origin.

Conclusion

Since the predominant drainage pattern is from the north-west (Macgregor & MacGregor 1948: 3), rocks from north of the Highland Boundary Fault could have been eroded and carried south-easterly towards the line of the Antonine Wall. The Carboniferous basalts are relatively local in origins. Thus it should be possible to find all the types of rock mentioned in this report within a comparative small radius of Bearsden.

7.4.3 Geological report on trituration 'grit' in mortaria fragments

GEOFF GAUNT

7.4.3.1 Introduction

This report summarises the lithologies, insofar as they are identifiable, of trituration 'grit' in 26 mortaria (some represented by more than one fragment) from Bearsden. The fragments were examined by ×10 hand lens and low-power stereo microscope in reflected light. An attempt to obtain greater resolution by using a higher magnifying petrological microscope, also in reflected light, failed because of the uneven nature of the surfaces being examined. The word grit has severely restricted meanings in lithology and lithostratigraphy, so where in this report it is used in a trituration sense it is given in single quotes, ie, 'grit(s)'.

Most of the 'grits' are between 1mm and 4mm maximum width, the largest being 8mm. 'Grits' under 1mm wide are excluded from consideration to avoid confusion with temper in the fabric, much of which is quartz. Size data is not included in the report because, although logged originally, it became apparent that there were no relationships between size and lithology. The detailed catalogue has been lodged with the site archive but its contents are presented in table 7.9.

7.4.3.2 Limitations of the technique

In those mortaria fragments containing numerous 'grits', only between 50% and 70% of the 'grits' are lithologically identifiable. There are two main reasons why the other 'grits' are indistinct. One is that in many 'grits' the principal components, granular or crystalline, are too small to be individually discernible, and therefore to be identifiable, and in addition are devoid of recognisable textures.

The other is that, particularly in those mortaria with soft, ie slightly friable, fabrics, numerous 'grits' are obscured by extremely fine dust emanating from the fabrics. Attempts to remove the dust by blowing off, brushing off, damp wiping and full immersion were generally only partly successful. One possible reason for this problem is because, on the evidence of a well-known school-days experiment, the dust is capable of electrostatic charging and may be attracted to minerals in the 'grits' which were similarly charged during kiln firing. Additionally, in a few mortaria fragments with hard fabrics a thin veneer of fabric (ie the slip) coats some deeply embedded 'grits' partly or completely, and cannot be removed, even with a mounted needle, without damaging the 'grits'.

7.4.3.3 Previous research

'Grits' in the same or similar mortaria were examined petrologically, ie, in thin-section slides using a polarising microscope, by Collins (1986 and 7.4.2). In nine slides quartz was predominant, so these were not considered further because this mineral is so ubiquitous. The other slides were categorised in three groups.

Group 1. Three slides containing rounded 'grits' of basalt, possibly derived from Lower Carboniferous lavas cropping out on hills north and west of Bearsden. No other lithology is mentioned.

Group 2. Five slides containing chert, chloritic schist and serpentinite, with schistose grit in two of them. These rocks suggest comparison with the Lower Palaeozoic 'Highland Border' complex, the nearest outcrops of which to Bearsden are stated to be at Aberfoyle and Balmaha. (I suspect that there is a small outcrop also on the western side of Loch Lomond between Balloch and Luss.) No other lithologies are mentioned.

Group 3. Nine slides containing quartzite, psammite, schistose grit, greywacke and alkali feldspar (the last presumably as individual crystals). This assemblage suggests derivation from the Upper Psammitic Group (now renamed the Southern Highland Group) of the Dalradian complex, which crops out from Helensburgh north-eastwards to Aberdeenshire. The names psammite and schistose grit are traditionally used lithologically in Scottish Highland geology for regionally metamorphosed sandstones, the latter with at least a slightly schistose texture. Both names have lithostratigraphical connotations also in the same region.

Unfortunately the original samples sent to Dr Collins could not all be recovered but wherever possible joining fragments from the same vessel were studied by Dr Gaunt. Two fragments in Fabric 11 are new samples which had not been examined by Collins. This report amplifies his research.

7.4.3.4 The identifiable lithologies

Seven lithologies are sufficiently numerous and widespread to warrant summarising below to avoid repetition in the catalogue of mortaria fragments. All seven consist mainly or entirely of quartz, with or without secondary silica, and so probably owe their obviously robust and durable nature, and their relative abundance in the 'grits', to this fact. These seven lithologies (in no particular order) are:

Quartz: variably pale grey translucent to white opaque, and mainly sub-angular to sub-rounded. A few opaque 'grits' are angular and have sub-conchoidal fracture patterns suggesting chalcedonic silica, but these are unlikely to be chert from the 'Highland Border' complex because according to field descriptions this chert is dark coloured and laminated.

Nondescript sandstone: variably white to medium grey and pale brown, mainly fine grained and fairly well compacted, with silty or clayey matrices or intergranular voids.

Reddish sandstone: Medium to dark brownish red and fine to very fine grained (some 'grits' being in effect siltstone). Several of these 'grits' appear to be slightly friable.

Greywacke: Variably medium to dark grey, fine to coarse grained and well to highly compacted, with appreciable grains of dark minerals and/or rock fragments, and dark matrices.

Siliceous sandstone: pale grey, fine to (mainly) medium grained with subangular to (more commonly) subrounded grains in a hard siliceous matrix (has the appearance of crystalline quartz at low magnifications). In some 'grits' the longest observed axes of the grains appear to some extent to be mutually aligned, and there is in fact a textural gradation between siliceous sandstone and schistose grit (summarised

below), with some 'grits' being intermediate between the two lithologies. Probably equivalent to the 'psammite' of traditional Highland usage, although siliceous sandstone is used in the catalogue as a purely descriptive term, without genetic or lithostratigraphic implications.

Metaquartzite: white to pale grey, fine to (much less commonly) medium grained and apparently highly compacted with angular grains and no matricial space, having in effect a texture known as granoblastic which distinguishes metamorphic quartzites or metaquartzites from sedimentary quartzites or orthoquartzites (has the appearance of crystalline quartz at low magnifications).

Schistose grit: pale grey, fine to medium grained with subangular to subrounded grains in a silty-looking, variably schistose matrix that in a few 'grits' includes bronze-coloured mica, presumably muscovite. In some 'grits' the longest observed axes of the grains are mutually aligned. Because of the emphasis on basalt, chert and serpentinite in the petrological report of Collins (1986; 7.4.2 above), any 'grits' that could possibly have these lithologies are logged in the catalogue. In addition, Collins emphasises chloritic schist. It would be virtually impossible with the technique used and the size of the 'grits' observed to differentiate chloritic schist from many other types of schist, and also types of phyllite. The incidence of recognisable non-quartzitic schists and phyllites generally is, therefore, included in the catalogue.

A minute number of 'grits' consists of igneous rocks that are not too dark coloured or too fine grained, and therefore are unlikely to be basalt. These are included in the catalogue also, but their incidence is too few and their lithology too diverse to have any significance.

7.4.3.5 Comments

A synopsis of the observations summarised in the catalogue is shown on table 7.9 for those mortaria fragments that contain more than about 20 'grits'. There were three main reasons for making the observations on the 'grits' – to ascertain whether (a) they can elucidate possible sources of derivation, and therefore of mortaria-manufacturing locations, (b) they are compatible with the petrological observations of Collins (1986, see 7.4.2 above), and (c) they are compatible with the fabric classification. These questions are addressed below. The subangular to subrounded shapes of the vast majority of the 'grits' indicate derivation from Quaternary deposits. In this context it should be emphasised that, on the assumption that at least some of the 'grits' came from

Table 7.9
Relative abundance of identifiable lithologies in mortarium fragments containing more than *c* 20 trituration 'grits'

Lithology	*sub = substitute*											
Fabric	5	5	5	6	6	6	8	9	11	11	13	14
Sample number	23	25 sub	26 sub	4	6	7 sub	10	11	new	new	13	17
Archive number	133	121	314	132	204	213	202	29	11	113	180	130
Catalogue number	47	48	31	104	99	98	110	111	124	no no	128	129
% identifiable	70	60	60	70	70	60	60	50	60	50	70	70
Quartz	C	C	M	M	s		M	s	C	C	C	s
Nondescript Sandstone	s	•	M	s	•	s		•	M	s		•
Reddish Sandstone	s	•	•	s		s		s	•	•	•	s
Greywacke				•		•	•	M	•		•	s
Silaceous sandstone	M	M	C	C	C	C	M	M	s	M	s	M
Metaquartzite	s	M	M	s		•	•	s		•	M	M
Schistose grit	•			s	•	•	•	•			s	•
?Serpentinite	s	•	•									
?Basalt			•?				M	s	s	s		•
?Chert		•	•?									
Schist/phyllite	•			•	s		s				•	•

C = commonly present; M = moderately present; s = sparsely present; • = One or two occurrences only

the region around Glasgow, this region received glacial detritus from several northerly to westerly directions and, subsequently, fluvial detritus into the lower Clyde Valley from almost every direction except north-west. As a result, there is likely to have been considerable mixing and reworking of detritus, with no precise location having a lithologically unique or exclusive suite of deposits.

POSSIBLE SOURCES

The abundance of quartz is not surprising because this mineral is predominant in the sand and granule grades of most British Quaternary deposits. For the same reason, however, quartz has little value as evidence of source.

If the siliceous sandstone, as recorded, equates with the psammite of traditional Scottish Highland usage as suggested earlier, its abundance implies a source within, or at no great distance from, the Highlands. On the assumption that none of the mortaria was made beyond the Antonine Wall, one or more manufacturing locations where the Wall is nearest to psammite-rich outcrops, ie, towards its western end, would be the most likely. This conclusion is supported by the presence, albeit in only small amounts, of metaquartzite, schistose grit and other schists/phyllites. It is probably supported also by the generally scarce presence of greywacke, although it is not inconceivable that some greywacke could have been derived from Ordovician outcrops in the Southern Uplands via the upper Clyde Valley.

The reddish sandstone 'grits' probably originated in the belt of Old Red Sandstone, ie Devonian, outcrops that runs north-eastwards from the Clyde around Cardross and passes within 20km north of the centre of Glasgow, although a conceivable alternative source is the outcrop of 'red' Coal Measures centred on Bothwell, south-east of Glasgow. Probable sources for the nondescript sandstone 'grits' are present in many of the Carboniferous outcrops in and around Glasgow. Neither the reddish sandstone nor the nondescript sandstone is likely to be as robust and durable as the rocks reviewed in the preceding paragraph, especially during glacial transport, and this may explain their relative scarcity.

Of the remaining three lithologies included on table 7.9, basalt and chert are sufficiently durable to be possibly far-travelled, and so in view of their relative scarcity they are of little value as source indicators. The serpentinite, as Collins (1986) noted, occurs in the 'Highland Border' sequence and is likely to be from that source. The only other source at no great distance, in the Girvan area, can be discounted on known directions of glacial and fluvial transportation.

COMPATIBILITY WITH PETROLOGY

Any assessment of compatibility between the lithological summaries in this report and the petrological observations of Collins (1986, see 7.4.2 above) must allow for a major difference in emphasis between the two accounts. Collins concentrates on rock types such as basalt and serpentinite which by their presence (however minor) or absence accentuates the differences between his three groups. In contrast, this report concentrates on those rock types that are identifiable within the limits of the technique. The two accounts are, therefore, necessarily selective and focused on different aspects. Moreover, neither account covers the entire contents present in any mortaria fragment, one because of the areal limits of a thin-section slide (as Collins refers to), the other again because of limits of the technique. There is also the point that whereas Collins categorised slides from 25 mortaria (slide RP 39 being included in both groups 2 and 3), only the 12 fragments included on table 7.9 contain sufficient 'grits' to presume a representative assemblage for the fragment. Collins' slides obviously represent a much larger number of mortaria. In these circumstances only a few possible indications of compatibilities can be pointed out.

Possible basalt 'grits' are not abundant in any mortaria fragments, their most numerous occurrence being a moderate presence in sample 10 (fabric 8), which is therefore most likely to equate with one of the three Group 1 slides of Collins (it does in fact equate with RP40). The other two slides in this group could, possibly, be represented by any of five fragments – archive no 11 (fabric 11), archive no 113 (fabric 11), sample 11 (fabric 9), all with a sparse ?basalt presence, sample 2 (fabric 11) and sample 21 (fabric 8), both with only a few 'grits' but conceivably including basalt.

No mortaria fragments contain abundances of chloritic schist, serpentinite or chert. Chloritic schist would be virtually impossible to distinguish from many other schist/phyllite rocks within the limits of the technique, as mentioned earlier. However, on table 7.9 ?serpentinite, with or without ?chert, is present, albeit at best sparsely, in samples 23, 25 (substitute) and 26 (substitute), and the catalogue refers to similar presences in archive nos 152, 220 and 122, etc. All six of these mortaria fragments are attributed to fabric 5. Neither ?serpentinite nor ?chert is recorded elsewhere, so there is a possibility that the five Group 2 slides of Collins may equate with some of the fabric 5 fragments, although the number of 'grits' under consideration here is minute compared with the 30% to 40% of 'grits' in these fragments that are not lithologically identifiable, a caution that applies equally to the possible compatibilities with the basalt-bearing Group 1 slides in the previous paragraph.

The abundance in most fragments of quartz and also of siliceous sandstone (presumed to be psammite), generally with some greywacke, metaquartzite or schistose grit, makes it virtually impossible to suggest any compatibilities with the nine un-grouped quartz-rich slides or the nine Group 3 slides of Collins. The only comment that may conceivably have any validity in this context is that, within the limits of table 7.9, the sparse quartz in sample 6 (fabric 6), sample 17 (fabric 14) and sample 11 (fabric 9) are least likely to equate with the quartz-rich slides.

COMPATIBILITY WITH FABRIC CLASSIFICATION

Only fabrics 5, 6 and 11 are represented by more than one mortaria fragment on table 7.9. The possibility that on the evidence of minor constituents the fabric 5 fragments equate with the Group 3 slides of Collins is mentioned above. Moreover, there is an overall similarity of the major constituents between the three fabric 5 samples on the table (and the other three samples in the catalogue), although even within the limits of the

Table 7.10
Catalogue of mortarium samples

The catalogue is arranged primarily in order of fabric numbers and secondarily in order of sample and archive numbers. For each fragment the approximate percentage of identifiable 'grits' is given first, then assessments of the relative abundance of the seven most commonly occurring identifiable lithologies, where present, and listed in the order as summarised above, followed by other lithological occurrences as appropriate.

For fragments with more than *c* 20 'grits' the assessments are coded as:
– common (>33% of identifiable 'grits')
– moderate (20% to 33% of identifiable 'grits')
– sparse (<20% of identifiable 'grits')
with occurrences of only one or two 'grits' numbered accordingly in brackets.

FABRIC 4 (MASCELLIO)

Sample 1 archive no 133 (Collins RP31)
Rim fragment without obvious 'grit'.

FABRIC 5 (SARRIUS)

Sample 23 archive no 133
c 70% lithologically identifiable.
Quartz – Common.
Nondescript sandstone – Sparse.
Reddish sandstone – Sparse.
Siliceous sandstone – Moderate.
Metaquartzite – Sparse.
Schistose grit – (1).
? Serpentinite – mottled medium grey to greenish black, scratches with mounted needle. Sparse.
Non-basaltic igneous rocks – (2).
Schist/phyllite – (2).

Sample 25 (substitute) archive no 34
c 60% lithologically identifiable.
Quartz – Common.
Nondescript sandstone – (1)
Reddish sandstone – (2).
Siliceous sandstone – Moderate.
Metaquartzite – Moderate.
? Serpentinite – (1).
Non-basaltic igneous rocks – (2).
? Chert – Dark grey with minutely 'crackly' texture. (2).

Sample 26 (substitute) archive no 274
c 60% lithologically identifiable.
Quartz – Moderate.
Reddish sandstone – (2).
Siliceous sandstone – Common.
Metaquartzite – Moderate.
? Serpentinite – (1).
Chert or basalt – black, extremely fine grained (2).

Archive no 152
As for Sample 23 but with ?serpentinite (1) and schist/phyllite (1).

Archive no 220
As for Sample 26 (substitute) but with sparse reddish sandstone and no ?chert.

Archive no 122 etc
As for Sample 23, but with ?serpentinite (1) and the addition of greywacke (2).

FABRIC 6

Sample 4 archive no 132
c 70% lithologically identifiable.
Quartz – Moderate.
Nondescript sandstone – Sparse.
Reddish sandstone – Sparse.
Greywacke – (1).
Siliceous sandstone – Common.
Metaquartzite – Sparse.
Schistose grit – Sparse.
Non-basaltic igneous rocks – (2).
Schist/phyllite – (2).

Sample 6 (raetian) archive no 204
c 70% lithologically identifiable.
Quartz – Sparse.
Reddish sandstone – Sparse.
Siliceous sandstone – Common.
Schistose grit – (2).
Non-basaltic igneous rocks – (1)
Schist/phyllite – sparse.

Sample 7 (substitute – from the same vessel as original sample sent to Collins RP37); archive no 213
c 60% lithologically identifiable.
Quartz – Common.
Nondescript sandstone – (2).
Reddish sandstone – Sparse.
Greywacke – (1).
Siliceous sandstone – Common.
Metaquartzite – (2).
Schistose grit – (1).

Archive no 10 (raetian)
Small fragment with only *c* 15 'grits', mainly quartz and siliceous sandstone, with greywacke (1).

FABRIC 8

Sample 10 archive no 202 (Collins RP40)
c 60% lithologically identifiable.
Quartz – Moderate.

Greywacke – (2).
Siliceous sandstone – Moderate.
Metaquartzite – (2).
Schistose grit – (1).
?Basalt – Dark grey to black, extremely fine grained. Moderate.
Schist/phyllite – Sparse.

Sample 21 archive no 188 (Collins RP50)

Minute fragment with only three 'grits', all dark grey and fine grained, conceivably basalt, but otherwise indistinct.

FABRIC 9

Sample 11 archive no 29 (Collins RP41)

c 50% lithologically identifiable.
Quartz – Sparse.
Nondescript sandstone – (2).
Reddish sandstone – Sparse.
Greywacke – Moderate.
Siliceous sandstone – Moderate.
Metaquartzite – Sparse.
Schistose grit – (2).
?Basalt – Dark grey to black, extremely fine grained. Sparse.

FABRIC 10

Sample 8 (raetian) archive no 4

Rim fragment with only *c* 20 'grits' present, of which only 8 are identifiable, as quartz (4), greywacke (1), siliceous sandstone (1), metaquartzite (1) and schist/phyllite (1).

FABRIC 11

Sample 3 archive no 105

Only *c* 20 'grits' present, mainly quartz and siliceous sandstone, with metaquartzite (1) and schist/phyllite (1).

Sample 15 archive no 106

Small fragment. Only obvious 'grit' is nondescript sandstone (1).

Archive no 11 c *60% lithologically identifiable.*

Quartz – Common.
Nondescript sandstone – Moderate.
Reddish sandstone – (1).
Greywacke – (2).
Siliceous sandstone – Sparse.
?Basalt – Dark grey to black, extremely fine grained. Sparse. Non-basaltic igneous rocks. Sparse.

Archive no 194/5

Three small fragments with only *c* 15 'grit' collectively, mainly quartz and siliceous sandstone.

Archive no 113

c 50% lithologically identifiable.
Quartz – Common.
Nondescript sandstone – Moderate.
Reddish sandstone – (2).
Siliceous sandstone – Moderate.
Metaquartzite – (1).
?Basalt – Dark grey to black, extremely fine grained. Sparse.

Sample 2 (GICA or CICU[.]) archive no 296

Less than 30% lithologically identifiable (due to a particularly tenaceous fabric coating, ie slip), mainly quartz, siliceous sandstone and dark grey to black 'grits', conceivably basalt.

FABRIC 13

Sample 13 archive no 180

c 70% lithologically identifiable.
Quartz – Common.
Nondescript sandstone – Sparse.
Reddish sandstone – (1).
Greywacke – (1).
Siliceous sandstone – Sparse.
Metaquartzite – Moderate.
Schistose grit – Sparse.
Schist/phyllite – (1).

FABRIC 14

Sample 17 archive no 130

c 70% lithologically identifiable.
Quartz – Sparse.
Nondescript sandstone – (2).
Reddish sandstone – Sparse.
Greywacke – Sparse.
Siliceous sandstone – Moderate.
Metaquartzite – Moderate.
Schistose grit – (2).
?Basalt – Dark grey, extremely fine grained (2).
Schist/phyllite – (2).
Pottery fragment – Darker red than fabric (1).

table this similarity extends also to other fragments, eg archive no 113 (fabric 11), sample 4 (fabric 6) and sample 7 (substitute) (fabric 6). There is an overall similarity also between the three fabric 6 fragments except for a marked variation in the amounts of quartz present.

7.4.3.6 Conclusions

1. The abundance of siliceous sandstone, presumed to equate with the psammite of traditional Scottish Highland usage, suggests a source or sources near the western end of the Antonine Wall, ie in the Glasgow region. Other metamorphic 'grits', albeit in small numbers, support this suggestion, and there is no contradictory evidence.
2. Tentative compatibilities with the group 1 and 2 slides of Collins (1986, see 7.4.2 above) are suggested, but the magnitude of the uncertainties involved is so great that little reliance can be placed on these suggestions.
3. There is insufficient evidence to identify any compatibilities between trituration 'grit' lithologies and fabric classification.

4. Because of limitations of the technique, and other uncertainties, only the first conclusion above has a reasonably sound basis.

7.4.4 Chemical and petrological analysis of local oxidised ware

MARK GILLINGS

Thin section petrology was undertaken to examine the suite of non-plastic inclusions present within the clay matrix. This includes mineral and other inclusions natural to the exploited source clay, and those added deliberately by the potter in antiquity. Study of the plastic fraction of the ceramic is very limited as the majority of the clay minerals are destroyed at temperatures between 500 and 700°C (Williams 1983). These are commonly exceeded in even the most primitive of firing conditions.

To examine the plastic fraction of the ceramic, the clay, the technique of Neutron Activation Analysis (NAA) was employed. This enabled the individual trace chemical components of the oxidised ware fabric to be identified and their concentrations determined. For a more detailed discussion of the methodology see Tite (1972).

All of the chemical data resulting from the analysis was processed using multivariate statistics prior to interpretation. In practice this took the form of hierarchical cluster analysis. Group verification was undertaken through discriminant analysis and an independent factor analysis. For a more detailed discussion of the sampling, analytical and data processing methodologies employed see Gillings (1991).

The techniques of NAA and Thin Section Petrology were applied independently and with an equal weighting to maximise the available information and improve the conjectural credibility of resultant interpretations.

A total of 17 sherds were sampled from the principal typological groupings identified by Louise Hird during the initial study of the pottery, and two samples of daub. This yielded a total of 17 thin sections and 36 Neutron Activation Analysis samples.

Chemically the analysed vessels showed a remarkable level of homogeneity. A total of four distinct chemical groupings could be defined, largely by variations in the measured concentrations of the elements Lanthanum, Sodium, Tantalum, Thorium and Chromium. The bulk (14) of the vessels analysed fell within a single chemical grouping, suggesting that a single clay had been used for their manufacture. Outlying this were three small, chemically distinct groupings. Of these, two comprised single sherds (corresponding to a flat rimmed carinated bowl and an everted rim jar) and one comprised two sherds (both Type 25 belgic platters. [*Editorial note*: not all these vessels can be identified. The 'Belgic platters' of Type 25 (referring to Hird's original type series) are the North-African type platters 7.2.3.65–78]). These outlying groups were chemically distinct from the principal group itself and from each other. In archaeological terms, the result suggests that a different source clay was used in the production of these groups relative to the principal chemical grouping. The chemical data is presented in table 7.12.

Petrologically, the analysed sherd samples proved to be very homogenous. Three clear fabrics could be identified within the sample of 'oxidised ware' vessels.

Fabric 1: abundant fine sand-silt

An orange-brown birefringent clay matrix containing a sub-rounded to angular moderately sorted quartz fraction. This comprised occasional coarse, common medium and abundant fine grade sands along with abundant silt. The matrix also contains sub-angular flint fragments (0.1–0.2 typ. 0.125mm), sub-rounded to sub-angular feldspars (0.05–0.2mm) including sub-rounded fragments of microcline (0.175–0.25mm), rounded to sub-angular fragments of sandstone (0.37–1.5mm) and rounded to sub-angular pyroxene (0.175–0.3 typ. 0.25mm). All of the above inclusions are at the occasional level of occurrence.

Also present in the matrix are occasional rounded to sub-angular pellets of clay. Sample BD002 contains an example with basic laval inclusions and clear shape distortion due to squeezing. Sparse sub-rounded to sub-angular poorly sorted opaque grains (0.125–0.6mm) and very rare flakes of mica (0.05–0.3mm) complete the suite of mineral inclusions present.

Fabric 2: less silty

An orange-brown birefringent clay matrix with a sub-rounded to angular, moderately sorted quartz fraction comprising rare to occasional coarse sand, common medium grade sand, abundant fine grade sand and common silt. It is interesting to note that in some cases the coarser quartz grains reached 3mm in diameter which places them in the 'granule' size category. It is also worth noting that some metamorphic quartz grains are present at the very rare level of occurrence, which are strongly indicative of glacial drift.

The matrix also contains occasional sub-rounded to sub-angular feldspars (0.075–0.25mm), sparse rounded to sub-angular poorly sorted opaque grains (0.05–1.0mm) and occasional flakes of mica (0.05–0.5mm). The following inclusions are present at the very rare to occasional level of occurrence: sub-rounded to sub-angular microcline (0.14–0.2mm) and sub-rounded to angular grains of flint (0.175–0.8 typ. 0.3mm). Also present in the matrix were rare to occasional, angular fragments of igneous rock (0.5–2.0mm), angular fragments of agate (typ. 0.75mm), sub-rounded fragments of amphibole (0.125–0.2mm), sub-rounded to sub-angular grains of chert (0.25–0.75 typ. 0.37mm) and angular fragments of schist (typ. 0.625mm).

Fabric 3: less quartz

An orange-brown birefringent clay matrix containing a sub-rounded to sub-angular, poorly sorted quartz fraction. This comprised common medium and fine grade sands and common silt. Also present in the fabric at the occasional frequency level were rounded to sub-angular pellets of clay (0.5–1.0mm), sub-angular to angular fragments of sandstone (0.675–1.8mm) and sub-angular to angular feldspars (0.125–0.25mm) including sub-rounded to sub-angular grains of microcline (typ. 0.25mm). Sparse sub-rounded opaque grains (0.1–1.5mm) and sparse flakes

Table 7.11
Combined analytical results of local oxidised ware samples

Sherd code	*Chemical group*	*Petrological group*	*GSD shape*	*Textural group*	*Cat No*
BD001	Main ware	Fabric 1	Silt skewed	Main ware	No 62
BD002	Main ware	Fabric 1	Silt skewed	Main ware	No 63
BD003	Main ware	Fabric 1	Silt skewed	Main ware	No 64
BD004	Main ware	Fabric 2	Silt skewed	Outlier	No 55
BD005	Main ware	Fabric 2	Silt skewed	Main ware	
BD006	Outlier 1	Fabric 2	Silt skewed	Main ware	No 40
BD007	Main ware	Fabric 2	Silt skewed	Main ware	No 36
BD010	Main ware	Fabric 2	Silt skewed	Outlier	No 8
BD012	Outlier 2	Fabric 3	Tempered	Outlier	No 19
BD013	Main ware	Fabric 2	Silt skewed	Main ware	No 18
BD014	Main ware	Fabric 3	Silt skewed	Main ware	
BD015	Main ware	Fabric 2	Silt skewed	Main ware	
BD016	Main ware	Fabric 2	Silt skewed	Main ware	
BD017	Outlier 3	Fabric 2	Silt skewed	Main ware	No 77
BD018	Main ware	Fabric 2	Silt skewed	Outlier	
BD019	Main ware	Fabric 2	Silt skewed	Main ware	No 72
BD020	Outlier 3	Fabric 2	Silt skewed	Main ware	

of mica (0.025–0.125mm) complete the suite of observed mineral inclusions.

The fabric groupings are defined principally by changes in the quartz fraction, quartz being the most abundant mineral inclusion present in the sherd samples. This reliance on quartz is a direct result of the paucity of more diagnostic or exotic mineral inclusions present within the samples analysed. Grains of igneous rock, shale and sandstone do appear with the inclusion suite but only rarely. The groupings are differentiated largely on the basis of a progressive decrease in the silt grade fraction from group 1 through to group 3 and a drop in the same grade quartz between fabrics 2 and 3. In terms of provenance, it is clear that all of the fabrics could be derived from a single source clay outcrop.

Turning to the small number of outlying samples, with the exception of one sherd (no 12), the samples identified as chemically unique fell comfortably within the bulk petrological fabric. This apparent contradiction can be interpreted in two ways. The phenomenon could reflect a high degree of mineralogical homogeneity between chemically distinctive clay outcrops spread across the Midland Valley of Scotland. The second interpretation is based upon the notion of chemical inhomogeneity between different portions of a single clay outcrop, with the exploitation of different areas of the outcrop during the production life of the workshop leading to variations in the chemical characteristics of the produced fabric. As none of the defined chemical outliers are petrologically or stylistically unique, all are in forms present within the bulk ware group, the latter interpretation seems most likely. The single aberrant sherd is more problematic as it is both chemically unique and petrologically distinctive, falling in fabric group 3. Taken together with the results suggest that this sherd is not a member of the defined oxidised ware grouping.

The typological information for each of the sampled vessels is presented in table 7.13. Study of this reveals that petrological fabric 1 is composed entirely of type 27, large flanged bowls [*Editorial note*: type 27 in Hird's original type series corresponds to 7.2.3.62–4]. This introduces the possibility of clear links between the form and function of the vessels and manufacturing technology. Potters often employed different technologies to manufacture different types of vessel. For example, cooking pot fabrics should ideally exhibit good thermal shock resistance and water containers a low seepage rate, both factors that can be influenced by the employment of a specific manufacturing technology. To investigate these factors with respect to the oxidised ware vessels a full textural analysis was undertaken of the principal mineral inclusion, quartz. In practice, the textural

Table 7.12
Chemical data relating to oxidised wares and clay daub

Sample	*Co*	*Rb*	*Eu*	*Hf*	*Cr*	*Fe*	*Cs*	*Tb*	*Ta*	*Ce*	*Pa*	*Np*	*Yb*	*Na*	*La*	*Sm*
BD016	1.09	4.77	0.11	0.53	8.15	3754.7	0.24	0.05	0.07	4.32	0.64	0.23	0.14	426.86	2.37	0.34
BD016	1.22	3.44	0.12	0.58	9.02	4816.57	0.10	0.06	0.09	4.67	0.69	0.18	0.16	428.17	2.42	0.36
BD016	1.16	2.39	0.11	0.53	8.96	4042.56	0.10	0.06	0.09	4.42	0.67	0.13	0.17	354.14	2.52	0.36
BD018	0.88	4.97	0.11	0.64	8.05	4104.08	0.29	0.05	0.10	3.66	0.66	0.23	0.16	460.95	2.30	0.35
BD018	0.94	4.44	0.13	0.83	13.64	4469.99	0.34	0.06	0.12	5.27	0.81	0.27	0.21	606.80	2.29	0.40
BD018	0.95	3.80	0.12	0.69	9.17	4600.04	0.38	0.05	0.11	3.28	0.67	0.16	0.18	393.60	2.16	0.40
BD001	1.19	3.44	0.10	0.66	7.60	3477.71	0.19	0.06	0.07	4.19	0.61	0.21	0.17	334.63	2.41	0.33
BD001	1.24	4.06	0.10	0.61	7.58	3345.35	0.24	0.05	0.06	3.04	0.60	0.17	0.15	325.45	2.46	0.35
BD002	1.20	3.09	0.10	0.54	7.20	3420.08	0.24	0.05	0.06	4.00	0.56	0.17	0.15	322.30	2.18	0.32
BD002	1.42	2.16	0.11	0.70	8.68	3674.10	0.20	0.06	0.07	4.55	0.64	0.20	0.14	325.88	2.58	0.37
BD003	1.19	2.69	0.11	0.52	8.74	4350.08	0.12	0.05	0.07	4.54	0.70	0.21	0.19	303.90	2.63	0.38
BD003	1.27	3.07	0.13	0.57	9.55	4025.85	0.19	0.06	0.08	4.94	0.74	0.24	0.20	347.59	2.86	0.44
BD004	1.15	3.99	0.11	0.66	9.18	4641.01	0.15	0.06	0.09	5.62	0.81	0.21	0.19	380.56	2.33	0.36
BD004	1.25	2.36	0.13	0.58	8.48	5611.22	0.17	0.07	0.07	4.40	0.75	0.21	0.20	352.16	2.51	0.41
BD005	1.06	2.64	0.11	0.68	9.80	4892.60	0.23	0.06	0.08	4.03	0.81	0.23	0.17	384.97	2.36	0.36
BD005	1.16	2.26	0.11	0.62	9.05	5234.87	0.15	0.06	0.08	4.36	0.72	0.20	0.19	347.51	2.56	0.37
BD006	1.32	2.99	0.12	0.90	9.52	3625.98	0.11	0.06	0.08	3.31	0.65	0.20	0.19	526.81	2.56	0.35
BD006	1.20	2.16	0.11	0.72	8.93	3579.70	0.25	0.06	0.08	3.23	0.66	0.23	0.17	578.11	2.67	0.37
BD007	1.31	3.25	0.11	0.71	10.65	4745.98	0.12	0.06	0.09	4.88	0.77	0.12	0.18	305.52	2.90	0.37
BD010	1.27	2.13	0.11	0.51	7.70	4235.00	0.12	0.05	0.08	4.12	0.58	0.23	0.15	248.43	2.35	0.34
BD010	1.40	1.96	0.10	0.52	7.97	4504.67	0.18	0.06	0.07	4.36	0.64	0.18	0.15	279.1	2.50	0.35
BD012	1.06	2.26	0.10	0.64	7.45	4294.73	0.27	0.06	0.16	5.67	0.91	0.28	0.21	103.54	2.95	0.34
BD012	0.85	2.00	0.12	0.72	7.72	4170.51	0.23	0.05	0.17	5.24	0.96	0.35	0.20	102.75	2.77	0.35
BD013	1.00	2.94	0.11	0.56	8.43	2743.79	0.14	0.05	0.08	3.89	0.58	0.20	0.16	306.19	2.30	0.33
BD013	1.08	4.00	0.10	0.53	7.53	3109.28	0.11	0.04	0.09	4.26	0.61	0.25	0,16	328.47	2.36	0.31
BD014	1.42	5.95	0.09	0.43	7.91	3949.76	0.21	0.03	0.08	3.64	0.63	0.12	0.13	452.34	2.11	0.29
BD014	1.25	5.38	0.10	0.43	7.34	3755.83	0.18	0.04	0.07	3.89	0.58	0.09	0.15	445.44	2.21	0.31
BD015	1.4	2.96	0.11	0.55	7.22	3715.04	0.13	0.05	0.09	4,46	0.64	0.19	0.14	305.70	2.46	0.36
BD015	1.28	4.68	0.11	0.58	7.75	3414.89	0.20	0.05	0.08	4.32	0.60	0.17	0.16	347.14	2.31	0.35
BD017	0.71	4.61	0.12	0.72	9.58	4304.36	0.19	0.06	0.11	4.48	0.75	0.29	0.20	571.49	2.70	0.36
BD017	0.77	5.41	0.12	0.86	9.13	4391.39	0.16	0.05	0.10	4.54	0.81	0.28	0.20	594.05	2.77	0.36
BD019	1.17	2.69	0.11	0.51	8.89	3300.53	0.19	0.05	0.10	4.57	0.62	0.20	0.16	275.96	2.59	0.33
BD019	1.26	1.59	0.10	0.52	8.56	3616.76	0.18	0.05	0.09	4.66	0.69	0.29	0.18	296.17	2.64	0.33
BD020	1.02	3.22	0.11	0.81	9.24	3370.42	0.22	0.04	0.12	5.18	0.71	0.25	0.19	517.40	2.78	0.33
BD020	1.02	3.42	0.10	0.85	9.37	3333.26	0.22	0.06	0.11	4.70	0.71	0.25	0.18	493.78	2.81	0.34
BD007	1.32	0.46	0.10	0.65	10.45	4506.60	0.15	0.05	0.10	5.62	0.90	0.00	0.16	312.55	3.06	0.40

analysis involved the careful measurement of the maximum dimension of a random sample of 150+ quartz grains within the matrix of each of the analysed sherds. The only quartz grains excluded from measurement were the finer silt grade particles, deemed too small to be reliably and accurately measured.

The resulting measurement data was used to generate a grain size distribution for each of the sherd samples. The overall shape of the distribution is of interest as it can indicate factors such as the presence of temper – a bimodal distribution form indicating the addition of sorted quartz grains. Likewise the application of sieving and levigation techniques can result in the skewing of the distribution form. A second level of textural analysis can be furnished by breaking down the distribution into a set of frequency scores recording the number of grains falling within a series of predetermined size ranges (bins). This frequency data can then be transformed and analysed through detailed multivariate statistical techniques to enable subtle differences in the composition of the quartz fraction to be identified. These can often be related to the selection of specific clay fractions and the use by potters of specific preparation techniques (Gillings 1991). The results of the two levels of textural analysis are summarised in table 7.11.

Examining first the shape of the grain size distributions, with the exception of sherd 12, none of the oxidised ware samples showed evidence for the bimodal distribution form indicative of tempering (Rye 1981), yet all showed a distribution skewed heavily towards the fine silt fraction. This silt bias suggests either the use of clay preparation techniques to remove the bulk of the coarser quartz fraction or the selection and exploitation of a very silty source clay. The absence of temper indicators suggest that coarser grade quartz such as sand was not deliberately added to the oxidised ware fabric. The only sample to show the characteristic distribution form indicative of tempering was sherd 12, once again stressing its uniqueness with respect to the ware group as a whole.

The detailed statistical analysis of the size frequency data identified a group of four samples as texturally distinctive. This small group included sherd 12, once again reinforcing its interpretation as an outlier to the main ware grouping. Looking at the remaining three samples in the texturally modified group with respect to the form-functional information it is clear that there is no correlation; none of the typological groups show any evidence for consistent grain size modification, even the thick walled type 27 vessels. Combining this result with the lack of evidence for tempering, the observed outliers can best be interpreted as the result of between batch variations; there is certainly no evidence to suggest any specialised production linked to form or function.

This result is surprising. Looking back to the large flanged bowls (type 27) these thick walled vessels share many features in common with mortaria forms and as with mortaria some degree of specialisation would be expected in their production. The fact that they form a discrete petrological grouping suggests some degree of uniqueness with respect to the bulk of the ware group. Looking in detail at the petrological data, the separation of the vessels from the main ware group was on the basis of an increase in the finer silt fraction. As this quartz fraction was excluded from the detailed textural analysis on the grounds of measurement inconsistency, it is not surprising that it failed to isolate them. In technological terms the finer silt fraction is that least affected by potter interaction; it is too fine to be removed by preparation techniques or to be added as a discrete temper. As a result, the increased silt content in the type 27 vessels is best viewed as a between batch variation rather than reflecting a conscious decision on the part of the potter.

In summary, the Bearsden oxidised ware can be regarded as a discrete ceramic entity on the basis of the analyses undertaken. In technological terms, potters engaged in the production of a wide range of vessel types have two basic options:

1. specialised production: they can use different and optimum materials and firing conditions for each of the vessel types produced, such as the addition of large inclusions for the production of thick walled vessels to prevent them collapsing under their own weight;
2. undifferentiated production: they can use a single, generic fabric and apply it unmodified to all of the vessel types

Table 7.13
Bearsden Oxydised ware – Sampled sherd information

Site code	*Sample code*	*Form*	*Description*
NK74CY	BD001	T.27	Large flanged bowl
NK75CU	BD002	T.27	Large flanged bowl
NK77BJ	BD003	T.27	Large flanged bowl
NK77CF	BD004	T.28	Bead rimmed bowl
NK77CJ	BD005	T.28	Bead rimmed bowl
NK77EZ	BD006	T.26	Flat rimmed carinated bowl
NK77BZ	BD007	T.26	Flat rimmed carinated bowl
NK75BH	BD009	DAUB	Structural debris
NK75CQ	BD010	T.24	Everted rim beaker
NK75FN	BD011	DAUB	Structural debris
NK73BT	BD012	T.23	Everted rim jar
NK75CQ	BD013	T.23	Everted rim jar
NK75CQ	BD014	T.23	Everted rim jar
NK76DC	BD015	T.23	Everted rim jar
NK76EB	BD016	T.25	Belgic platter
NK77AP	BD017	T.25	Belgic platter
NK76AD	BD018	T.25	Belgic platter
NK73BS	BD019	T.25	Belgic platter
NK77BU	BD020	T.25	Belgic platter

within the production suite, thus compromising any of the advantages afforded by more time and labour intensive specialised production.

In the case of the oxidised ware the latter production rationale appears to have been adopted. We have a chemically and petrologically homogeneous ware group showing no evidence for any form-function related textural sub-structure. Even when faced with specialist forms there appears to be no appreciable modification to the basic fabric mix. All of the observed differences can be interpreted as resulting from natural variation.

Bearsden and other forts on the Antonine Wall

The oxidised ware samples from Bearsden were compared chemically and petrologically to possible 'local' material from the sites at Bar Hill, Cramond, Croy Hill, Duntocher and Inveresk in order to determine whether the Bearsden group was unique to that site. The same analytical methodology was used in the inter-site analysis as the intra-site; however, it should be noted that the precision of the comparative chemical analysis was greatly reduced. This was a result of the removal from the suite of potential discriminating elements of those that had proved unreliable or inhomogeneous during the respective intra-site studies. This had the effect of reducing the number of potential discriminators present in the analysis.

In chemical terms, the Bearsden oxidised ware and the Bar Hill local material proved to be indistinguishable, though chemically distinct from the remaining 'local' groupings. This suggests that both of the wares were produced from the same source. In petrological terms, the general lack of diagnostic minerals within all of the fabric groups analysed and resultant reliance upon the quartz fraction resulted in considerable overlap between site groupings. Only the Croy Hill material, with characteristic shale inclusions, and the Bar Hill sherds, with unique clay pellet temper, could be identified as petrologically unique. Combining these results it is clear that the oxidised ware/Bar Hill chemical overlap should not be interpreted as production at the same kiln or workshop. The wares were petrologically and stylistically distinct enough to suggest very different potting traditions. What the result does illustrate is the homogeneous nature of much of the clay that appears to have been exploited across the Midland Valley zone with respect to the reduced suite of potential chemical indicators.

In conclusion, although displaying a degree of chemical overlap with the Bar Hill material, the oxidised ware vessels are best regarded as a phenomenon restricted to the fort of Bearsden itself.

Was the oxidised ware produced within the vicinity of Bearsden?

In the determination of ceramic provenance, four parameters are of crucial importance:

1. Form-fabric: where a group of ceramic material is interpreted as local on the basis of a distinctive set of forms or fabric, or potting idiosyncrasies. The main source indicator is that the vessels sharing the attributes are confined within the consumption zone of a single site. This constitutes the most speculative parameter.
2. Kiln structure: the presence of structural indicators such as kilns, clay preparation and storage areas and finds related to the structure such as kiln furniture.
3. Waster material: the presence of deformed kiln seconds unlikely to have travelled far from the production source.
4. Petrological analysis: where the geology of the non-plastic mineral inclusions are compared to the known geology of the suggested production zone.

At Bearsden, identification of the oxidised ware as a local product is based solely upon parameter 1, form and fabric. The excavations have revealed no obvious kiln or related structures, nor any clear waster material. A petrological analysis undertaken by Collins revealed that the ware contained a range of rock types that, while not unique to Scotland, could be found within a 48km radius of the fort itself (7.4.2). While important, this conclusion barely moves the analysis beyond a macro-scale of source assignment. The absence of firm production indicators, such as kiln and waster material, make any attempts to assess the possibility of micro-scale production very difficult. In an attempt to overcome these limitations the decision was made to compare samples of the ware to clay outcrops in the immediate environs of the fort. The working assumption was that the basic clay chemistry and mineralogy of the pottery vessels would be closely related to that of the source clay used in their production. Hence, if local clays were used to manufacture oxidised ware, there should be close affinities between the two. The clay analysis was achieved through the comparative study of a proxy – excavated daub samples.

In the context of this study, daub has been defined as a clay fragment that had been subjected to some degree of firing, whether accidental or deliberate. One crucial criteria was that the daub artefact should not have travelled far from the site of production. This ruled out portable clay artefacts such as loom and net weights in favour of structural debris, such as oven linings. Several assumptions underlie the use of daub as an effective proxy for local clays:

- clay is unlikely to have been exported over great distances for basic structural use. The clay source exploited for the production of daub can be expected to fall close to the consumption site;
- the clay used to manufacture the daub will be chemically and petrologically characteristic of the immediate exploited clay outcrops, although difference resulting from preparation processes are to be expected;
- any excavated daub fragments will have experienced the same intra-site depositional factors as the excavated potsherds.

Samples were taken from two groups of daub fragments and these were compared petrologically and chemically to the oxidised ware samples. Petrologically the range of minerals present within the daub samples overlapped considerably with the suite recorded in the oxidised pottery. The main difference between the

Table 7.14
Pottery and daub: Np Vs Hf

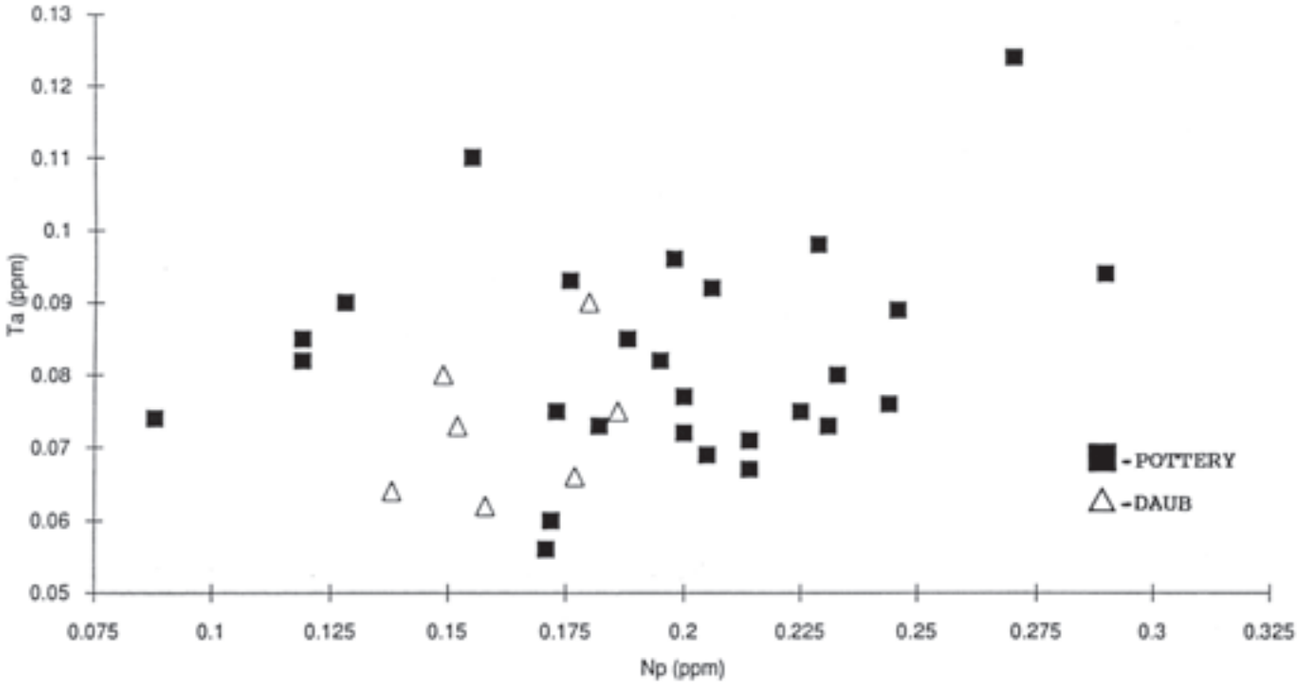
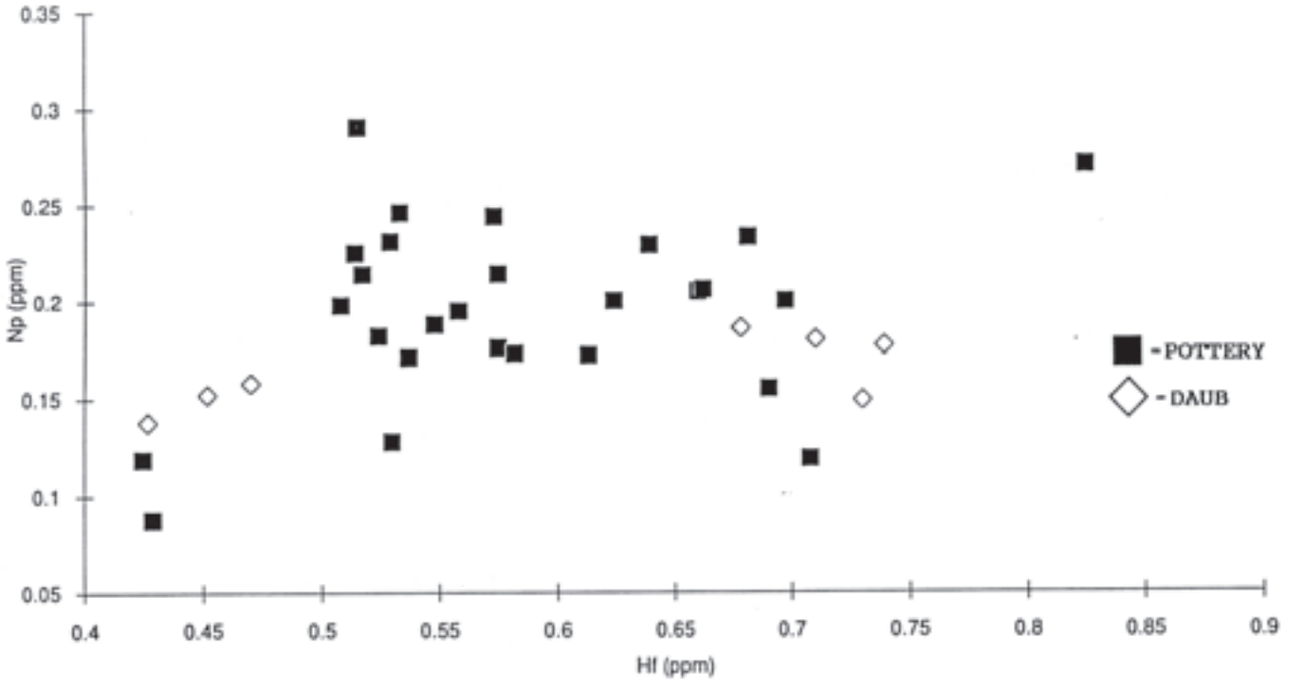


Table 7.15
Pottery and daub: Ta vs Np



daub and pottery fabrics lay with an increase within the daub of very coarse rock and shale fragments (up to 5mm). These coarse fragments represent a desirable feature in the manufacture and use of daub. The difference is best viewed as a preparation effect, with coarse material either added to the daub or removed prior to potting. Chemically, the daub samples were plotted against the oxidised ware samples using the elements Neptunium, Tantalum and Hafnium. Preparatory statistical analyses identified these as the strongest potential discriminating elements and thus those most likely to reveal any chemical differences. The results are presented in tables 7.14 and 7.15 where the daub samples can be seen to fall comfortably within the general elemental spread of the defined ware group.

In conclusion, chemical and petrological results suggest very close affinities between the pottery and daub samples, which implies the exploitation of a closely related clay source. Taking the form-fabric, petrological and analytical results together, the most straightforward interpretation is that the oxidised ware was manufactured within Scotland, in the immediate vicinity of the fort itself.

Conclusion

The analyses have confirmed the identification of the Bearsden oxidised ware as a discrete ceramic entity. In terms of production and provenance, the ware appears to have been manufactured using a largely undifferentiated and unspecialised technology in the immediate locality of the fort.

7.5 'NATIVE' POT

EUAN W MACKIE

At first glance the sherd looks like Vaul ware, a Hebridean Iron Age vase decorated with incised lines (illus 7.23). Certainly the Iron Age pottery which I have seen from the central mainland in first and second century context is nothing like it, being all the thick, plain, gritty Dunagoil ware. The sherd is hard-fired, fairly smooth-surfaced, light buff-brown ware with plenty of sand tempering. The inner surface is the same colour but the outer is mottled with grey. The piece seems to be very close to the turned-out rim. The decoration is of horizontal incised lines, set close together and forming a band up to 12mm wide. Below that there is a gap of 22–33mm with a similar horizontal band containing at least five neatly grooved lines below that. It is noticeable that the upper band of lines is less well done than the lower, having several overlaps and crossings, but there are about seven main lines. Between these two horizontal bands are diagonal strokes, running from top left to bottom right, each consisting of three or four slightly curved incised lines (convex side uppermost). Each set is up to 7mm wide with gaps of 9–10mm between the sets.

One odd thing about the horizontal bands of lines is that they look distinctly regular as if they had been done on the pot turning on a wheel or on some similar device. The inner surface of the sherd shows horizontal striations but not as regular or as even as on wheel made sherds. Nevertheless the grooves are very even, particularly the lower band.

I have seen nothing similar in the Hebridean or Orkney Iron Age wares – both of which have much incised pottery.

NK73CO; annexe, south-west of the bath-house.

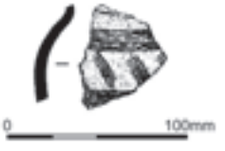


Illustration 7.23
'Native' pot.

7.6 LAMP

DONALD BAILEY

A copy of a bronze type common throughout the empire from before 79 to the mid-second century (cf Walters 1914: types 84, 85 and 92). As this example is close to the bronze originals it is unlikely to have been made locally. There is a similar example at Balmuildy (Miller 1922: 94).

(surviving fragments): 90mm; (restored): 113mm.

NK77BW; building 3, the fill of the middle post-hole on the east side of the officer's quarters.

7.7 AMPHORAE

ANDREW P FITZPATRICK

7.7.1 Introduction

Some 2,129 sherds of amphorae weighing 150kg 505g were excavated. Joining sherds have been counted as one, as have the often abundant tiny flakes from sherds of Dressel 20 that have laminated and fragmented. For full fabric descriptions and petrological analyses the reader is referred to the standard work of Peacock and Williams (1986), and the National Roman Fabric Reference Collection (Tomber & Dore 1998).

The Antonine activity is treated here as a single phase and, because of this, unstratified material has been included in the calculations (table 7.16). The assemblage is dominated by southern Spanish olive oil amphorae, with other types and commodities forming less than 0.5% by sherd count and 2.5% by weight.

7.7.2 Amphorae types

Amphorae for olive oil

Dressel 20 (Peacock & Williams Class 25/Baetican amphorae: BAT AM 1–2).

This olive oil amphora from Baetica in southern Spain dominates the assemblage. On the basis of Minimum Number of Vessels (MNV), calculated using a combination of rims and other diagnostic features, not less than 19 vessels are present. Given

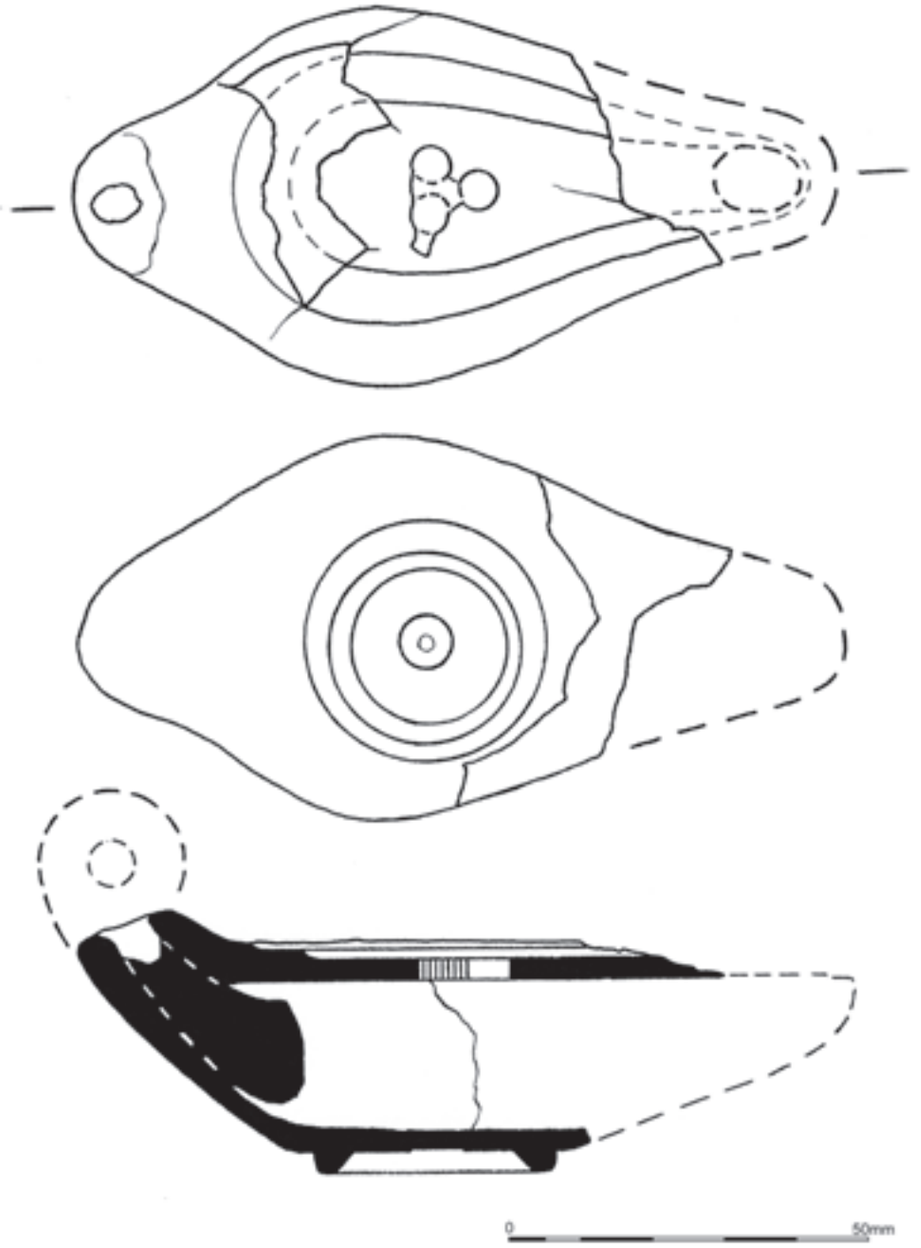


Illustration 7.24
The lamp.

Table 7.16
Quantification of amphorae fabrics and types present in the assemblage

Type	*Origin*	*Commodity*	*Weight (g)*	*No sherds*	*MNV*
Dressel 20	Southern Spain	Olive oil	146 735	2,036	19
Gauloise 4?	Southern France	Wine	1190	26	1
Beltrán II?	Southern Spain	Fish-based products	2460	64	3
Unidentified	–	–	120	3	1
Total			**150 505**	**2,129**	**24**

the mass of Dressel 20 sherds it is inevitably easier to identify different vessels in the other amphorae types present on the basis of their fabrics. Dressel 20 are larger and heavier than most other types of amphorae, but even allowing for this, the weight and number of sherds from it, which comprise *c* 97% and 99% of the assemblage respectively, seem likely to be more accurate indices of its importance than the MNV based on diagnostic sherds and fabrics. Each Dressel 20 could have contained up to about 70 litres of olive oil (Sealey 1985: 73).

None of the walls of the sherds were so thin that the presence of the thinner-walled London 555, which is also from Baetica, could be suggested (Werff 1984: 379–81; Sealey & Tyers 1989; Fitzpatrick 1989: 26). As with other Antonine assemblages in Roman Scotland, this is probably due to the type having passed out of export and/or production by this time.

The Dressel 20 are generally very fragmentary and despite the size of the assemblage no complete profiles, and few even of the rim and neck, were noted. Even so the diversity of rim forms in such a closely dated collection is noteworthy (illus 7.26.1–10). This variability is typical of other sites of Antonine date in Roman Scotland, and even of a number amphorae throughout the Roman Empire that are dated by painted inscriptions to the year 149 (Funari 1987). However, on the basis of the stratified sequence from Augst (Martin-Kilcher 1983, fig 2–3; reproduced in Peacock & Williams 1986: fig 65–6), it is likely that Dressel 20 with smaller and squarer rims and more pronounced mouldings on the upper surface are likely to be later in date (illus 7.26.8–10).

Table 7.17
Quantification of commodities represented by the amphorae

Type	*MNV*	*Capacity in litres*	*Commodities represented in litres*
Dressel 20	19	70	1,330
Gauloise 4?	1	31	31
Beltrán II?	3	14	42
Unidentified	1		

Stamps

Four stamps were identified:

1–2. DOMS. There are two stamps, one on a right handle, the other on a left handle (illus 7.26.12 and 13). Although both stamps and the handles on which they occur are similar, their fabrics suggest that they are from different vessels. The stamps, perhaps to be expanded as DOM(itii)Sy( ), were used at Alcolea del Rio during the mid-second century. *Tituli picti* on amphorae with this stamp from Monte Testaccio in Rome are dated to 146, 154 and 161 (Callender 1965, 122–3). Callender (1965), no 552, *CIL* x V, 2800, Remesal (1986), no 188.

NK73AB; annexe, south of changing room of bath-house, topsoil; NK73AJ; annexe, south-west of bath-house, topsoil.

3. SNR on a vessel with the graffiti VAG inscribed *post cocturam* (k below) (illus 7.26.14). This stamp, S N R(ufi) was used at La Catria during the mid-second century. *Tituli picti* on amphorae with this stamp from Monte Testaccio are dated to 149 and 154 (Callender 1965: 250–1). Callender (1965), no 1641; *CIL* x V, 3045; Remesal (1986), no 185.

NK74 CK; gulley north of building 1.

4. Illegible stamp, just possibly QSS or QSC.

NK73; annexe, unstratified.

The stamp DOMS from Alcolea del Rio is common in Roman Scotland having been found at seven or eight sites; Ardoch, Cadder (twice), Camelon, Mumrills, Newstead, and Rough Castle, perhaps Birrens (unprovenanced in Dumfries Museum) (Fitzpatrick 1992, 181), as well as at a number of forts in northern England. This may suggest a standardised pattern of military supply. The stamp SNR has also been found at Cadder (twice). La Catria was one of the dominant suppliers to the German *limes* (Remesal 1986).

Graffiti

Eleven graffiti inscribed *post cocturum*, and one inscribed *ante cocturam* were recorded on Dressel 20.

GRAFFITI CUT AFTER FIRING

Eleven graffiti inscribed *post cocturum* were recorded; nine on rims, one on a handle and one on a body sherd (illus 7.26.1–11). Most of the graffiti are numeric but there are three certain or possible letters or words. Although the numeric graffiti could refer to individual military units it is likely that they indicate the weight of the contents of the vessel in *modii* and *sextarii* (Werff 1989a). If graffiti (d) and (e) are x I rather than Ix , they may refer to *sextarii* alone. The numbers seem unlikely to refer, for example, to the order in which the vessels were placed in store (*RIB* II 6, 34). As the original contents of the vessels (olive oil) were well known and their weights both empty and full were clearly prescribed, often being stated in the painted inscriptions on the vessels, this combination of numbers points to the reuse of Dressel 20 as storage vessels. The letters and words may indicate the contents of the reused vessel (Werff 1989a: 371–2), or the ownership of it (Werff 1989b). This reuse of the robust Dressel 20 is particularly important when considering the composition of the assemblage and its interpretation as a source of foodstuffs. It is likely that Dressel 20 may be disproportionally represented, exaggerating their dominance in the assemblage still further.

GRAFFITI CUT BEFORE FIRING

A single shoulder sherd (not seen) found unstratified between the east rampart of the fort and the bath-house was inscribed in cursive writing *ante cocturam* [...]0 (or V)RETAR[.]SEC. | [...]FE.IG (*RIB* II. 2. 2493, 69) (illus 7.26.16). This is part of an inscription which starts with a consular date in the first line, probably including the *praenomen* and *nomen*, followed by a signature, which could occupy up to three lines (Rodriguez Almeida 1981: 123–5, fig 11, 5, 9, and pers comm). The purpose of these graffiti is likely to have been to indicate the date of the vessel and presumably the age of its contents, which were best-consumed young. This information was included only infrequently in the much better known delta section of the inscriptions painted on Dressel 20 amphorae at the time of their loading for export from Baetica.

Three other examples of these inscriptions are known from Roman Scotland; at Birrens (*RIB* 2493.4), Mumrills (*pace RIB* 2493.18) and Strageath (*RIB* 2493.65), all of which are certainly or probably of Antonine date.

GRAFFITI ON DRESSEL 20

(a) I on top of rim (illus 7.26.2).
NK73AJ; annexe, south-west of bath-house, topsoil.

(b) III on top of rim (illus 7.26.1).
NK74Au ; building 1, topsoil.

(c) IV inside the rim (illus 7.26.10).
NK76AZ; building 4, topsoil.

(d) Ix on underside of rim (illus 7.26. 4).
NK80 Du ; destruction deposit to north of warm rooms of bath-house.

(e) Ix or x I on handle (illus 7.26.11).
NK73; annexe, topsoil.

(f) x below rim (illus 7.26.8).
NK77DO; overlying road to east of building 9.

(g) VV on top of rim (illus 7.26.6).
NK75CF; burnt material at east end of building 6.

(h) VI on top of rim (illus 7.26.3).
NK75AB; building 7, topsoil.

(i) AR on top of rim (illus 7.26.9).
NK73PO; annexe, south-west of bath-house, topsoil.

(j) […]VMMID[...], perhaps Ummid[us] (*RIB* II. 2. 2494.212) (illus 7.26.15).
NK73AB; annexe, south-west of bath-house, topsoil.

(k) VAG[...] on the shoulder of vessel stamped SNR (stamp no 3 above) (*RIB* II. 2. 2494.180) (illus 7.26.14).
NK74CK; gulley to north of building 1.

Amphorae for wine

Gauloise 4? (Peacock & Williams Class 27/Gaulish: GAL AM 1).

These flat-bottomed amphorae contained wine from southern France (Laubenheimer 1985; Laubenheimer 1989). The Gauloise 4 contained about 31 litres (Sealey 1985: 114–15). No typologically diagnostic sherds were found. The vessel(s) present are identified as Gauloise 4 because it is the southern French amphorae found most frequently in Roman Scotland (Fitzpatrick 1992: 181–2, fig 5).

Amphorae for fish-based commodities

Beltrán II? (Peacock & Williams Class 18–19/Cadiz CAD AM).

This type contained a variety of fish-based commodities from southern Spain. Its capacity has been measured as c 15 litres by Sealey (1985, 81), although this seems very small. Apart from a single undiagnostic handle fragment (NK73DI; below cobbles in annexe, south-west of the bath-house; NK73DT; rubble overlying bath-house), no featured sherds were found, but the vessels represented are identified as Beltrán II as it was the dominant amphorae type from the southern shores of Spain in the second century (Peacock & Williams 1986: 122–5; Hahn 1988). On the basis of variations in their fabric at least three vessels appear to be present.

Commodity unknown

Two sherds, probably from the same vessel are unidentified. They are from a thin-walled vessel with clear signs of turning, in a hard, smooth, light reddish-brown (2.5y R 6/4) matrix. quartz and feldspar inclusions are present but the surface is vesiculated. NK74AI and AF; NK75BA; area of building 6, eastern end, topsoil.

7.7.3 Composition of the assemblage

From the evidence of the graffiti on the Dressel 20 considered above, it seems clear that many vessels were reused to store other commodities once they had been emptied of olive oil. Handles

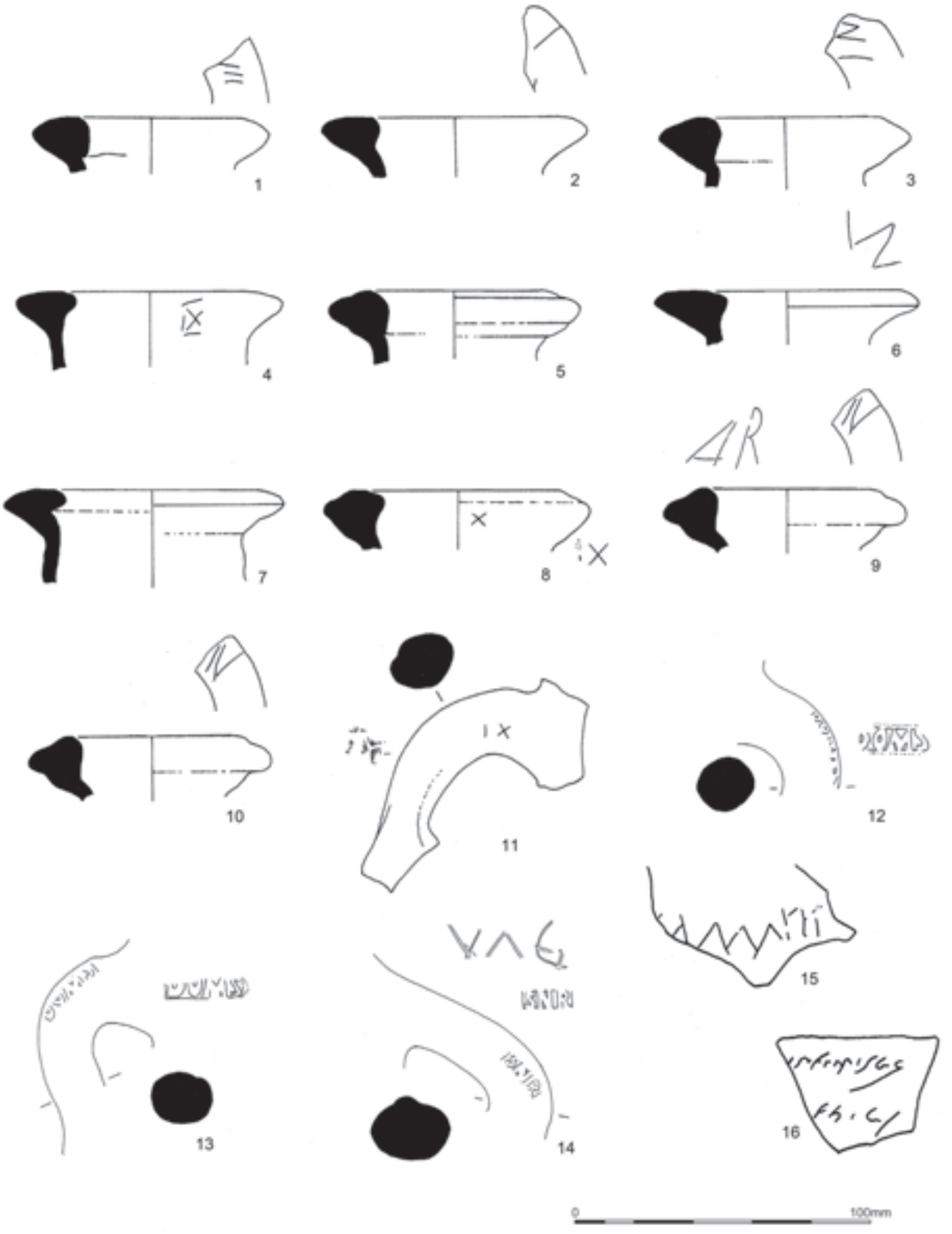


Illustration 7.25
Amphorae 1–16.

Table 7.18
Pottery (excluding amphorae and samian) shown as percentages

	Weight (%)	*Sherds (%)*	*EVEs (%)*
Mortaria			
Scotland (excl. Sarrius)	8.07	2.67	3.24
Sarrius	16.86	8.79	8.36
Mancetter-Hartshill	4.81	0.75	2.11
Colchester	1.15	0.44	0.56
Verulamium	1.14	0.36	0.29
Fine wares			
Cologne *(KOL CC)*	0.06	0.26	0.61
Colchester *(COL CC)*	0.05	0.08	0.21
Upchurch *(UPC FR)*	0.34	1.19	0.14
Coarse wares			
Local oxidised (LOC OX)	18.59	25.47	18.23
Local reduced (LOC RE)	10.07	11.18	11.60
Antonine Wall	0.21	0.34	0.63
Balmuildy oxidised	0.31	0.39	0.38
Severn Valley *(SVW OX 2)*	5.33	3.84	2.15
BB1 *(SED BB1, SOW BB1)*	16.99	22.62	24.51
BB2 *(BB 2)*	12.82	17.72	17.32
East Anglian?	0.31	0.21	0.38
Nar Valley	0.04	0.05	0.12
Verulamium? *(VER WH)*	0.11	0.39	0
Calcite-gritted	0.02	0.03	0
Non-local greys	0.45	0.81	0.68
Import?	0.09	0.13	0
Unidentified	2.19	2.33	8.45
Totals	60.451kg	3,855	10461%

Note: North Gaulish coarse ware is not included in this table as the vessel was not available for quantification.

from one (NK73DR, bath-house, fill of cold bath) and possibly another two vessels (NK73CC; annexe, south-west of the bath-house, topsoil; NK74CM; in wattle and daub fill of gulley north of building 1) have also been sawn off, perhaps to enable reuse. At least one hearth (NK73 CI; building 3), and possibly a second (NK76DW; annexe, south-west of the bath-house, topsoil), reused Dressel 20 for their bases. Numerous other uses for amphorae are possible (Callender 1965: 23–36), but the large and robust Dressel 20 was clearly particularly favoured so that its importance in the Bearsden assemblage is likely to be exaggerated still further.

Even allowing for this reuse, assessing the dominance of Dressel 20 amphorae solely in terms of diet and cuisine is not straightforward (table 7.17). A consideration of the dietary importance of olive oil at the legionary fortress of Nijmegen suggests that it was a luxury rather than a staple part of the diet (Werff 1984: 371–6). Allowing a garrison of, say, 100 men at Bearsden between 142–58, and making the (improbable) assumption that all the amphorae used and reused in antiquity are represented in the excavated assemblage, this amounts to only approximately one litre of oil *per capita*. The cuisine and diets of the legionaries garrisoned at Nijmegen may also have been very different from the auxiliaries at Bearsden. These difficulties in interpretation are increased by the possibilities that, as many of the amphorae from Bearsden come from the annexe, it is possible that they indicate the storage and/or transhipment or amphorae there, or uses associated with the bath-house.

This dominance of the Dressel 20 olive oil amphora is, however, typical of Roman Britain as a whole (Williams and Peacock 1983: 268) and it was clearly the most important foodstuff imported in amphorae. The presence of very much smaller quantities of wine from southern France and fish-based products from the coasts of southern Spain is also characteristic of what is presently known of Roman Scotland (Fitzpatrick 1992: 181).

7.8 DISCUSSION OF POTTERY

PAUL BIDWELL AND ALEX CROOM

7.8.1 Vessel types and character of the assemblage

The amphorae have been excluded from table 7.18, as they came to the site as 'packaging' rather than kitchen or table wares, but it should be noted that they made up 72% of the pottery from the site (excluding samian) by weight and 36% by sherd count. This is a very high proportion for a second-century military site in northern Britain, as it is more usual for amphorae to make up approximately 50% of the whole assemblage by weight (for example, in both the civil settlement at Inveresk and the civil settlement at South Shields it is 49%: Dore 2004: fig 71; Bidwell & McBride 2010: 109).

Approximately 85% of all the pottery from the site by sherd count (excluding amphorae and samian) is made up of just three fabrics: locally produced wares (45%), BB1 (23%) and BB2 (18%). The BB1 industries were preferred for the supply of cooking pots, making up 44% of all the cooking pots on the site, with the local kilns and the BB2 industries providing 24% and 23% respectively. On the other hand, the local kilns provided 40% of the bowls, dishes and platters on the site, followed by BB2 (*c* 30%) and then BB1 products (*c* 25%). The local kilns and the BB1 industries also produced 66% of the drinking vessels (excluding samian cups) used on the site, with colour-coated wares making up only 17% of the total. Narrow-mouthed storage jars were mainly supplied by the Severn Valley industries (over 75%). This ware is quite well represented at the site and is also common at nearby Balmuildy,

where Swan has noted it is 'more strongly represented than on any other Antonine Wall fort' (Swan 1999: 459).

The break-down of the pottery by vessel types shows that mortaria are about twice as common as would be expected from a military assemblage (table 7.19). Over half of the mortaria found were produced locally, and although there are no certain wasters there is a high proportion of misfired vessels, and it is likely much of the mortaria assemblage consists of redeposited kiln waste (see 7.3). One such dump comes from the intervallum area to the east of building 7, which makes up approximately one quarter of all the mortaria from the site. It consists almost entirely of products by Sarrius, often misfired, with sherds coming from a minimum of eight different vessels.A comparison with other military assemblages of roughly similar date shows that Bearsden has a very low proportion of flagons (and similar vessels such as jugs and bottles). The minimum number of flagons from the site is in the region of 14 or 15 vessels, of which over 80% had been made locally, but even so flagons apparently made up only about 5% of the output of the local kilns. It is possible they were using the much larger narrow-mouthed jars (listed under 'storage jars' in the tables) in place of flagons, as Bearsden has a comparatively high proportion of these, or were perhaps re-using glass prismatic bottles, which are by far the most common type of glass vessel on the site (9). It would appear they were not using cooking pots/jars as flagons, as these appear in about the proportions to be expected, but the number of bowls, dishes and platters is higher at Bearsden than elsewhere.

There is one example of an imported oil lamp from Bearsden, from the officer's quarters in building 3 (7.6). The number of mould-made pottery lamps in Britain declined rapidly after the end of the first century, but a small number of oil lamps, imported from outside the region, are known from sites along the Wall (at least seven examples: see Eckardt 2002: 58; figs 16, 18–20, and Bar Hill: Macdonald and Park 1906: 77). The low numbers of these lamps show they had come to have restricted use in a military setting, perhaps limited to use by those soldiers from parts of the Empire where their use was more widespread, or for ritual functions. Lamps were used in temples, both to provide light and as votive offerings, as well as in commemoration rituals for the dead and as grave-goods, while the army also used them in ceremonies to honour the emperor's birthday (Eckardt 2002: 95; 97). The context of the Bearsden lamp might suggest that the officer's quarters of building 3 contained a small domestic shrine.

Table 7.19
Vessel types from the whole site, shown as a percentage of their EVEs (excluding samian)

Vessel type	*%*
Flagon	2.8
Beaker	3.2
Coarse ware beaker	1.8
Cooking pot	36.3
Storage jar	4.1
Bowl/dish	28.9
Platter	3.6
Basin	0.5
Casserole	0.1
Mortarium	14.9
Lid	1.7
Brazier	0.4
Costrel	0.7
Other	0.9
	10,270

Key: 'Flagon' includes jugs and bottles. 'Coarse ware beakers' are small cooking pots with a rim diameter of 100mm or less. 'Brazier' includes possible storage jars (cf cat no 30). 'Other' consists of triple vases, and one miniature vessel/crucible: a *tettina* and possible *patera* were also present, but not represented by rims

Table 7.20
Comparison of vessel types with other second-century assemblages, shown as a percentage

Vessel type	*Bearsden*	*Carlisle*	*South Shields*	*Wallsend*
Flagon and similar	2.8	17.1	10.4	24.1
Beaker	3.2	2.5	9.0	2.5
Coarse ware beaker	1.8	36.7	13.0	5.7
Cooking pot	36.3		38.1	44.2
Storage jar	4.1	1.1		0.4
Bowl/dish	28.9	15.6	22.4	16.0
Platter	3.6	0.2		
Basin	0.5			
Casserole	0.1			
Mortarium	14.9	6.2	5.6	5.2
Lid	1.7	1.0	1.5	1.9
Other	2.0	0.9		
Total EVEs	10,270	4,238	4,339	3,611

Key: Bearsden = excludes samian. Carlisle = Carlisle Millennium site, period 5 (second half second century), excludes samian, unpublished data. South Shields = cavalry barracks, period 4 (*c* 163–*c* 205), unpublished data. Wallsend = deposit in alley 1 deposit and possible rampart building f2 (Antonine), Croom and Bidwell forthcoming

7.8.2 Local production

As well as producing the stock items required by the soldiers, local kilns serving the military also produced small numbers of more exotic items. Here they made triple vases, a *tettina* (small spouted vessel), a possible *patera* and some open lamps. Open lamps (crusies) were probably used with animal fat rather than oils as fuel. The two surviving examples are both hand-made and roughly finished, and show signs of use. An open lamp, made in a possible local grey ware, was also found at Balmuildy (Miller 1922: pl LII, no 2), and another, in an unknown fabric, at Wilderness Plantation (Eckardt 2002: fig 61, no 2).

Paterae were used in conjunction with a jug for washing hands, but were also used extensively for pouring libations in sacrifices. The jugs, like the *paterae*, were usually based on the metal prototypes, and although no examples of this type have been found at Bearsden, there is an unusual straight-sided bottle or flagon (illus 7.4.86). The function of the triple vase is unknown, but it is assumed to have a ritual use. It is possible that all of the 'exotic' items made by the local kilns were intended for religious ceremonies being carried out by the army. Four of these exotic items come from the midden dumps in the annexe and the other two (illus 7.5.106; 7.5.91) from the bath-house.

7.8.3 Distribution

One area in the annexe produced approximately 30% of all the coarse wares by weight (25% by sherd count). The material may have been used to infill the depression crossing the annexe from east to west, though the area may simply have been a rubbish dump. Parts of two vessels (139 and 168) were found in the granary and in a 'dump' to the south-west of the bath-house. There was very little difference in the make-up of the vessel types between the material in this dump and the rest of the site, other than the fact the dump did not include any storage jar rims. Although Swan suggested material, including unused vessels, had been deposited in the annexe at the abandonment of the fort (Swan 1999: 460), re-examination of the assemblage has identified plenty of sooted vessels and no higher proportion of comparatively complete vessels than found inside the fort, as would be expected if serviceable but unwanted vessels had been discarded there.

The North-African type vessels are found across the site, including the annexe dump. The only part of the site where there is an unusual quantity is the gulley between the south rampart and the intervallum south of 'building' 16, where about half of the pottery recovered consisted of sherds from at least six different platters (7.4.67; 69–70; 74–5; 77). Although this is a high number of individual vessels, many of them were represented only by two or three sherds forming less than a quarter of the complete platter. They came from a number of different contexts, from features that were difficult to interpret, so the exact interpretation of this assemblage is unclear.

Table 7.21
Vessel types in local fabrics by EVEs, shown as a percentage

Vessel type	*EVEs*
Flagon	5.6
Beaker	3.3
Small cooking pot	1.4
Cooking pot	20.7
Storage jar	2.6
Bowl/dish	22.3
Platter	9.2
Basin	1.2
Casserole	0.1
Mortarium	26.8
Lid	4.3
Brazier	0.3
Other	2.1
	4,038

Key: Other = triple vase, lamp, *tettina*, *patera.*

7.8.4 Pottery supply systems

Roughly half of the coarse wares at Bearsden were made locally. The remainder were from distant sources; the most important were those supplying black-burnished wares, which were situated between 560 and 640km south of the Antonine Wall. Kilns on Hadrian's Wall sent nothing to Bearsden and almost nothing to other early Antonine sites in Scotland: there is Lower Tyne Valley painted oxidised ware at Cramond (Bidwell & McBride 2010: 108) and small numbers of mortaria from northern England, particularly those made by Anaus (five stamps known in Scotland: Hartley 2009: 116, with references to earlier discussions of his products). The very long-distance systems that supplied amphorae and samian ware to northern England under Hadrian presumably extended their reach into early Antonine Scotland without too much difficulty. Otherwise, there was an almost complete dislocation, and the only major suppliers of coarse wares to Hadrian's Wall which then supplied the new Wall in Scotland were the BB1 industries in south-east Dorset and, less importantly, in south-west England. On the slender evidence of one group from the fort at Carlisle, there was a marked change in the scale of the importation of this ware: in Period 4B, beginning in about 125, BB1 made up 4.9% by weight and 4.3% by EREs of the coarse wares as opposed to 17% and 24.5% respectively at Bearsden (Swan et al 2009: 601–2). The Carlisle pottery is the only large Hadrianic assemblage in northern Britain which has been fully quantified; other groups of this period are needed before we can be certain that BB1 was much more important on the Antonine Wall than on Hadrian's Wall during its first two decades. This uncertainty is part of larger difficulties in understanding the transformation of supply systems following

the building of the Antonine Wall which arise from the lack of well-dated and fully catalogued Hadrianic groups from the earlier Wall and from other military sites in northern England. The following survey of these changes is therefore provisional.

Whether or not the quantities of BB1 reaching northern Britain were greatly augmented when Scotland was occupied, the introduction of BB2 added a new and important strand to the supply system. The amount of the ware from Bearsden is comparable to that from Balmuildy, the next fort to the east along the line of the Wall, and is proportionately much larger in comparison with BB1 than at forts in the central and western sectors of Hadrian's Wall (Gillam 1981: 14, 18). In the Antonine period, most BB2 (but cf illus 7.7.166) came from Colchester, along with mortaria, colour-coated ware, and perhaps some other pottery (illus 7.9.99). The mortaria are types first made in the late-Hadrianic period (7.3) which are also known from the Hadrian's Wall zone (eg Bidwell & Speak 1994: 210–11). A few might have arrived in the north before the occupation of Scotland; if so, the numbers would have been negligible and would only serve to underline the far greater significance of Colchester in the supply of pottery to the Antonine Wall. An even more important source of mortaria was Mancetter-Hartshill in Warwickshire; its earliest types in the north have the same date range as those from Colchester, and the previous observations about the possibility of small-scale importation from Colchester in the late-Hadrianic period also apply to Mancetter-Hartshill mortaria. No other coarse wares from these kilns have been recognised in the north, but there was a transformation in the supply of Severn Valley ware which originated in the region immediately to the west of Mancetter-Hartshill. Small numbers of tankards in this ware reached the central and western sectors of Hadrian's Wall, apparently during the Hadrianic period (Webster 1972; Bidwell 1985: 172–4), but only one example (Miller 1928: pl x x III, no 18) is known from the Antonine Wall, where there are large numbers of narrow-mouthed jars in Severn Valley ware (illus 7.8.192–202; Webster 1977). There may be a connection between the Mancetter-Hartshill mortaria and Severn Valley jars: if transported by sea as far as was possible, they might have been parts of the same cargos loaded at or near Chester.

The coarse wares so far discussed made substantial contributions to the supply of pottery to Bearsden, but there are others occurring in much smaller quantities which might have been incorporated as make–weights in consignments of other materials or which might have been containers for the transport of food-stuffs. Sources in Britain are concentrated in East Anglia and might well have been connected with the supply of grain to the Antonine Wall by sea up the east coast. The only pottery at Bearsden which can be tied down to a specific locality is the sherd from a jar with decoration typical of the Nar Valley kilns in north Norfolk (illus 7.8.224). The other examples (illus 7.2.21(?) and 7.2.2–6, illus 7.8.218) are in the highly micaceous fabric typical of kilns in south Norfolk and north Suffolk. Elsewhere on the Antonine Wall, a Horningsea-type storage jar (from eastern Cambridgeshire if it is a Horningsea product), almost certainly used as a transport container, has been recognised at Inveresk (Dore 2004: fig 85, JA28; cf Bidwell & McBride 2010: 110, n 168). These wares occur in small numbers in third-century deposits on Hadrian's Wall, generally at its eastern end with only rare outliers, which contrast with the westward finds at Bearsden.

The North Gaulish jar (illus 7.8.219) is another example of a vessel which might have been incorporated casually in a mixed cargo. The commonest types of North-Gaulish coarse wares which reached Britain, apart from mortaria and early types of flagons, were the distinctive grey wares, often with closely spaced horizontal lines burnished on the neck or upper body of the vessels. On military sites, they are known from the Flavian to Hadrianic periods and in the Severan period, though current excavations at South Shields strongly suggest that they were also reaching this coastal fort in the mid-third century. Swan (2009), who studied them in penetrating detail, connected their presence in most instances with the movement of auxiliary troops and, from later in the second century, the activities of the British fleet, though the possibility of 'a little independent seaborne trade between North Gaul and south-east Britain' was not completely excluded. The absence of North-Gaulish grey wares on the Antonine Wall and beyond it was noted and it was argued that this was partly because by this time there was little recruitment to units in Britain from northern Gaul (Swan 2009: 85). The recognition of another type of North-Gaulish coarse ware on the Antonine Wall does not affect Swan's arguments, which depended particularly on the prevalence of *vases tronconiques* – large drinking vessels – amongst the Flavian-Hadrianic grey wares. These vessels were associated by Swan with the ethnic drinking traditions of North Gaulish recruits (though cf Fulford 2010: 69–70), but the jars in 'pâtes blanches à quartz' were probably containers, their sharply undercut rims being suitable for securing covers with cords. Another type of container from the same general area that has recently been recognised at Inveresk is the Gauloise 12 amphora (Bidwell & McBride 2010: 112–14, and at least one other example from the former Brunton Wire Works site, a site north of the fort at Inveresk which will be published by CFA; for their distribution in Britain which includes a few civilian sites in the south-east, see Tyers 1996: fig 70). Production sites for these amphorae, which probably contained wine, were mostly in Normandy, but they are found in the region south of the Somme. Whether these jars or amphorae were brought to early Antonine Scotland by the British fleet or were added at North-Gaulish ports to civilian consignments of amphorae or fine wares from further afield is uncertain.

7.8.5 Origins of the British potters working at Bearsden

Sarrius, the Mancetter-Hartshill potter, had a subsidiary workshop at Bearsden, as did a potter probably from Holt who was making raetian mortaria of Type E; there is even an outside possibility that Mascellio, who had first started stamping his mortaria in the area of Catterick or Bainesse, transferred his operation to Bearsden (7.3) and there are definite indications that other potters like GICA or CICV[.] may have been working there. Amongst the other locally produced coarse wares, the influence of North-African potters, or potters trained in the North-African tradition, is overwhelmingly apparent and is discussed in detail below. Most of the remainder appears to represent the standard Romano-British range, as usual with many imitations of black-

burnished ware. Sherds probably from a single oxidised bowl with barbotine decoration (illus 7.5.93–5) represent another tradition, and similar vessels are known from four other forts in early Antonine Scotland. Vessels from Bearsden and Inveresk are regarded as products made at those forts, but the thin distribution amongst the other forts on the Wall might be taken to indicate that they were from one source. They find numerous parallels at Caerleon: older finds were collected in Webster and Webster 1998, but a kiln which made barbotine-decorated bowls, its period of production dated tentatively to the early Antonine period, is now known at Abernant Farm, 3km from the fortress (Webster et al 2004: fig 5, nos 53–4). The mortaria associated with this kiln were supplying a civilian market which extended across the Bristol Channel into Avon and Somerset as well as military and civilian sites in south Wales (Webster et al 2004: 104), but this particular technique of barbotine decoration is firmly rooted in the legionary-ware tradition (cf products of kilns at Carnuntum dating at the earliest to shortly after the middle of the second century: Gassner et al 1997: Abb 39, no 14, Abb 40, no 27, Abb 41, no 38, on a costrel). The barbotine-decorated vessels from the Antonine Wall suggest the presence of a potter familiar with pottery production at Caerleon.

7.8.6 Pottery of North-African style

In a series of wide-ranging studies, the fruit of an unrivalled knowledge of Roman coarse pottery in the western provinces, the late Vivien Swan identified cooking wares at Bearsden and at other forts on the Antonine Wall as close copies of North-African types which had been made locally. Similar copies have also been identified by Swan and others at forts on Hadrian's Wall and elsewhere in northern Britain in Severan and later contexts, and from the legionary fortresses at Caerleon, Chester and york, where their use, and in some instances their production, might have coincided with their early Antonine and Severan occurrences in the forts (Swan 1992; Swan and Monaghan 1993; Swan 1997; 1999; 2008). The implications of these two apparently separate episodes which led to the copying of North-African types for the use of the Roman army in Britain, or for some sections of it, have been explored by Swan in exemplary detail. Their circumstances seemed to have been quite different. Swan proposed that the Severan copies resulted from the presence of the Emperor Septimius Severus and his retinue in Britain, and that the earlier copies were to serve the needs of North-African recruits or soldiers who had served in North Africa and were sent or returned to Britain in about 150, after the Mauretanian war. Bearsden, the only Antonine Wall fort to have been excavated comprehensively using modern techniques of recording, was central to Swan's thinking about the earlier episode and particularly how it might elucidate modifications that were made to the Antonine Wall and its forts.

Swan always made it clear that in the second and third centuries the North-African ceramic tradition found on the Antonine Wall had also been adopted throughout the coastal areas of the Western Mediterranean, particularly in the great cities of Spain and Southern Gaul, and at Ostia and Rome. There was 'little doubt', according to Swan (1999: 421), that some of the potters working on the Antonine Wall 'had indeed originated in North Africa itself', and the possibility that at least some of them might have been from 'the immediately adjacent parts of the Mediterranean littoral' was judged 'less likely' but not entirely dismissed. Two factors seemed to weigh heavily in favour of a direct connection with North Africa. First, the commonest North-African forms on the Antonine Wall – casseroles and platters – corresponded to those that dominated the assemblages from military sites in the Mahgreb: '… the total range … in particular the relatively strong showing of platters, is quite unlike that recorded in the assemblages from the civilian ports and towns in North Africa … [where there are] proportionately more tablewares and comparatively few platters … the range of African vessel types found on the Antonine Wall may be more typical of military establishments in the Mahgreb' (Swan 1999: 463–4). Secondly, the Mauretanian war provided a possible context for the dispatch of North Africans to Scotland when the campaigns came to an end.

It has not been established beyond doubt that troops were sent from Britain to North Africa, nor that such units were returned to Britain or that North-African recruits were sent to replace them. Swan (1999: 441) made this explicit and conceded that the epigraphic evidence which hinted at these possible events would have been less persuasive without the evidence of pottery in the North-African style on the Antonine Wall: 'it would be surprising if all of these correspondences were purely coincidental'. Since the 1990s nothing further has emerged in the field of epigraphy to confirm the presence of North Africans in Britain during the occupation of the Antonine Wall. The main development has been in understanding how North Africa came to play such an important part in pottery supply and manufacture in the Western Mediterranean and elsewhere. Because Swan was able to establish similarities between the assemblages at military sites in Britain and the Mahgreb, she did not explore in detail the wider diffusion of North-African pottery styles. The general picture has been well-known for many decades. 'Vast quantities of North African pottery were imported during the second and third centuries' to Rome, Ostia and Cosa (Hayes 1972: 416), and some examples reached far-flung sites such as Irún, a port on the Atlantic coast in north-west Spain, almost on the border with modern France (Urtuega & López Colom 2000: 138, fig 14). Reynolds (1995: 102) has contrasted the 'abundance of North Tunisian cooking wares exported throughout the West [Mediterranean area] during the second and third centuries' with the smaller amounts in some later periods. These wares were not only exported in huge quantities but also copied by local potters or sometimes by immigrant North-African potters in Spain, Southern Gaul and Italy. Most of the recent research has concentrated on the late-Roman period, but one area where much has been learnt about pottery supply in the second and third centuries lies around Marseille and Narbonne. More than half (54%) of a large unstratified assemblage from the port at Fos (Bouches-du-Rhône) consisted of North-African cooking wares, the earliest type dating from the first half of the first to the first half of the second century (Marty 2004). In addition to these imports, cooking wares of North-African type were supplied on a very large scale by local industries to the east of Béziers, now

known by the abbreviation BOB ('la céramique Brune Orangée Biterroise') and were presumably made by potters from North Africa. The range of North-African types – dominated by platters and casseroles (Pellecuer and Pomaredes 1991, C2/C4/C6 and B1/C3) – produced by some of these kilns was very similar to those on the Antonine Wall; further similarities are that local types were also fired in these kilns, as at Bearsden, and table wares were not amongst their main products. Pottery from other BOB kilns seems to have been made by Italian potters. One of these foreign craftsmen was a slave of eastern origin: *Onesiphori Naturiorum*, or *Onesiphorus* of the *Naturii*, a family company (Mauné and Lescure 2008: 813–14; cf Greene 1977: 125–8, suggesting that slaves from the east were involved in the manufacture of legionary wares). In their recent survey of the BOB industry, Mauné and Lescure (2008) dated its establishment to about 110/120. It began, they argued, with the installation of foreign potters, who were to produce, presumably at less cost than imports, types of pottery which were in use in the great cities of the Mediterranean, as well as amphorae and ceramic building materials. The types of cooking wares produced by the BOB kilns involved the introduction of new ways of preparing food such as frying and sautéing, though one might add that in at least some households metal vessels were perhaps already used for these types of cooking and that in these instances pottery vessels were introduced successfully because they were cheaper than metal ones. Mauné and Lescure (2008: 814) associated the establishment and development of this industry with the 'spectacular development' of the economy in Gallia Narbonensis between the middle of the first century and the second half of the second century, in particular with the great increase in viniculture.

Parallels with pottery supply to the Antonine Wall – similarities in the range of the North-African copies and their manufacture alongside local types – might seem to signify little because the social and economic contexts were so different and the distance from North Africa, of course, so very much greater than to southern Gaul. However, wine from Gallia Narbonensis and the Rhône Valley was supplied to the army in Britain. Gauloise amphorae likely to have come from Gallia Narbonensis are known from the Antonine Wall (including Bearsden, see comment after illus 7.9.259, and 7.7.2), where, as on Hadrian's Wall until the mid-third century, they are not only the commonest but almost the only type of wine amphora that is known. Even so, the numbers of Gauloise amphorae are very small in comparison with those from southern Britain, which makes it almost certain that most of the wine, a staple of the military diet, was sent to the two Walls in barrels (Bidwell & Speak 1994: 214–16). The Rhineland was thought to have been the most likely source of this wine until the discovery in pre-Hadrianic levels at Vindolanda of barrels made of fir and larch which probably came from the Rhône Valley, though the wine they contained might well have been from Gallia Narbonensis (Marlière 2003: 145). Despite the remoteness of the northern frontiers in Britain from Gallia Narbonensis, there were thus economic ties between the two areas. Even if the supply system was controlled by middlemen, those concerned with the direction of the BOB industry, which produced amphorae as well as cooking wares (Mauné and Lescure 2008: 813–14), would surely have been aware, even if at second hand, of changes in a major market with which they were concerned. It could have presented them with the opportunity to repeat in northern Britain what they had begun so successfully in Gallia Narbonensis two or three decades earlier: the establishment in a new and lucrative market of an industry producing types of pottery which widened the functional range of cooking wares previously available to the army in Britain.

In the Severan period, there is a much more direct link between northern Britain, Gallia Narbonensis and the production of North-African types. A distinctive type of jar apparently made in the vicinity of york provides a direct link with Gallia Narbonensis at about this time, as Swan has observed (1992: 9; 1994; 2002: 62). It has a rim with a triangular section and lid-seating, closely resembling the Dales-Ware type which, Swan argued, might have developed, at least partly, from the york type. Jars with similar detailing were produced in large numbers by the BOB industry alongside North-African types; the jars represented continued production of types well established in the region before the development of the BOB industry (Mauné and Lescure 2008: 815, Forme A1). In her earliest study of the york pottery (1992: 9), Swan was careful to take account of the possibility that the North-African types made at york in the Severan period, at the same time as the BOB-type jars, were being produced by potters from Gallia Narbonensis or from elsewhere on the north-western Mediterranean littoral, providing parallels from these areas as well as North Africa. Later, when Swan realised that the range of types made in Britain and found at military sites in the Mahgreb were similar, parallels from beyond North Africa seemed less relevant, the further similarity with the range of types made by the BOB industry having become fully apparent only in recent years.

As has already been shown in our consideration of pottery at Bearsden from elsewhere in Britain and from northern Gaul, the early Antonine advance into Scotland caused an almost total disruption of the existing supply systems, resulting in opportunities for the relocation or expansion of existing production centres. The creation of new markets in which potters and merchants involved in trade from Gallia Narbonensis already had an interest might explain the dispatch of potters from North Africa, or working in the North-African tradition, to Scotland, in an attempt to repeat the success of the BOB industry. The alternative explanation favoured by Swan, that the potters came from North Africa to serve North-African soldiers or soldiers that had become accustomed to the cooking traditions of North Africa while serving there, is of course still possible though Fulford (2010), considering Swan's ideas in particular, has set out powerful objections to the identification of ethnic incomers to Roman Britain based solely on pottery use. Better understanding of these questions is most likely to result from studying the wider phenomenon of exotic pottery manufactured on the frontiers and particularly the origins and identity of the potters making 'legionary wares' (cf Swan 2004).