



Society of Antiquaries
of **Scotland**

SCOTTISH ARCHAEOLOGICAL INTERNET REPORTS

e-ISSN: 2056-7421

Excavations and interventions in and around Cramond Roman Fort and annexe, 1976 to 1990

How to cite:

Cook, M, Lawson, J A & McLaren, D 2017 'Excavations and interventions in and around Cramond Roman Fort and annexe, 1976 to 1990', *Scottish Archaeological Internet Reports* 74. <https://doi.org/10.9750/issn.2056-7421.2017.74>

Visit <http://journals.socantscot.org/index.php/sair> to see the journal homepage

OPEN  ACCESS

Please note:

This document is the publisher's PDF of an article published in the Scottish Archaeological Internet Reports journal. This version has been peer-reviewed and contains all final editorial corrections and journal pagination.

Copyright © 2017 rests with the Society and the individual authors. Except where otherwise noted, this work is licensed under Creative Commons Attribution-NonCommercial-No Derivatives licence. <http://creativecommons.org/licenses/by-nc-nd/4.0/>

The permission to reproduce the Society's copyright-protected material does not extend to any material which is identified as being the copyright of a third party. Authorisation to reproduce such material must be obtained from the copyright holders concerned.



Excavations and Interventions in and around Cramond Roman Fort and Annexe, 1976 to 1990

Martin Cook, John A Lawson and Dawn McLaren

with contributions by

Paul Bidwell, Hilary E M Cool, Alexandra Croom, Rob Engl, Kay F Hartley, Nicholas Holmes, Fraser Hunter and Felicity Wild

Address

AOC Archaeology, Edgefield Industrial Estate, Loanhead, Midlothian EH20 9SY

Author contact

Dawn.McLaren@aocarchaeology.com

Funding

Historic Environment Scotland

e-ISSN: 2056-7421

<https://doi.org/10.9750/issn.2056-7421.2017.74>

Published by the Society of Antiquaries of Scotland with the
Archaeology Data Service archaeologydataservice.ac.uk.

Society of Antiquaries of Scotland
National Museums Scotland
Chambers Street
Edinburgh EH1 1JF
United Kingdom

Managing editor: Catherine Aitken
Copy-editor: Susan Milligan
Production: Raspberry Creative Type, Edinburgh

Copyright © 2017 rests with the Society and the individual authors. Except where otherwise noted, this work is licensed under Creative Commons Attribution-NonCommercial-NoDerivatives licence. <http://creativecommons.org/licenses/by-nc-nd/4.0/>

Requests for permission to reproduce material from a SAIR report should be sent to the Director of the Society of Antiquaries of Scotland, as well as to the author, illustrator, photographer or other copyright holder.

www.socantscot.org

Registered Scottish charity no SC010440

TABLE OF CONTENTS

| | |
|--|-----------|
| List of illustrations | v |
| List of tables | vi |
| 1. Abstract | 1 |
| 2. Introduction | 1 |
| 3. Archaeological background and aims of the project | 1 |
| 4. Method | 3 |
| 5. Results | 4 |
| 5.1 Site 1: Cramond Tower | 4 |
| 5.2 Site 2: Cramond Road I | 4 |
| 5.3 Site 3: Cramond Road II | 15 |
| 5.4 Site 5: Cramond House Garden | 16 |
| 6. The Roman ceramics <i>by Alexandra Croom & Paul Bidwell, with contributions by</i> | 19 |
| <i>Felicity Wild & Kay F Hartley</i> | |
| 6.1 The samian <i>by Felicity Wild</i> | 19 |
| 6.2 The mortaria <i>by Kay F Hartley & Alexandra Croom</i> | 23 |
| 6.3 The amphorae | 25 |
| 6.4 The coarse wares | 26 |
| 7. The Roman ceramic building material <i>by Alexandra Croom</i> | 37 |
| 7.1 Site 1: Cramond Tower | 38 |
| 7.2 Site 2: Cramond Road I | 38 |
| 7.3 Site 3: Cramond Road II | 38 |
| 7.4 Site 6: Cramond Pipeline | 38 |
| 7.5 Site 7: Dunfermline College Games Hall | 38 |
| 7.6 Site 11: Cramond School House | 38 |
| 8. The Roman vessel glass <i>by Hilary E M Cool</i> | 38 |
| 8.1 Catalogue | 39 |
| 9. The glass objects <i>by Dawn McLaren</i> | 40 |
| 9.1 Catalogue | 41 |
| 10. The iron finds <i>by Dawn McLaren</i> | 41 |
| 10.1 Overview | 41 |
| 10.2 Site 1: Cramond Tower | 41 |
| 10.3 Site 2: Cramond Road I | 41 |
| 10.4 Site 3: Cramond Road II | 41 |
| 10.5 Conclusions | 44 |
| 11. The non-ferrous metalwork <i>by Dawn McLaren with identification and</i> | 44 |
| <i>discussion of selected Roman objects by Fraser Hunter</i> | |
| 11.1 Site 1: Cramond Tower | 44 |
| 11.2 Site 2: Cramond Road I | 44 |

| | |
|--|-----------|
| 11.3 Site 3: Cramond Road II | 51 |
| 11.4 Site 5: Cramond House Garden | 53 |
| 12. The Roman coins <i>by Nicholas Holmes</i> | 53 |
| 12.1 Catalogue of extant coins | 53 |
| 13. The chipped stone <i>by Rob Engl</i> | 55 |
| 13.1 Overview | 55 |
| 13.2 Technology | 55 |
| 13.3 Conclusions | 55 |
| 14. The shale bangle fragments <i>by Fraser Hunter</i> | 55 |
| 14.1 Catalogue | 56 |
| 15. The coarse stone tools and architectural stone <i>by Dawn McLaren</i> | 57 |
| 15.1 Overview | 57 |
| 15.2 Site 1: Cramond Tower | 57 |
| 15.3 Site 2: Cramond Road I | 57 |
| 15.4 Site 3: Cramond Road II | 59 |
| 15.5 Site 5: Cramond House Garden | 59 |
| 16. The vitrified material <i>by Dawn McLaren</i> | 61 |
| 16.1 Summary | 61 |
| 17. Discussion | 61 |
| 18. Conclusions | 66 |
| 19. Acknowledgements | 66 |
| 20. References | 67 |
| 20.1 Online sources | 67 |
| 20.2 Documentary sources | 67 |
| 20.3 Secondary sources | 67 |

LIST OF ILLUSTRATIONS

| | |
|--|----|
| 1. Location map of Cramond with a composite plan of the Roman fort, road and gatehouse in relation to the sites referred to in the text | 2 |
| 2. Plan of excavated trenches around Cramond Tower (Site 1) | 3 |
| 3. Post-excavation section through the Roman ditch | 5 |
| 4. Section through the Roman ditch excavated at Cramond Tower | 5 |
| 5. Composite plan of Roman road | 6 |
| 6. Section through road, showing Road Surface 053, Gully 023 and Drain 014 | 7 |
| 7. Section through road, detailing Upper Surface 052 and Drain 014 | 7 |
| 8. Plan of Roman road Phase 1 | 8 |
| 9. Plan of Roman road Phase 2 | 9 |
| 10. Plan of Roman road Phases 3 & 4 | 10 |
| 11. Plan of Roman road Phases 4 & 5 | 11 |
| 12. Section of the Roman road | 12 |
| 13. Post-excavation detail of Beam Slot 015 from the north-west | 12 |
| 14. Post-excavation detail of Beam Slot 009 from the south-west showing Post Holes 042, 041, 043 and 038 | 13 |
| 15. Post-excavation photograph looking south showing the road, Slabs 019, Drain 014, Beam Slot 039 and associated post holes to the west of the road | 13 |
| 16. Post-excavation detail of Post Holes 024, 025, 026, 035, 036 and 037 within Beam Slot 039 from the north-west | 14 |
| 17. Cramond Estate Plan (after Bauchop 1815) | 15 |
| 18. Plan of Cramond Road II | 16 |
| 19. Post-excavation photograph showing section through Cramond Road II, showing drain in the foreground | 17 |
| 20. Rotary quern fragment incorporated into surface at Cramond Road II | 17 |
| 21. Plan of features excavated at Cramond House Garden | 18 |
| 22. Plan of Pit 3 at Cramond House Garden | 18 |
| 23. Mid-excavation photograph of Pit 3 at Cramond House Garden | 19 |
| 24. Decorated samian ware sherds | 21 |
| 25. Stamped amphora handle (CR2/89/261) | 25 |
| 26. Coarse ware ceramics from Sites 1 and 2 | 29 |
| 27. Coarse ware ceramics from Site 2 | 29 |
| 28. Coarse ware ceramics from Site 2 | 30 |
| 29. Coarse ware ceramics from Site 3 | 31 |
| 30. Coarse ware ceramics from Site 3 | 32 |
| 31. Coarse ware ceramics from Sites 3 and 11 | 33 |
| 32. Coarse ware ceramics from Sites 3 and 7 | 34 |
| 33. Glass vessel and object fragments from Cramond Road I | 39 |
| 34. Yellow opaque glass annular bead (CR/2/89/109) | 40 |
| 35. Selection of iron objects | 42 |
| 36. Non-ferrous metal mounts and pendant from Pit 1 | 46 |
| 37. The silver belt-pendant and copper-alloy Trompetenmuster mounts | 47 |
| 38. The silver belt-pendant from Cramond Road | 47 |
| 39. Intact example of a ring-pommel sword belt hanger from Mainz | 47 |
| 40. Distribution of pendants in the form of ring-pommel swords and strap ends in the form of <i>beneficiarius</i> lances | 48 |

| | |
|--|----|
| 41. Non-ferrous metal objects | 49 |
| 42. Shale bangle fragments | 56 |
| 43. Stone objects: sling stone (CR/83/1103) and possible sculptural fragment | 58 |
| 44. Architectural stone | 60 |
| 45. Medieval and post-medieval metal objects | 62 |
| 46. Post-medieval glass bottle seal | 63 |

LIST OF TABLES

| | |
|---|----|
| 1. Summary of pottery by site, weight and number of sherds | 20 |
| 2. Summary of pottery types from all sites, by weight, number of sherds and Estimated Vessel Equivalent (EVE) | 20 |
| 3. Mortaria from all sites, shown as percentages | 23 |
| 4. Amphorae from all sites, shown as percentages | 25 |
| 5. Pottery from all sites (excluding amphorae), shown as percentages | 27 |
| 6. Vessel types (excluding amphorae) by EVE, shown as percentages | 37 |
| 7. Inventory of coins (now lost) recorded in Charlie Hoy's excavation finds register | 52 |
| 8. Summary of Cramond chipped stone assemblage | 55 |

1. ABSTRACT

Cramond Roman Fort has been the focus of archaeological interest since the publication of John Wood's history of the parish in the late 18th century, with a flourish of activity in the latter half of the 20th century. Playing an important part in this volume of work have been the excavations led by the late Mr Charlie Hoy (d 1991), an Edinburgh amateur archaeologist working principally with the Edinburgh Archaeological Field Society and latterly on his own. His excavations have recovered a wide range of evidence from the Mesolithic through the Roman and medieval periods up to the post-medieval development of Cramond House Estate. Hoy's investigations have been hugely important to our understanding of the Roman fort's associated annexe/extramural settlement, in particular providing new evidence for its origins in the Antonine period, and for Severan occupation, as well as uncovering a multi-phased road and associated wooden structures. In addition, the artefact assemblage further adds to the corpus from the site and includes an internationally significant sword pendant belonging to a *beneficiarius* (*beneficarii* were troops on special service for the provincial governor) that demonstrates the presence of German troops at the fort, and perhaps hints at the presence of the emperor himself.

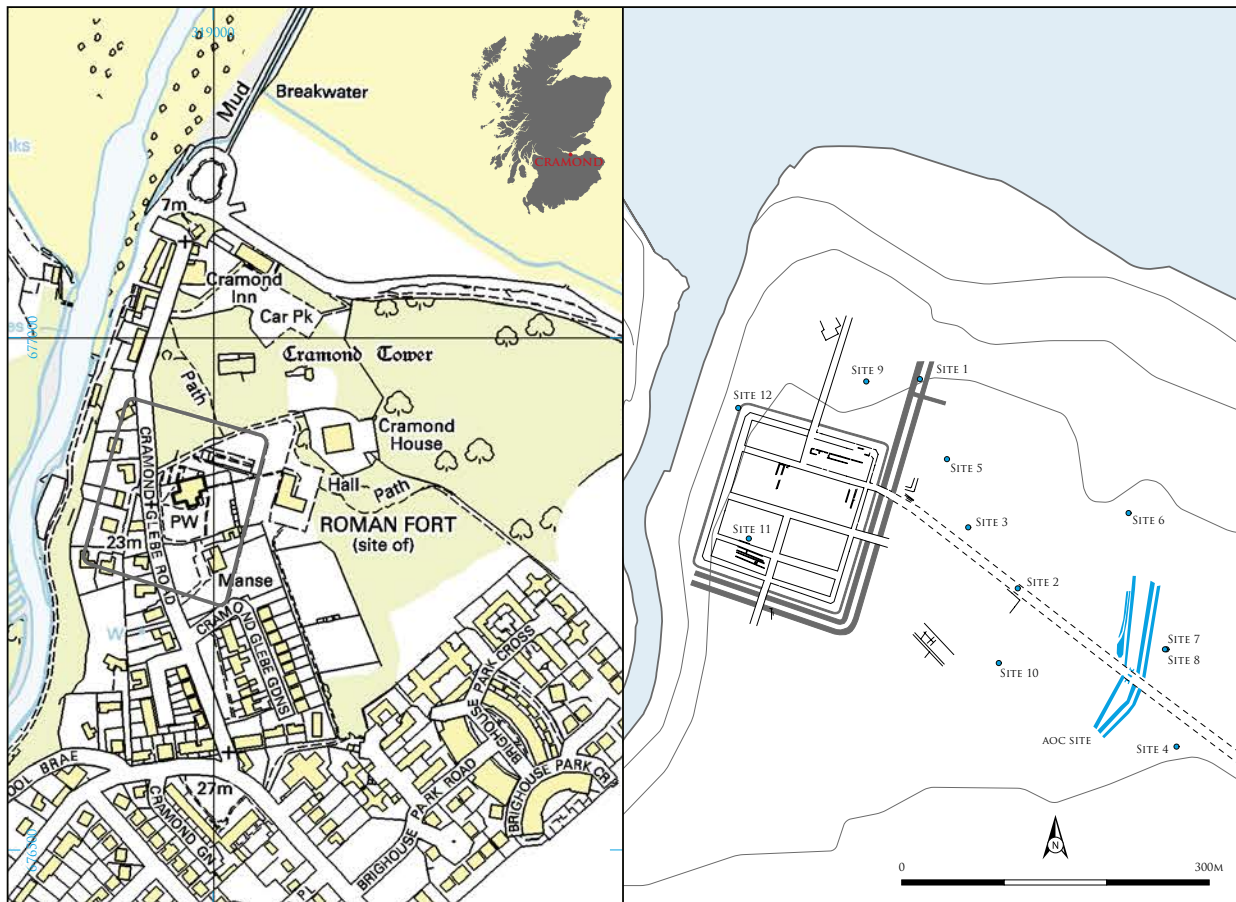
2. INTRODUCTION

This report seeks to bring together the results from a series of archaeological investigations that were undertaken by the late Mr Charlie Hoy, often with the Edinburgh Archaeological Field Society (EAFS) and latterly on his own, between 1976 and 1990 (Hoy 1979). The works took place within and in close proximity to the Scheduled remains of Cramond Roman Fort (SAM 2526; CANMORE ID 50409) and its extramural settlement, as well as the Category B listed 15th- to 16th-century Cramond Tower (CANMORE ID 50421) and the 18th- and 19th-century historic landscape attached to Cramond House (the replacement to Cramond Tower; CANMORE ID 74419). These historic projects comprised a combination of large research excavations (Sites 1 to 3, Illus 1) and smaller test-pitting alongside other monitoring exercises (Sites 4 to 12, Illus 1). These smaller interventions were undertaken during both general construction work associated with Dunfermline College (later Moray House College) and private residential housing as well as more *ad hoc* service maintenance. No formal post-excavation phase of works was undertaken on this material at the time by Mr Hoy. Given the potential national significance of the material, a successful application to Historic Environment Scotland's Archaeological Grants Programme was submitted, with the aim of bringing together the surviving archives generated as a result of Charlie Hoy's work at Cramond and to publish

the results. This current phase of post-excavation work was managed by AOC Archaeology Group in conjunction with Mr John Lawson, City of Edinburgh Council Archaeology Service (CECAS), and funded by Historic Environment Scotland and the City of Edinburgh Council with support from Cramond Heritage Trust.

3. ARCHAEOLOGICAL BACKGROUND AND AIMS OF THE PROJECT

John Wood, writing at the end of the 18th century, records the now antiquarian discoveries of 'An almost incredible number of coins and medals' (Wood 1794) from the area now known to be Cramond fort, along with four inscribed stones including three altars. Two of these stones, one an altar dedicated to Jupiter from 5th cohort of Gauls (*RIB* 2134; *NMS* X.FV 22) and a building stone of Leg II Aug (*RIB* 2137; *NMS* X.FV 15) are now in the collections of the National Museums of Scotland (F Hunter, pers comm). A further altar dedicated to the mother goddess (*RIB* 2135) was recorded by Wood (1794) as transferred to Penicuik House and can no longer be traced. The fourth stone, a building stone (*RIB* 2136), is also lost. Wood does describe and illustrate in detail the stones along with the list of emperors on the coins/medals, which range from Claudius through to Septimius Severus, but the significance of the context of these discoveries was very much a secondary concern compared to the



Illus 1 Location map of Cramond with a composite plan of the Roman fort, road and gatehouse in relation to the sites (numbered 1–12) referred to in the text. The shaded area to the south-east of the fort denotes the boundary ditches of the annexe excavated by AOC in 2003. © Crown Copyright [and database rights] (2012) OS 0100023757

finds themselves. The presence of the Roman fort, long mooted, has since been confirmed by a series of excavations by Alan and Viola Rae between 1954 and 1966 (Rae & Rae 1974), City of Edinburgh Council between 1975 and 1981 (Holmes 2003), a series of developer-led investigations (Masser 2006; Cook et al forthcoming; Gooder forthcoming) and by the Edinburgh Archaeological Field Society led by Val Dean (V Dean, pers comm). These earlier investigations explored aspects of the fort’s ramparts and surviving interior features, establishing elements of the fort’s size, construction methods, use and chronology, as well as providing evidence of Roman activity beyond the fort’s walls to the east. This activity to the east of the fort was not well understood, although the 1977–81 excavations revealed evidence of occupation suggesting the presence of an annexe or extramural civilian settlement (Holmes 2003: 3).

Since the fort’s initial rediscovery in the 1950s, it has been the subject of over 60 archaeological interventions, of which 12 were undertaken by Charlie Hoy. Aspects of Hoy’s work were summarised by Nicholas Holmes in his 2003 monograph. However, no detailed post-excavation analysis had been undertaken of Hoy’s archive and artefact assemblage from the following 12 sites (Illus 1), nor had they been written up to either Data Structure Report or full publication standard:

- Site 1 Cramond Tower 1978–86 (three sites)
- Site 2 Cramond Road I 1978–86
- Site 3 Cramond Road II 1986–90
- Site 4 Dunfermline College Union 1982
- Site 5 Cramond House Garden 1976 (Site H)
- Site 6 Cramond Pipeline (EAFS) 1978

- Site 7 Dunfermline College Games Hall 1979
- Site 8 Dunfermline College Path 1981
- Site 9 Cramond Car Park Kennels 1980
- Site 10 Cramond Woods 1981
- Site 11 Cramond School House 1982
- Site 12 Cramond 'Dan Gidda' 1984

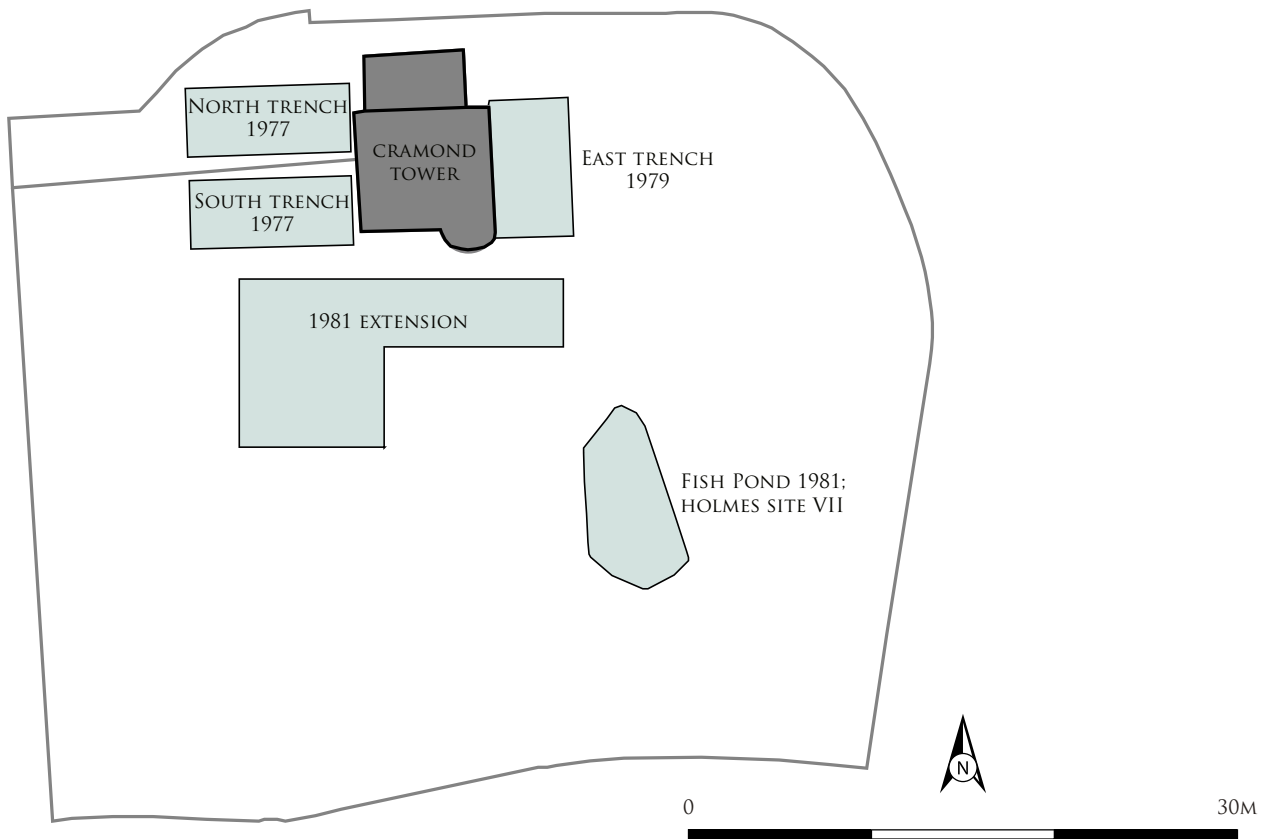
Following the death of Mr Hoy, the site archives were dispersed between the City of Edinburgh Council, the Cramond Heritage Trust and Mr Hoy's estate. The surviving archive has been recovered from all parties, with additional material kindly provided by Val Dean and John and Kathleen Dods. Some previous provisional work had been undertaken by CECAS on the archive material from Cramond Tower (Site 1, see Illus 1 & 2).

In 2013 the existing archive material was assessed and a formal Data Structure Report (DSR) was produced for all 12 sites, including site-specific information, location and dates of investigations (Cook & Lawson 2013). In addition to the material

in the site archives, information was also gathered from Discovery and Excavation in Scotland (DES), and the Edinburgh Archaeological Field Society newsletters and annual reports. This DSR includes a catalogue of the existing archive material, including all the surviving site records and an inventory of the artefact assemblage. The archive record generally consists of photographs, plans and finds lists; contextual information is not abundant. Even where contextual information is available it has not been methodically recorded on the illustrations. The original and initial interpretation of the excavators, where possible, was listed. The present authors' interpretation of the archival evidence is based upon the primary data and by analogy with recent excavations and publications.

4. METHOD

Following the completion and approval of the DSR, a formal Post-Excavation Research Design was written and approved. It was agreed that, while



Illus 2 Plan of excavated trenches around Cramond Tower (Site 1)

all the structural and artefactual material from the 12 sites would be analysed, the priority would be the Roman and medieval assemblages. In addition, the archive material for some minor Cramond sites that will not be discussed as part of this project was described in the DSR (Cramond Inn, Cramond Wall Cavity, Cramond House Tree Roots, Cramond Waterpark, Cramond Heston, Cramond Glebe Road Car Park). All of the primary records and subsequent specialist reports have been prepared for archive with the National Historic Environment Record held by Historic Environment Scotland, and the artefact assemblage is in the care of CECAS.

Of the 12 sites, 11 produced a combination of Roman and/or medieval material, but only four (Cramond Tower, Cramond Roads I and II and Cramond House Garden, Illus 1) provided absolute evidence for Roman activity. In addition, medieval or post-medieval structures were identified at Cramond Tower, while post-medieval drains were identified at Sites 6, 7, 8 and 9 (Illus 1). A large mixed assemblage of post-medieval coins, metal, stone and ceramic artefacts were also identified and catalogued for archive purposes. However, as the main focus of this project is the Roman and medieval phases, the post-medieval features and assemblage will not be discussed in detail further, and the following four sites will form the main focus of this report: Site 1 Cramond Tower; Site 2 Cramond Road I; Site 3 Cramond Road II; and Site 5 Cramond House Garden, which are located to the north-east and east of the fort.

For clarity, Charlie Hoy's original DES and EAFS records will not be referred to in this report, with the subsequent 2013 DSR by Cook & Lawson taking precedence over them.

5. RESULTS

5.1 Site 1: Cramond Tower

Cramond Tower (NMRS: NT17NE 4), a late 15th- or 16th-century tower house, is located to the immediate north-east of the north-east corner of the fort, across the boundary of the annexe/extramural settlement (Illus 1). As a structure and historic house, the Cramond Tower is poorly recorded and as such poorly understood. Although now free-standing, when surveyed in the 19th century the

tower was recorded as having outbuildings of various heights erected against the north, east and west walls (MacGibbon & Ross 1889).

Five trenches were excavated around the tower, during renovation works between 1976 and 1981 (Illus 2). A further phase of works was undertaken between 1987 and 1988, but while a selection of medieval and post-medieval material was recovered from this phase, no contextual information was retained to allow meaningful interpretation.

The investigations around the tower itself identified building foundations to the west and these clearly represent elements of the outbuildings identified in the 19th century. As both buildings were built against the existing tower structure, they represent the later extension of the building. The artefactual material found in association with them is predominantly post-medieval ceramic and glass, although some earlier medieval pottery was recovered along with residual Roman material including amphorae and mortaria (see 6 'The Roman ceramics' below).

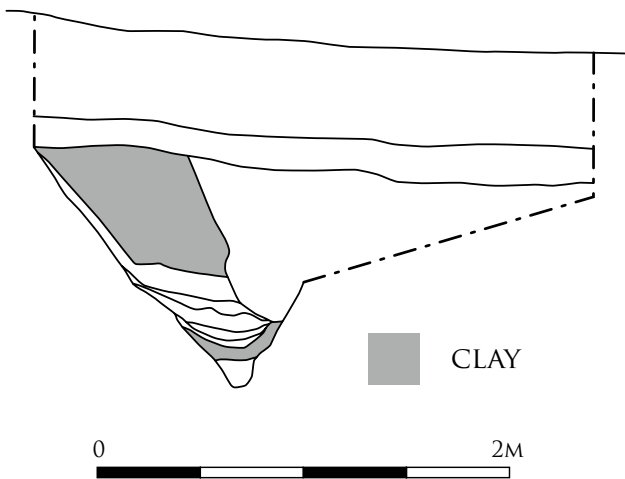
Perhaps the most significant discovery was an approximately NNW/SSE aligned boundary ditch, previously discussed by Holmes (2003: 8–9), located in the area immediately south of the tower. This ditch would appear to run at right angles to the projected line of the eastern ditch of the fort's postulated northern annexe, extending to the north of the Roman fort towards the sea and enclosing an area containing the fort's bath house investigated in 1975 (ibid: 12–27). The upper levels of the ditch had been truncated by 18th/19th-century landscaping. However, the surviving portion of the ditch was of standard V-shaped profile with a width of 1.77m and a maximum depth of 1.10m. Initial silting had been followed by a partial re-cut and finally by deliberate backfilling (Illus 3 & 4). Pottery finds suggest an Antonine origin for the ditch, with the re-cut and backfilling occurring at the beginning and end of the Severan occupation (ibid: 8–9). The ditch was cut by a pit infilled with large stones; the date and context of this feature are unknown but are probably of medieval or later origin.

5.2 Site 2: Cramond Road I

The Cramond Road I excavations were undertaken over eight seasons between 1978 and 1986 and



Illus 3 Post-excitation section through the Roman ditch



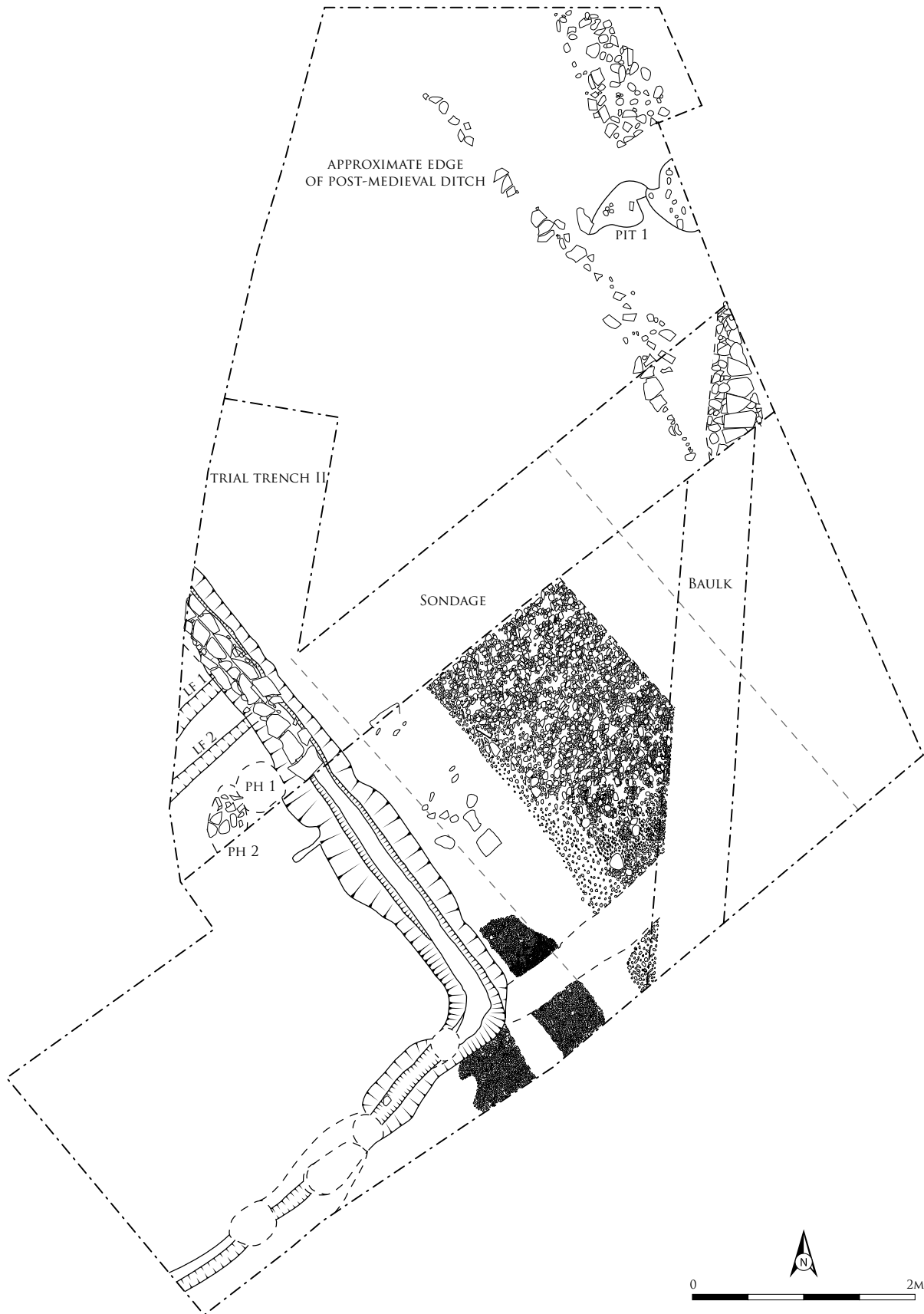
Illus 4 Section through the Roman ditch excavated at Cramond Tower

represent the largest and most comprehensive investigations undertaken by Charlie Hoy at Cramond. The site was located to the east of the main fort complex, but within the confines of the fort's annexe/extramural settlement (Illus 1) discovered during the 1977–8 excavations by Holmes in the

Walled Garden area (Holmes 2003) and most recently recorded by AOC in 2003 (Gooder 2003; Gooder forthcoming). Aligned north-west to south-east, the road connects the eastern entrance to the fort with the south-eastern entrance to the associated annexe (Gooder 2003).

Located over an east/west aligned linear depression, the main trench was excavated in a north/south alignment and contained evidence not only for Roman occupation but also for later medieval and post-medieval activity (Illus 5). In particular, the works identified a well-stratified sequence of road construction and associated Roman building and occupation remains.

A single section was excavated through the road to determine its construction, size and chronological development in relation to the fort. In total, four main phases of Roman road construction were identified (Illus 6–12); Phases 1–3 (Illus 8–10, 12) are of Antonine date while Phase 4 (Illus 10, 11 & 12) relates to the Severan reoccupation of the fort. A further, fifth, phase was identified; this relates to



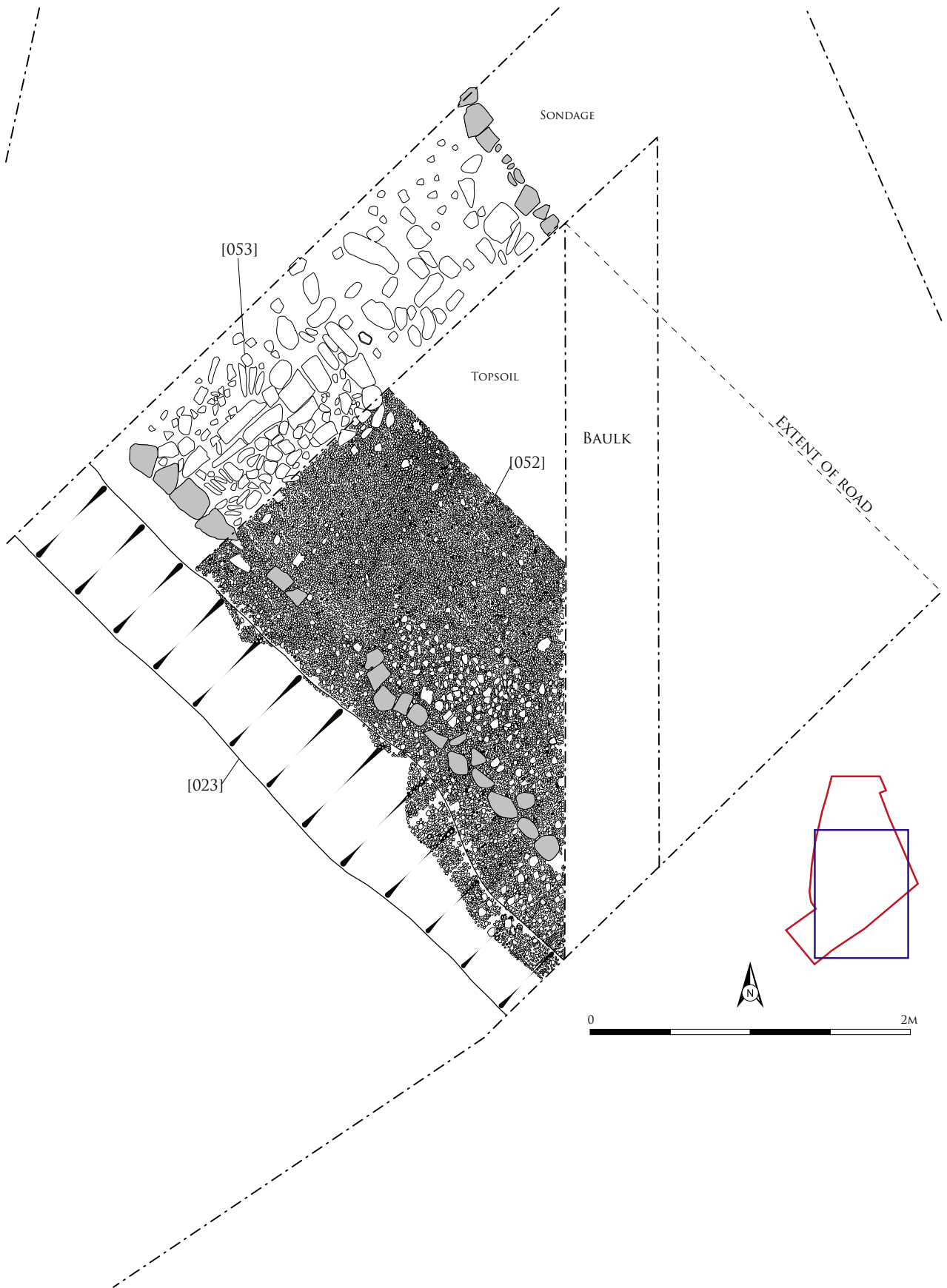
Illus 5 Composite plan of Roman road



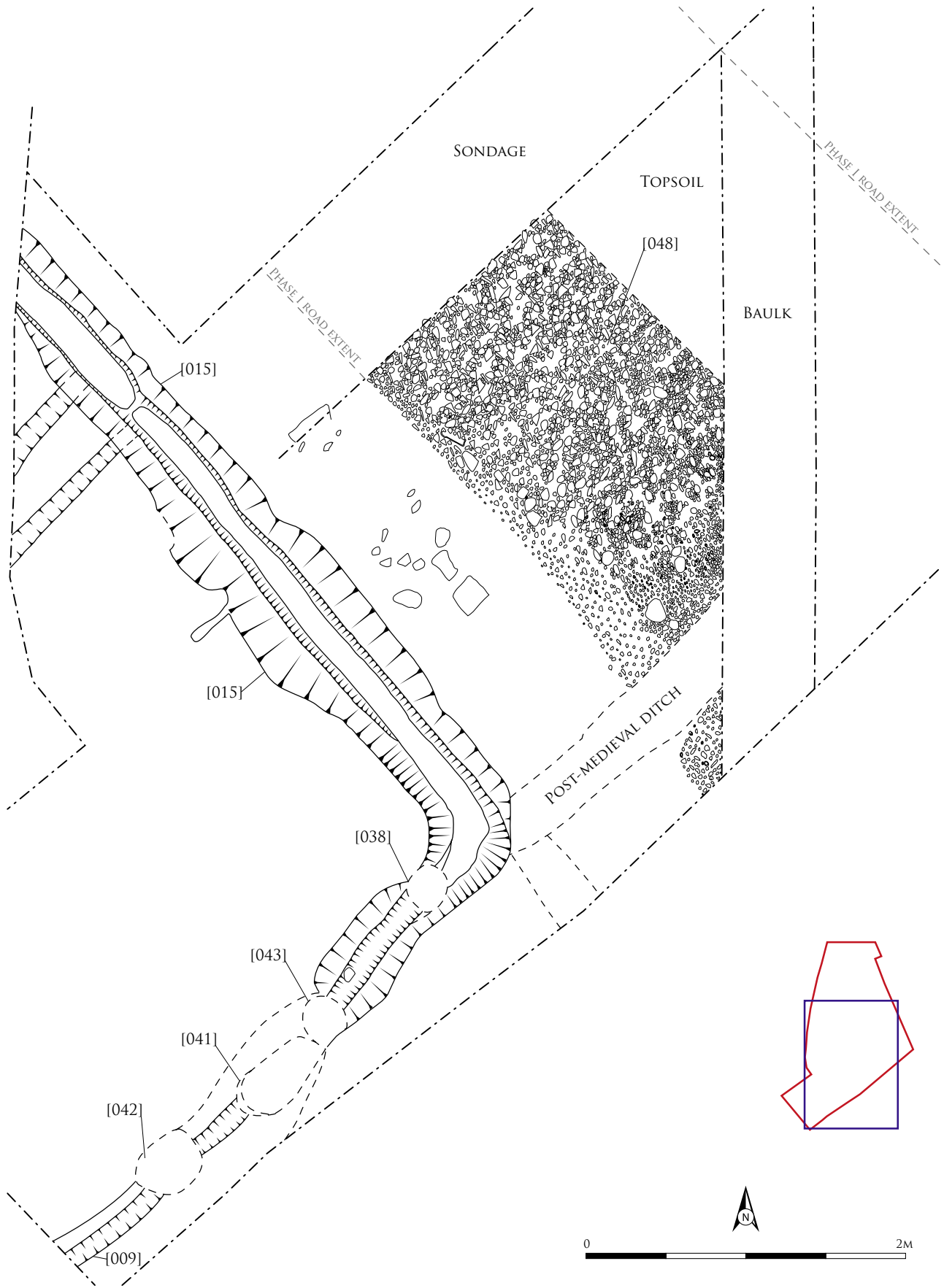
Illus 6 Section through road, showing Road Surface 053, Gully 023 and Drain 014



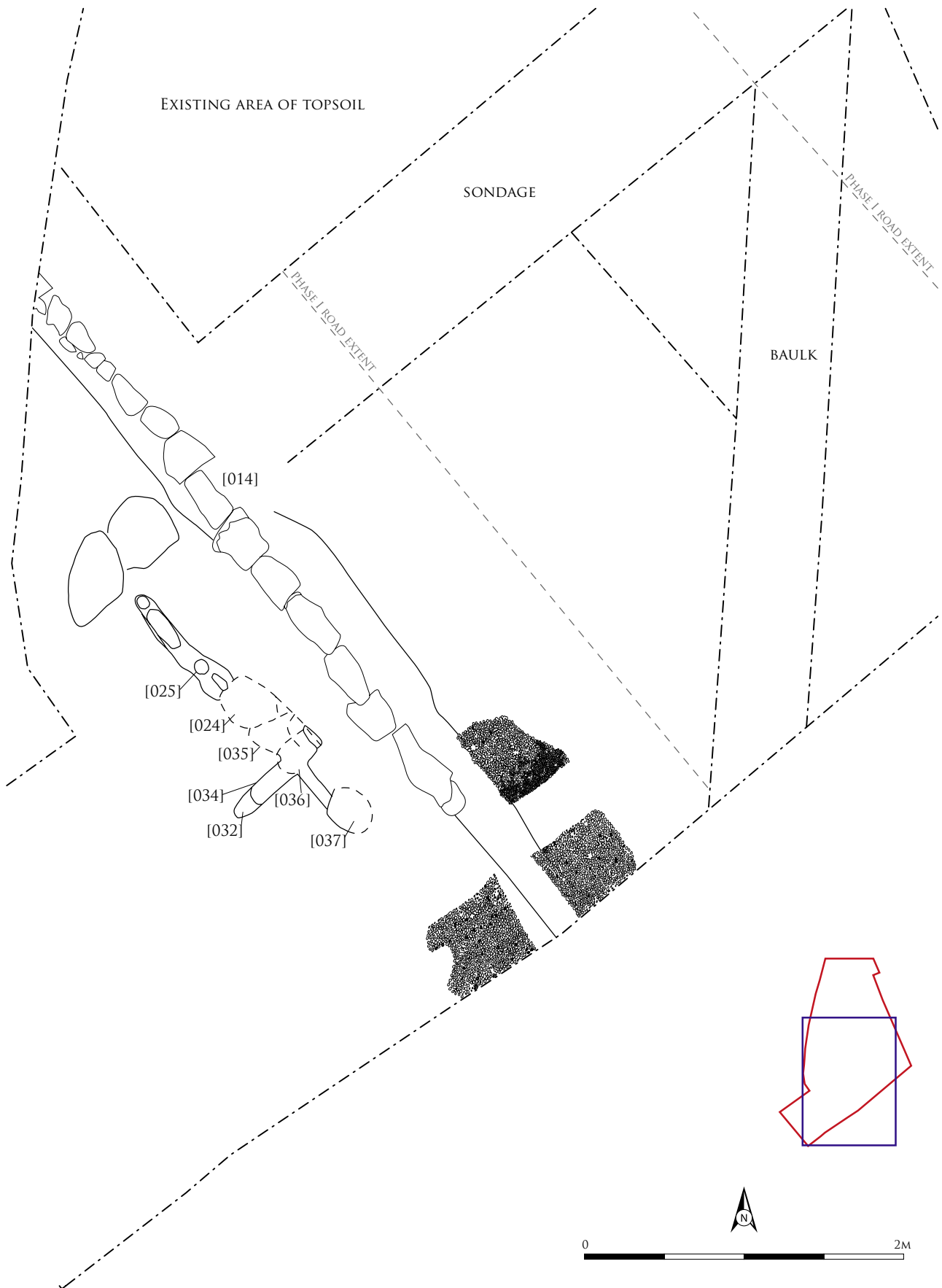
Illus 7 Section through road, detailing Upper Surface 052 and Drain 014



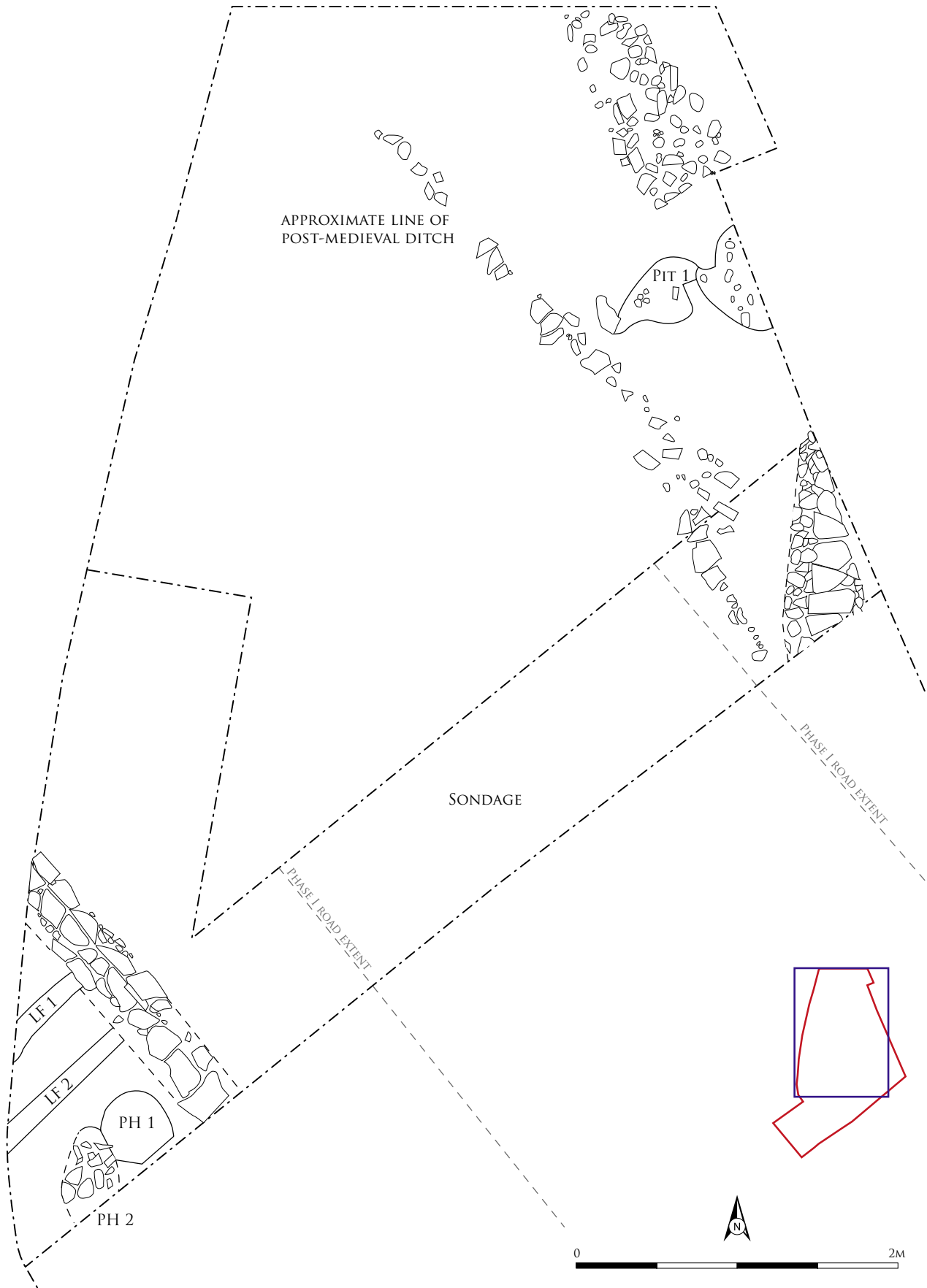
Illus 8 Plan of Roman road Phase 1. The area defined is a detail of that shown in Illus 5



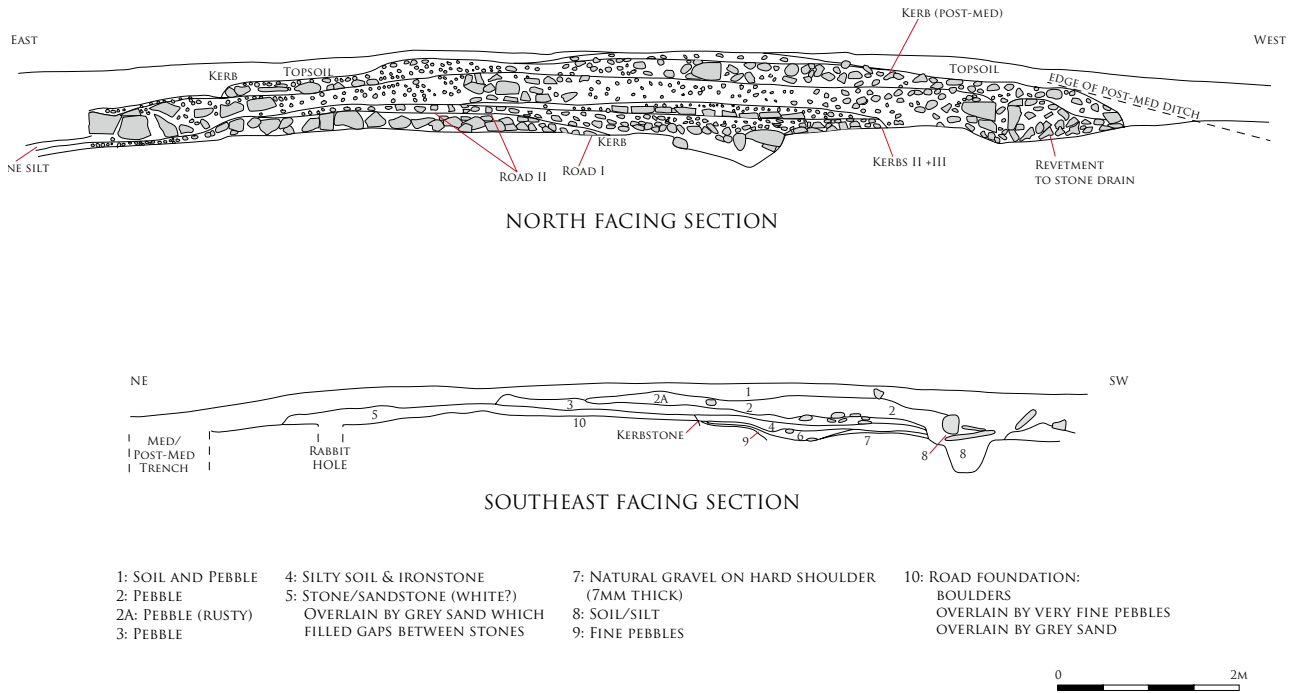
Illus 9 Plan of Roman road Phase 2. The area defined is a detail of that shown in Illus 5



Illus 10 Plan of Roman road Phases 3 & 4. The area defined is a detail of that shown in Illus 5



Illus 11 Plan of Roman road Phases 4 & 5. The area defined is a detail of that shown in Illus 5



Illus 12 Section of the Roman road



Illus 13 Post-excavation detail of Beam Slot 015 from the north-west. Features relating to a later structure immediately west are visible on the right of this shot



Illus 14 Post-excavation detail of Beam Slot 009 from the south-west showing Post Holes 042, 041, 043 and 038

the continued use or reuse of the road during the medieval/post-medieval periods (Illus 11).

The primary road (Phase 1; Illus 8) comprised a 6.09m-wide gravel surface (052) overlying the basal foundation of large stones (053), set in clay. This was associated with a single drainage gully on its west side (023).

During the second construction phase (Phase 2; Illus 9) the road was rebuilt with a layer of boulders and sandstone and surfaced with pebbles and gravel (048). The Phase 1 drainage gully (023) was filled in as a result of this rebuilding. A sestertius of Hadrian was recovered from the backfill of this earlier drainage gully (023), indicating deposition some time after AD 117 (see 12 'The Roman coins' below).

At this time the foundations of a timber building comprising beam slots was constructed to the immediate west of the road. The foundations of the eastern corner of this rectangular building (Illus 9, 13, 14) were defined by two adjoining beam slots (015, 009) and Post Holes 042, 041, 043 and 038. Beam Slot 015 comprised a cut with steep sides running into a slotted, flat base (Illus 9 & 13). Beam Slot 009 measured 3m by up to 1m in width and was



Illus 15 Post-excavation photograph looking south showing the road, Slabs 019, Drain 014, Beam Slot 039 and associated post holes to the west of the road



Illus 16 Post-excavation detail of Post Holes 024, 025, 026, 035, 036 and 037 within Beam Slot 039 from the north-west

punctuated by a series of large, stone-lined post holes (042, 041, 043 and 038; Illus 9 & 14). Measuring at least 4m by 5m in size, the building contained no contemporary features or floor surfaces.

The form of construction and lack of observable deposits is similar to the timber structures identified in the Walled Garden excavations by CECAS in 1977–8 (Holmes 2003: 28–31). Furthermore, the lack of a more comprehensive plan for this building makes interpretation of its function all the more difficult. That said, artefactual material recovered from the structure does include material dating to the Antonine period (see 6 ‘The Roman ceramics’ below). Once the building was no longer in use, it appears to have been deconstructed and the eastern beam slot (015) (Illus 13) was backfilled and built over by a stone drain (014) during the third phase of occupation of the road (Illus 10 & 15).

The road was widened to 9.14m during its third (Antonine) phase of construction using a layer of

stone slabs (019). The eastern foundation of the building was filled in and lined with sandstone slabs to create a drain (014) for the runoff from the road (Illus 15). The recovery of Antonine ceramic from the backfilled building foundation is indicative of the date of these structures and activities (see 6 ‘The Roman ceramics’ below).

The fourth and final phase of the Roman road was constructed over a deep deposit of levelling material, particularly at the edge, where a new stone-built drain was built over the flagstones of the former drain. This phase of occupation consisted of a second timber-built structure defined by a series of large, stone-packed post holes (024, 025, 026, 035, 036, 037), and set within a beam slot (039) (Illus 10, 15, 16). An isolated pit (Pit 1 (011)) to the north-east of the road (Illus 11) contained eight coins covering a date range of 2nd to early 3rd century (see 12 ‘The Roman coins’ below). A group of non-ferrous metal mounts (see Illus 36) also came from Pit 1 (see 11.2.1 ‘The Roman non-ferrous metal objects’ below), although little information about this discovery or their proximity to the coins within the feature is recorded in the surviving archive documentation from the excavation. A small *in situ* vessel found in close proximity to these finds was considered by the excavators to be the source of the coins (Val Dean *pers comm*), suggesting deposition as a discrete hoard. The date range of the coins demonstrates a Severan date for construction in this phase of occupation (see 12 ‘The Roman coins’ below).

In addition to the artefacts described above, a significant assemblage of diagnostic material was recovered from the road, but little comes from taphonomically secure contexts. In 1982 an amphora handle (see Illus 25) made by the 2nd- or 3rd-century potter Scimniano was recovered from the west kerb of the Phase 2 road, demonstrating and supporting an Antonine date at the earliest for construction (see 6 ‘The Roman ceramics’ below). And yet two coins excavated from the west side of this phase of the road were of Severus and Sabina (now lost), while one from the east was of Lucilla (see 12 ‘The Roman coins’ below; see Table 7), suggesting later disturbance of the road surface possibly caused by Severan repairs or modifications.

In summary, the Cramond Road I excavations represent the largest and most comprehensive

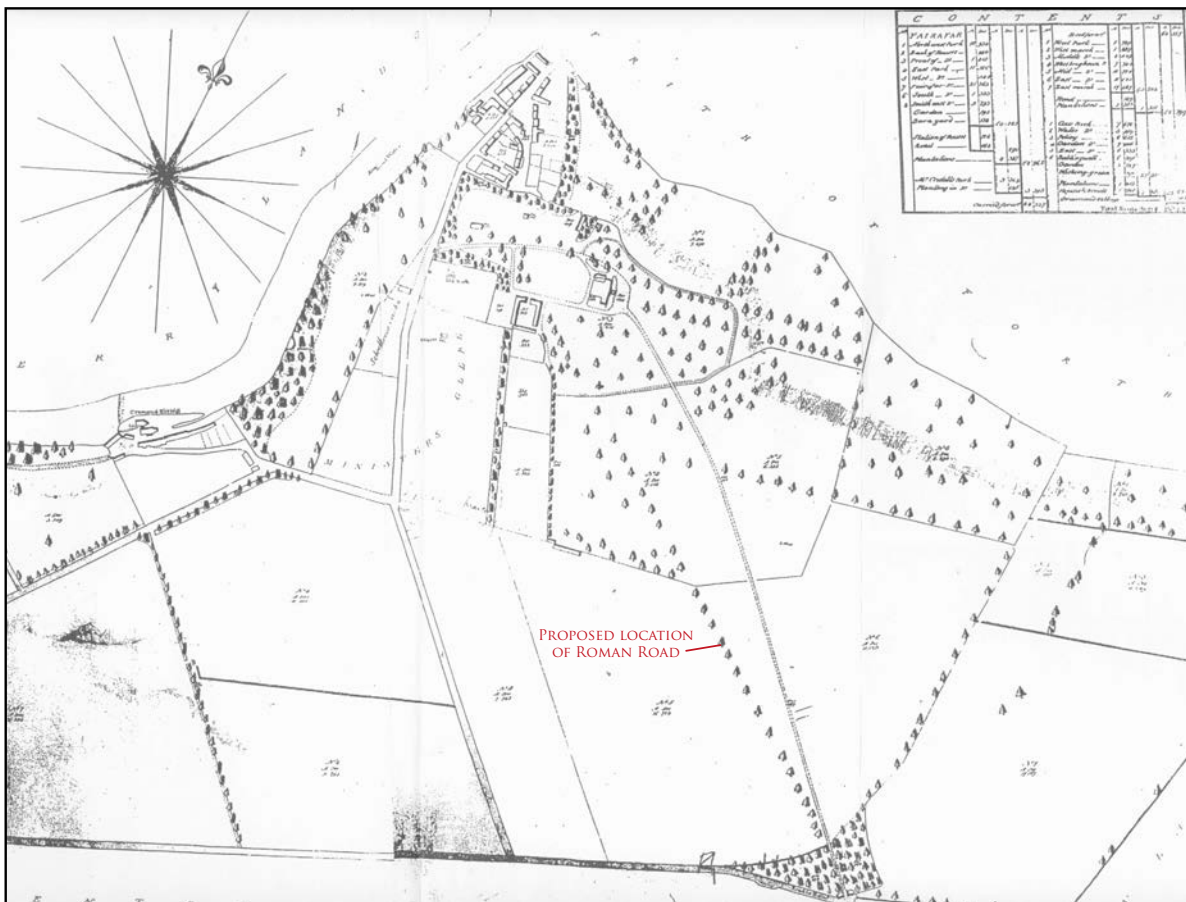
investigations undertaken by Charlie Hoy. The archive suggests that the Roman road comprised four phases, ranging in date between the Antonine and Severan periods. The recovery of medieval and post-medieval material from the road surface suggests that the road could have continued in use until the 17th or 18th century, when the area was subsumed into the designed landscape for Cramond House. This suggestion is perhaps confirmed by the presence of a tree-lined avenue along the proposed location of the road on the 1815 Cramond Estate map (Illus 17).

The Phase 2 Antonine period building identified to the immediate west of the road (Illus 9) is of huge importance, representing the only wooden structure so far securely dated to the Antonine period occurring within the fort's annexe/extramural settlement. The remains of several timber structures were identified by Holmes within the Walled Garden excavations (Holmes 2003, site 1), which he ascribed to an industrial complex relating to the Severan reoccupation of the fort

(ibid: 152–3). Although Holmes records Antonine material from this site, he sees this material as being derived from earlier midden material redeposited within Severan contexts. The occurrence of this 2nd-century Antonine structure does contradict Holmes' view of the area to the east of the fort as being open ground (ibid: 152–3).

5.3 Site 3: Cramond Road II

A second section of the Cramond Roman Road was investigated over three seasons between 1988 and 1989 (NGR: NT 192 768) to the south of Cramond Road I. This was undertaken to determine the construction and phasing of the feature and to establish how it compared to the same road excavated in the first phase of works (Illus 18). Unfortunately, the surviving archive was poor in comparison with the original Cramond Road I excavations. However, it is clear from the documentation that does survive that the two lengths of road excavated represent separate lengths of the same Roman road, with



Illus 17 Cramond Estate Plan (after Bauchop 1815). © Hopetoun Papers Trust. National Register of Archives Scotland, RHP 6866

the same phases of construction and use that were observed from the Cramond Road I investigations.

The primary phase of construction comprised a 5.5m-wide road, built using large boulders and built on to the underlying natural clay. The road had a prominent camber, an area of fine cobbling on the east, and a shallow drainage feature on the west. The road was enlarged during the secondary phase to a width of 7.5m, by extending its west side. The road was extensively repaired and resurfaced during its third phase of use. In Phase 4 the road was raised considerably both on the east and west sides and widened to 11.4m (Illus 18). Incorporated in this on the west side was a stone-built drain (Illus 19). Roman artefacts including ceramic and daub were recovered from the infill of the drain (see 6 ‘The Roman ceramics’ below). The final phase of recorded Roman activity on site involved the resurfacing of the road with heavier cobbling, which was also used to fill in the earlier drain on the west side of the road.

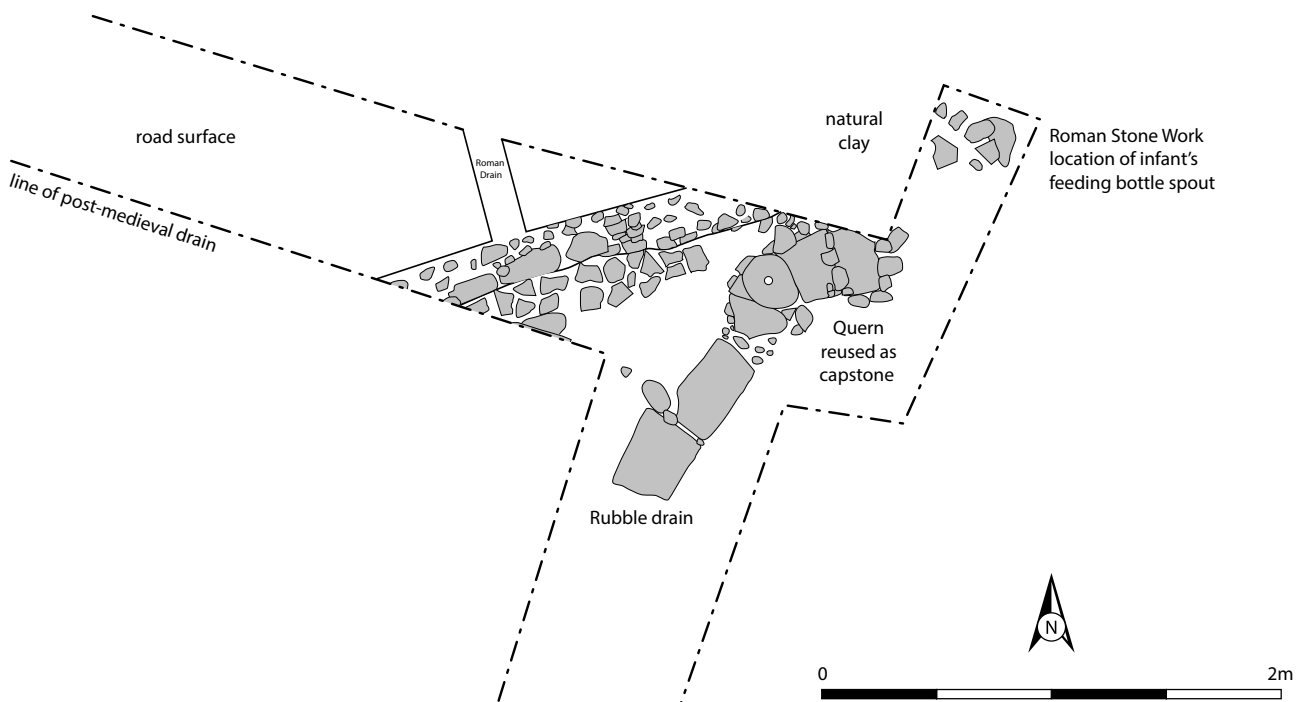
Among the Roman artefacts recovered was the spout of an infant’s feeding bottle, and a disc-shaped rotary quern was found to have been incorporated into the road surface (Illus 18 & 20; see 15 ‘The coarse stone tools and architectural stone’ below).

5.4 Site 5: Cramond House Garden

The monitoring of the construction of storm drains to the immediate south of Cramond House (NGR: NT 191 769) between late 1976 and 1977 identified a series of probable Roman and medieval features (Illus 21). The site was located to the east of the fort, within the proposed limit of the annexe/extramural settlement (Illus 1).

The entire area was covered in a thin layer of topsoil up to 0.18m in depth, which overlay a mixed layer combining probable Roman demolition building debris as well as medieval and post-medieval midden deposits. Finds from this deposit include a roof tile, diagnostic Roman and medieval ceramic and two 17th-century Charles II coins. A thin layer of sandy soil up to 0.08m in depth and containing a rim fragment of hammerhead mortarium and part of a comb decorated vessel (see 6.2 ‘The mortaria’ below), overlay both the natural and some of the features.

The single Roman feature was identified within Pit 3, a circular-shaped pit measuring 1.60m by 1.40m in size (Illus 22 & 23), backfilled by a selection of dressed and undressed stone, some of which was clay bonded. A damaged copper alloy openwork military belt mount was also recovered from the fill, providing a Roman context for the feature (see 11.4.1 ‘Copper



Illus 18 Plan of Cramond Road II



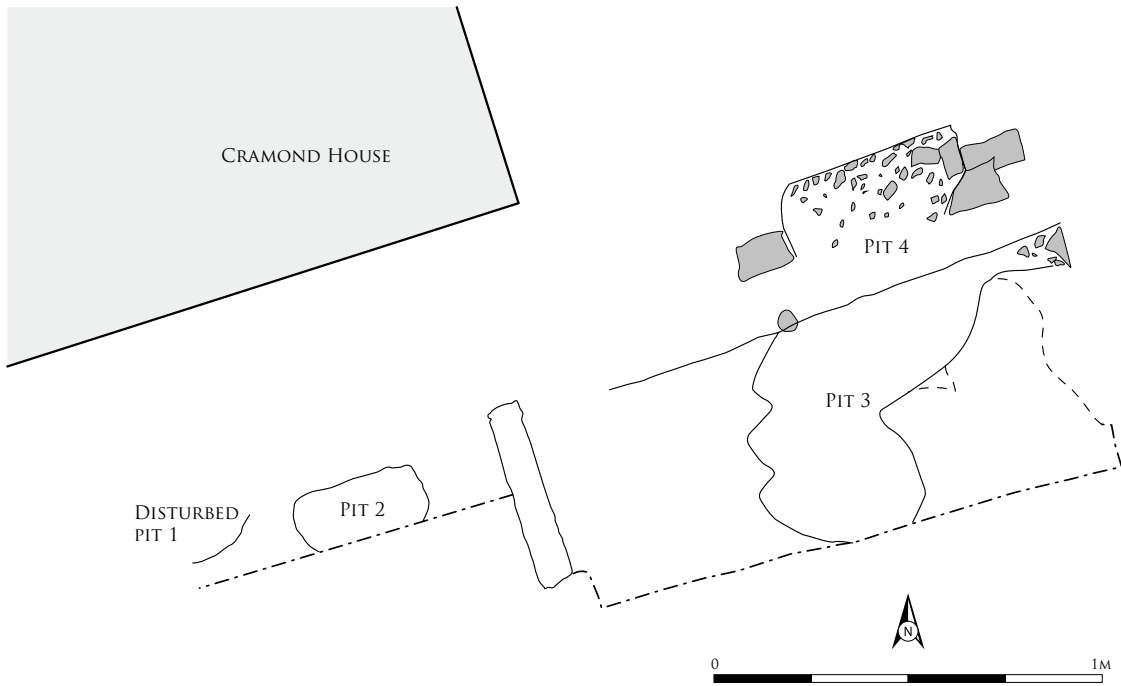
Illus 19 Post-excitation photograph showing section through Cramond Road II, showing drain in the foreground



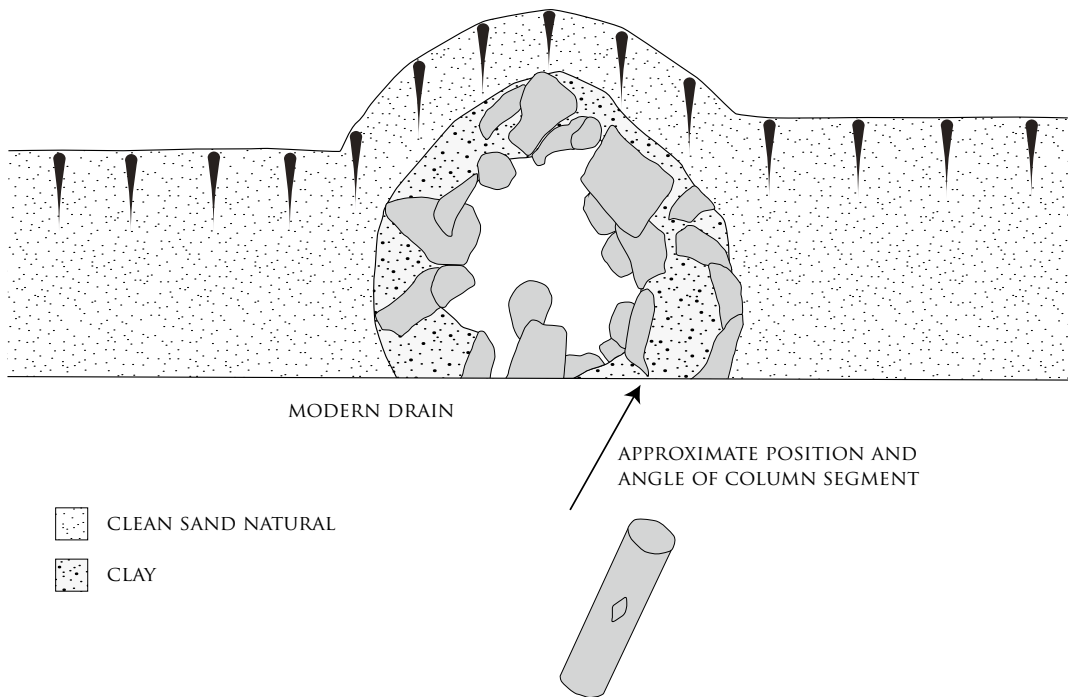
Illus 20 Rotary quern fragment incorporated into surface at Cramond Road II

alloy: Roman' below, catalogue no. 1, Illus 41c). The location of Pit 3, beyond the fort but within the annexe, in conjunction with the Roman metalwork recovered suggests that the feature is Roman. The shape and construction of the feature suggest that it may have been a well, a possibility supported by the high level of the water table at this point, although alternatively it could have acted as a rubbish pit. The presence of dressed stone (Illus 44; see 15 'The coarse stone tools and architectural stone' below) associated with the feature may further suggest that the pit was deliberately backfilled, perhaps at the same time as the demolition of the fort itself.

The probable medieval features in this area of excavation comprised a stone wall and associated hard-packed clay floor, further stone wall foundations, an area of cobbling and a pit containing medieval pottery (Pit 4, Illus 21). Charlie Hoy's interpretation of the wall and associated clay surface focused on a Roman date for construction and use (Val Dean, pers comm), and yet there is no suggestion of this in the surviving archive and no artefactual evidence to support a Roman date for these features. The interpretation of these features here as medieval rests on the recovery of the pottery from Pit 4 and, on the basis of stratigraphy, the features uncovered are



Illus 21 Plan of features excavated at Cramond House Garden



Illus 22 Plan of Pit 3 at Cramond House Garden

likely to be broadly contemporary with one another. These features, and the structures that they represent, certainly pre-date the construction of Cramond House, which was built in 1680. Clearing the land to make way for the construction of the 17th-century house would have been necessary and is known to

have involved the demolition and removal of earlier, potentially medieval structures. It is probable, therefore, that these walls, floor and yard are remnants of a structure within the medieval village.

The artefact assemblages from Sites 1 to 12 were examined and inventoried. The following specialist



Illus 23 Mid-excavation photograph of Pit 3 at Cramond House Garden

reports are edited versions which focus mainly on the Roman evidence, particularly those from Sites 1, 2, 3 and 5. Find numbers assigned during excavation* have been included with catalogue descriptions where present, but due to inconsistencies with the sequence and format, individual ceramic and glass finds have been referred to in the text under catalogue numbers allocated during specialist analysis. The full texts, drawings and appendices will be available as part of the site archive in the National Historic Environment Record housed within Historic Environment Scotland's collections.

* Note: Various find number formats were used by Charlie Hoy on his excavation finds register by year and location of the intervention. The format used generally conforms to an abbreviated site code (eg CT = Cramond Tower, CR = Cramond Road I, CR2 or CR/2 = Cramond Road II, CRH = Cramond House Garden), followed by the year of excavation (eg 83 = 1983) and an individual find number (eg CR/80/120). Exceptions to this are a small number of finds labelled ACT, which also refers to Cramond Tower, and those given a site code and year but no individual find number.

6. THE ROMAN CERAMICS

Alexandra Croom & Paul Bidwell, with contributions by Felicity Wild & Kay F Hartley

The combined sites produced 60.175kg of pottery, consisting of 2,184 sherds, although over 80% by weight came from the two Cramond Road sites (Sites 2 and 3). Many of the sherds were small and in poor condition. The sherd count and weight of all pottery types from each site are summarised in Table 1 below, and the proportion of various ceramic types among the assemblage are outlined in Table 2.

6.1 The samian

Felicity Wild

The collection examined amounted to 130 sherds from a maximum of about 89 vessels, most of which came from the two Cramond Road sites (Sites 2 and 3). As might be expected of material associated with a road surface, it was excessively fragmented, to the extent that it was difficult even to assign a form to many of the sherds, making precise dating within the Antonine period impossible. About 93% of the

Table 1 Summary of pottery by site, weight and number of sherds

| Site | Weight (kg) | No. of sherds |
|------|-------------|---------------|
| 1 | 1.513 | 35 |
| 2 | 27.175 | 957 |
| 3 | 22.997 | 1,029 |
| 4 | 1.469 | 24 |
| 5 | – | – |
| 6 | 2.149 | 35 |
| 7 | 2.176 | 59 |
| 8 | 0.090 | 4 |
| 9 | – | – |
| 10 | 0.256 | 6 |
| 11 | 1.737 | 30 |

material was Central Gaulish. Little (*c* 4%) was recognisably East Gaulish (four vessels, including the decorated bowls nos 11 and 13 below). Site 3 produced two small scraps of South Gaulish form 27, which may appear anomalous, though it is interesting to note that a scrap of South Gaulish form 27 has already been recorded from the bath house (Dickinson 2003: 45). Although of Flavian date, this evidence is insufficient by itself to claim Flavian occupation on the site. Decorated ware, all of form 37, amounted to about 21% of the total, though in most cases the pieces were too small for identification or to be worth illustration.

A number of the Central Gaulish pieces were in an unusual fabric, light orange with a very matt orange slip and unusually micaceous, probably the result of an aberrant firing at a temperature

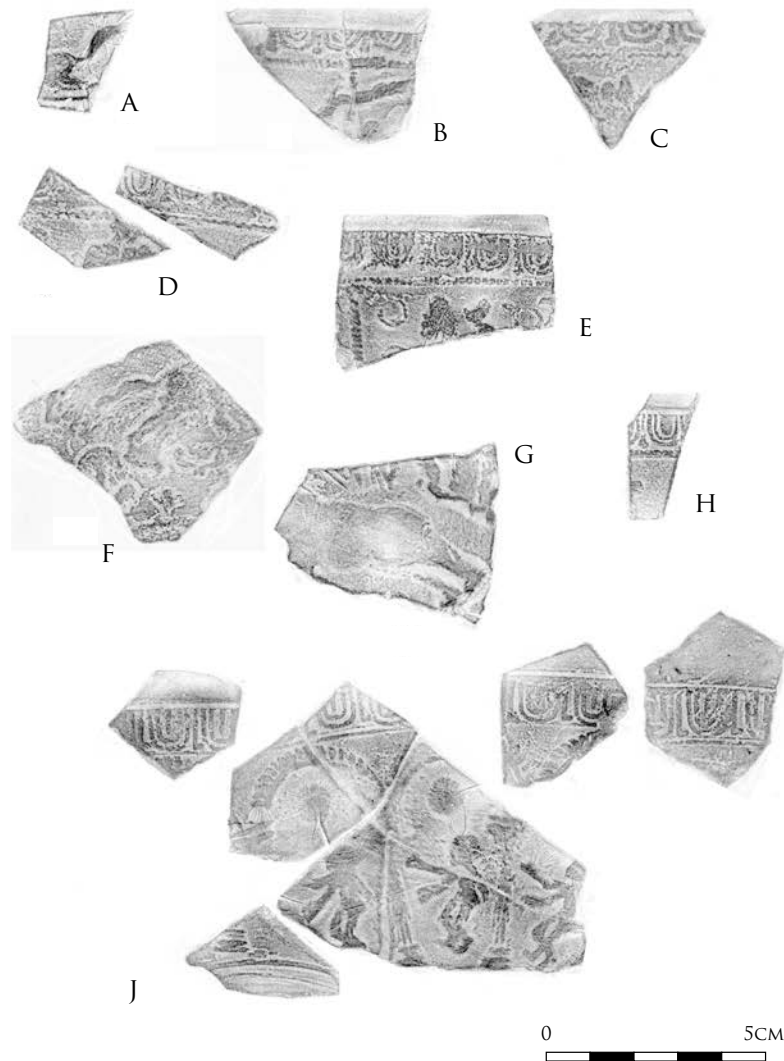
too low to burn out the mica. Dickinson noted a similar phenomenon among the later pieces from other sites at Cramond, which she attributed to manufacture at a time when the quality of Central Gaulish workmanship was in decline (Dickinson 2003: 42). Here, the pieces from Site 2 may well fit into this profile, including the sherd with Iullinus' ovolo (no. 3 below). However, two of the three sherds in this fabric from Site 3, no. 9 below and a sherd of form 18/31, would appear to be early Antonine. With this range in date, it would even be difficult to argue for a consignment from a single faulty firing.

How much of the material as a whole is likely to belong to the Severan occupation of the site is difficult to assess owing to its fragmentary nature. There were no Central Gaulish examples of form 27, though this was probably fortuitous. Of the dish forms, where sherds were large enough for a certain identification, the earlier forms 18/31 and 18/31R seemed to predominate. Apart from a possible scrap of mortarium form 43 from Site 3, none of the late Antonine forms were identified with certainty. The mortarium scrap, the bowl with Iullinus' ovolo (no. 3) and the bowl from Trier (no. 11) are likely to have been in use in the 3rd century; the black samian beaker and the stamp of Habilis (no. 14) may have been. Beyond that it is impossible to say.

In the report below the material is summarised by site, with stamps, decorated ware and pieces of special interest numbered and described in detail (Illus 24). Potter and die numbers are from Hartley & Dickinson (2008–12). Underlining denotes ligatured letters. In describing the decorated ware,

Table 2 Summary of pottery types from all sites, by weight, number of sherds and Estimated Vessel Equivalent (EVE)

| Type | Weight (kg) | No. of sherds | EVE |
|--------------|---------------|---------------|--------------|
| Amphorae | 44.025 | 743 | 170 |
| Mortaria | 0.822 | 37 | 67 |
| Samian | 0.882 | 130 | 124 |
| Fine wares | 0.066 | 13 | 2 |
| Coarse wares | 14.380 | 1,261 | 1,391 |
| <i>Total</i> | <i>60.175</i> | <i>2,184</i> | <i>1,754</i> |



Illus 24 Decorated samian ware sherds

figure types are quoted from Oswald (1936–7) (O), Central Gaulish decorative motifs from Rogers (1974) (Rogers) and parallels from Stanfield & Simpson (1958) (S&S), Trier types and motifs from Fölzer (1913) (Fölzer).

6.1.1 Site 1: Cramond Tower

The site produced only two small scraps of samian ware, both Central Gaulish and consistent in date with the occupation of the Antonine Wall: form 18/31 or 31 (80/CT/398), and:

- 1. Form 37, showing the tail of a horse (O 1904) used by Cinnamus and other potters of the Antonine period. (80/CT/442) Illus 24a.

6.1.2 Site 2: Cramond Road I

The assemblage consisted of 69 sherds from 54 vessels, heavily fragmented. Forty-nine were Central Gaulish, of which two were in the fabric of Les Martres-de-Veyre. Two sherds, a bowl sherd and a tiny scrap of uncertain form, were probably East Gaulish. Forms were as follows: 37 (nine examples), 33 (five), 18/31 (one), 31 (one), 18/31R (two), 18/31, 31 or R variant (seven), 38 (one), 46 (one), Curle 15 (one), beaker (one), bowls (three), dishes (three), scraps of uncertain form (nineteen).

There were three sherds in orange, micaceous fabric: form 46 and an uncertain scrap from the 1982 excavations and no. 3 below, all of which could be late 2nd century. The form Curle 15 showed grooves for lead rivets, where it had been repaired.

- ▶ 2. Form 33, Central Gaulish, in Lezoux fabric, stamped [M]A.SV.ETI by Mansuetus ii (die 4b). This die has been recorded at Les Martres-de-Veyre, where Mansuetus may briefly have worked before moving to Lezoux. The present piece is in the fabric of Lezoux. His work does not appear to have been recorded in Scotland before, though it appears on Hadrian's Wall. As this is an early die, this piece fits better into the early Antonine occupation of the site. *c AD 150–70.* (C78/2/291)
- ▶ 3. Form 37, Central Gaulish. Three joining sherds in micaceous orange fabric with matt orange slip. The ovolo is probably Rogers B164, used by Iullinus ii. Decoration otherwise uncertain. A sherd with this ovolo has already been recorded from Cramond (Dickinson 2003: 44, no. 16), though Iullinus' work does not occur elsewhere in Scotland and may well have still been in use in the 3rd century. *c AD 160–90.* (C78/2/375) Illus 24b.
- ▶ 4. Form 37, Central Gaulish, showing ovolo (Rogers B206) with wavy-line border. The ovolo and border were used together by Acurio (S&S pl 165, 1, 2). The leaves are probably part of his tree (Rogers N14), set at an angle, as on S&S, pl 165, 2. *c AD 140–60.* (CR/83/113) Illus 24c.
- ▶ 5. Base sherd from a large beaker, in orange-red fabric with abraded matt black slip inside and out. There are grooves round and above the upright footstand, but no sign of decoration. Black-slipped samian ware, assuming that this is indeed what it is, is uncommon and not closely datable, but was certainly made at Lezoux and during the Antonine period. Beakers such as form 68 sometimes had a black slip (cf Simpson 1973: 50, no. 39, from Lincoln, in the style of Paternus v). The piece is likely to be Antonine, possibly late enough to have been in use during the Severan period. (CR/83/1027)
- ▶ 6. Form 33, Central Gaulish, stamped MALLIACI by Malliacus of Lezoux (die 3a). The die, an early one, has also been recorded at Balmuilty. *c AD 140–60.* (CR2/88/436)
- ▶ 7. Form 18/31-31, Central Gaulish. Base sherd, with part of the stamp lengthways along the break. Illegible and possibly illiterate. Early Antonine. (CR2/88/219)
- ▶ 8. Form 37, Central Gaulish. Five small non-joining scraps showing an ovolo with wavy-line border and part of a figure facing forward (probably O 637). Too little survives of the decoration for certain identification, but the ovolo may be Rogers B18, used by Attianus ii, for whom the figure is also attested. *c AD 125–45.* (CR2/88/437, 439–441, 444) Illus 24d.
- ▶ 9. Form 37, Central Gaulish, in a light orange, micaceous fabric with orange slip. The ovolo (Rogers B19) was used by his potter P16, work in whose style has also been recorded at Camelon and Inveresk. Decoration shows a panel containing Venus (O 305), a type not recorded for him, though the circles in the field are a feature of his style (cf Rogers 1999, fig 74, 3, 5). *c AD 140–60.* (CR2/89/273) Illus 24e.
- ▶ 10. Form 37, Central Gaulish. Sherd from a thick bowl showing freestyle decoration with horseman (O 241). The zigzag basal border, pair of cornucopiae (Rogers U257) and small triple bud (Rogers G112) suggest work in the style of Geminus iv (S&S, pl 66, 20, 21), on which the horseman is also attested. The figure with pelta on the left-hand edge of the sherd appears on S&S pl 66, 19 and could possibly be the upper part of the rider from O 241. Work in this style is sometimes signed by Drusus ii. The two potters were clearly working together at some point in their careers. *c AD 125–45.* (CR2/89/477) Illus 24f.
- ▶ 11. Form 37, East Gaulish. Nineteen sherds in all of a bowl in a style associated with Censor ii and Dexter ii of Trier, with their characteristic

6.1.3 Site 3: Cramond Road II

The assemblage consisted of 52 sherds from 27 vessels. Apart from the pieces noted, all were Central Gaulish and Antonine. Forms were as follows: 37 (six, one East Gaulish), 27 (two, both South Gaulish), 33 (one), 18/31 (three), 18/31 or 31 (one), 18/31, 31 or R (two), mortarium form 43? (one), bowls (three), scraps of uncertain form

ovolo (Fölzer 946, Gard 1937, R2). Decoration shows arcades (Fölzer 808) supported on columns (Fölzer 871) containing a small figure (Fölzer 560) beneath a rosette (Fölzer 855). The type and motifs all appear on work in Censor's style, though no very close parallels are forthcoming to the decoration. The ovolo and arcade occur together on bowls with Censor's stamp (Fölzer Taf 16, 2, 8), the ovolo, type and rosette on an unstamped bowl (Fölzer Taf 17, 15). A sherd in Censor's style from Cramond has already been published (Hartley 1974: 204, no. 26), where it is noted that the piece must be Severan. *c AD 180–220*. (CR2/89/66–7, 110–4, 282, 684–7; CR2/90/5–8, 56, 76, 131, 150) Illus 24j.

6.1.4 Site 6: Cramond Pipeline

One tiny flake of uncertain form, Central Gaulish, Antonine. (C78C + C79C)

6.1.5 Site 7: Dunfermline College Games Hall

► 12. Form 37, Central Gaulish. Scrap with ovolo, almost certainly Rogers B208, used on the late work of Docilis, though on the single impression surviving here, the tip of the tongue appears more rounded than bifid. *c AD 130–55*. (DC79/1) Illus 24h.

6.1.6 Site 8: Dunfermline College Path

One tiny flake of uncertain form, Central Gaulish, Antonine. (PP/81/5)

6.1.7 Site 11: Cramond School House

► 13. Form 37, East Gaulish, with freestyle decoration with the bear (O 1631) and goat (O 1851), types used at Blickweiler (Knorr & Sprater 1927: Taf 78, 23; 79, 17), one of the earlier East Gaulish potteries. Knorr & Sprater illustrate a mould fragment showing both types (ibid: Taf 7, 9). Blickweiler ware has also been recorded at Inveresk (Wild forthcoming), where there is no record of later occupation. A Hadrianic–early Antonine date seems likely. (OSH/82/39) Illus 24g.

► 14. Tiny scrap of form 31 or rouletted variant, Central Gaulish, stamped HABIL[ISF] by Habilis of Lezoux (die 5a). Habilis' work has been recorded from Hadrian's Wall, though not previously from Scotland. His forms suggest that he was at work in the middle of the 2nd century AD. Whether this piece should be attributed to the Antonine occupation or to material still in use in the Severan period is uncertain. *c AD 150–80*. (OSH/82/40)

6.2 The mortaria

Kay F Hartley & Alexandra Croom

A total of 37 mortaria sherds were recovered, weighing a total of 0.822kg. The sources of production of the various vessels identified are summarised in Table 3.

Table 3 Mortaria from all sites, shown as percentages (fabric codes from Hartley 2003)

| Source | Code | Weight (%) | No. (%) | EVE (%) |
|---------------------------------|-----------------------|----------------|-----------|-----------|
| Scotland | Fabrics 9, 13, 14, 18 | 28.5 | 16.2 | 11.9 |
| Scotland/northern England | | 11.6 | 5.4 | 7.5 |
| Canterbury | | 19.7 | 40.5 | 13.4 |
| Colchester/Kent | Fabric 7 | 7.1 | 5.4 | 13.4 |
| Mancetter-Hartshill | Fabric 1 | 13.0 | 16.2 | 20.9 |
| Lower Nene Valley | Fabric 8 | 11.3 | 5.4 | – |
| Norfolk | | 4.1 | 5.4 | 16.4 |
| Soller? | | 4.1 | 2.7 | 16.4 |
| Oxford | Fabric 2 | 0.6 | 2.7 | – |
| <i>Totals (wt / no. / EVEs)</i> | | <i>0.822kg</i> | <i>37</i> | <i>67</i> |

6.2.1 Scotland

There are sherds from at least five vessels, including two sherds from a mortarium possibly made at Inveresk used by the potter EMI[...] (Fabric 9) from Site 1 and a base sherd from another vessel likely to be from the same source from Site 8 (an extremely hard red-brown fabric with thick black core and cream slip). Site 3 produced further sherds from vessels likely to be from Scotland, although their exact source is unknown: a base sherd in Fabrics 13–14, but with a cream slip, and a non-slipped body sherd in the same fabric, and a body sherd in Fabric 18.

6.2.2 Scotland or northern England

There are two sherds, one of which is in a hard cream fabric with some tiny orange-brown patches on the surface. Corbridge is a possible source for the fabric, but if the patches are the remains of a slip then a source in eastern Scotland is more likely, since brown slips on the cream fabric are not a feature of Corbridge products (CR2/89/55). The second sherd is a small scrap of rim in a cream fabric (CR83/1181).

6.2.3 Probably Canterbury

There are 14 sherds of what is likely to be a single vessel, showing some wear. While the profile is typical for mortaria made at Colchester and in Kent, probably at Canterbury, this fabric fits only with the production in Kent. AD 130–70. (CRR86/-; CR2/89/41, 174, 323, 546; CR2/90/152, 229, 231, 271–2, 274, 283–5, 332)

Fabric: pale brown fabric at the surface with orange-brown just below both surfaces reverting to a pale brown core. Self-coloured. Inclusions: frequent, barely visible at $\times 20$, transparent quartz, white chert, black and red-brown material with few slightly larger inclusions. Trituration: mostly white chert with some dark red ?slag, few pinkish quartz.

6.2.4 Mancetter-Hartshill

There were five rim sherds in total, with four dated to AD 180–240 (cf Hartley 2003: illus 50, nos 5, 7; illus 51, nos 31, 32, 37) and one dated to AD 190–250 (similar to Hartley 2003: illus 51, no. 32).

6.2.5 Lower Nene Valley

This consists of a body and base sherd from a burnt, very heavily worn vessel, with iron slag trituration grits (CR83/1347; CRR86/1). These appear to be Lower Nene Valley ware and would thus date to AD 230–400 or later. Another body sherd has previously been found at Cramond (Hartley 2003: 57, no. 17, unstratified).

6.2.6 Norfolk

There is a single example of a mortarium or segmental flanged bowl with distal bead. Fabric: fairly fine-textured, drab cream; softish and powdery in texture; self-coloured. Inclusions: few, ill-sorted and random, quartz, with rare red-brown and black material. The fabric fits with production in East Anglia and the rim-profile is notably typical for a source in Norfolk, probably Brampton (for examples, see Atkinson 1936: facing page 230, R14–R15). Another mortarium from Brampton is recorded from Cramond (Rae & Rae 1974: 208, no. 3 and fig 20, no. 3).

6.2.7 Oxford

There is a single body sherd. This ware is traditionally dated to AD 180–240, although a start date closer to the middle of the century is possible (Hartley 2003: 50).

6.2.8 Discussion

The assemblage consists generally of small sherds, and a large proportion come from a single vessel, but overall the sources represented are typical for Cramond (Hartley 2003: table 1). The most interesting sherds are those from the probable Lower Nene Valley vessel, which is likely to date from after AD 240, although with no rim present the dating cannot be certain. One mortarium of Vediacus, an Antonine potter who probably worked in Northamptonshire, has only iron slag as the trituration grit, so that practice could occur in the early 3rd century and on occasion even earlier, but it would be highly exceptional and Lower Nene Valley mortaria rarely reached sites well away from the production sites before c AD 230 and perhaps later.

6.3 The amphorae

6.3.1 Overview

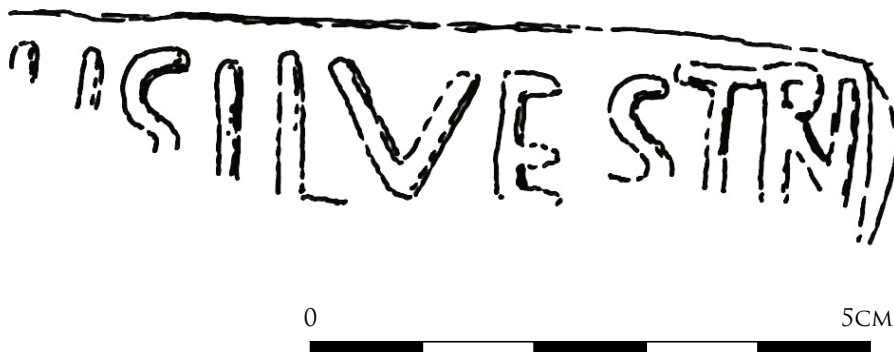
The combined sites produced 743 sherds of amphorae, weighing a total of 44.025kg (Table 4). It made up 70% of the whole pottery assemblage by weight and 31% by sherd count. This is a high figure, even for a military site in northern Britain, although even higher proportions, of over 80%, are said to be typical on Scottish sites (Fitzpatrick 2003: 61). A very similar proportion to that of Cramond has been seen at Bearsden Roman Fort (Bidwell & Croom 2016a), where amphorae made up 72% by weight and 36% by sherd count.

As is usual for sites in Britain, sherds of Dressel 20 amphorae in BAT AM fabrics make up the majority of the assemblage. These vessels typically held olive oil imported from Spain. There are a noticeable number of body sherds, found across four of the sites, that are thin-walled (*c* 12mm), usually a characteristic of Dressel 23 amphorae dating to after the mid 3rd century. There were eight rims

in all, some in poor condition, one of which, from Site 11 (OSH82/1), had the slight dip on the upper surface of the rim common on Severan examples (cf Monfort & Funari 1998: fig 76). There was one sherd from the Cramond Road sites that was burnt round the edges and might have been used as a pot lid (CR2/88/291), and two handles and a rim that may have been used as polishers or similar, but could just be the result of wear from being incorporated in a road surface (CR83/1395, CR2/88/325, CR2/90/210). The presence of Gauloise amphorae, which were for wine, is of note, as previously only Dressel 20 amphorae have been identified from the site (Holmes 2003: 48). The Gauloise sherds were all body sherds and could not be assigned a type, although elsewhere in Scotland the Gauloise 4 seems to have been the most common type in the Antonine period (Fitzpatrick 2003: 62). These Gauloise amphorae are typically from southern France. Site 3 produced the only example of an amphora lid, in a soft, gritty cream fabric (CR2/89/344).

Table 4 Amphorae from all sites, shown as percentages (NRFRC = National Roman Fabric Reference Collection code, from Tomber & Dore 1998)

| Fabric | NRFRC | Weight (%) | No. (%) | EVE (%) |
|---------------------------------|--------|-----------------|------------|------------|
| Baetican | BAT AM | 99.2 | 97.3 | 90.0 |
| Gaulish | GAL AM | 0.7 | 2.4 | |
| Unidentified | | 0.1 | 0.1 | |
| Lid | | <0.1 | 0.1 | 10.0 |
| <i>Totals (wt / no. / EVEs)</i> | | <i>44.025kg</i> | <i>743</i> | <i>170</i> |



Illus 25 Stamped amphora handle (CR2/89/261)

6.3.2 The handle of a Dressel 20 amphora

► **Catalogue no. 1. CR2/89/261**

]SILVESTRI

L I SILVESTRI Callender 877; cf CEIPAC 16991

The stamp (Illus 25) closely matches an example found in Silchester (CEIPAC 16991) identified as a SILVESTRI stamp (without the L I). The Cramond stamp, although damaged, is more complete and indicates a full reading of L I SILVESTRI (cf CEIPAC 8009). A previous fragmentary stamp from Cramond is almost certainly another example of this stamp (Holmes 2003: illus 40, no. 3). This is not a common stamp, and the only suggested date is the first half of the 2nd century (Callender 1965: 158). Monfort & Funari's list of 16 stamps from Cramond identifies 14 as Severan and one as Hadrianic (Monfort & Funari 1998: appendix 8.1.3).

6.4 The coarse wares

A wide range of coarse wares dominate the ceramic assemblage from Cramond and the broad forms identified are summarised in Table 5 alongside the respective weights and sherd counts of the samian and mortaria groups.

Descriptions for the fabrics with National Reference Collection codes in the tables above can be found in Tomber & Dore (1998). Other fabrics are described below, or within the pottery catalogue.

6.4.1 Black Burnished Ware (BB1)

Most of this is likely to be BB1 from south-east Dorset (SED BB1), but there is at least one sherd of south-west BB1 (SOW BB1), and a large number of sherds of BB1 with a very grey appearance, which are likely to come from some other, perhaps northern, production site, possibly Rossington Bridge.

- Cooking pot: catalogue no. 5 (Illus 26e).

6.4.2 Black Burnished Ware (BB2)

- Cooking pot: catalogue no. 23 (Illus 30e).
- Bowl/dish: catalogue no. 9 (Illus 28a).

6.4.3 South-east reduced ware

Fabrics from a number of production sites in south-east England (see Bidwell & Speak 1994: 228–31, 'fabrics allied to BB2' for a discussion of the types and <http://collectionsprojects.org.uk/archaeology/Ceramic%20Database/type%20series.html> for a type series). It is rare in the north before the Severan period. A small quantity was recovered from Sites 2 and 3.

6.4.4 Sandy reduced ware

Sandy dark grey fabric sometimes with buff margins. It can have a smooth black surface, but this is often eroded down to the buff layer.

6.4.5 Smooth grey ware (Ford 2003: miscellaneous grey wares)

Micaceous light grey fabric with very fine, well-sorted inclusions that are not very noticeable. Used for cooking pots and storage jars, with only a couple of sherds from bowls or dishes.

- Cooking pot: catalogue no. 7 (Illus 26f).

- Storage jar: catalogue no. 19 (Illus 30b).

6.4.6 Grey ware 1 (GW1) (Ford 2003: miscellaneous grey wares)

Micaceous light grey fabric, with fine white quartz inclusions and small, angular black inclusions.

- Storage jar: catalogue no. 20 (Illus 30c).

- Cooking pot: catalogue no. 6 (Illus 27a).

- Casserole: catalogue no. 8 (Illus 27b).

6.4.7 Grey ware 2 (GW2) (Ford 2003: miscellaneous grey wares; Evans 2006: R06)

Micaceous light grey fabric, with noticeable fine white quartz inclusions. There are very few black inclusions, as in grey ware 1, but sometimes there are very fine voids that can look like them.

- Storage jar: catalogue no. 30 (Illus 32d).

- Cooking pot: catalogue no. 22 (Illus 30d).

Table 5 Pottery from all sites (excluding amphorae), shown as percentages (NRFRC = National Roman Fabric Reference Collection code, from Tomber & Dore 1998)

| Type and fabric | NRFRC | Weight (%) | No. (%) | EVE (%) |
|---------------------------------|------------------|----------------|--------------|--------------|
| Samian | | 5.4 | 9.3 | 7.8 |
| Mortaria | | 5.1 | 2.6 | 4.2 |
| Fine wares | | | | |
| Cologne | KOL CC | 0.1 | 0.5 | |
| Central Gaulish black slip | CNG BS | 0.1 | 0.1 | |
| Lower Nene Valley | LNV CC | <0.1 | 0.1 | |
| Poppyhead beaker | | <0.1 | 0.1 | |
| Mica-dusted | | 0.1 | 0.1 | |
| Unidentified red-slipped | | <0.1 | 0.1 | 0.1 |
| Coarse wares | | | | |
| BB1 | SED & SOW BB1 | 9.9 | 11.7 | 14.2 |
| BB2 | BB2 | 4.2 | 6.6 | 9.3 |
| South-east reduced | | 0.7 | 0.3 | 0.4 |
| Sandy reduced | | 12.8 | 7.1 | 2.1 |
| Smooth grey | | 8.3 | 7.1 | 8.0 |
| Grey ware 1 | GW1 | 5.8 | 4.6 | 9.3 |
| Grey ware 2 | GW2 | 10.1 | 7.9 | 8.5 |
| Highly micaceous grey | | 1.2 | 1.0 | 4.2 |
| Gritty reduced | | 4.6 | 2.4 | 0.5 |
| Buff | | 2.5 | 3.0 | 0.9 |
| Organic-tempered | | 0.8 | 1.2 | |
| Minor reduced | | 2.2 | 3.3 | 2.1 |
| Severn Valley | SVW OX 2 | 1.6 | 1.5 | |
| Red oxidised core | | 5.8 | 5.6 | 5.6 |
| Micaceous oxidised | | 4.4 | 5.9 | 9.5 |
| Minor oxidised | | 4.9 | 5.8 | 5.0 |
| Highly micaceous pink | | 1.5 | 1.0 | |
| White wares | | 0.6 | 1.2 | 2.0 |
| Unclassified reduced | | 3.8 | 5.1 | 4.2 |
| Unclassified oxidised | | 3.3 | 4.8 | 2.0 |
| <i>Totals (wt / no. / EVEs)</i> | | <i>16.15kg</i> | <i>1,441</i> | <i>1,584</i> |

6.4.8 Highly micaceous grey ware

Fine, light grey fabric, with ill-sorted, soft black flecks up to 1mm across and abundant silver mica plates. Used especially for small jars.

- ▶ Small jar: catalogue no. 17 (Illus 29c).

6.4.9 Gritty reduced ware

Thick-walled grey or buff/brown fabric with plentiful rounded quartz inclusions. Used for storage jars.

6.4.10 Buff wares (Ford 2003: miscellaneous buff wares)

Probably a number of different wares in buff fabrics; may include fabrics such as sandy reduced ware that has lost its surfaces.

6.4.11 Organic-tempered ware

A small number of body sherds were recovered from Site 3, probably all from a single vessel. Black exterior, grey core and orange interior surface, with voids from tempering with organic or other material that has dissolved. A few shell-tempered vessels have previously been found at Cramond, as well as a single grass-tempered cup (Ford 2003: illus 75; see Evans 2006: 9 for a discussion of their likely origins from a number of different Romano-British production sites).

6.4.12 Minor reduced wares (Evans 2006: R01)

A number of different fabrics that appear only in small quantities, including a number of sherds of a probable local grey with a white core, which has also been seen at Inveresk (Croom & Bidwell forthcoming).

6.4.13 Red core oxidised ware

This is represented by a single vessel from Site 3. Pale, micaceous orange fabric with a red core. It has fine, scattered quartz, very fine, hard grey inclusions and rare soft red inclusions.

- ▶ Narrow-mouthed jar: catalogue no. 18 (Illus 30a).

6.4.14 Micaceous oxidised ware (Ford 2003: local oxidised wares; Evans 2006: O05, O07)

Micaceous orange fabric with fine sand temper, mica plates, and occasional soft red and dolerite inclusions, up to 3mm across. The quartz inclusions are generally fine, but occasional pieces can be up to 2mm across. A 'fine' version has less temper.

- ▶ Flagon: catalogue nos 3 (Illus 26d) & 15 (Illus 29a).

- ▶ Beaker: catalogue no. 4 (Illus 26c).

- ▶ Cauldron: catalogue no. 24 (Illus 31a).

- ▶ Casserole: catalogue no. 25 (Illus 32a).

- ▶ Bowl: catalogue nos 27, 28, 29 (Illus 32c, 31b, 31c).

6.4.15 Fine micaceous ware

- ▶ Storage jar: catalogue no. 21 (Illus 29d).

- ▶ Casserole: catalogue no. 2 (Illus 26b).

- ▶ Platter: catalogue nos 13 & 14 (Illus 28c & 28d).

6.4.16 Minor oxidised wares (Ford 2003: miscellaneous oxidised wares; Evans 2006: O08)

A number of different fabrics that appear only in small quantities. Individual fabric descriptions are given in the catalogue.

6.4.17 Highly micaceous pink ware

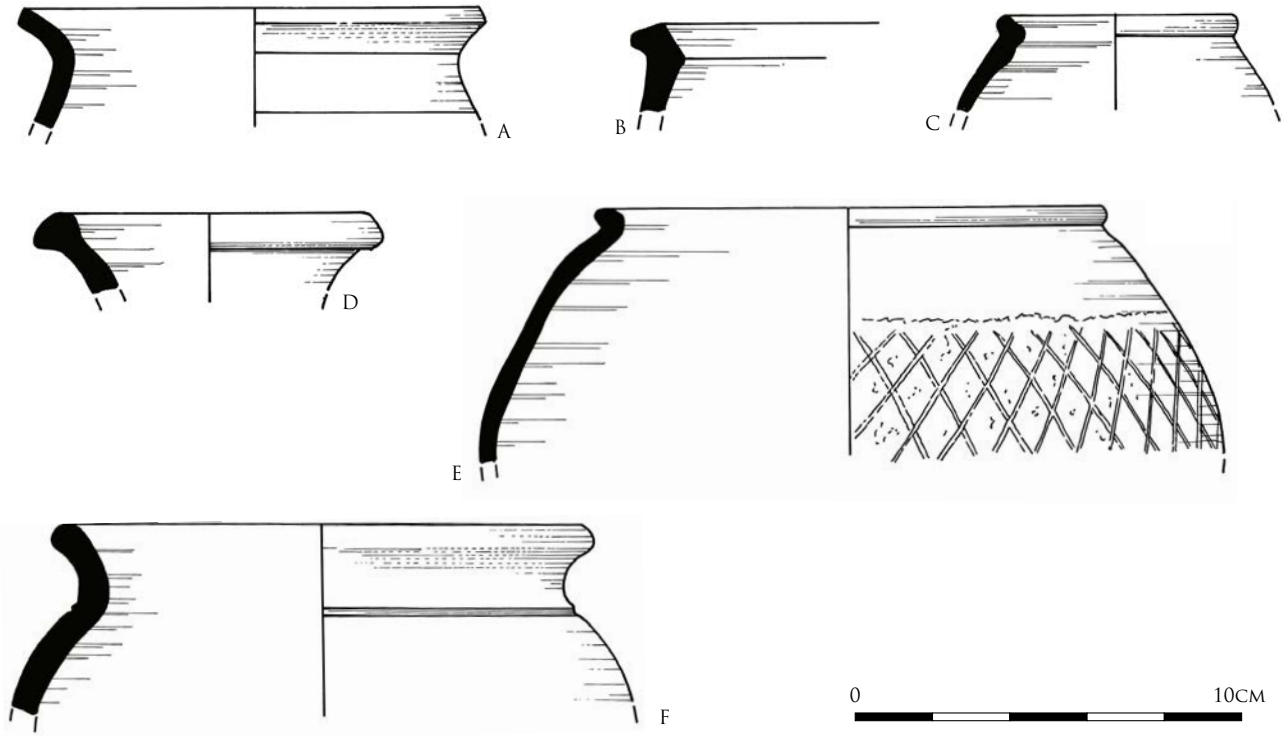
Pink fabric with plentiful soft red and soft white inclusions. The surfaces, which can be cream, are highly micaceous. There are sherds from a flagon or flagons from Sites 2 and 3 and a tetterine from Site 3. Probably a local product.

6.4.18 White wares

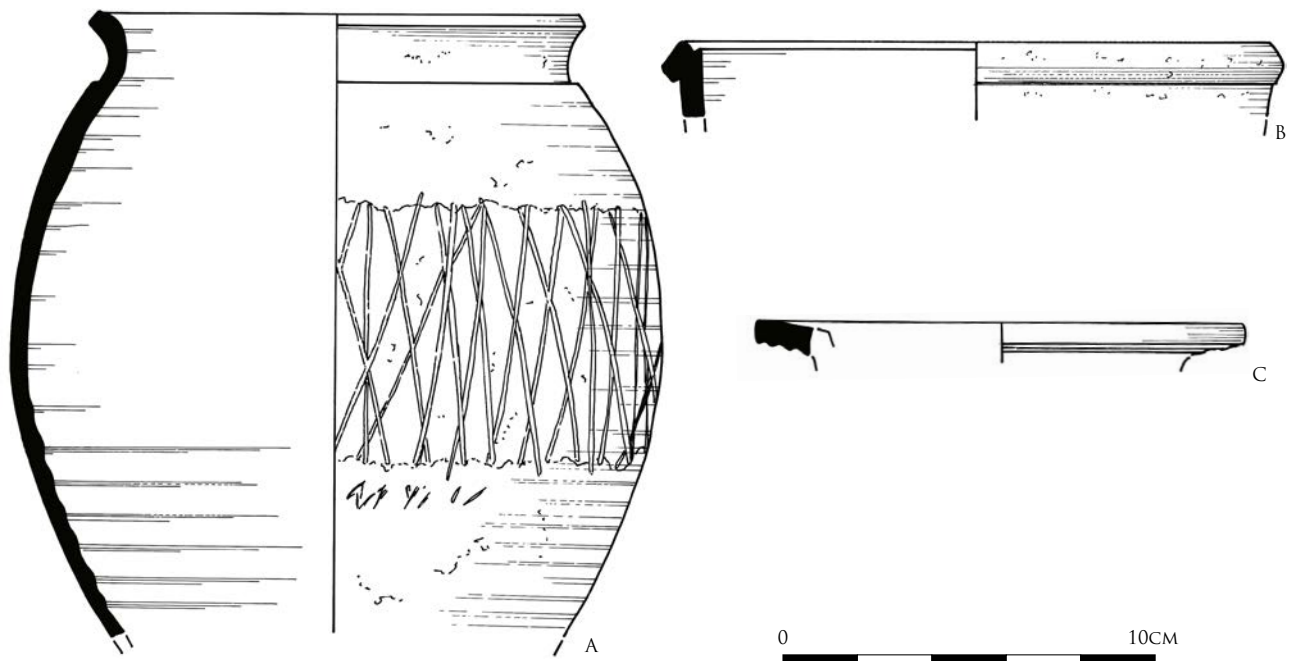
This includes a number of fabrics, mainly used for flagons. Some are likely to be continental imports.

- ▶ Bottle/flask: catalogue no. 16 (Illus 29b).

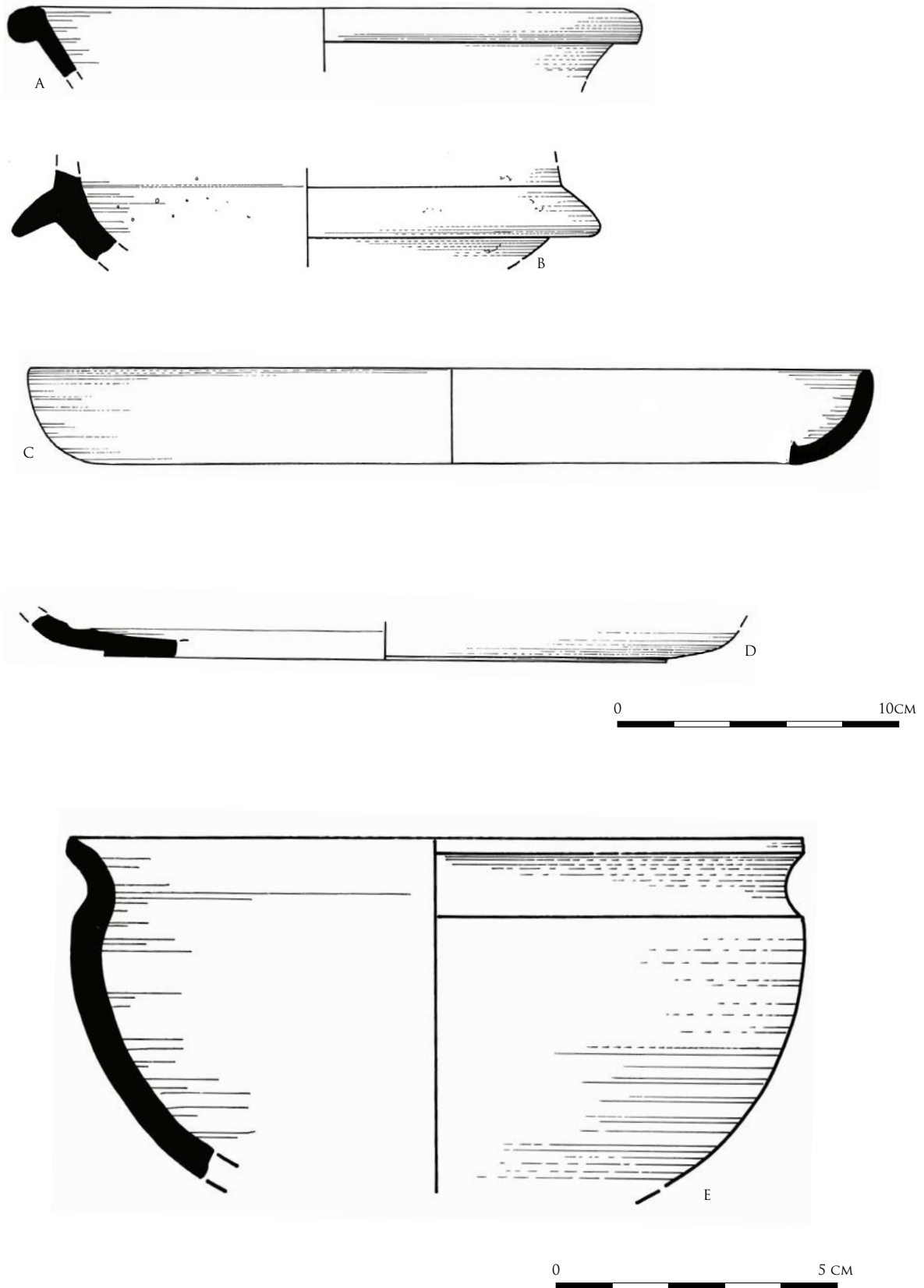
- ▶ Bowl: catalogue no. 12 (Illus 28e).



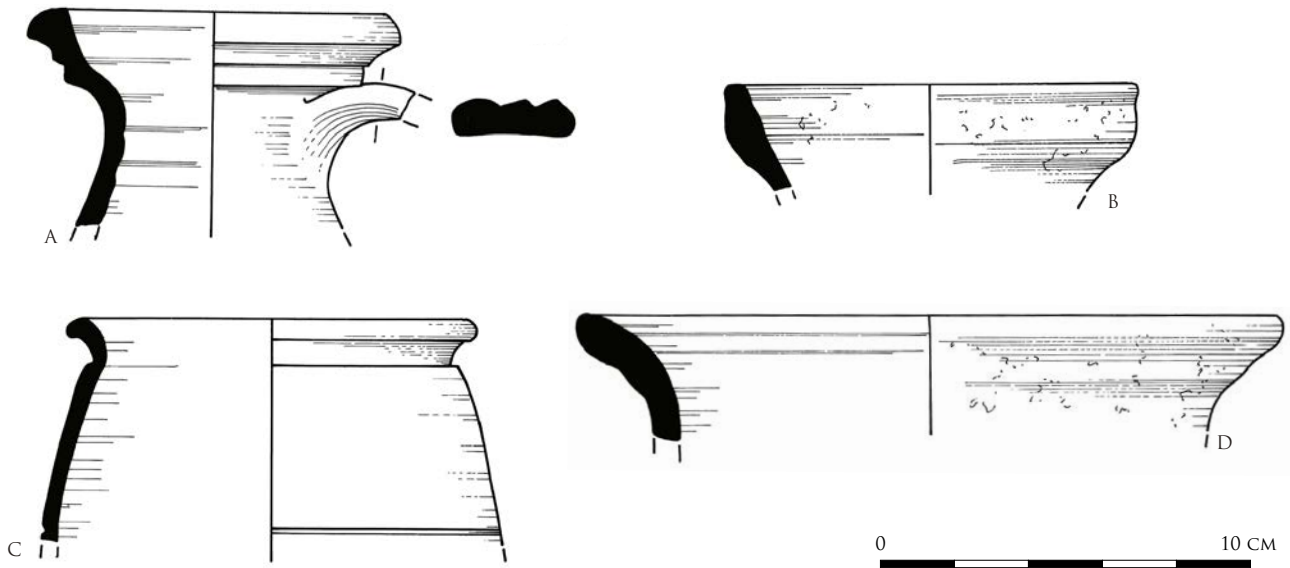
Illus 26 Coarse ware ceramics from Sites 1 and 2: (a) catalogue no. 1, oxidised ware cooking pot; (b) catalogue no. 2, fine micaceous oxidised ware casserole; (c) catalogue no. 4, micaceous oxidised ware beaker; (d) catalogue no. 3, micaceous oxidised ware flagon; (e) catalogue no. 5, BB1 bead-rimmed cooking pot; (f) catalogue no. 7, smooth grey ware cooking pot. Illustration by Alan Braby



Illus 27 Coarse ware ceramics from Site 2: (a) catalogue no. 6, grey ware 1 cooking pot; (b) catalogue no. 8, grey ware casserole; (c) catalogue no. 10, reduced ware groove-rimmed bowl or dish. Illustration by Alan Braby



Illus 28 Coarse ware ceramics from Site 2: (a) catalogue no. 9, BB2 rounded-rimmed bowl/dish; (b) catalogue no. 11, oxidised ware flanged hemispherical bowl; (c) catalogue no. 13, fine micaceous oxidised ware plain-rimmed platter; (d) catalogue no. 14, fine micaceous oxidised ware platter; (e) catalogue no. 12, white ware hemispherical bowl with everted rim. Illustration by Alan Braby



Illus 29 Coarse ware ceramics from Site 3: (a) catalogue no. 15, micaceous oxidised ware flagon; (b) catalogue no. 16, white ware bottle or flask; (c) catalogue no. 17, highly micaceous grey ware jar; (d) catalogue no. 21, fine micaceous oxidised ware storage jar. Illustration by Alan Braby

6.4.19 Unclassified reduced wares

- ▶ Bowl/dish: catalogue no. 10 (Illus 27c).

6.4.20 Unclassified oxidised wares

- ▶ Cooking pot: catalogue no. 1 (Illus 26a).
- ▶ Casserole: catalogue no. 31 (Illus 31d).
- ▶ Bowl: catalogue nos 11 & 26 (Illus 28b & 32b).

6.4.21 Catalogue

6.4.21.1 Site 1: Cramond Tower

▶ **Catalogue no. 1**

Cooking pot. Sooted on the exterior of the rim and its outer edge. The exterior surface is slightly paler in colour than the interior, and may be slipped. Fine hard orange-red fabric with abundant mica and mica plates. CT/81/49. Illus 26a.

▶ **Catalogue no. 2**

Casserole. Fine micaceous oxidised ware. CT/81/50. Illus 26b.

6.4.21.2 Site 2: Cramond Road I

▶ **Catalogue no. 3**

Flagon. Micaceous oxidised ware. CRR/86/89. Illus 26d.

▶ **Catalogue no. 4**

Beaker. Micaceous oxidised, with remains of cream slip. CRR/86/16. Illus 26c.

▶ **Catalogue no. 5**

Bead-rimmed cooking pot. The surface is damaged, but shows traces of lattice. BB1, grey fabric. CRR86/16. Illus 26e.

▶ **Catalogue no. 6**

Cooking pot, with a complete rim and much of the body. Sooting on exterior and under rim. GW1. CRR86/009. Illus 27a.

▶ **Catalogue no. 7**

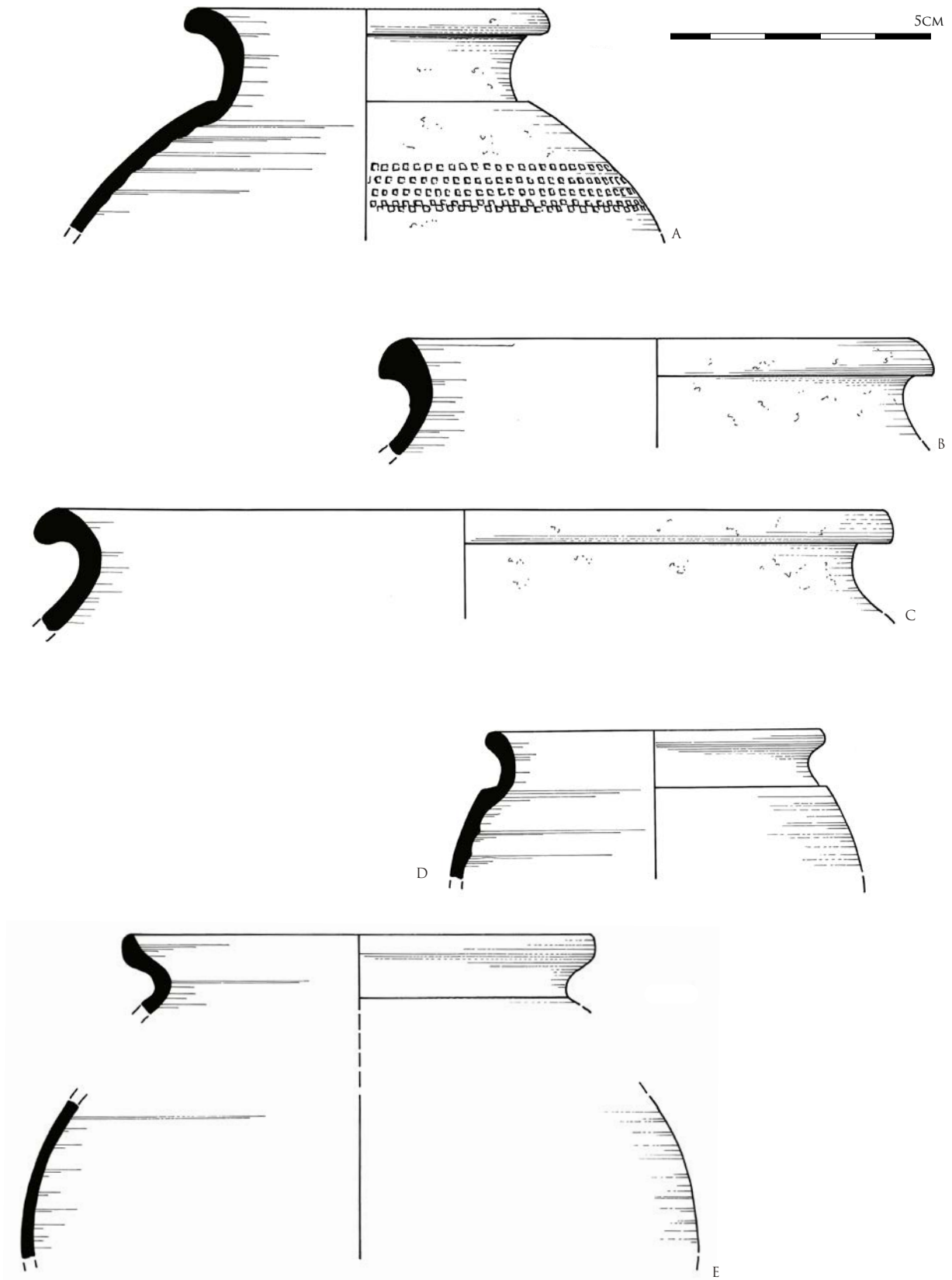
Cooking pot. Smooth grey ware. CRR86/16. Illus 26f.

▶ **Catalogue no. 8**

Casserole, with straight-sided walls and high lid-seating. Cf another reduced ware example from Bearsden: Swan 1999: illus 9, no. 33. GW1. CR/83/958. Illus 27b.

▶ **Catalogue no. 9**

Rounded-rimmed bowl/dish. Hard, micaceous fabric with dark grey core, thin buff margin and well-finished dark grey surfaces, not affected by soil conditions. Severan. BB2, possibly from Colchester. CBS71. Illus 28a.



Illus 30 Coarse ware ceramics from Site 3: (a) catalogue no. 18, red core oxidised ware narrow-mouthed jar; (b) catalogue no. 19, grey ware storage jar; (c) catalogue no. 20, grey ware 1 storage jar; (d) catalogue no. 22, grey ware 2 cooking pot; (e) catalogue no. 23, BB2 cooking pot with everted rim. Illustration by Alan Braby

► **Catalogue no. 10**

Groove-rimmed bowl/dish. Micaceous, slightly gritty grey fabric with brown margins and smooth black surfaces. CRR86, unstratified. Illus 27c.

► **Catalogue no. 11**

Flanged hemispherical bowl. Hard micaceous oxidised fabric, same fabric as nos 26 & 31. It has a smooth finish on the interior surface and a thin red slip on the exterior. Slight sooting on edge of flange. CBS71. Illus 28b.

► **Catalogue no. 12**

Hemispherical bowl with everted rim. Fine, micaceous pink fabric with white surfaces, with rare soft red inclusions. CR/83/1388–93. Illus 28e.

► **Catalogue no. 13**

Plain-rimmed platter. Internal groove at base of wall; the interior also has fine grooving from being wiped. Fine micaceous oxidised. CR/85/33. Illus 28c.

► **Catalogue no. 14**

Platter. Slight cordon and groove at base of wall on the interior. Fine micaceous oxidised. CR/83/1151. Illus 28d.

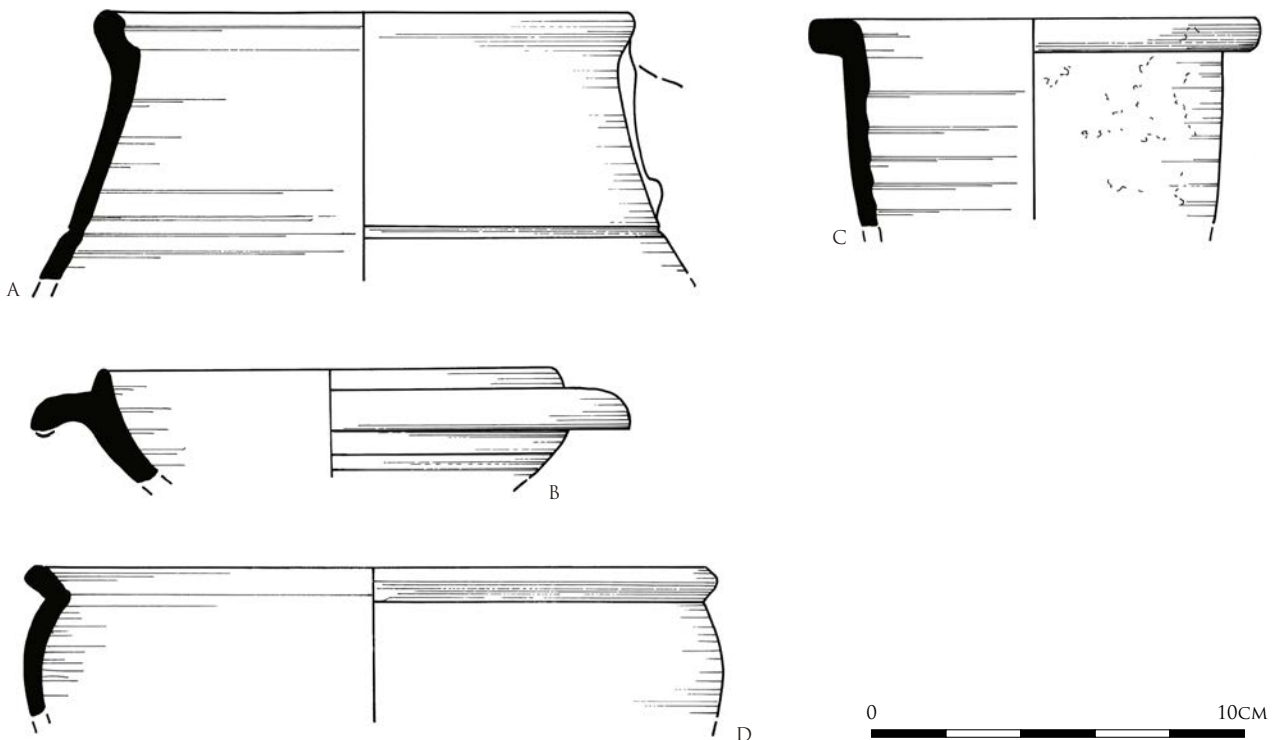
6.4.21.3 Site 3: Cramond Road II

► **Catalogue no. 15**

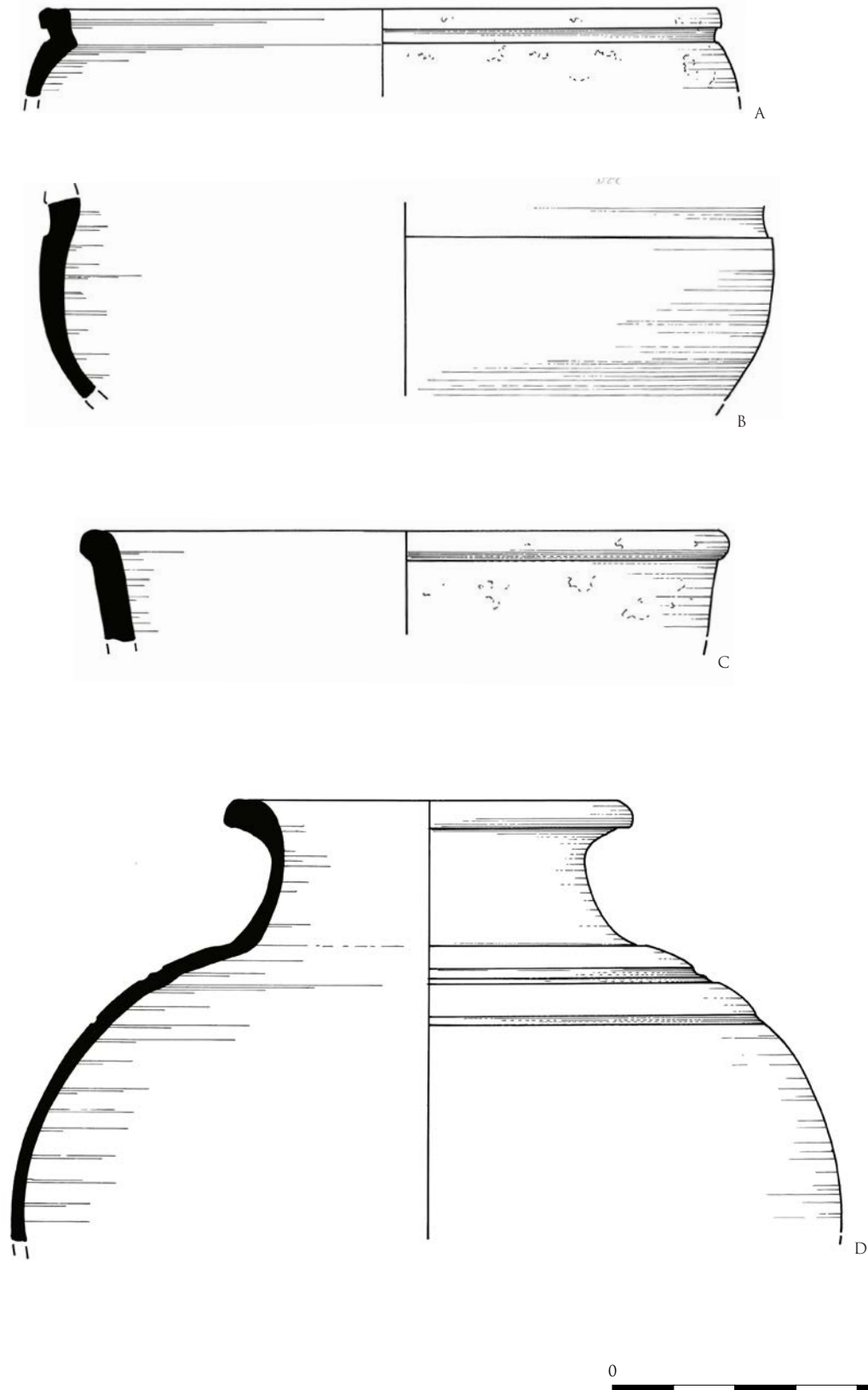
Flagon, with single surviving handle. Micaceous oxidised, with dark cream slip on both exterior and interior. CR2/89/397. Illus 29a.

► **Catalogue no. 16**

Possibly a bottle or flask. Hard white fabric, with large multi-coloured inclusions. Exterior surface slightly pink. Pale, gritty fabrics such as this example are typical of some coarse wares in northern Gaul and the Rhineland; they occur on the Antonine Wall, though rarely (as at Bearsden; Bidwell & Croom 2016b: no. 219, 110), and in the Hadrian's Wall zone (Bidwell & McBride 2010: fig 55, no. 3). CR2/89/309. Illus 29b.



Illus 31 Coarse ware ceramics from Sites 3 and 11: (a) catalogue no. 24, micaceous oxidised ware cauldron; (b) catalogue no. 28, micaceous oxidised ware flanged bowl; (c) catalogue no. 29, micaceous oxidised ware flat-rimmed bowl; (d) catalogue no. 31, oxidised ware casserole. Illustration by Alan Braby



Illus 32 Coarse ware ceramics from Sites 3 and 7: (a) catalogue no. 25, micaceous oxidised ware casserole (North-African style); (b) catalogue no. 26, oxidised ware bowl; (c) catalogue no. 27, micaceous oxidised ware thick-walled bowl; (d) catalogue no. 30, grey ware 2 storage jar. Illustration by Alan Braby

► **Catalogue no. 17**

Small jar. Sooted along outer edge of rim and low down body on exterior. Highly micaceous grey ware. CR2/89/607. Illus 29c.

► **Catalogue no. 18**

Narrow-mouthed jar. This could be a local product, but the fabric is not distinctive: it is a hard, pale orange fabric with a thick dark orange core, slightly micaceous but with few other visible inclusions. Where burnished on the exterior, the finish is slightly buff, but this is now patchy. The body is decorated with at least five rows of roller-stamped decoration consisting of small impressed squares 2–3mm across set 1–2mm apart. The use of such square-toothed rouletting is not common. CR2/90/132–9. Illus 30a.

► **Catalogue no. 19**

Storage jar. Smooth grey ware. CR2/89/10, 68–9, 115–19, 204. Illus 30b.

► **Catalogue no. 20**

Storage jar. GW1. CR2/88/249–50. Illus 30c.

► **Catalogue no. 21**

Storage jar. Fine micaceous oxidised ware. CR2/88/320. Illus 29d.

► **Catalogue no. 22**

Cooking pot. Sooted on exterior and interior of the rim. Hard fabric, not affected by the soil. GW2. CR/88/419–20. Illus 30d.

► **Catalogue no. 23**

Cooking pot with cupped rim. BB2, with wide pale grey core, dark grey margins and thin oxidised surface finish. This fabric is normally used for BB2 cooking pots, but here it is used for a south-east reduced ware form. CR2/90/253–68. Illus 30e.

► **Catalogue no. 24**

Cauldron, with traces of a handle scar. Micaceous oxidised, Gillam 1970: type 175, dated AD 150–90. CR2/89/586. Illus 31a.

► **Catalogue no. 25**

North African-style casserole. Micaceous oxidised. CR2/89/457. Illus 32a.

► **Catalogue no. 26**

Bowl. Thick-walled, smoothed in horizontal facets on the exterior, with grass/straw impressions left visible on the interior surface. Hard, micaceous oxidised fabric, with few visible inclusions. Fabric as nos 11 and 31. CR2/88/153. Illus 32b.

► **Catalogue no. 27**

Thick-walled bowl. Micaceous oxidised. CR2/89/553. Illus 32c.

► **Catalogue no. 28**

Flanged bowl. Very heavily burnt and sooted over rim and flange. Micaceous oxidised ware (with less temper and more ill-sorted soft red inclusions up to 3mm than usual). CR2/88/349. Illus 31b.

► **Catalogue no. 29**

Flat-rimmed bowl. Micaceous oxidised ware. CR2/89/223. Illus 31c.

6.4.21.4 Site 7: *Dunfermline College Games Hall*

► **Catalogue no. 30**

Storage jar, with wavy line decoration between grooves on the shoulder. Examples with cordons on the neck immediately below the rim are south-eastern types (Monaghan 1987: types 3A3, 3A5; cf Colchester: Symonds & Wade 1999: fig 6.77, no. 693, Cam 231/232). Narrow-mouthed jars (as Gillam 1970: type 30) appear on the Antonine Wall, but this example could be as late as the Severan period. GW2. DC79/48–66. Illus 32d.

6.4.21.5 Site 11: *Cramond School House*

► **Catalogue no. 31**

Casserole. Hard orange fabric, as nos 11 and 26. The exterior has a slightly darker, more micaceous slip. Cf Maxwell 1974a: fig 23, nos 72–3; Ford 2003: illus 62, no. 74, early 3rd-century local oxidised ware. OSH/82-2-3. Illus 31d.

6.4.22 Discussion

6.4.22.1 Site 1: *Cramond Tower*

A small assemblage, with a range of the local grey and oxidised wares, including a casserole (catalogue no. 2, Illus 26b), and sherds of a possible Inveresk mortarium (AD 140–65). There is only a single sherd of BB2.

6.4.22.2 Site 2: Cramond Road I

Most of the Gallic amphora sherds were recovered from this site. The relatively small quantity of BB2 includes a rounded-rimmed bowl/dish, possibly from Colchester, that could be Severan in date (catalogue no. 9, Illus 28a). The sherds from the 3rd- or 4th-century Lower Nene Valley mortarium also come from this site (CR83 and CRR86).

6.4.22.3 Site 3: Cramond Road II

Although Sites 2 and 3 produced similar quantities of pottery, Site 3 had twice as much as BB2. There were a few sherds of south-east reduced ware, likely to be Severan in date, as well as a single sherd of a Lower Nene Valley beaker in colour-coated ware, probably of the same date. There was an East Gaulish samian bowl of AD 180–220 and six mortaria dating to *c* AD 180–240 (four Mancetter-Hartshill, one Oxford and one Soller). The site also produced a white ware vessel probably from North Gaul or the Rhineland (catalogue no. 16, Illus 29b).

6.4.22.4 Site 4: Dunfermline College Union

Most of the small assemblage is made up of Dressel 20 amphora sherds, with a few body sherds in an unidentified oxidised ware and sherds from BB2 and grey ware bowls/dishes.

6.4.22.5 Site 6: Cramond Pipeline

The small assemblage was in poor condition and consisted of base and body sherds of indeterminate forms, with no rim sherds. It mainly consisted of Dressel 20 amphorae, with a single Gallic amphora sherd. There was a single sherd of samian, no mortaria, and no BB2.

6.4.22.6 Site 7: Dunfermline College Games Hall

Over half of the sherds from this site came from a single narrow-mouthed jar (catalogue no. 30, Illus 32d). Sherds of Dressel 20 amphorae made up most of the rest of the assemblage.

6.4.22.7 Site 8: Dunfermline College Path

The site produced four sherds of pottery: Antonine samian, possible Inveresk mortaria (AD 140–65), a sherd of Dressel 20 amphora and a sherd of a BB1 bowl or dish.

6.4.22.8 Site 10: Cramond Woods

The site produced six sherds in total: four of Dressel 20 amphorae, one body sherd in grey ware 2 and one in buff ware.

6.4.22.9 Site 11: Cramond School House

The small assemblage included a stamped samian dish dated *c* AD 150–80 (no. 14) and a Severan Dressel 20 amphora rim.

6.4.22.10 Unassigned

There were five sherds not assigned to a site. These included a Mancetter-Hartshill mortarium rim dated AD 190–250.

6.4.22.11 Fabric types

Although a much smaller assemblage, the fabric range is very similar to that seen during the 1977–81 excavations outside the fort (Ford 2003), with grey wares making up approximately 50% of the group, oxidised wares approximately 20% and BB1 about 10%. The proportion of BB2 present, however, was much smaller in the Hoy excavations, making up only 4%, approximately half of what was recovered in the 1977–81 excavations. The BB2 in the Hoy excavations consisted of fewer bowls and dishes and more small jars than the 1977–81 excavations, but the sample size was small (147% by EVEs). There were equal numbers of triangular- and rounded-rimmed bowls and dishes, and only one (or possibly two) plain-rimmed dish with external groove. Among the cooking pots there were no examples of the beaded rim jars found previously (cf Ford 2003: illus 66, no. 123).

Cooking pots were mainly supplied in grey wares and BB1, storage jars in grey wares and oxidised wares, including a number in Severn Valley ware. Samian provided 31% of all bowls and dishes, oxidised wares about 27% and BB1 and BB2 smaller, but similar, amounts (16% and 19% respectively). The number of colour-coated beakers was low, with possibly only six vessels represented, but although not common they did come from a number of different sources.

Most of the grey and oxidised wares are likely to be locally produced, both in the Antonine period and in the early 3rd century. There were three sherds of mortaria possibly from Inveresk, including one used by the potter JEMI (*c* AD 140–65), but only a

single example of a bowl in the rather thick-walled fabric typical of Inveresk ware (Site 2, CR83/1023). There was a minor ware, the white core grey ware, also represented at both sites, but generally Cramond appeared to call on a much wider range of sources than Inveresk.

The Hoy excavations did not produce any certain shell-tempered ware, unlike the 1977–81 excavations which produced two 3rd-century Dales ware cooking pots. Evans, in the report on the pottery from the Kirkhall site at Cramond, discusses the examples of late 3rd- or 4th-century pottery from the site (Evans 2006: 9), to which must be added the sherds of the later 3rd- or 4th-century Lower Nene Valley mortarium from these excavations, but there were no examples of coarse wares of similar late date.

6.4.22.12 Vessel types

Table 6 shows the proportions of the various vessel types. The proportion of flagons (and similar liquid-containing vessels) is low for a military site, while that for storage jars is correspondingly high, a feature that has also been seen at Bearsden Roman Fort (Bidwell & Croom 2016a). The proportion of drinking vessels is also low, but this might be made up by the number of small jars, which may have been used as drinking vessels; a handle from Site 3 indicates that there was at least one tankard present (CR2/88/389). Examples of certain North

Table 6 Vessel types (excluding amphorae) by EVE, shown as percentages

| Type | EVE (%) |
|------------------|--------------|
| Flagon | 3.5 |
| Drinking vessel | 2.5 |
| Small jar | 6.3 |
| Cooking pot | 41.6 |
| Storage jar | 16.6 |
| Bowl/dish | 22.0 |
| Casserole | 1.9 |
| Mortarium | 4.2 |
| Lid | 0.3 |
| Triple vase | 1.1 |
| Tettine | <0.1 |
| <i>Total no.</i> | <i>1,584</i> |

African-style vessels are restricted to casseroles, of which there are four vessels, from Sites 1, 2, 3 and 11 (Illus 26b, 27b, 32a, 31d). It is uncertain whether they are of early Antonine or Severan date.

The single example of a sherd from a triple vase came from the Cramond Road sites (CR83/1024); their exact function is unknown but is assumed to be ritual. The same sites produced the spout from a tettine (CR2/89/224). These are very small flagons or beakers with a spout halfway down the body of the vessel, and were made in both pottery and glass (Cool 2010: 269–71). Their exact purpose is unknown although feeding bottles for infants or invalids, or oil lamp fillers have been suggested as possibilities; they could hold very little liquid, and although they are often found in the graves of children, the army also seems to have had a use for them, as they were sometimes made at military-controlled potteries such as at the fortress at Usk. They were made in numerous different fabrics and appear to have usually been made for local markets, but although widespread they are only found in very small numbers, so whatever their use there was never a great demand for the type. The diameter of the hole through the spout on the Cramond example was only 2mm, so it is unclear how functional it would have been.

7. THE ROMAN CERAMIC BUILDING MATERIAL

Alexandra Croom

A small quantity of Roman tile was recovered from six of the sites (Sites 1, 2, 3, 6, 7 and 11). The great majority were pieces of box tile (27 fragments), with only a small number of fragments (seven) from the flat tiles used in hypocaust flooring. The tiles are made in a sandy orange fabric with frequent soft white calcareous inclusions. It is often poorly mixed so that there are patches and streaks of white within it. About a quarter of all the fragments were fired to a hard red finish, with one example with a black surface. There was a single example where the side of the box tile had been left extremely rough for keying, but generally the keying was done by combing, with a variety of combs in use, ranging from ten to five teeth. The five- and six-teeth keying was distinctive, with flat-ended teeth that were well spaced. There were no certain examples of roofing

tiles, an absence noted during the study of the tile from the fort and bath house (Franklin & Collard 2003). One fragment of box tile, with star-pattern keying using a six-toothed comb, was a stray find made by Charlie Hoy which probably originally derived from the Raes' excavations and cannot, therefore, be assigned to any of the sites discussed in detail here.

7.1 Site 1: Cramond Tower

There was only one possible fragment of Roman tile, probably from a *bessalis* or similar.

7.2 Site 2: Cramond Road I

This produced seven fragments of box tiles with combed keying, including one fragment with combing on two adjacent faces, and another with part of a rectangular vent (23mm wide). There was a further piece of box tile with ten-comb keying, possibly from Site 2 (CR88), covered in a layer of *opus signinum*. There was a single fragment of a *bessalis* in poor condition, approximately 30mm thick.

7.3 Site 3: Cramond Road II

There were 15 pieces of box tile, including three examples of combed keying. Two of these had five flat-tipped teeth, well spaced. There was one fragment of a *bessalis* (30mm) and one of a possible *pedalis* (45mm thick), plus two other scraps from similar tiles. The site also produced a small, unshaped fragment of tufa, a lightweight stone sometimes used in the construction of bath houses.

7.4 Site 6: Cramond Pipeline

There were two small fragments that could come from *bessales* or similar, and a number of scraps.

7.5 Site 7: Dunfermline College Games Hall

There was a single scrap of Roman tile.

7.6 Site 11: Cramond School House

This site produced fragments from three box tiles. The exterior surface of one piece had deliberately been left rough for keying.

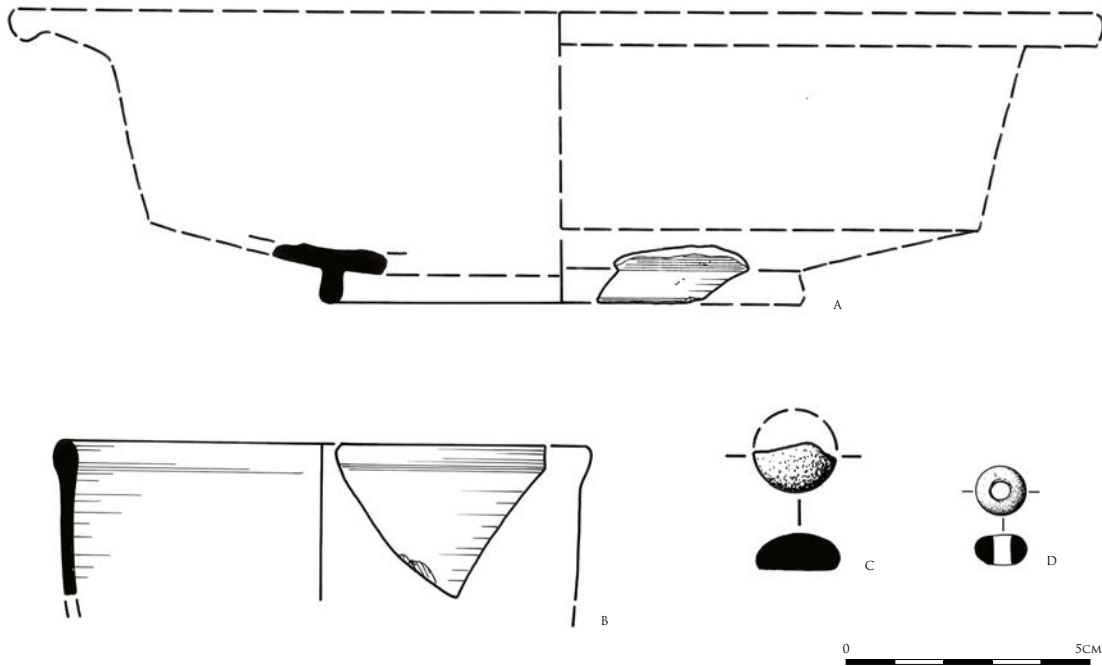
8. THE ROMAN VESSEL GLASS

Hilary E M Cool

The glass in the Hoy Archive has produced several forms that have been encountered in previous excavations at Cramond. The most intriguing is the base fragment from a colourless cast bowl (catalogue no. 1, Illus 33a). As it clearly had a wide lower body, it most likely came from a bowl with a wide overhanging rim, two examples of which were found during the 1954–66 excavations, including one from the fort latrine drain (Maxwell 1974b: 198, nos 6–7, fig 16). These were a form in use from the late 1st century to the third quarter of the 2nd century at least (Price & Cottam 1998: 55–9). The bowl sherd has been heat affected, which has resulted in melted surfaces, removing all signs of the grinding and polishing that it would have undergone. It retains what appear to be two ribs, a straight one on the interior and a curved one on the underside of the base. The absence of the surface grinding means that it is impossible to ascertain whether these were original features or distortions caused during the subsequent burning. The form tends to be a standardised one and such ribs would be unusual, so the balance of probabilities probably points to the latter.

There is a rim fragment of a large colourless cylindrical cup (catalogue no. 2, Illus 33b). These were the commonest drinking vessels of the later 2nd to mid 3rd century, frequently found in large numbers on a large range of sites (Price & Cottam 1998: 99–101). Fragments from them were found in the excavations of both the fort defences (Manse Gardens) and the industrial complex (Walled Garden) during the 1977–81 explorations at Cramond (Price 2003: 91, nos 3–3/vi, illus 77).

Two blue/green vessels are also represented. Catalogue no. 3 is the neck from a jug or flask with a narrow cylindrical neck. If it was a jug, which the thickness of the neck suggests, it would have been from the conical form of the long-necked jugs which were popular in the later 1st and 2nd centuries, as that is the only form still in use when occupation at Cramond is believed to have started (Price & Cottam 1998: 155–7). There is also a body fragment (no. 4) from a blue/green prismatic bottle (Price & Cottam 1998: 194–200). These were very common from



Illus 33 Glass vessel and object fragments from Cramond Road I: (a) base fragment from a colourless glass bowl CR/84/175; (b) rim sherd from cylindrical cup CR/84/170; (c) counter fragment CR/83/216; (d) blue glass bead CRH/76/109. Illustration by Alan Braby

the later 1st century into the 3rd century, and have been regularly found during previous excavations at Cramond. During the 1977–81 excavations, for example, fragments from such vessels accounted for approximately two-thirds of the assemblage (Price 2003: 89). It is probable that the strain-cracked chips that make up no. 2 also came from such a bottle, but in that case a more modern origin cannot be entirely excluded.

Finally, a tiny chip of opaque turquoise glass can be noted. This is not a Roman vessel glass colour. It might be a chip from a glass bead but, again, the colour is not a typical one, so it may be of more modern origin.

8.1 Catalogue

8.1.1 Colourless

► Catalogue no. 1

Bowl, lower body and base fragment. Cast. Wide lower body, base ring, flat base; possible straight rib on upper side of base; possible rib on underside of base concentric with base ring. Heat affected; strain-cracked. Base diam: 50–60mm; weight 4.9g. Cramond Road Extn W I+II Feature XII.

CR/84/175. Illus 33a.

► Catalogue no. 2

Cylindrical cup; rim and body. Vertical rim, edge fire-thickened. Rim diam: 95mm; wall thickness: 2.5mm, present height: 33mm; weight: 6.3g. Cramond Road. CR/84/170. Illus 33b.

► Catalogue no. 2a

Body fragment, possibly broken at edge of trail. Weight: 0.4g. Cramond Road 1985. CR/P1/85/172–5.

► Catalogue no. 2b

Two body fragments. Weight: 1.5g. Cramond Road 1983. CR/83/92.

8.1.2 Blue/green

► Catalogue no. 3

Jug or flask; cylindrical neck fragment. Present length: 19mm; neck thickness: 2mm; weight: 1.1g. Cramond Road 1983. CR/83/1005.

► Catalogue no. 3a

Body fragment (less than 0.1g weight). Also one chip (undatable). Cramond Road. CR/80/75.

► **Catalogue no. 4**

Prismatic bottle; body fragment. Weight: 2.9g. Extn NW Bag 111.

► **Catalogue no. 5**

Square bottle; body fragment in many strain-cracked chips. Weight: 4.2g. Narrow Roman road surface.

9. THE GLASS OBJECTS

Dawn McLaren

In addition to the vessel glass fragments, a small number of Roman glass objects were also recovered from the Cramond Road sites: a fragmentary counter or gaming piece (CR/83/216) and a blue glass bead (CRH/76/109) from Site 2, and a yellow glass bead (CR/2/89/109) from Site 3.

No glass counters were recorded by Holmes (2003: 120–1) but several small discs of ivory, reworked pottery and stone were recovered that may have fulfilled a similar purpose to the glass example discussed here. Although usually classified as gaming pieces, Holmes highlights the ambiguity of this identification, noting that such counters could also have been used as jetons on a calculating board, probably interchangeably (ibid: 120). Where found in glass, they are most commonly of ‘black’ or opaque white glass and are fairly typical finds on forts in the northern frontier region (Price 1987: 197). They are particularly frequent on 1st- and

2nd-century military sites (ibid: 197). Excavations at Elginhaugh recovered seven such plano-convex discs of glass, three of which are black glass similar to that identified with the Hoy artefact assemblage (Price & Worrell 2007: 454). Several more examples are known, such as from the forts at Camelon, Falkirk (McLaren forthcoming), Strageath (Price 1987: 200–1, nos 1–4, fig 102) and several were recovered at Newstead (Curle 1911: 339).

Blue glass beads such as that from Cramond Road are fairly common types, with a long chronology of use spanning the later prehistoric to medieval periods; a similar bead was found at Corbridge (Bishop & Dore 1988: 203). The simple opaque yellow annular glass bead (Cramond Road II) is also a common type, with examples known from military sites such as Strageath (Price 1987: 197).

In addition to the small number of diagnostic Roman glass items were large quantities of post-medieval bottle glass. Over 250 individual sherds from sites 1, 2, 3, 7 and 11 were recovered, covering a timespan of 300 years from the mid 17th to the early 20th century. The most significant item among this group is a fragmentary disc-shaped seal from an 18th-century green glass wine bottle. These seals, made by applying a globule of molten glass to the external surface of the bottle and stamping it with the owner’s name, initials, coat-of-arms or family crest, were in use between 1630 and 1930 as a way of personalising bottles and their contents (Morgan 1976). The Cramond seal, recovered from the Cramond Tower excavations (Site 1), is incomplete and the surfaces are badly corroded. The centre of the seal (Illus 46) is stamped with a four-pointed star or cross which is surrounded on the three surviving sides with initials ‘T’, ‘S’. The third initial, positioned to the right of the central cross, has been damaged and could represent an I, J or L. It is possible that the year of production was included under the initials of the owner but this has been lost. Surrounding the initials is a crimped cartouche; a feature which is similar in style to an example from Dartmouth which belonged to a merchant-mariner, Robert Newman, and is dated 1723 (ibid: 63). The form and style of the lettering stamped on the Cramond seal is consistent with an early to mid 18th-century date.



Illus 34 Yellow opaque glass annular bead (CR/2/89/109)

9.1 Catalogue

9.1.1 Counter

► CR/83/216

Approximately 40% of an oval or circular gaming piece of dark brown-black translucent glass, plano-convex in section with an abraded flat base and smooth domed upper surface. Surviving diam: 16.5mm; Th: 7mm. Cramond Road I (Site 2). Illus 33c.

9.1.2 Beads

► CRH/76/109

Small globular, cobalt blue, translucent glass bead with smooth D-shaped edges; hairline crack runs from central perforation (Diam: 3mm) to external rounded edge. Diam: 10mm; height: 6.5mm. Cramond Road I (Site 2). Illus 33d.

► CR/2/89/109

Dull yellow opaque annular glass bead; light sheen around the central perforation (Diam: 4.5mm) from wear. Diam: 13mm, Th: 4mm. Cramond Road II (Site 3), Transverse section of Road. Illus 34.

10. THE IRON FINDS

Dawn McLaren

10.1 Overview

A minimum of 603 individual iron objects survived among the assemblage from Sites 1, 2, 3, 5, 6 and 7. Most were in a poor and fragmentary condition, restricting our ability to assess their function, date and significance. The following discussion will focus principally on items of Roman or potential Roman date on a site-by-site basis. A full catalogue is presented in the archive.

10.2 Site 1: Cramond Tower

The small iron assemblage from Cramond Tower was dominated by ubiquitous iron nails and hobnails. Most of these items were unstratified and therefore not closely datable, but of more significance is a fragment of a fine rectangular strip (Illus 35a), perforated along its length with a fish tail-shaped terminal (CT/88/34). This appears to be a decorative fitting from a small item of furniture,

possibly from a wooden chest, leather-covered casket or book. Similar simple decorative straps or strips of copper alloy and iron are known from medieval contexts in London (Brenan 2010: 65–81) but a Roman date cannot be ruled out.

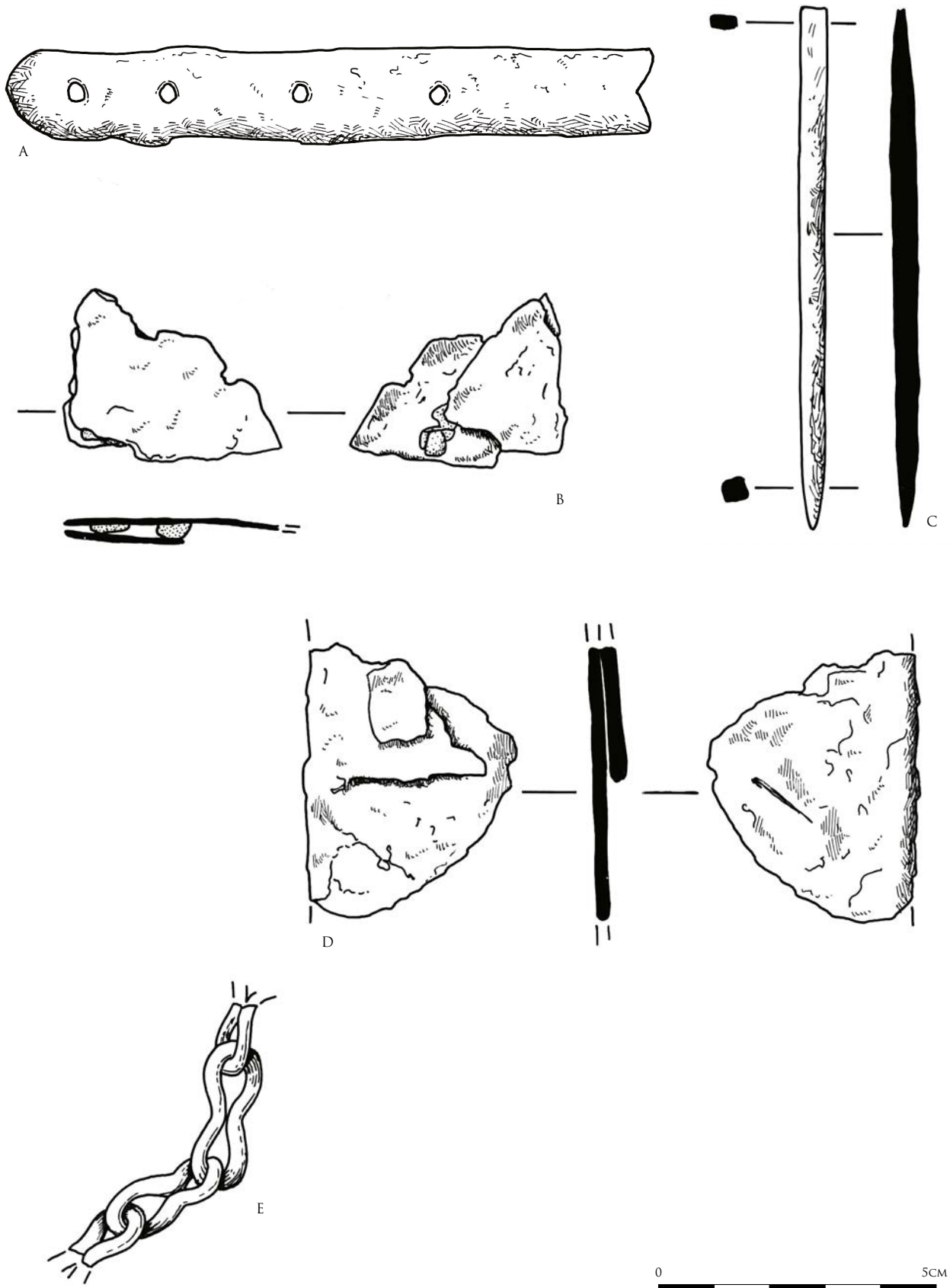
10.3 Site 2: Cramond Road I

Despite the large number of iron objects within the Cramond Road I archive, the majority are in a fairly poor and fragmentary condition, making precise identification in many cases impossible. There are over 287 individual items, dominated by handmade iron nails (minimum 138 examples) and hobnails (minimum 140 examples) but also include a small number of fragmentary objects (11), including knife blade fragments (eg CR/83/1230), key fragments (eg C/80/62) and possible fragmentary tools (eg CR/83/1408). The nails from Cramond Road I are mostly handmade nails with square-sectioned shanks and flat or slightly domed sub-square or sub-circular heads (eg Manning types 1a & 1b; Manning 1985: 134–5, fig 32). The large quantity of hobnails were recovered as isolated finds as well as clusters of nails from single contexts (eg 13 examples (CR/83/1021); 13 examples (CR/83/1376); 14 examples (CR/85/230)). Many are intact, save for the loss of the extreme tip of the shank. The condition of the domed heads varies from lightly-used distinctly domed heads through to well-worn flattened heads. The general condition of these items implies that many of these hobnails represent casual loss during use. They are consistent in form and size with Roman hobnails (Manning type 10; Manning 1985: 135, fig 32) and their recovery in conjunction with a road surface of Roman date suggests that they are contemporary with the use of this route way.

A small iron gun-shot of presumably post-medieval date (Illus 45e) was found in the vicinity of the road but the exact location of discovery is not known and this item does not appear on any of the Cramond find registers.

10.4 Site 3: Cramond Road II

Small dome-headed hobnails, ubiquitous finds on Roman military sites, dominate this assemblage, with a minimum of 130 examples being identified. The majority of these finds are clusters



Illus 35 Selection of iron objects: (a) perforated strip CT/88/34; (b) possible *lorica segmentata* fragment CR/2/89/347; (c) crude stylus or tool CR/2/88/102; (d) possible *lorica segmentata* fragment CR/2/89/358; (e) chain link fragments CR/2/90/355. Illustration by Alan Braby

of substantially intact hobnails, including rows of nails with clenched tips and leather sole traces surviving. This suggests, in contrast to Cramond Road I, that these finds represent the discard of shoes or sole fragments rather than the incidental loss of isolated hobnails during use. For example, 19 hobnails, some surviving as rows with leather traces surviving (CR/2/89/600), were found within a drain associated with the road, and a row of six hobnails (CR/2/90/292), again with leather traces surviving around the shanks, was recovered from the base of a water channel associated with the earliest road. The condition and the context of discovery suggest that the disposal of shoes or worn shoe scraps within the ditches and gullies associated with the road occurred during all phases of its construction and use.

A large number of carpentry nails are also present (101), many deriving from the stone-lined drains associated with the Roman roads.

Most are consistent with Manning's type 1 Roman nail form and 66% of these intact nails fall into his Type E size group, which comprises nails between 40mm and 70mm (Manning 1985: 134, fig 32). These are the most common type of nail to be found on Roman sites in Britain (*ibid*: 134).

The most notable and significant iron finds from Cramond Road II are two fragments of composite sheet metal objects (CR/2/89/347 and CR/2/89/358) (Illus 35b & 35d). The first comprises two fragments of a flat rectangular sheet or strip which have been riveted together with small copper alloy rivets. The second comprises two overlapping sheet fragments with a rectangular rivet hole joining the two components, but only one original edge survives. One was recovered from soil and cobble below cobbles set in clay to the west of the stone-built gutter, and the other came from soil and large boulders lying on natural below cobbles set in clay. It is possible that these are heavily corroded and fractured pieces of Roman plate armour (*lorica segmentata*) but their fragmentary, poor condition precludes precise identification. Fittings, in the form of a copper alloy rivet, survive only on one fragment. Several larger and more precisely identified fragments of *lorica segmentata* were recovered from the fill of a well at Cramond from the area of the walled garden (Holmes 2003: 103–5, illus 82). These previous fragments were tentatively identified as Newstead-type plate armour (Robinson 1975) on

account of their simple rivets and split-pin loops, and were complemented by a range of fasteners and mounts as well as fragments of mail armour (*lorica hamata*) and other military-associated equipment.

A crude iron stylus with a spatulate head and rounded tip (CR/2/88/102, Illus 35c) came from a cobbled area in Trench 2. Also present are three short lengths of chain link (CR/2/90/234, CR/2/90/337, CR/2/90/355, Illus 35e), all of which could plausibly derive from the same chain. Each length of chain comprises figure-of-eight links which average 27mm in length and 10mm in width. Figure-of-eight linked chains are among the most common type of chain used in Roman Britain (Manning 1985: 139) but have a currency which extends from the Iron Age through to modern times. They could have fulfilled a range of functions including pot suspension chains or bucket chains for use in wells, as well as gang chains such as those at Llyn Cerrig Bach (Fox 1946: 37, 84). Those from Cramond Road II were found within the fill of a shallow channel beneath the stone-built drain and the infill of the drain itself.

10.4.1 Selective catalogue of finds

► CR/2/89/347

Composite sheet metal object, two angular plates riveted together with small copper alloy rivets. Possible *lorica segmentata* fragment. L: 38mm; W: 28mm; Th: 2.5mm. Extn NW, soil and cobble below cobble set in clay. Area west of stone-built gutter. Illus 35b.

► CR/2/89/358

Possible *lorica segmentata* fragment. Straight edge fragment of two thin overlapping iron sheets or strips (Th: 3mm) held together at the corner of the overlapping sheets with a small flattened circular headed copper alloy rivet. Surviving L: 49.5mm; W: 37mm; Th: 5.5mm. Extn NW, section 1, soil and large boulders lying on natural below cobbles set in clay. Illus 35d.

► CR/2/88/102

Double-ended point tapering to a rounded tip at one end with a squared, flattened, spatula head or eraser, possibly an awl or crude stylus. L: 94mm. Trench 2, feature 3, cobbled area near to natural. Illus 35c.

► CR/2/90/355

Chain fragment. Two fragments of chain links corroded together measuring a total of 95mm in length. At least seven individual figure-of-eight links are visible on X-ray. The links average 27mm in length and 10.5mm in width and the chain is 2.5mm thick. Extn NW, fill of shallow channel beneath stone-built drain. Illus 35e.

10.5 Conclusions

Very little of the iron assemblage among the archive material is diagnostically Roman in date and it represents a mixture of finds from Roman, medieval, post-medieval and modern contexts. The assemblages from Cramond Road I and II are dominated by everyday items such as nails, hobnails and incomplete fittings, with a little militaria (the possible plate armour fragments), complementing the range of iron objects recovered from Cramond previously (Holmes 2003: 103–18; Hunter 2006). The hobnails from Cramond Road I (Site 2) appear to represent, in the main, casual losses during use. In contrast, those from Cramond Road II (Site 3) are found in much larger concentrations and include more intact nails, some of which survive as strips or rows of nails with traces of the leather shoe sole surviving. The leather traces indicate that these were partial or intact, probably worn, shoe fragments that were discarded, rather than representing a build-up of nails which had fallen out of the wearer's shoes over a long period of time.

11. THE NON-FERROUS METALWORK

Dawn McLaren with identification and discussion of selected Roman objects by Fraser Hunter

11.1 Site 1: Cramond Tower

A total of nine copper alloy objects, excluding coins, and four items of lead were recovered from excavations on the site of Cramond Tower. These objects are dominated by medieval to modern dress accessories, of which only the former will be summarised here.

Two medieval buckle frames include a gilded single looped buckle with decorative knops (Illus

45a) that can be paralleled with mid 13th- and 14th-century examples from elsewhere in Britain (Whitehead 1996: 24). Also present is a narrow D-shaped buckle with possible silvered surfaces (Illus 45c), which is similar in design to examples excavated in London, dating from the late 14th to 15th century (Egan & Pritchard 1991: 68–70).

11.1.1 Catalogue of illustrated objects**► CT/87/88**

Single looped buckle with decorative knops. Cast copper alloy single loop sub-triangular buckle with tapering and off-set bar; three riveted knops (Diam: 4.5mm) on angles of frame. Rectangular plate (L: 19mm; W: 15.5mm) is corroded under the buckle frame. Plate has two parallel round-headed rivets (Diam: 4mm) with in situ pin at one end; opposite end is broken. Pin (L: 14.5mm; W: 3mm) is formed from tapering rectangular strip, curled over the bar at the widest end; tip damaged. Traces of gilding are noted on frame and plate. The form of the buckle dates from the mid 13th to the end of the 14th century (Whitehead 1996: 24, no. 110). L: 25.5mm; W: 28mm; Th: 1.5mm. Illus 45a.

► ACT/80/4

Single looped narrow D-shaped buckle frame with off-set narrow bar (Diam: 4mm), decorated with raised knops (Diam: 6mm) at opposing terminals of the bar. The notched lip for the pin (W: 5mm) is flanked by raised D-shaped knops (W: 2.5mm). The buckle frame has been cast in a one-piece mould and the surfaces appear silvered. Similar buckles are known from late 14th- to 15th-century contexts in London (Egan & Pritchard 1991: 68–70). L: 46mm; Th: 3–5mm. Illus 45c.

11.2 Site 2: Cramond Road I

The largest quantity of non-ferrous metal finds from excavations at Cramond came from Cramond Road I (Site 2). Only 36 items of copper alloy and lead (excluding coins) were available for examination, and those of Roman date are discussed below. Further non-ferrous metal objects are recorded on the original finds register, including various bronze fragments from the 1979, 1983 and 1990 excavations, as well as many Roman silver coins

(see 12 ‘The Roman coins’ below) which were not located in the surviving archive.

11.2.1 The Roman non-ferrous metal objects

Fraser Hunter

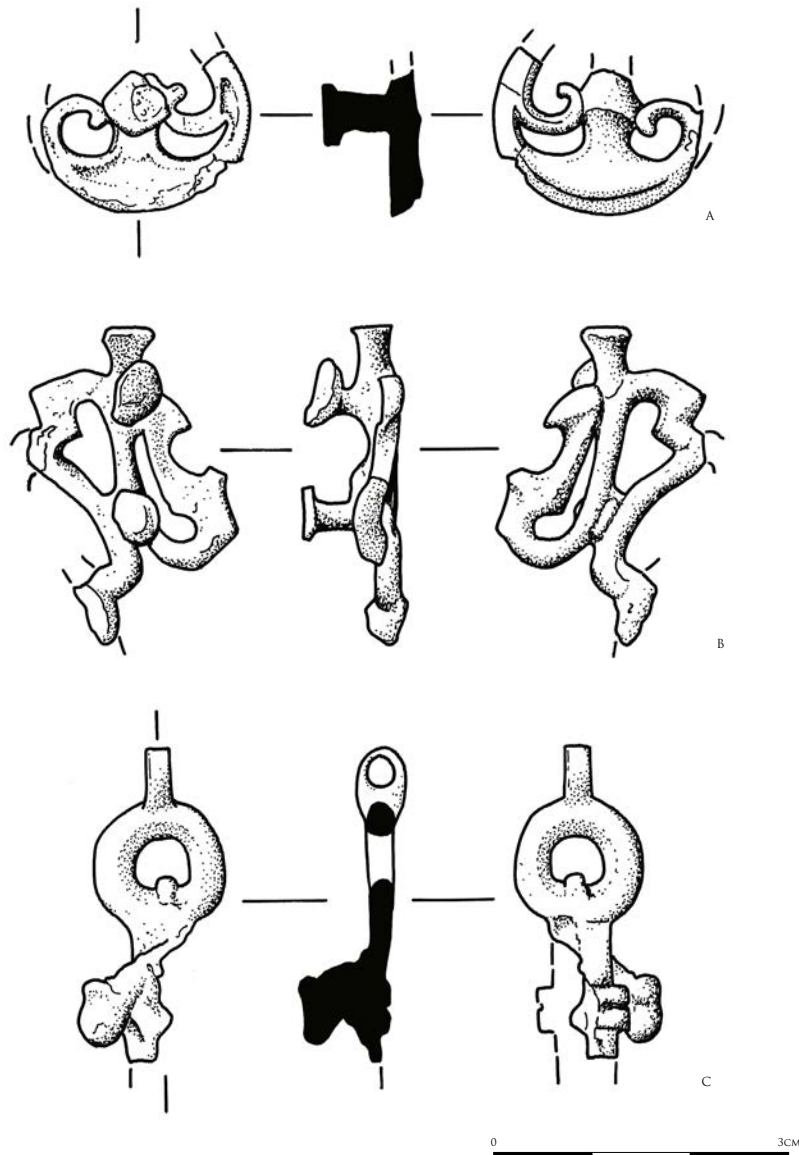
Four items from Cramond Road I (Site 2) are clearly linked to the Roman military. All are strap fittings for either soldiers or their horses. CR/84/173 is a strap terminal for a military belt, of common type (Illus 41a; Oldenstein 1976: 142–4, Taf 36, nos 291–304; Bishop & Coulston 2006: 110, fig 88, nos 11–12).

The most intriguing assemblage comes from Pit 1 (Illus 36 & 37) in the Cramond Road 1985 excavations, which produced three items of militaria (two copper-alloy openwork mounts and a silver pendant) as well as several denarii which point to a Severan date (see 12 ‘The Roman coins’ below). The openwork mounts are a style known as Trompetenmuster – combinations of trumpet motifs which became very popular along the frontiers in the 2nd and 3rd centuries. Item CR/P1/85/172 was originally a disc-shaped mount with two opposed pelta motifs, each with one arm forming a comma-tendrill which linked into the other pelta (Illus 36a); finds from South Shields (UK), Saalburg (D) and Zugmantel (D) show how it once looked (Oldenstein 1976: Taf 55, no. 674; Taf 69, no. 905; Allason-Jones & Milet 1984: 225–6, no. 3.778). The other has defied any precise parallel so far (Illus 36b), but there was a wide and inventive range of fittings in this style (eg Riegl 1927: Taf XIII–XV; for a related design, sadly unprovenanced, see Appels & Laycock 2007: 78, fig AA8.39). The style is notably rare on Scottish forts, perhaps suggesting it did not reach the area until the late Antonine period: there are a strap mount from Inveresk, two belt buckles from Newstead (both sites with late Antonine occupation; Hunter forthcoming; Curle 1911: pl LXXVI.1–2), and a further belt mount from the Severan fortress of Carpow (Birley 1963: 206, fig 11.8). The style was also imported to Iron Age sites, with examples from the hillforts of Clatchard Craig (Fife), Castle Law (Midlothian) and Traprain Law (East Lothian; Curle & Cree 1916: fig 28.1; Childe 1933: fig 13.2; Close-Brooks 1986: 169–70). Such mounts were used both for horse harness and for

military belts (harness: Lehner 1923: Taf III–IV; belts: Fischer 2012: 122, Abb 128–9).

The third item is most unusual in form and material (Illus 36c, 37 & 38). It is a silver belt-hanger from a military belt, the first Scottish example of a well-known series of miniature weaponry (Hunter 2016). Despite its distortion it can be identified as a ring-pommel sword, the typical sword form of the later 2nd and 3rd centuries (Bishop & Coulston 2006: 131–3, fig 77). The distribution of such hangers and pendants is concentrated overwhelmingly in the province of Upper Germany (18 of the 22 known examples; Raddatz 1953; Hundt 1955: Abb 1.2–3; Oldenstein 1976: 154–5, Taf 39; Miks 2007: 187, Abb 28). Most have a suspension fitting in the plane of the pommel and were attached to a strap end in the form of a *beneficiarius* lance (as demonstrated by finds from Zugmantel; Oldenstein 1976: Taf 39, nos 367, 373). Ring-pommel swords and *beneficiarius* lances co-occur in other depictions (Miks 2007: Abb 28), and Oldenstein (1976: 152–7) argues that these pendants were intended to mark out *beneficarii*, troops on special service for the provincial governor. The full-size lances are accepted as equipment of *beneficarii*, but Miks (2007: 187) wisely cautions against assuming that the ring-pommel swords were also restricted equipment; he suggests they were chosen for these pendants because they remained recognisable in miniature form (Illus 39).

The concentrated distribution (Illus 40) suggests that the pendants were specific for *beneficarii* of upper Germany, as Kovács (2005: 957) suggests; he notes an analogous category of miniature lance pendants from Dacia with a similarly restricted distribution. This makes the four pendants and one lance-shaped strap end found outside Germania superior of particular interest. Apart from Cramond, there is one from the town of Silchester (Boon 2000: 355, fig 166, no. 121), one Raetian example from the fort of Kösching (Germany; Oldenstein 1976: Taf 39, no. 374), one from the auxiliary fort of Baracs (Hungary; Kovács 2005: 961–2, fig 8), and one from the auxiliary fort of Thamusida (Morocco; Rebuffat 1977: 203, pl 70, no. 671). These must be connected to the movement of individual troops from upper Germany, as Kovács (2005: 962) argues, though it



Illus 36 Non-ferrous metal mounts and pendant from Pit 1: (a) & (b) openwork Trompetenmuster harness mounts (CR/P1/85/172; CR/P1/85/173); (c) silver pendant representing a ring-pommel sword (CR/P1/85/172-4). Illustration by Alan Braby

is worth noting that three of the four are unusual in having a small suspension loop set transversely to the pommel rather than a loop in the same plane (only Silchester matches the German ones). In contrast, only one of the German finds, from Mainz, has such a fitting (Fischer 2012: Abb 272.4; Illus 39); these small loops could not articulate with the lancehead strap terminals, and must either have been held by wire or used rather differently.

The three other non-German examples lack any close context, though Silchester has produced

another piece of *beneficiarius* insignia in the form of an openwork baldric terminal incorporating a lancehead design (Boon 1974: fig 8.4). This makes Cramond's contextual information all the more interesting. Coins from the pit date it to the Severan period, when the fort was the focus of an imperial expedition, and members of the governor's or emperor's service would be passing through.

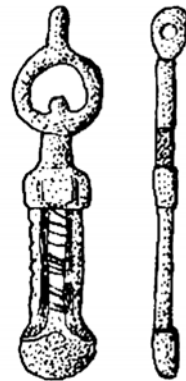
The other unusual feature of the Cramond example is its material. All other known examples are of copper alloy, though Oldenstein (1976:



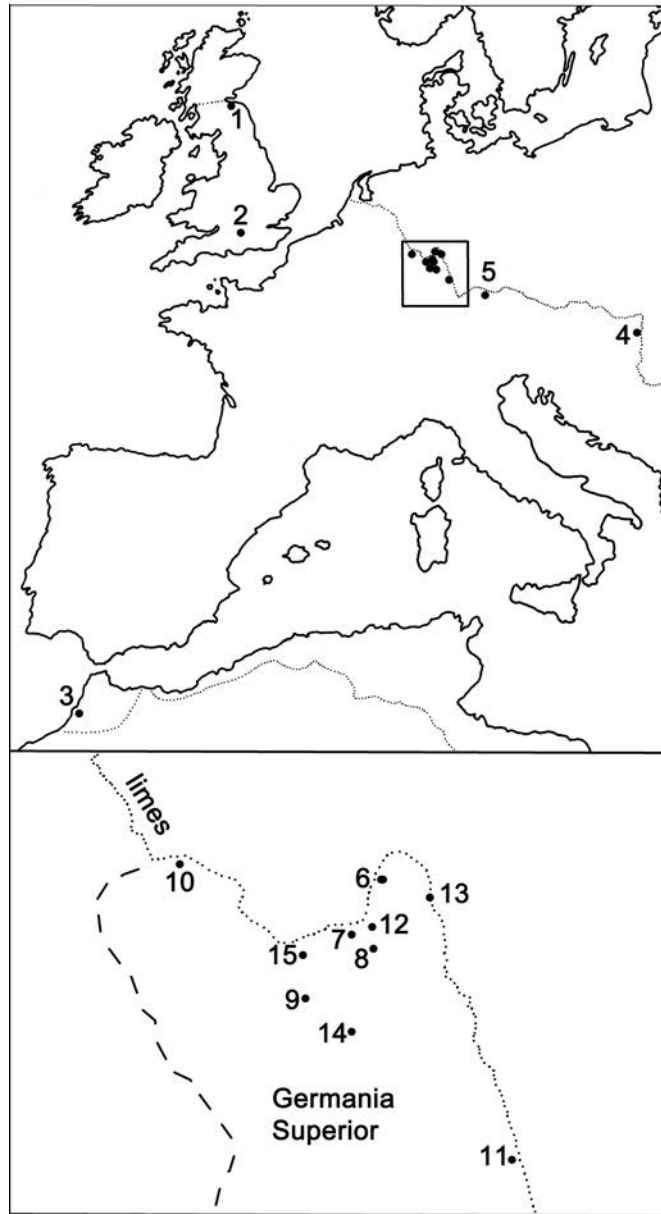
Illus 37 The silver belt-pendant and copper-alloy Trompetenmuster mounts. Photo: © Trustees of National Museums Scotland



Illus 38 The silver belt-pendant from Cramond Road. Photo: © Trustees of National Museums Scotland



Illus 39 Intact example of a ring-pommel sword belt hanger from Mainz (after Fischer 2012: Abb 272.4)



Illus 40 Distribution of pendants in the form of ring-pommel swords and strap ends in the form of *beneficiarius* lances. 1. Cramond (Edinburgh/UK). 2. Silchester (Hampshire/UK). 3. Thamusida (Kénitra/Morocco). 4. Baracs (Kom. Fejér/Hungary). 5. Kösching (Bavaria/D). 6. Butzbach (Hessen/D). 7. Feldberg (Hessen/D). 8. Frankfurt-Heddernheim (Hessen/D). 9. Mainz (Rheinland-Pfalz/D). 10. Niederbieber (Rheinland-Pfalz/D). 11. Osterburken (Baden-Württemberg/D). 12. Saalburg (Hessen/D). 13. Stammheim tower 4/96 (Hessen/D). 14. Stockstadt (Hessen/D). 15. Zugmantel (Hessen/D). Illustration by Fraser Hunter

156) notes that some have a white metal coating, intended to emulate silver. It is no surprise that such a prestigious emblem would be in a precious metal; Boon (1974: fig 8.4 caption, 309 n8) notes that the related sword belt plates from Vechten (NL) and Silchester are in silver and tinned bronze or base silver respectively, and Miks (2007: Abb 28

X, Ω) illustrates a silver brooch and a silver dagger sheath terminal sharing this iconography; these items were clearly intended to impress.

It seems unlikely that the Trompetenmuster mounts and pendant came from the same belt, given the mixing of silver and copper alloy. The pendant had clearly seen use as the suspension

loop shows wear, while heat-damage suggests that attempts had been made to recycle it, although its context of discovery, in Pit 1 alongside other belt fittings and coins, seems to be a small hoard of valued items.

The sword pendant from Cramond, while melted and unimpressive-looking, is thus a find of international significance which shows the wide-ranging connections of the Roman army and throws fresh light on the troops involved in the Severan expedition.

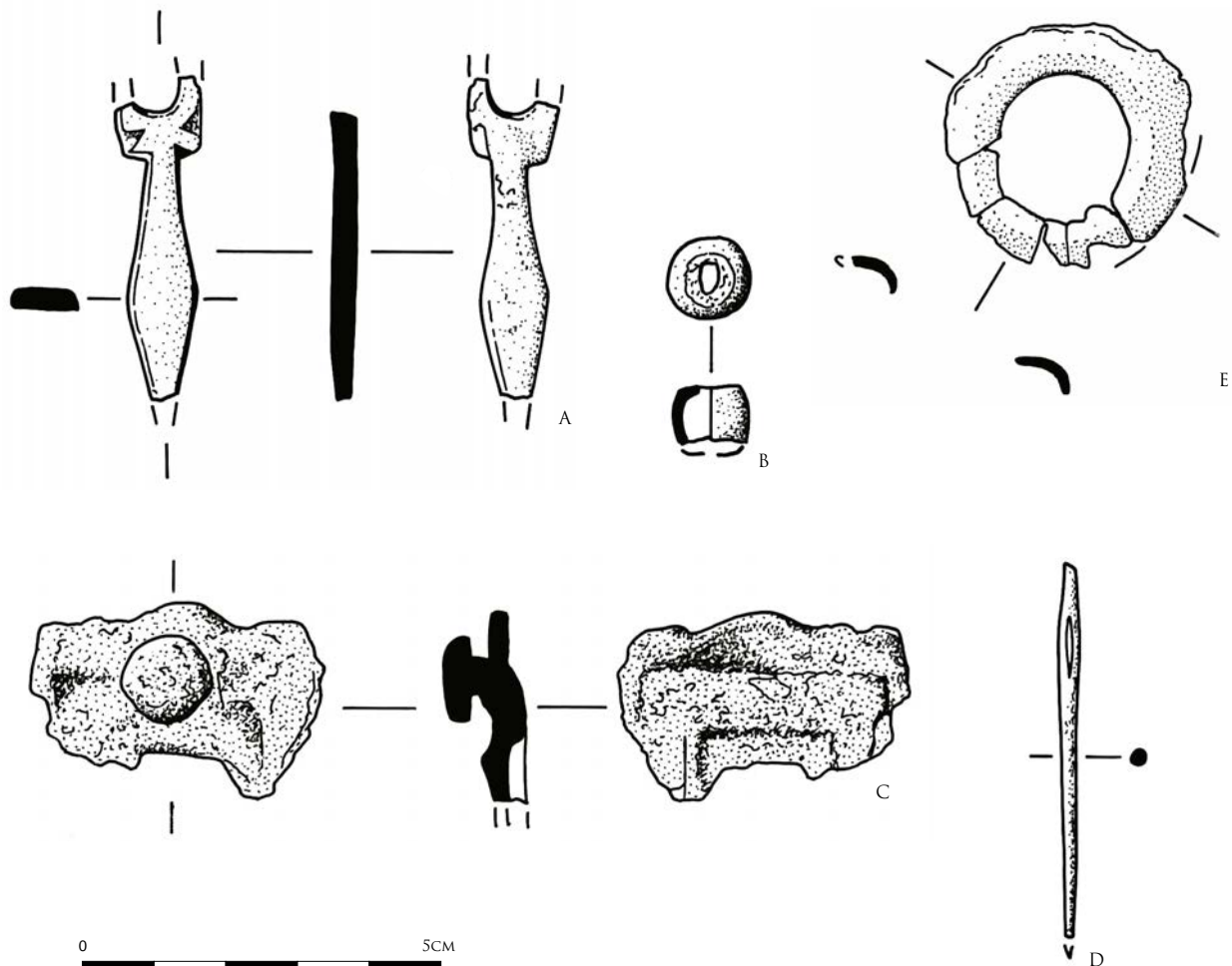
A further ten items – a fragment of riveted sheet, a needle, a washer and an unidentified sheet fragment – are undiagnostic and cannot be proven to be Roman, though this is not unlikely. The

washer, for instance, can readily be paralleled on Roman sites, including Cramond itself and South Shields (Holmes 2003: 110–11, illus 101; see also Allason-Jones & Miket 1984: 252–3, 3.1073, 3.1081), while cast barrel-shaped beads or spacers are a type well known from Roman fort sites (eg Birrens: Robertson 1975: fig 30.2–4; South Shields: Allason-Jones & Miket 1984: 266–7, 3.1298).

11.2.1.1 Catalogue of Roman objects

► CR/P1/85/172

Openwork Trompetenmuster harness mount; recent damage makes the design unclear, but parallels suggest it was symmetrical, comprising paired peltas linked at the margins by one end forming a comma-tendrils scrolling into the boss



Illus 41 Non-ferrous metal objects: (a) strap end (CR/84/173); (b) bead or spacer (CR/78/2/313); (c) mount (catalogue no. 1, Pit 3); (d) needle (CR/38/1053); (e) annulate (C79/2/453). Illustration by Alan Braby

of the central stalk, the two tendrils in rotational symmetry (cf Oldenstein 1976: Taf 55, no. 674). An incised groove defined the edge of the surviving tendril from the mount's margin. An integrally cast stud with disc head (diam: 8mm; shank diam: 3.5mm) gives a strap thickness of some 5.5mm. Rear of casting flat; tendrils have a keeled profile. 22 × 17.5 × 10mm; weight: 2.94g. Extn W, Feature XI (Pit 1), Mid Level. Illus 36a.

► **CR/P1/85/173**

Openwork Trompetenmuster harness mount, slightly distorted from removal; one side lost relatively recently. The asymmetrical design is difficult to describe as corrosion and loss obscure details; two integrally cast studs on the rear with disc heads (diam: 6.5–7.5mm; shank diam: 3mm) for a strap 4mm thick provide an alignment for the piece. The design is in two sinuous halves which are joined where they touch by two lentoid bosses. The intact half is an S-formed double-ended trumpet; one end joins a smaller such motif, the free end domed to give an almost zoomorphic impression; this high-relief element joins a flat-ended trumpet which branches from the long slope of the main S, linking the design. The other half is incomplete; what survives is a shorter curve with a flared trumpet end, but both ends are broken and it is likely that they were linked by a further double-bossed 'head' motif. The rear is flat. L: 33.5mm; W: 21mm; Th: 9mm; weight: 2.96g. Extn W, Feature XI (Pit 1), Mid Level. Illus 36b.

► **CR/P1/85/172–4**

Silver pendant, partly melted, representing a ring-pommel sword. The circular ring pommel, oval in profile, has a small suspension loop set transversely on top and a slight internal protrusion at its base. The left side of the design below this is distorted and melted, but the right side preserves the straight edge of the grip, the protruding hilt guard in higher relief (comprising two perpendicular bars), and the straight edge of the blade or scabbard. The end is broken, the surface heat-affected in places. The suspension loop (internal diam: 3mm) is thinned from use-wear on its upper edge. L: 32mm; W: 13mm, Th: 9mm; weight: 4.08g. Pit 1. Illus 36c & 38.

► **CR/84/173**

Strap-end. Flat elongated cast copper alloy pendant, sub-square head (remaining length: 11mm; W: 12mm; Th: 4mm) with symmetrical lobate decoration, broken across large perforation (Diam: 8mm). Extending from head is lozenge-shaped protrusion (W: 4.5–9.5mm), damaged at extreme tip. A similar strap fitting comes from Newstead (Elliot & Hunter 2012: 191, fig 16.4, no. 9). L: 45.5mm. Illus 41a.

11.2.1.2 Other potential objects of Roman date

Dawn McLaren

► **C79/2/453**

Cast washer or collar, curved in section with rounded edges and hollowed underside; much of outer margin lost. Its rounded edges indicate it was not attached by solder, and hints of unidentified organic material in the corrosion on the underside suggest it was fitted to an organic object. External diam: 35mm; internal diam: 18.5mm; W: 8.5mm; H: 2mm; weight: 3.06g. A damaged example has been found at Cramond previously (Holmes 2003: 110–11, no. 26, illus 101). Soil and cobble mix, 15–25cm on east side. From gutter north to trial trench in section 2. Illus 41e.

► **CR/78–85**

Ring fragment. Small curving fragment of a circular-sectioned (Diam: 4mm) cast copper alloy ring. Similar rings have been recovered from the bath house excavations at Cramond (Holmes 2003: 111, illus 102). Original diameter *c* 40mm. No stratigraphic information.

► **CR/78/2/313**

Cast barrel-shaped bead or spacer with thin curved wall and large expanding perforation (Diam: 7–8mm). Diam: 11.5mm; H: 8mm. Trench II, section 1. Soil and cobble spread, lower level. South of edge of road. Illus 41b.

► **CR/78/2/314**

Approximately 50% of a barrel-shaped bead. Diam: 11mm, central perforation 5.5–6mm. H: 8mm. Trench II, Section 1. Soil and cobble spread, lower level. South of edge of road.

► **CR/78/2/315**

Three fragments of a barrel-shaped bead. Diam: 10mm, perforation *c* 4.5mm; H: 7.5mm. Trench II. Soil and cobble spread, lower level. South of edge of road.

► **CR/79/7/46**

Copper alloy sheet fragment. Thin sheet fragment from larger unidentified object; one original curving edge folded over on itself, piece distorted along length. RL: 27mm; W: 13.5mm; Th: 0.5mm. Trench III, A2/B2 cobble and soil (brownish 5–10cm from surface).

► **CR/79/2/588**

Cast barrel-shaped bead or spacer with thin curved wall. One end damaged. H: 9mm; Diam: 11.5mm; wall thickness: 1mm; weight: 0.92g. Diam: 11.5mm; H: 8mm. Trench 2, section 2.

► **CR/83/323**

Bronze tube. Short bronze tube formed by folding a thin rectangular sheet round on itself, edges butt together. One end damaged. L: 19.5mm; Diam: 7.5mm; Th: 0.5mm. Extn W II, below turf.

► **CR/83/1053**

Cast needle, now in three fragments but complete when deposited. Circular-sectioned shank (the tip now lost) expanding into an elongated head with blunt, damaged tip and elongated eye (L: *c* 6mm; W: 1mm), the groove extending onto the surface at both ends. Could be Roman, but not diagnostic. A similar needle comes from post-Roman soils in the vicinity of the bath house at Cramond (Holmes 2003: 109, illus 200, no. 20). L: 51mm; W: 3mm; shank diam: 2.2mm; weight: 1.05g. Extn W II, below plough soil immediately north of VIII. Illus 41d.

► **CR/87–88**

Rim fragment from sheet metal vessel or binding strip. Fragment of copper alloy sheet (Th: 0.5mm), rolled over on itself along surviving edge to create slightly uneven rim (W: 4mm; Th: 3mm), gently curving along length; broken at both ends and opposing edge. L: 47.5mm; RW: 13mm.

11.2.2 Lead

Thirteen lead finds were recovered from the proximity of Cramond Road I, the majority of which are not closely datable. The most significant of these items is a stamped lead strip fragment (CR/80/120), probably a fragment of lead seal or token of early post-medieval date (Illus 45d). This object is slightly enigmatic in terms of function as it has no obvious means of attachment and is, therefore, a category of object distinct from the more typical circular stamped lead cloth seals which were used as product regulation tags but may well have been used as some other form of token, tag or even a weight. The stamped lead strip can be paralleled with examples in Salisbury Museum and London (Egan 2001: 102–3, fig 35, nos 123–4). A 16th- to early 17th-century date is suggested for these objects, based on the style of the lettering and other markings (ibid: 124). The other lead fragments appear to be scrap or waste materials, six of which appear to have been used as patches or repair strips for a variety of objects.

► **CR/80/120**

Stamped lead strip fragment. Small squared-end fragment of a flat rectangular lead strip, one face has stamped ?lettering [V V].... . L: 20mm; W: 13.5mm; Th: 1.5mm; weight: 2.7g. Tri-section, from soil and boulders, overlying Post hole II. Illus 45d.

11.3 Site 3: Cramond Road II

Small quantities of copper alloy, silver and lead objects were recovered from excavations at Cramond Road II. Only 18 surviving objects were available for examination and discussion focuses on those of Roman or potentially Roman date. A further six copper alloy objects and one lead object are recorded on the original finds register and include a bronze mount, a finger ring, a button and a coin, but these were not present among the archive.

A small number of items are potentially Roman in date due to their form and finish. These include a small domed stud or rivet (CR/2/90) and two fragments from sheet metal objects (CR/2/89/115 and CR/2/89/396), as well as a ring fragment recovered from the north-west area of excavation. Although not closely datable, fragments of copper

alloy casting debris and copper alloy scrap indicate that metalworking was taking place in the vicinity of the road. The association of the metalworking debris with fragments of Roman lava quern suggest that this activity is contemporary with the use of the road.

Seven fragments of scrap lead, two of which appear to have seen previous use as patches for unidentified objects, were also recovered. Although none of these items is chronologically distinctive in terms of form or material, a small number appear to be contemporary with the Roman road itself (eg CR/2/89/396, which was recovered below cobbles of road V).

11.3.1 Copper alloy and silver

11.3.1.1 Potentially Roman

► CR/2/90

Small domed stud or rivet, possibly silver or with a silvered finish. Damaged round circular head (Diam: 8.5mm; H: 2mm), short square-sectioned shank (Diam: 2.5mm), crimped at base suggesting attachment to object no more than 5mm thick. L: 8mm. Trans. Sect (2), packing within large boulders. Raised east kerb.

► CR/2/89/115

Tapering copper alloy strip or sheet fragment, possibly a sheet off-cut. Thin copper alloy sheet or strip, wide triangular squared end (W: 10mm) tapers sharply to a short blunt squared tip (W: 1.5mm); distorted along length. L: 26mm; Th: 1mm. Trench 3, from burned area overlying east kerb, associated with Roman ceramics.

► CR/2/89/396

Fragment of a riveted sheet junction with two layers held by two rolled sheet rivets, one of which has been repaired with a second rivet inserted immediately adjacent, punched through the flange of its head. Perhaps from a vessel, though this cannot be certain; its dating is not clear. 18 × 10 × 3.5mm; weight: 0.60g. Sheet thickness 0.1–0.2mm; rivet head 3–4mm; shank diam: 2mm. Extn NW, Section II, below cobbles set in clay, road V.

► CR/2/89/533

Ring fitting. Cast copper alloy sub-square sectioned (Diam: 3.5mm) ring, gently rounded external

edges damaged around much of the circumference. External diam: 23.5mm; internal diam: 17mm. Extn NW.

11.4 Site 5: Cramond House Garden

A single corroded terminal from a Roman military belt mount from Pit 3 and three post-medieval copper alloy dress accessory fragments retrieved from topsoil associated with the excavations at the walled garden in 1976. The post-medieval finds include a fragmentary gilded buckle of 17th- to early 18th-century date (Illus 45b), as well as button heads and a wire-wound headed pin.

11.4.1 Copper alloy: Roman

Fraser Hunter

From a pit in Cramond House Garden comes the end of an openwork military belt fitting (Illus 41c). Nothing of the design survives, but the type is typical of the 2nd and 3rd centuries (see Elliot & Hunter 2012: 189, nos 4–5 with references); this find is rather broader than the examples noted there, but can be readily paralleled (eg Oldenstein 1976: Taf 62, no. 786 [Osterburken]).

► Catalogue no. 1

Badly corroded terminal of an openwork military belt mount, preserving the triple-arched end (the central one broader) and raised rectangular moulding (rounded in profile) around the openwork design. All that survives of this is the rectangular end of the openwork field. A heavy integrally cast stud with circular head (Diam: 12–13mm) lies on the longitudinal axis at the end of the mount, giving a strap thickness of around 3mm. The whole object is slightly distorted from removal; its surface suggests it is heat-affected, perhaps from intended recycling. L: 27mm; W: 40.5mm; Th: 13mm; weight: 8.09g. Pit 3. Illus 41c.

12. THE ROMAN COINS

Nicholas Holmes

Twelve Roman coins, from four separate periods of excavation, formed part of the finds assemblage from this relatively small area (see list below). Some are in very poor condition, precluding

precise identification. The six denarii from Site 2 were recovered from waterlogged soil deposits, which accounts for their oxidised and corroded condition.

None of those attributable to a specific reign would be out of place in the context of the Antonine and Severan occupation phases previously demonstrated at Cramond, but the three denarii of Lucilla and Commodus, minted in AD 164–9 and 183–4 respectively, might be indicative of late Antonine, rather than Severan, losses. All exhibit very little evidence of wear in circulation.

At least another nine coins of Roman date are recorded on the original finds register (Table 7) but are no longer traceable.

12.1 Catalogue of extant coins

12.1.1 Site 2: Cramond Road I

► LUCILLA, denarius: 2.21g, die axis 210°: AD 164–9

Obv: LVCILLA AVGVSTA: bust draped right.

Rev: [IV]NO REGIN[A]: Juno standing left, holding [patera and] sceptre; [peacock at feet].

Table 7 Inventory of coins (now lost) recorded in Charlie Hoy's excavation finds register (those marked in italics may be present but correlation is not certain)

| Site | Portrait | Coin | Find no. | Area | Context |
|---------------|------------------------------|----------------------|--------------------|--|---|
| Site 2 | Lucilla | Sestertius | CR/82/172 | Transverse section | Loose soil east of East Kerb |
| Site 2 | Sabina | Denarius | CR/82/309 | Transverse section, Feature VII | From soil overlying boulder fill |
| <i>Site 2</i> | <i>Severus</i> | <i>Denarius</i> | <i>CR/82/389</i> | <i>Transverse section, Feature VII</i> | <i>From soil overlying boulder fill</i> |
| <i>Site 2</i> | <i>Julia Domna</i> | <i>Not specified</i> | <i>CR/83/215</i> | <i>Extn W I, Feature XII</i> | <i>From soil overlying stony spread</i> |
| Site 2 | Hadrian | Sestertius | CR/83/957 | Extn W II | Level below plough soil |
| Site 2 | Commodus | Not specified | CR/83/1052 | Extn W II | Below plough soil immediately north of VIII |
| Site 2 | Trajan | Sestertius | CR/83/1148 | Extn W II | 1st level below plough soil |
| Site 2 | Lucilla | Not specified | CR/83/1474 | Bulk extn W I & II | Lower levels |
| Site 2 | Vespasian | Not specified | CR/84/1 | Extn W I & II | Unknown |
| <i>Site 2</i> | <i>Antoninus Pius</i> | <i>Sestertius</i> | <i>CR/85/213</i> | <i>Extn W I & II, Feature IX</i> | <i>Below stone of Feature VIII</i> |
| Site 2 | Faustina | Denarius | CR/85/292 | Extn W I & II | Cleaning over Features VIII & IX |
| Site 2 | Julia Domna | Denarius | CR/P1/85/51 | Extn W | Upper level |
| <i>Site 2</i> | <i>Caracalla</i> | <i>Denarius</i> | <i>CR/P1/85/52</i> | <i>Extn W</i> | <i>Upper level</i> |
| Site 3 | Coin, possibly of Roman date | Not specified | CR/2/88/443 | Extn NE | Soil and cobble mix |

► **RIC (Marcus Aurelius) 772**

Surfaces much corroded and pitted; slight wear.

► **COMMODUS, denarius: 2.50g, die axis 345°: AD 183**

Obv: [M CO]MMODVS [ANTON] AVG [PIVS]: head laureate right.

Rev: [TR P] VIII IMP VI COS III P P: Salus standing left, feeding snake coiled round altar, and holding sceptre.

► **RIC 66**

Undersized flan; surface corroded and pitted; slight wear.

Extn W II, 24 July 1983.

► **SEPTIMIUS SEVERUS, denarius: 2.13g, die axis 195°: AD 203**

Obv: SEVERVS PIVS AVG: head laureate right.

Rev: P M TR P XI COS III P P: Fortuna seated left, holding rudder and cornucopiae; wheel under seat.

► **RIC 189(b)**

No evidence of wear.

► **JULIA DOMNA, denarius: 1.90g, die axis 180°: AD 205**

Obv: IVLIA AVGVSTA: bust draped right.

Rev: PVDICITIA: Pudicitia seated left, right hand on breast.

► **RIC (Septimius Severus) 576; Hill 701**

No evidence of wear.

► **ANTONINUS PIUS, denarius: 1.80g, die axis 30°: AD 156–7**

Obv: [ANTONINVS AVG PIVS P P IMP II]; head laureate right.

Rev: [TR POT XX] COS III; Annona standing right, left foot on prow, holding rudder and modius.

► **RIC 260**

Chipped, corroded; moderate wear.

Site 2, lower level; 14/7/85.

► **COMMODUS, denarius: 2.06g: die axis 0°: AD 183–4**

Obv: M COMMODVS [ANT]ON AVG PIVS; head laureate right

Rev: [P] M [TR] P VIII [IMP VI] COS III P P;

Felicitas standing left, holding [caduceus and] cornucopiae; modius at feet.

Much surface pitting; moderate wear.

[Site 2], Pit 1, lower level; 14/7/85.

► **CARACALLA, denarius: 0.87g: uncertain die axis**

Obv: ANTONINVS []; head laureate right (young portrait).

Rev: no details survive.

Chipped; highly corroded.

Site 2, Pit 1, lower level; 14/7/85 (?CR/P1/85/52).

► **Unknown emperor/empress, denarius: 1.40g; uncertain die axis**

Obv: no details survive.

Rev: []A AVG; figure standing left, holding patera and sceptre.

Completely oxidised; moderate wear.

Site 2, Pit 1, lower level; 14/7/85.

► **Unknown emperor/empress, denarius fragment: 0.35g: uncertain die axis**

Obv: no details survive.

Rev: figure standing left, right arm extended.

Highly corroded.

Site 2, Pit 1, lower level; 14/7/85.

► **Unknown emperor/empress, denarius: 0.66g: uncertain die axis**

No details survive on either side.

Badly chipped; highly corroded.

Site 2, Pit 1, lower level; 14/7/85.

► **HADRIAN, sestertius: 7.43g: uncertain die axis**

Obv: legend illegible; bust laureate right.

Rev: no details survive.

Highly corroded.

CR/86, Context 020, at bottom of Context 023.

12.1.2 Site 3: Cramond Road II

► **ANTONINUS PIUS, denarius: 3.11g: die axis 45°: AD 140–3**

Obv: ANTONINVS AVG PIVS P P: head laureate right.

Rev: [T]R POT COS III; [I]TALIA in exergue; Italia seated left on globe, holding cornucopiae and sceptre.

RIC 98 (c)

Moderate wear.

Site 3; 24/1/89. CR/2/89/24.

13. THE CHIPPED STONE

*Rob Engl***13.1 Overview**

A total of ten pieces of chipped stone were present among the excavated material. The assemblage appears to be of local derivation and includes flint, agate and blue/grey chert. This range of material is a major component of Early Prehistoric sites throughout the Forth Valley and Southern Uplands (Finlayson 1990; Saville 1994). The assemblage is summarised in Table 8.

13.2 Technology

Debitage formed the assemblage and flakes, cores and chunks were the classes represented. The majority of the flakes were regular in character.

The presence of simple and crushed platforms suggests that both hard and soft hammer reduction techniques were being practised. However, a large number of artefacts showed very little evidence either in platform type or in the form of other technological indicators such as bulbs of percussion. This is probably a complication of the soft and brittle nature of the chert (Ballin & Johnson 2005: 65). The two core types recovered during the excavations consisted of a bipolar remnant made on chert and a platform remnant made on flint. This artefact has suffered slight post-depositional rolling. The platform remnant showed two obvious narrow-blade removals.

The large chalk flint nodule within the assemblage probably originated in southern England and was probably brought to the area as ship ballast.

13.3 Conclusions

With the exception of the large flint nodule, it would appear that the chipped stone material represents Mesolithic activity within the immediate area. Similar small-scale assemblages of chipped stone were also recovered during excavations undertaken to the immediate east of the Roman fort in 2006 (Engl forthcoming a) and from work undertaken in 2009 within the fort area itself (Engl forthcoming b). A Mesolithic presence may also be deduced from the variety of raw materials within the assemblage.

Excavations undertaken to the immediate north of the fort in 1995 revealed one of the earliest, significant, dated Late Mesolithic lithic assemblages in Scotland at *c* 8600–8400 BC (Saville 2008; Lawson pers comm). Typologically the material featured in this report, together with that from other associated works, is consistent with that obtained from the 1995 excavations and would appear part of the same Late Mesolithic occupation of the area.

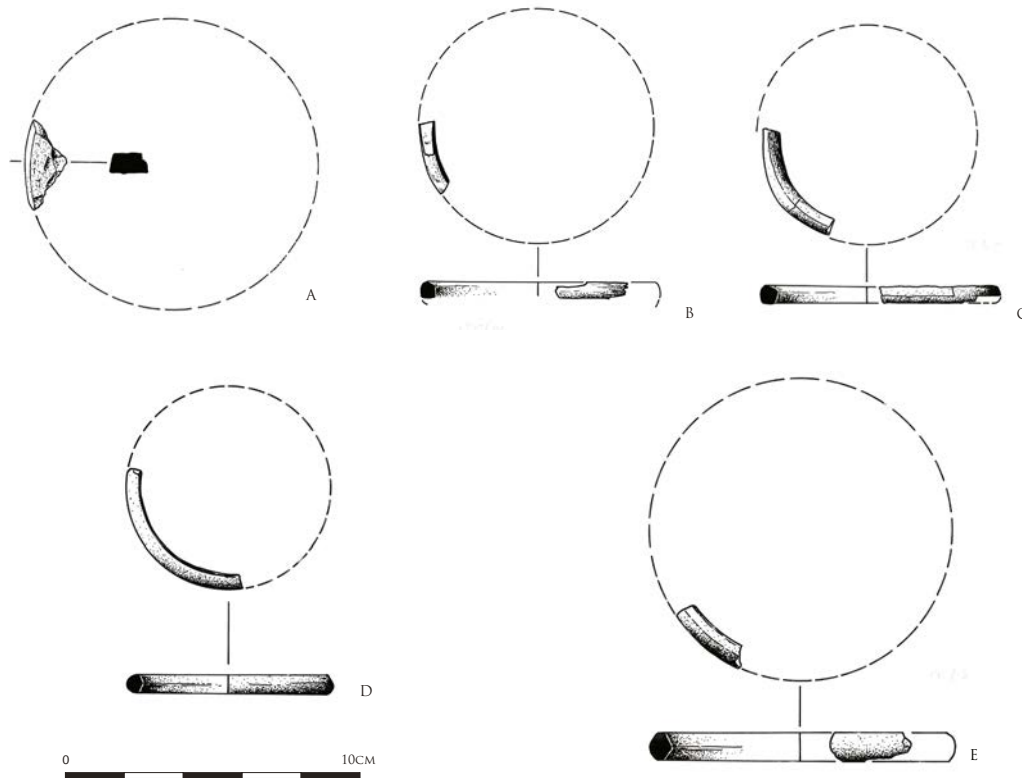
14. THE SHALE BANGLE FRAGMENTS

Fraser Hunter

Five bangles and one roughout came from the Hoy excavations (Illus 42). Four are lathe-turned bangles of Kimmeridge shale, the main production centre being on the Dorset coast. This is the same area where Black Burnished 1 pottery and other material (such as stone items of Purbeck marble) were produced, and they probably came north with the trading contacts which brought BB1 to

Table 8 Summary of Cramond chipped stone assemblage

| Type | Chert | Flint | Agate | Total |
|-----------------------|----------|----------|----------|-----------|
| Flake | 4 | 0 | 0 | 4 |
| Chunk | 1 | 1 | 1 | 3 |
| Platform core remnant | 0 | 1 | 0 | 1 |
| Bipolar core remnant | 1 | 0 | 0 | 1 |
| Nodule | 0 | 1 | 0 | 1 |
| <i>Total</i> | <i>6</i> | <i>3</i> | <i>1</i> | <i>10</i> |



Illus 42 Shale bangle fragments: (a) CR/88/365; (b) CR/2/90; (c) CR/84/2; (d) CR/84/172; (e) CR/85/261. Illustration by Alan Braby

the northern frontier. Kimmeridge products are well-represented in Scotland, comprising at least 20–30% of Scottish bangle finds (Hunter 2014: 153). The fifth bangle is probably a cannel coal, which could have a more local source. The final item is a disc-shaped roughout, perhaps for a counter or ring, and also most likely of cannel coal. This is the first evidence for on-site working, which is attested at other Roman military sites (ibid: 159). Similar black shiny jewellery has been recovered from other excavations at Cramond, with three further bangles and a ring-pendant known (ibid: 164).

Bangles are the most common black jewellery item found on Scottish Roman sites. The large diameter of two of them fits the wider Scottish pattern: bangles from northern military sites tend to be larger than average, indicating they were worn by soldiers (Hunter 2014: 153). The other two are smaller and are more likely female ornaments.

14.1 Catalogue

► CR/84/2

Lathe-turned shale bangle fragment; exterior rounded; narrow facets on the faces (more

pronounced on one); interior carinated from lathe turning. Grey laminar character indicates it is Kimmeridge shale. Internal diam: 55–60mm (22% survives); L: 41mm; W: 6mm; H: 6mm. Cramond Road I (Site 2); Illus 42c.

► CR/84/172

Lathe-turned bangle fragment with rounded D-section; near-flat interior with bevel from core removal. Well-finished. Grey oil shale. Internal diam: 60–65mm (28% survives); L: 55.5mm; W: 5.2mm; H: 6.1mm. Cramond Road I (Site 2), area west of road, from stony feature spread. Illus 42d.

► CR/85/261

D-sectioned lathe-turned bangle fragment, with bevel on internal face from core removal. Damage to one edge; some use-wear. Grey oil shale. Internal diam: 70–75mm (11% survives); L: 27.5mm; W: 7mm; H: 9.7mm. Cramond Road I (Site 2), area west of road, from stony feature spread. Illus 42e.

► CR/88/365

Probable bangle fragment, faces spalled off and inner edge lost. Triangular fragment of dark material

with conchoidal fracture, probably cannel coal; the surviving outer section is sloping and well finished, with no tool traces but some wear marks. L: 31mm; W: 13.5mm; H: 6mm. External diam: 90–95mm (giving an estimated internal diam around 60mm). Cramond Road II (Site 3), Trench 4. Illus 42a.

► **CR/2/90**

Shale bangle fragment, split horizontally but preserving just over half the narrow section with rounded top and exterior; a slight facet on the near-flat interior indicates it was lathe-turned. Its grey, laminar character is consistent with Kimmeridge shale. Internal diam: 70–75mm (10% preserved); L: 23mm; W: 5mm; H: 6mm (originally *c* 9mm). Cramond Road II (Site 3); Extn NW, from soil and cobble mix below stone drain and kerb of road 2. Illus 42b.

► **CR/83/217**

Discoidal prepared roughout, broken in half. Faces naturally flat, one with abrasion scars; around half the circumference survives; in places it is natural, elsewhere it has been flaked to shape. Tapering in section. Size suggests use as a counter or, perhaps, finger ring. Probably cannel coal. Diam: 32mm; W: 20mm; H: 8mm. Cramond Road I (Site 2).

There are also four finds not located within the archive, listed in Charlie Hoy's finds registers just as 'jet' (Site 1: Cramond Tower East, 80/CT/437; Site 2: Cramond Road I, CR/83/446, CR/83/612, CR/83/708). In the absence of any further description, they could be misidentifications of other material, but if nondescript they may well have been working debris. Their absence is tantalising and frustrating.

15. THE COARSE STONE TOOLS AND ARCHITECTURAL STONE

Dawn McLaren

15.1 Overview

A small assemblage of possible worked stone was present among the archive material, the majority deriving from excavations at Sites 2 and 3. The majority of the worked stone assemblage comprises small, prosaic tools such as whetstones and cobble

tools which must relate to everyday activities on site from the Roman to post-medieval periods. Yet, several more diagnostic Roman period items are present, including fragments of Niedermendig lava querns, which represent imported rotary stones – a typical find on Roman military sites in Scotland and beyond. Other significant items include a sling stone, a possible sculptural fragment, bangle fragments produced from Kimmeridge shale and other, more local, black shiny stones (see 14 'The shale bangle fragments' above), and a dressed architectural column.

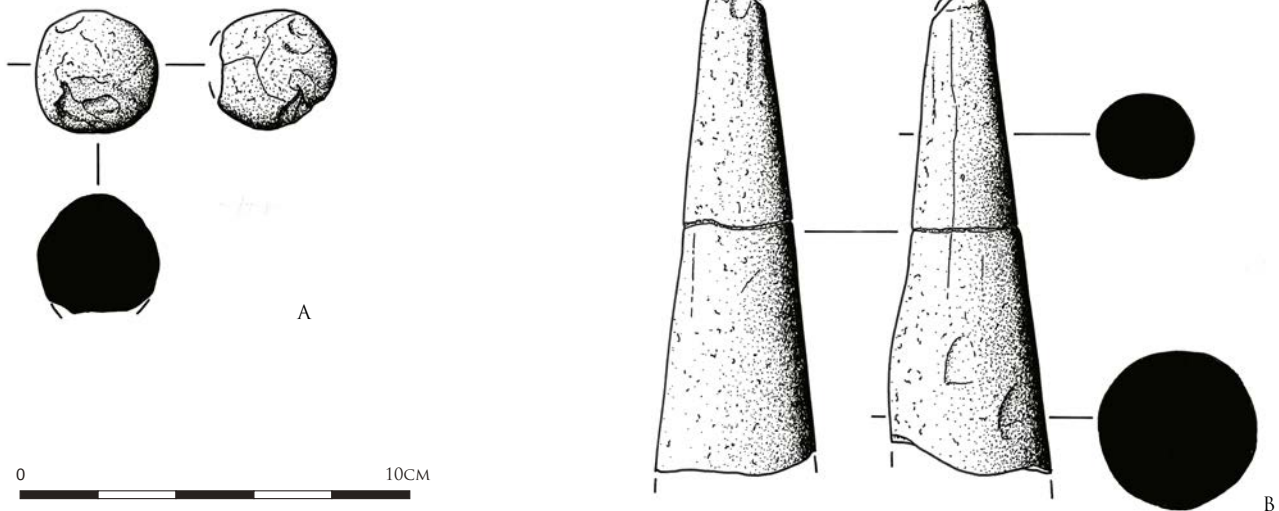
15.2 Site 1: Cramond Tower

The original finds register from the excavations at the site of Cramond Tower records the recovery of six stone, jet and coal finds. The 'jet' object (80/CT/437) is not present among the surviving finds available for examination. The remaining five stone items are unworked and are of no archaeological significance.

15.3 Site 2: Cramond Road I

Although 25 stone and jet/shale finds were recorded in the original finds register, very few survive within the archive. These consist of several shale bangle fragments (see 14 'The shale bangle fragments' above), a fragment of lava quern (CR/85/315), a sling stone (CR/83/1103), a sculptured stone fragment, a whetstone and a flaked cobble. A further 18 stone items could not be traced at the time of writing. These include 'whetstones' (C79/6/1, C79/7/15, C79/7/54, C79/7/55, C79/8/7) and possible lava quern fragments (C79/1/16). The absence of this material among the archive may simply be the result of discard of natural stones by Charlie Hoy after mis-identification in the field, but no records exist to confirm this.

The lava quern fragment (CR/85/315) that survives is in poor condition; no original surfaces remain and it can only be identified as an imported Niedermendig lava quernstone by virtue of the distinctive lithology. Further fragments of lava quern are recorded on the original finds register but have not been located among the assemblage (eg C79/1/16). Lava querns are a distinctive form of rotary quern dating to the Roman period



Illus 43 Stone objects: (a) sling stone (CR/83/1103); (b) possible sculptural fragment. Illustration by Alan Braby

and are sometimes referred to as ‘legionary’ or ‘military’ querns (Curwen 1937: 147–8; MacKie 2007) due to their typical association with Roman military forts in Scotland and beyond. These quernstones, which were used for grinding cereal grain into flour, were imported into Britain from the Rhineland and are typically associated, in Scotland, with Flavian and early Antonine period forts such as Elginhaugh (MacKie 2007). These querns are disc-shape in form with thick vertical edges, which are often decorated by parallel vertical grooves produced by hammering with a gouge or chisel. The grinding faces, which are often very steep in profile, are typically dressed with groups of parallel gouges or regularly pecked to create a rough surface to more efficiently and effectively grind up the cereal grains. The friable quality of the lithology of these stones does not preserve well in Scottish soils, and they are often found in the course of archaeological excavations on Roman sites as small abraded and fractured amorphous lumps rather than as complete disc-shaped stones, as is the case at Cramond. A fragmentary lower lava quern was previously recovered from demolition material in the area of the bath house furnace at Cramond, and fragments were noted from the fill of the fort ditches excavated in the Manse Garden (Holmes 2003: 125). Further degraded pieces are present among the Charlie Hoy archive from

Cramond Road II (Site 3).

Although several water-rounded pebbles were collected during excavation from Sites 2 and 3, only one (CR/83/1103, Illus 43a) from Cramond Road I (Site 2) shows signs of damage suggesting possible use as a sling stone. The stone is a sub-spherical, almost ovoid granite pebble, with two opposing rounded surfaces displaying fracture damage encircled by radial hairline cracks consistent with impact damage. Approximately 25–30% of the surface of the stone has been lost but it is estimated to have been around 33mm in diameter prior to damage.

Missiles of stone, fired clay and lead are often found on Roman forts of Flavian to Severan date, indicating widespread use of slings in Britain (Greep 1987; Griffiths 1989; Summerfield 1997: 312; Bishop & Coulston 2006). Although only three definite stone examples were recognised at Birdoswald, they represent a wide spectrum of dimensions and weight, the smallest being only 49mm in diameter and the largest 140mm (Summerfield 1997: 312, fig 230). Smaller examples, comparable in size to the Cramond Road I find, come from South Shields (Allason-Jones & Miket 1984: 12, nos 45–58). The Cramond example does not display any evidence of deliberate shaping; the shape is entirely water-worn, similar to those from Strageath, where a possible water-rounded stone

sling-missile was found among the remains of an Antonine oven (Frere & Roe 1987: 187). The sling stones at Strageath are complemented by a collection of elliptical and bipartite baked clay examples (Frere 1987: 178–9). The number of these baked clay ‘bullets’ from two distinct buildings in the fort complex led the excavator to suggest that they had been stored or perhaps even manufactured in these buildings (*ibid*: 179).

In addition to the large numbers of lead shot recovered from the putative besieged native hillfort at Burnswark, Dumfries & Galloway, are many stone-missiles consistent with a type which could be fired from a catapult (Christison et al 1899: 245–6; Jobey 1978: 90; Wilson 2003: 135; Breeze 2011: 175). Unlike that from Cramond, and the examples from Strageath, the stone-missiles from Burnswark had been deliberately shaped, but like those from Birdoswald, they were present in a range of sizes and weights, perhaps reflecting differences in the density of the lithologies used.

An intriguing and somewhat enigmatic worked stone was recovered from a soil and clay mix within the eastern extension to Trench 1 in 1979. Although recorded in the field as a possible whetstone, its shape and general lack of concentrated wear argue against this function. In form the object comprises an elongated cone, shaped from a fragment of fine yellow sandstone (Illus 43b). It survives in two joining fragments measuring 125mm in length, but it has clearly been detached at the widest end from a larger piece. The entire surface has been abraded to create a smooth and even rounded surface. Although some faceting from abrasion is visible on the surfaces, there are no obvious concentrations that would be anticipated from extensive wear as a tool and the concave surfaces would not be optimal for use as a whetstone for sharpening blades. Similarly, the blunt rounded tip of the object shows damage in the form of two small chips but lacks pitting, peckmarks or abrasion that would be anticipated had the tip of the stone been used as an implement. Two possible interpretations can be offered based on the lack of obvious wear: was this a specialist grinding or shaping tool, such as a polishing stone or former? Or could this be a fragment of a sculpture? Due to the lack of any obvious traces of wear but clear signs of shaping and smoothing of the stone surfaces, the latter

interpretation may be more likely. Clearly such a small fragment of what may once have been a large and impressive piece is impossible to reconstruct with any certainty, but it is possible that this may be a detached ‘ray’ from around the head of a bust of Sol, similar to that known in marble from the Basilica of San Clemente, Rome (Nolan 1914: 113). Closer to home, the shaft of a sandstone altar from Lewisvale, Inveresk, depicts the head of Sol in relief, with pierced rays surrounding the head in a nimbus or slightly domed shield (Hunter et al 2016).

15.4 Site 3: Cramond Road II

Diagnostic Roman worked stone is restricted to very friable fractured pieces of Niedermendig lava quernstone recovered from a cobble surface, east of the Eastern Kerb (CR/2/90/306) and further sizeable fragments from deposits underlying the disturbed stones of a stone-built drain (CR/2/89/614). A further quernstone was found built into the road surface (Illus 20). Approximately 80% of this upper rotary quernstone survives but one rounded edge has been lost; it is unclear whether this was the result of deliberate re-dressing to enable its incorporation within the slab-built surface or had occurred prior to reuse. Unlike the other quern fragments from Cramond Road reported on here, which were produced from non-local Niedermendig lava, this example appears more consistent with locally sourced rock-types.

The remaining four worked stones cannot be closely dated. They consist of two whetstones with evidence of wear from whetting and two flaked stone discs which probably functioned as rudimentary pot lids. Like those previously found at Cramond (Holmes 2003: 124–5, illus 127), the whetstones from Cramond Road II have been produced from elongated ovoid water-rounded cobbles with no preparation or modification to the shape of the stone prior to its use for sharpening metal blades.

15.5 Site 5: Cramond House Garden

An unfinished architectural pillar, intended to be set up against a flat wall, was recovered by Charlie Hoy from the vicinity of a pit uncovered in the gardens of Cramond House, where it appears to

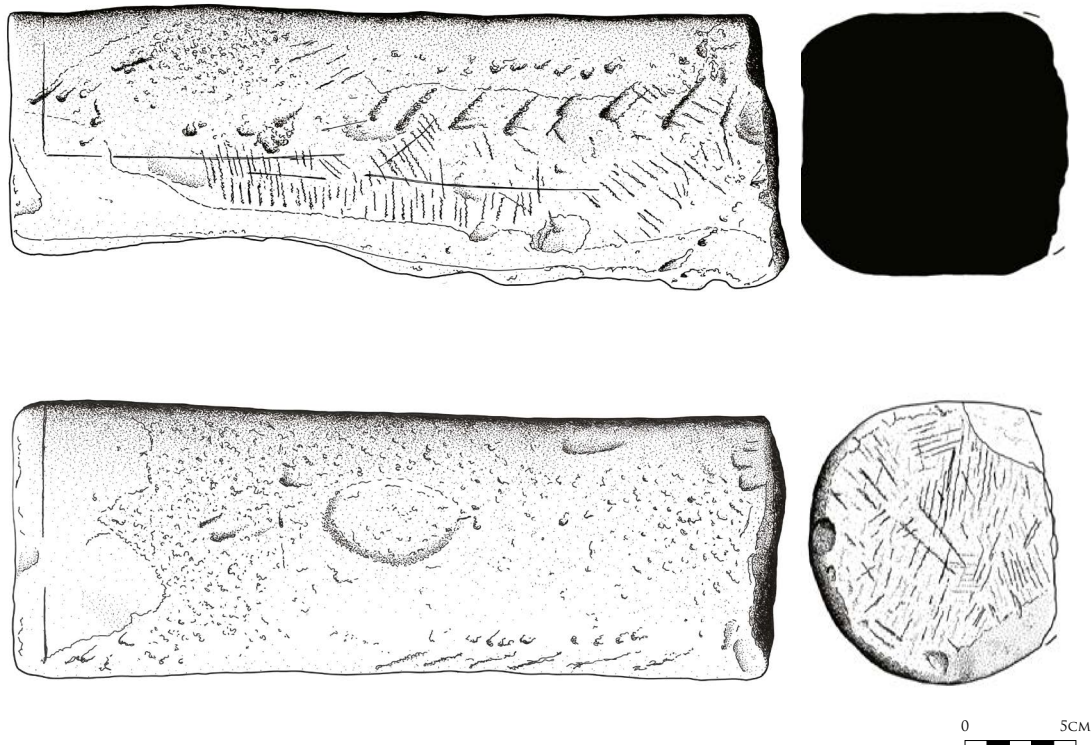
have been reused as a building stone (Illus 22 & 44). The unfinished condition and the lack of secure context make assertions over the date of the stone problematic. The surviving condition of the pillar is such that individual tool marks survive on all surfaces, indicating that the stone was roughed out and shaped using robust iron tools including points, chisels and perhaps a stonemason's adze (Blagg 1976). Marking-out lines produced by a mason's fine graver are also present. The most intriguing feature of the pillar is a shallow elliptical hollow at the centre of the rounded external face. The function of this feature is unknown.

Architectural stones of Roman date have been recovered during previous excavations at Cramond, such as the stone bench end found rebuilt into a wall of the bath house excavated in 1976 (Holmes 2003: 123). A very crudely carved and inscribed stone was found in 1975 from a dump of Roman and medieval material in sand dunes to the north of the bath house (ibid: 123, illus 121, pl x). It had also been carved from a block of red sandstone. It is possible that the architectural pillar described here derived from the same or a similar dump, but the date of production remains ambiguous.

15.5.1 Catalogue of illustrated finds

► **Catalogue no. 1**

Unfinished architectural pillar. Squat sub-square-sectioned pillar roughly hewn from a larger block of old red sandstone, rough tool marks remaining on surfaces from manufacture. The pillar is rounded around two-thirds of the circumference with a flat back, very crudely and roughly chiselled from block, implying an intention for the pillar to stand flush against a flat wall, tapering in width and thickness from a roughly hewn or fractured sub-square sectioned base towards a smooth, flat, more carefully tooled sub-circular top which has seen later damage at two opposing rounded corners. The rounded external faces have irregular patches of deep tool marks from shaping: deep circular peckmarks and transverse and vertical gouges made by a robust iron point or fine chisel. Mid-length at the centre of the rounded face is an elliptical, shallow, flat-bottomed hollow (L: 128mm; W: 78.5mm; depth: 6mm), pecked to shape but unfinished. Tooling more carefully finished around one-third of the circumference at the narrower squared top with a



Illus 44 Architectural stone. Illustration by Alan Braby

fine circumferential marking-out line (W: 2mm) visible 40mm from the top edge. The rounded edges have very rough transverse chisel and gouge tool marks with further incised marking-out lines present parallel to one long edge, possibly to mark extent of visible surfaces that required further shaping and finishing. Green/brown staining on surface of opposite edge implies the stone was built into a garden wall or exposed on the surface for an extended period of time. L: 684mm; W: 232–4mm; Th: 204–42mm. Illus 44.

16. THE VITRIFIED MATERIAL

Dawn McLaren

16.1 Summary

Small quantities of vitrified material were recovered from excavations at Cramond Road I (Site 2; 296.5g), Cramond Road II (Site 3; 366.8g), the Sewage Pipeline excavations (Site 6; 21.4g) and Dunfermline College Games Hall (Site 7; 33.6g). This material comprises very small quantities of slags indicative of ironworking activities and a range of other vitrified materials that are not diagnostic of metalworking and could have been produced as the result of a range of high-temperature pyrotechnic processes. Very little of the waste indicative of metalworking came from stratified contexts and it cannot be closely dated.

The most significant collection of pieces came from Cramond Road II, three main categories of waste: unclassified iron slag resulting from ironworking (314g); non-magnetic, undiagnostic vitrified material that is not necessarily related to metalworking activities (50.6g); and a small nodule of possible copper or copper alloy casting waste (2.1g). The latter (CR/2/89/508) is a small sub-spherical nodule of dark brown vesicular slag that encases bright green globules; this likely to be waste from casting a non-ferrous metal object.

17. DISCUSSION

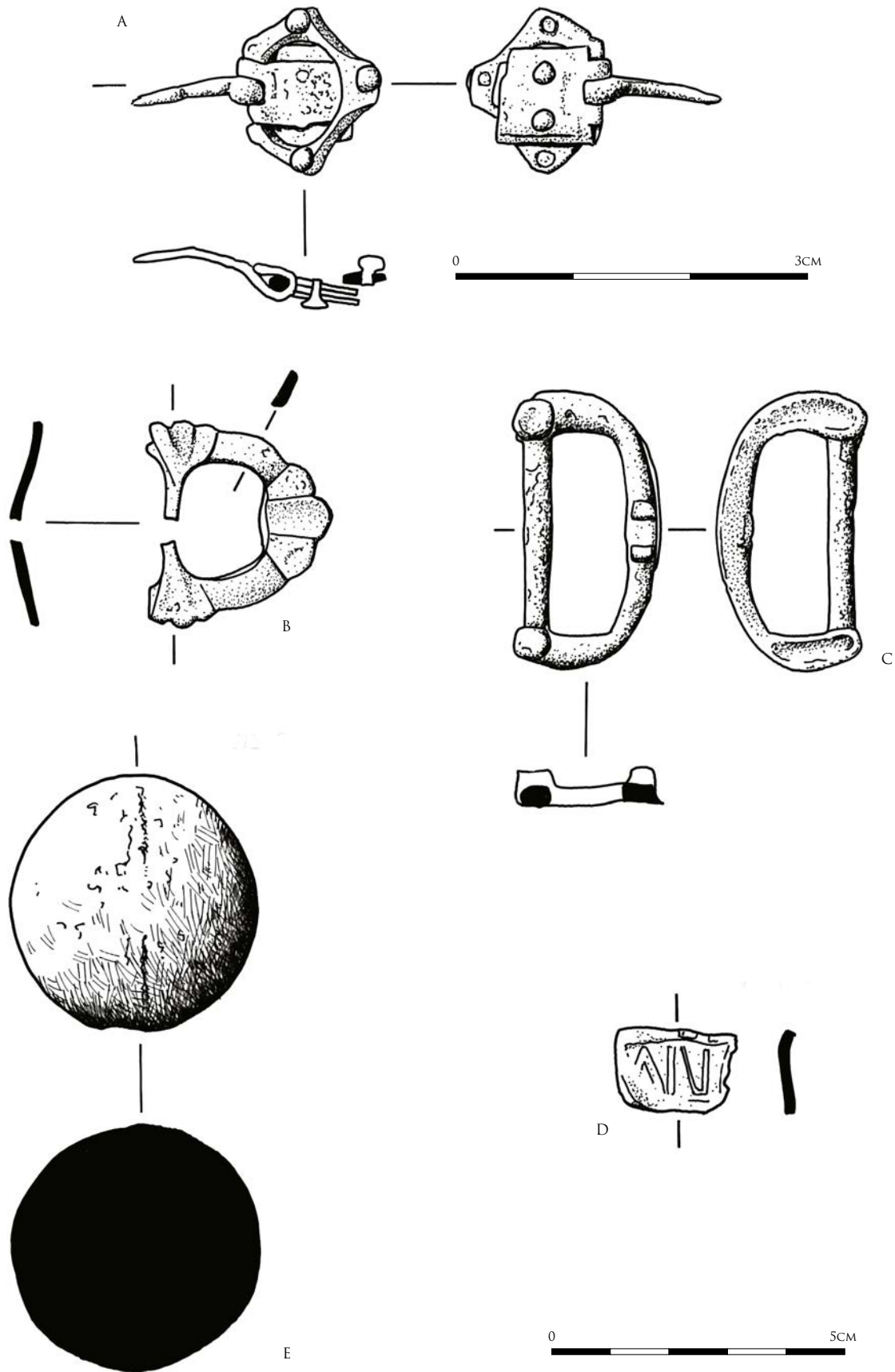
The series of relatively small-scale excavations undertaken by Charlie Hoy and the Edinburgh Archaeological Field Society between 1976 and 1990 have revealed invaluable glimpses of the environs of

the fort and, in particular, a greater understanding of the chronology and function of activity to the east of the principal fort. Hoy's excavations at Cramond Tower (Site 1) revealed a NNW/SSE aligned Roman boundary ditch which, on the basis of the artefactual material recovered from its fills, was constructed during the Antonine period but saw continued use into the Severan period. The most substantial of Hoy's excavations (Sites 2 and 3) focused on sections of the Roman road which ran in a north-west/south-east direction from the eastern edge of the fort and uncovered an important series of structures within the fort's proposed eastern annexe. Further evidence of Antonine to Severan period occupation outside the north-east corner of the fort was revealed in the form of Roman demolition material found in the gardens of Cramond House (Site 5).

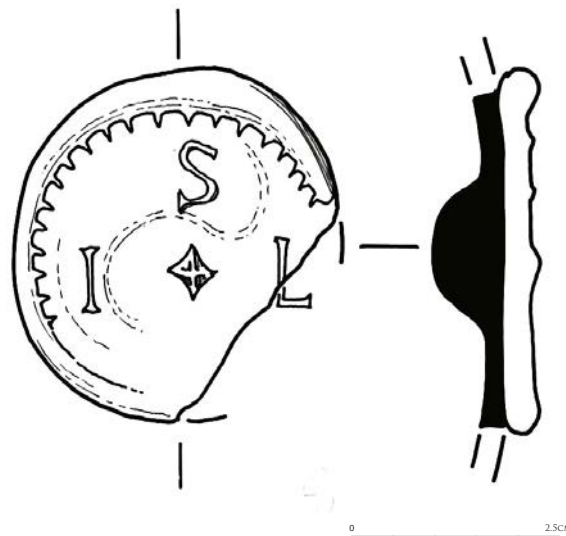
The recovery of Roman material from across the area to the east of the fort is perhaps unsurprising. Excavations in 2003 revealed that later ploughing across the site was so severe that the proposed clay ramparts around the annexe had been removed and spread across the site (Gooder forthcoming). A 'destruction layer' recorded during earlier investigations at Cramond is likely to represent ploughed out occupation remains.

As with many other sites that have been the subject of minor interventions, and specifically Roman forts and their environs, Cramond has suffered from a lack of an overarching comprehensive analysis. While both the Raes and Holmes summarised the evidence available at the time, in the existing context without having the full details of the material we now possess as the result of Charlie Hoy's investigations, they could only touch upon the complexities of the fort and associated annexe.

Despite its size, the fort's annexe(s) have only been known since the 1970s, when an enclosing ditch was first identified during renovation works to Cramond Tower (Holmes 2003: site VII, 8–9). Holmes postulated the existence of an annexe to the north of the fort, between the northern fort ramparts and the sea, but so little of this area has been investigated that the character of activity in this northern zone is difficult to interpret with any measure of clarity (*ibid*: 165). At this point and still by its publication in 2003, the form and function of the area east of the fort was still poorly understood (*ibid*: 145). The evidence available to



Illus 45 Medieval and post-medieval metal objects: (a) buckle (CT87/88); (b) gilded buckle (CRH/76/93); (c) buckle (ACT 80/4); (d) stamped lead strip (CR/80/120); (e) iron gun-shot (CR 78).
Illustration by Alan Braby



Illus 46 Post-medieval glass bottle seal. Illustration by Alan Braby

Holmes led him to suggest that the annexe to the east dated solely from the Severan reoccupation of the fort (ibid: 152), with the 2nd-century pottery recovered from the area being regarded as residual material deriving from dispersed midden material dumped outside the fort during its Antonine-period occupation. Holmes further argued that the area to the east of the fort lay empty during the Antonine period for tactical reasons, only coming into use as an industrial complex in the early 3rd century following the reoccupation and change of function of the fort as rearward supply base for the Severan campaign (ibid: 152).

The previously unpublished material from the Charlie Hoy archive is hugely important in helping to resolve this picture, as, apart from the City of Edinburgh Council 1975–8 excavations in the Walled Garden (Holmes 2003: site I, 28–36), little of this extramural activity had been analysed, and the 2003 excavations of the main gateway to the east await publication (Cook et al forthcoming). The work of Charlie Hoy, although comprising a now incomplete primary archive, not only substantiates some of the proposed suggestions of phasing and function of the fort and its environs considered previously by Holmes (2003) and Masser (2006), but significantly starts to populate the geography and history of the fort's

annexe during the 2nd and 3rd centuries.

As demonstrated by previous interventions in the area, Hoy's excavations have provided no evidence for 1st-century occupation at Cramond, as has long been speculated since Wood's first account of the site in 1794. Although a few scraps of possible Flavian pottery were recognised among the assemblage, the pieces are so few that they are considered insufficient to argue for 1st-century occupation. The structural and artefactual evidence from Hoy's investigations, when considered alongside the results of other programmes of work at the site, clearly support the conclusion that Cramond fort was an Antonine foundation.

Although an Antonine origin for the roads was expected, a 2nd-century extramural settlement in this area was not thought likely, as already outlined. Yet Hoy's excavations in the area of the road demonstrate multiple periods of construction relating to at least two main phases of occupation during the 2nd and 3rd centuries, as evidenced by the remains of at least one timber building set to the side of the road, underlying Severan-period layers revealed at Cramond Road I (Site 2).

The excavations undertaken by AOC in 2003 (Goeder forthcoming) at the site of the former University of Edinburgh Moray College to the east of the fort enable further insight into this area by

demonstrating the presence of a complex series of defensive ditches enclosing the eastern annexe (Illus 1). This excavation revealed three main ditches enclosing what would appear to be a single area, at least as big as the fort itself, across the eastern and southern side of the fort, with its western boundary probably being formed by the road exiting the fort's south gate. Initial assessment of the ceramic recovered from these ditches suggests two main phases of occupation, during the Antonine and subsequently the Severan period (C Wallace pers comm). The Antonine-period occupation appears to have been enclosed by a single ditch (ditch C), slightly smaller in size than the two later Severan double ditches (ditches A and B) which superseded it. Interestingly, the profile of Severan ditch B matches that of the ditch identified at Hoy's Cramond Tower excavations (Site 1). The Antonine-period ditch (ditch C) observed in 2003 had been allowed to be backfilled and the road built over it. The development and phasing of the annexe ditches appears therefore to have been paralleled in the road construction observed by Charlie Hoy, where at least four main phases of construction (Phases 1–3 Antonine and Phase 4 Severan) were identified.

The importance of annexes has often been overlooked, with excavations frequently concentrating on the forts themselves (Bailey 1994: 305). Following the identification of many more of these features in recent years, the majority through aerial survey, it is now generally accepted that most forts contained such additions (ibid: 305), and far more work is required to categorise and understand their chronology and use in relation to the principal forts. Recent work has outlined the importance of analysing the environs around forts in Scotland (Bailey 1994; Hunter & Carruthers 2012), and more generally across Europe (Sommer 1984), and this has often highlighted the use of such areas for various industrial processes. In particular, Bailey (1994: 308) considered the huge amount of specialists that would be required to maintain day-to-day activities of an occupied fort; these processes, many of them involving high temperatures and undesirable pollutants, may have been based outside the fort itself, distanced from the general military population. Alternatively, the occupation and use of the area to the east of the fort could simply represent the fort's expansion and

shift of function, from a frontier fort to a supply base where industrial activities serviced more than simply the fort itself.

Among the finds from Holmes' investigations were tools and debris indicative of carpentry, ironworking and leatherworking, specifically the repair or manufacture of footwear demonstrated by numerous leather off-cuts, iron hobnails and hints of tanning waste (Holmes 2003: 128–32). Further evidence of craftworking activities from Hoy's excavations at Sites 2 and 3 included small quantities of ironworking slags, suggesting limited ferrous metalworking as well possible bronze working and stone carving. The small quantities of metalworking waste recovered are likely to have taken the form of maintenance rather than wholesale iron production, and the copper alloy casting debris, although not well stratified or closely datable, could hint at bronze recycling or even the production of bronze objects. The unfinished sandstone pillar – if Roman in date, which is not certain – hints at stoneworking, a craft often assumed to have taken place on and around Roman forts but rarely in evidence.

Although the artefactual material hints at in situ craftworking, there was no definite structural evidence to support this. Holmes discussed the presence of two rectilinear stone-built features identified in the Walled Garden as iron roasting structures associated with ferrous metalworking (Holmes 2003: 31, illus 40), while a similar feature was excavated in Block A, to the north of the Walled Garden within the central area of the fort, during the 2008 excavation (Cook et al forthcoming). As with the evidence of surrounding timber buildings within the Walled Garden excavated by Holmes, too little survived of the building excavated by Hoy at Cramond Site 2 to suggest any definitive function or type. However, the buildings in both areas were on the same north-east/south-west alignment (see Holmes 2003: 29, illus 36) and share constructional techniques implying that they belonged to the same period of construction and may have fulfilled a similar specialised function.

Excavations around Scotland have demonstrated that many of the craft activities undertaken within and around Roman forts would not have required specialist buildings, and instead could have been carried out in the open-ended buildings that were known to line the main road into the fort, at for

example Elginhaugh (Bailey 1994: 309). The building excavated by Hoy at Cramond Road I (Site 2) would appear to match these analogies, but as always, what can be concluded from minor interventions is limited. That the more comprehensive excavations by Gooder further to the east of the areas investigated by Hoy failed to identify similar buildings further demonstrates the potential extent of truncation across the site noted in all excavations in and around the fort to date. However, there is always the possibility that this area did not contain further buildings.

The existence of wide-ranging evidence for industry requires further discussion. Cramond is a large fort and, with the existence of the annexe, is probably larger than would be expected to accommodate a normal garrison, such as Cohors V Gallorum (see below, Bidwell & Speak 1994: 29). The existence of wide-ranging evidence for industry in the annexe and fort hints at its use as a major supply base for the Severan campaigns to the north. As well as providing evidence of on-site craft production, perhaps for redistribution to other forts or temporary camps, artefacts recovered from Hoy's excavations include materials imported from areas of Spain, southern France, upper Germany, and from across southern Britain, particularly Kent, Oxford and northern England, as well as ceramics produced at other Scottish forts such as Inveresk, attesting to the importance of Cramond in the frontier supply network.

The full size and makeup of the garrison stationed at Cramond has not been fully established for either the Antonine or Severan periods (Holmes 2003: 155). Two units have been identified with the fort in the 2nd century from largely antiquarian inscriptions, those being the Legion II Augusta (who were probably responsible for first phases of construction *c* AD 140) and the cavalry unit Cohors II Tungrorum militaria equitata. The third recorded unit is Cohors V Gallorum, stationed here during the Severan reoccupation of the fort. Evidence from outside the fort suggests that a French garrison, Cohors V Gallorum, was stationed at both South Shields and Cramond during the Severan period (Bidwell & Speak 1994: 29).

Holmes discussed the presence of imperial family in Scotland during the Severan period, and certainly the high-prestige finds suggest the presence or at

least influence of an individual of great standing at the fort (Holmes 2003: 155). The discovery of a distinctive silver sword pendant from Hoy's Cramond Road I (Site 2) excavations belonging to a high-ranking *beneficiarius* is of great significance in this context. Although now damaged and incomplete, the form of the pendant would have easily marked out an individual as belonging to this specific troop, which may have been present at Cramond on special service for the provincial governor. The concentrated distribution of similar miniature sword pendants implies that these were insignia specific to *beneficarii* of upper Germany. The presence of the sword pendant from Cramond, buried within a small hoard during the Severan period, suggests that a *beneficiarius* from this area of the continent was at the fort in the early 3rd century. The presence of a *beneficiarius* who has been seconded to a provincial governor's service does not necessarily indicate the presence of the governor himself at the fort, however. Seconded officials were often sent to sites to carry out administrative duties on behalf of the governors and procurators, and may have carried out special supportive or administrative tasks for a specific commander at a fort or with a legion.

Yet, if the *beneficiarius* was at Cramond as part of the Severan campaign, it could suggest the presence of a high-ranking visitor, such as the governor or even the emperor. Considered in this setting, it may be possible that the gateway excavated in 2003 by AOC was built specifically for this visit. The annexe ditches and stone gateway are particularly impressive, but perhaps also incongruous to the rest of the site. While it may be stretching the evidence slightly, and could never be proved, it may be possible that the ditches and gate were built for the visit of someone of note.

Following the death of Severus in AD 211 there is some debate as to the exact date that the Roman army abandoned Scotland, with one school of thought that this occurred immediately after Severus' death, or that it occurred a year or two later. The evidence from both Holmes' and Gooder's excavations indicate that the fort was clearly abandoned at the end of the Severan period, with the fort and the extramural settlement ditches being deliberately backfilled (Holmes 2003; Gooder forthcoming). Pottery and small finds evidence from

Hoy's excavations suggest that the fort was not fully abandoned by the Roman army, with the possibility that it may have been garrisoned in some form until the 220s or early 230s (Bidwell & Speak 1994: 29).

The discovery of a sherd of late 3rd- to 4th-century Nene Valley mortarium from Hoy's Cramond Road Site I (Site 2) is significant in this context as it adds to a growing list of post-Severan pottery (Bidwell & Speak 1994; Evans 2006) and small finds unearthed from across the site. Although the quantities are so far small and no definitive 3rd/4th-century Roman features have been ascribed, this scatter of 3rd/4th century material cannot be ignored. How the material arrived at Cramond is open to debate, especially as the material is from non-primary deposits. However, the fort's strategic location adjacent to the power base of the Votadini and the coastal location that had been so important for the Severan campaigns could have made it an ideal location for later visits by Roman troops. The recent radiocarbon re-dating of medieval human remains found by Holmes buried within the fort's bath house latrine to the 6th century AD (Lawson pers comm) supports the idea of the site continuing to be an important centre for the Gododdin in the immediate post-Roman era.

Questions still remain over the strategic relationship between Cramond and Inveresk to the east. Both forts were clearly important due to their proximity to the coast and there is evidence of the presence of a procurator and member of the governor's bodyguard at Inveresk. The recovery of ceramics from Hoy's road excavations (Sites 2 and 3) that were produced at Inveresk clearly demonstrates their trade connections but this is not surprising given the proximity of the two sites. The evidence of a continued Roman presence in the area, demonstrated by 3rd- to 4th-century artefacts, the strategic position of the site and the postulated association with imperial power in the Severan period may have led Cramond to be chosen

as an ideal place to continue engagement between Romans and the local Votadini/Gododdin.

18. CONCLUSIONS

The archive material from the Charlie Hoy works, although frustratingly piecemeal, has provided new and rare evidence for the occupation of the annexe. The artefactual and structural material has demonstrated its earlier origin in the Antonine period, while new material has provided new evidence for the occupants of the annexe. The importance of the fort, while always known to those who worked there, will perhaps now be understood by a wider audience.

19. ACKNOWLEDGEMENTS

The post-excavation and publication were funded by City of Edinburgh Council and Historic Environment Scotland, and Dr George Findlater and Rod McCullagh are thanked for their help and advice during the project. AOC Archaeology Group and the City of Edinburgh Archaeology Service are grateful to Val Dean and Kathleen and John Dods from the Cramond Heritage Trust for help and advice on the archive material and sites, and to the reviewers of an earlier draft of this paper for their helpful guidance. The authors would like to thank the Hopetoun Papers Trust for permission to reproduce the Bauchop Plan of Cramond. Dawn McLaren would like to thank Stuart Campbell, George Dalglish and Godfrey Evans (NMS) for their helpful observations and advice regarding the identification of the medieval and post-medieval artefacts, and Fraser Hunter for information on the inscribed stones found at Cramond and recorded by Wood in the 18th century. Alan Braby and Jamie Humble produced the illustrations.

20. REFERENCES

20.1 Online sources

CEIPAC = Centro para el Estudio de la Interdependencia provincial en la Antigüedad Clásica, <http://ceipac.ub.edu/>

RIB = Collingwood, R G & Wright, R P 1965 *The Roman Inscriptions of Britain, I: Inscriptions on Stone*. Oxford: Clarendon Press. <https://romaninscriptionsofbritain.org>

20.2 Documentary sources

Bauchop, T 1815 *Plan of Cramond, the Property of Lady Torphichen, 1815*. Scottish Record Office, RHP 6866.

20.3 Secondary sources

Allason-Jones, L & Miket, R 1984 *The Catalogue of Small Finds from South Shields Roman Fort*. Newcastle: Society of Antiquaries of Newcastle upon Tyne.

Appels, A & Laycock, S 2007 *Roman Buckles and Military Fittings*. Witham: Greenlight.

Atkinson, D 1936 'Roman pottery from Caistor-next-Norwich', *Norfolk and Norwich Archaeological Society* 26: 197–230.

Bailey, G 1994 'The provision of fort-annexes on the Antonine Wall', *Proc Soc Antiq Scot* 124: 299–314.

Ballin, T B & Johnson, M 2005 'Glentagart, South Lanarkshire: discussion of a Scottish chert assemblage and its associated technology', *Lithics: Journal of the Lithics Study Society* 26: 57–86.

Bidwell, P & Croom, A 2016a 'Discussion of the pottery', in Breeze, D J *Bearshden: A Roman Fort on the Antonine Wall*, 176–181. Edinburgh: Society of Antiquaries of Scotland.

Bidwell, P & Croom, A 2016b 'The coarse wares', in Breeze, D J *Bearshden: A Roman Fort on the Antonine Wall*, 108–29. Edinburgh: Society of Antiquaries of Scotland.

Bidwell, P & McBride, R 2010 'The coarse wares', in Snape, M, Bidwell, P & Stobbs, G 'Excavations in the military vicus south-west of the Roman fort at South Shields in 1973, 1988 and 2002', *Arbeia Journal* 9: 42–132 (98–119).

Bidwell, P & Speak, S 1994 *Excavations at South Shields Roman Fort*, Vol I. Society of Antiquaries of Newcastle upon Tyne Monograph No. 4. Newcastle: Society of Antiquaries of Newcastle upon Tyne.

Birley, R E 1963 'Excavation of the Roman fortress at Carpow, Perthshire, 1961–2', *Proc Soc Antiq Scot* 96: 184–207.

Bishop, M C & Coulston, J C N 2006 *Roman Military Equipment from the Punic Wars to the Fall of Rome* (2nd edition). Oxford: Oxbow.

Bishop, M C & Dore, J N 1988 *Corbridge: Excavations at the Roman Fort and Town, 1947–80*. London: Historic Buildings & Monuments Commission for England (= Archaeological Report no. 8).

Blagg, T F C 1976 'Tools and techniques of the Roman stonemason in Britain', *Britannia* 7: 152–72.

Boon, G C 1974 *Silchester: The Roman Town of Calleva*. Newton Abbot: David & Charles.

Boon, G C 2000 'The other objects of copper alloy', in Fulford, M & Timby, J *Late Iron Age and Roman Silchester: Excavations on the Site of the Forum-Basilica 1977, 1980–86*, 338–59. London: Society for the Promotion of Roman Studies.

Breeze, D J 2011 'Burnswark: Roman siege or army training ground?', *Archaeological Journal* 168: 166–80.

Brenan, J 2010 'Furnishings', in Egan, G *The Medieval Household: Daily Living c.1150–c.1450. Medieval Finds from Excavations in London*, vol 6, new edition, 65–87. London: Museum of London.

Callender, M, 1965 *Roman Amphorae*. London: Oxford University Press.

Childe, V G 1933 'Excavations at Castletlaw fort, Midlothian', *Proc Soc Antiq Scot* 67: 362–88.

Christison, D, Barbour, J & Anderson, J 1899 'Account of the excavation of the camps and earthworks at Birrenswark Hill, in Annandale, undertaken for the society in 1898', *Proc Soc Antiq Scot* 33: 198–258.

Close-Brooks, J 1986 'Excavations at Clatchard Craig, Fife', *Proc Soc Antiq Scot* 116: 117–84.

Cook, M & Lawson, J 2013 'Cramond Roman Fort: Charlie Hoy Archive Material', AOC Archaeology unpublished client report.

Cook, M, Lawson, J & Clements, V forthcoming

- 'Recent fieldwork and community excavation at Cramond Roman Fort'.
- Cool, H E M 2010 'Objects of glass, shale, bone and metal (except nails)', in Booth, P, Simmonds, A, Boyle, A, Clough, S, Cool, H E M & Poore, D *The Late Roman Cemetery at Lankhills, Winchester. Excavations 2000–2005*, 267–309. Oxford.
- Croom, A & Bidwell, P forthcoming 'The Roman pottery', in Kirby, M 'Excavations at Musselburgh Primary Health Care Centre: Iron Age and Roman Discoveries to the North of Inveresk Roman Fort, East Lothian', *Scottish Archaeological Internet Reports*.
- Curle, A O & Cree, J 1916 'Account of excavations on Traprain Law in the parish of Prestonkirk, county of Haddington, in 1915', *Proc Soc Antiq Scot* 50: 64–144.
- Curle, J 1911 *A Roman Frontier Post and Its People: The Fort of Newstead in the Parish of Melrose*. Glasgow: Maclehose.
- Curwen, E C 1937 'Querns', *Antiquity* 11: 133–51.
- Dickinson, B, 2003 'Samian ware', in Holmes, N *Excavation of Roman Sites at Cramond, Edinburgh*, 41–7. Society of Antiquaries of Scotland Monograph Series No. 23. Edinburgh: Society of Antiquaries of Scotland.
- Egan, G 2001 'Lead/tin alloy metalwork', in Saunders, P (ed.) *Salisbury Museum Medieval Catalogue*. Part III, 92–118. Wiltshire: Salisbury and South Wiltshire Museum.
- Egan, G & Pritchard, F 1991 *Dress Accessories c1150–1450*. London: The Stationery Office (= MOL Medieval Finds from Excavations in London 3).
- Elliot, W & Hunter, F 2012 'Gleaned from the soil: fieldwalking Trimontium', in Hunter, F & Keppie, L (eds) *A Roman Frontier Post and Its People: Newstead 1911–2011*, 181–211. Edinburgh: National Museums Scotland.
- Engl, R P, forthcoming a 'Lithics and coarse stone', in Gooder, forthcoming.
- Engl, R P, forthcoming b 'Lithics and coarse stone', in Cook et al forthcoming.
- Evans, J 2006 'The pottery', in Masser 2006: 8–10.
- Finlayson, B 1990 'Lithic exploitation during the Mesolithic in Scotland', *Scottish Archaeological Review* 7: 41–57.
- Fischer, T 2012 *Die Armee der Caesaren: Archäologie und Geschichte*. Regensburg: Verlag Friedrich Pustet.
- Fitzpatrick, A P 2003 'The place of Gaulish wine in the military supply of amphorae-borne commodities to Roman Scotland', *Journal of Roman Pottery Studies* 10: 60–3.
- Fölzer, E 1913 *Die Bilderschüsseln der ostgallischen Sigillata-Manufakturen, Römische Keramik in Trier I*. Bonn.
- Ford, B 2003 'Coarse pottery', in Holmes, N *Excavation of Roman Sites at Cramond, Edinburgh*, 58–86. Society of Antiquaries of Scotland Monograph Series No. 23. Edinburgh: Society of Antiquaries of Scotland.
- Fox, C 1946 *A Find of the Early Iron Age from Llyn Cerrig Bach, Anglesey*. Cardiff: National Museum of Wales.
- Franklin, J & Collard, M 2003 'Tile and brick', in Holmes, N *Excavation of Roman Sites at Cramond, Edinburgh*, 125–6. Society of Antiquaries of Scotland Monograph Series No. 23. Edinburgh: Society of Antiquaries of Scotland.
- Frere, S S 1987 'Baked-clay sling-bullets', in Frere, S S & Wilkes, J J *Strageath: Excavations within the Roman Fort 1973–86*, 177–9. Britannia Monograph Series No. 9. London: Society for the Promotion of Roman Studies.
- Frere, S S & Roe, F 1987 'Other objects of stone', in Frere, S S & Wilkes, J J *Strageath: Excavations within the Roman Fort 1973–86*, 187–90. Britannia Monograph Series No. 9. London: Society for the Promotion of Roman Studies.
- Gard, L 1937 'Reliefsigillata des 3. und 4. Jahrhunderts aus den Werkstätten von Trier', unpublished dissertation, University of Tübingen.
- Gillam, J P 1970 *Types of Roman Coarse Pottery Vessels in Northern Britain*. Newcastle upon Tyne: Oriel.
- Gooder, J 2003 'Cramond Campus Excavation: Data Structure Report', AOC Archaeology Group unpublished archive report.
- Gooder, J forthcoming 'Excavations at Cramond Roman Fort, 2006'.
- Greep, S J 1987 'Lead sling-shot from Windridge Farm, St Albans and the use of the sling by the Roman army in Britain', *Britannia* 18: 183–200.
- Griffiths, W B 1989 'The sling and its place in the

- Roman Imperial army', in van Driel Murray, C (ed.) *Roman Military Equipment: The Sources of Evidence. Proceedings of the Fifth Roman Military Equipment Conference*, 255–79. BAR International Series No. 476. Oxford: British Archaeological Reports.
- Hartley, B R 1974 'The decorated samian', in Rae & Rae 1974: 199–204.
- Hartley, B R & Dickinson, B M 2008–12 *Names on Terra Sigillata. An Index of Makers' Stamps and Signatures on Gallo-Roman Terra Sigillata (Samian Ware)*. London: Institute of Classical Studies, University of London.
- Hartley, K F 2003 'Mortaria', in Holmes, N *Excavation of Roman Sites at Cramond, Edinburgh*, 49–58. Society of Antiquaries of Scotland Monograph Series No. 23. Edinburgh: Society of Antiquaries of Scotland.
- Holmes, N 2003 *Excavation of Roman Sites at Cramond, Edinburgh*. Society of Antiquaries of Scotland Monograph Series No. 23. Edinburgh: Society of Antiquaries of Scotland.
- Hoy, C 1979 *Cramond: Edinburgh Archaeological Field Society, Report on Excavation 1979*. Edinburgh: Edinburgh Archaeological Field Society.
- Hundt, H-J 1955 'Nachträge zu den römischen Ringknaufschwerten, Dosenortbändern und Miniaturschwertanhängern', *Saalburg Jahrbuch* 14: 50–9.
- Hunter, F 2006 'Other finds' in Masser 2006: 11–14.
- Hunter, F 2014 'Stories from black bangles: jewellery and other finds of jet-like materials in Roman Scotland', in Collins, R & McIntosh, F (eds) *Life in the Limes: Studies of the People and Objects of the Roman Frontiers*, 152–65. Oxford: Oxbow.
- Hunter, F 2016 'Tracing troops: an Upper German belt-fitting from Roman Scotland', *Britannia* 47: 266–71.
- Hunter, F forthcoming 'Small finds from the Roman fort excavations', in Leslie, A & Will, R *The Roman Fort at Inveresk*.
- Hunter, F & Carruthers, M 2012 'Scotland: The Roman Presence', ScARF Summary Roman Panel Document, June 2012, The Society of Antiquaries of Scotland. ScARF 2012 www.scottishheritagehub.com.
- Hunter, F, Henig, M, Sauer, E & Gooder, J 2016 'Mithras in Scotland: a Mithraeum at Inveresk (East Lothian)', *Britannia* 47: 1–50.
- Jobey, G 1978 'Burnswark Hill, Dumfriesshire', *Transactions of the Dumfriesshire & Galloway Natural History and Antiquarian Society* 53: 67–104.
- Knorr, R & Sprater, F 1927 *Die Westpfälzischen Sigillata-Töpfereien von Blickweiler und Eschweilerhof*. Speyer.
- Kovács, P 2005 'Beneficiarius lances and ring-pommel swords in Pannonia', in Visy, Z (ed.) *Limes XIX. Proceedings of the XIXth International Congress of Roman Frontier Studies, Pécs, Hungary, September 2003*, 955–70. Pécs: University of Pécs.
- Lehner, H 1923 'Ein gallorömischer Wagen aus Frenz an der Inde im Kreis Düren', *Bonner Jahrbücher* 128: 28–62.
- MacGibbon, D & Ross, T 1889 *The Castellated and Domestic Architecture of Scotland from the Twelfth to the Eighteenth Centuries*. Vol 3. Edinburgh: D Douglas.
- MacKie, E W 2007 'The rotary quernstones', in Hanson, W *Elginhaugh: A Flavian Fort and its Annexe*. Vol 2, 492–510. Britannia Monograph Series No. 23. London: Society for the Promotion of Roman Studies.
- Manning, W H 1985 *Catalogue of the Romano-British Iron Tools, Fittings and Weapons in the British Museum*. London: British Museum Publications.
- Masser, P 2006 'Cramond Roman Fort: Evidence from Excavations at Cramond Kirk Hall, 1998 and 2001', *Scottish Archaeological Internet Reports* 20. <http://archaeologydataservice.ac.uk/archives/view/sair/contents.cfm?vol=20>.
- Maxwell, G 1974a 'Coarse pottery', in Rae & Rae 1974: 212–22.
- Maxwell, G 1974b 'Objects of glass', in Rae & Rae 1974: 197–9.
- McLaren, D forthcoming 'The glass', in Cook, M 'Excavations of Flavian and Antonine features at Camelon, Falkirk'.
- Miks, C 2007 *Studien zur römischen Schwertbewaffnung in der Kaiserzeit*. Kölner Studien zur Archäologie der römischen Provinzen 8. Rahden: Verlag Marie Leidorf.
- Monaghan, J 1987 *Upchurch and Thameside Roman Pottery: A Ceramic Typology for Northern Kent, First to Third centuries A.D.* BAR British

- Series No. 173. Oxford: British Archaeological Reports.
- Monfort, C & Funari, P 1998 *Britannia y el Mediterráneo: Estudios sobre el Abastecimiento de Aceite Bético y Africano en Britannia*. Barcelona.
- Morgan, R 1976 *Sealed Bottles. Their History and Evolution (1630–1930)*. Burton-on-Trent: Midlands Antique Bottle Publishing.
- Nolan, L 1914 *The Basilica of S. Clemente in Rome*. Rome: Grottaferrata.
- Oldenstein, J 1976 'Zur Ausrüstung römischer Auxiliareinheiten', *Bericht der Römisch-Germanischen Kommission* 57: 49–284.
- Oswald, F 1936–7 *Index of Figure Types on Terra Sigillata*. University of Liverpool Annals of Archaeology and Anthropology Supplement. Liverpool.
- Price, J 1987 'The Roman Glass', in Frere, S S & Wilkes, J J *Strageath: Excavations within the Roman Fort 1973–86*, 193–203. Britannia Monograph Series No. 9. London: Society for the Promotion of Roman Studies.
- Price, J 2003 'Roman glass', in Holmes, N *Excavation of Roman Sites at Cramond, Edinburgh*, 88–94. Society of Antiquaries of Scotland Monograph Series No. 23. Edinburgh: Society of Antiquaries of Scotland.
- Price, J & Cottam, S 1998 *Romano-British Glass Vessels: A Handbook*. Practical Handbook in Archaeology 14. York: CBA.
- Price, J & Worrell, S 2007 'The glass', in Hanson, W *Elginhaugh: A Flavian Fort and its Annexe*, Vol 2, 445–69. Britannia Monograph Series No. 23. London: Society for the Promotion of Roman Studies.
- Raddatz, K 1953 'Anhänger in Form von Ringknaufschwertern', *Saalburg Jahrbuch* 12: 60–5.
- Rae, A & Rae, V 1974 'The Roman fort at Cramond, Edinburgh. Excavations 1954–1966', *Britannia* 5: 163–224.
- Rebuffat, R 1977 *Thamusida: fouilles du Service des Antiquités du Maroc III*. Rome: École Française de Rome.
- Riegl, A 1927 *Spätromische Kunstindustrie*. Vienna (reprinted Darmstadt: Wissenschaftliche Buchgesellschaft 1973).
- Robertson, A S 1975 *Birrens (Blatobulgium)*. Edinburgh: Constable.
- Robinson, H R 1975 *The Armour of Imperial Rome*. London: Arms and Armour Press.
- Rogers, B 1974 *Poteries Sigillées de la Gaule Centrale I: les Motifs Non Figurés*. Gallia Supplement 28.
- Rogers, G B 1999 *Poteries Sigillées de la Gaule Centrale II: les potiers*, premier Cahier du Centre Archéologique de Lezoux.
- Saville, A 1994 'Exploitation of lithic resources for stone tools in earlier prehistoric Scotland', in Ashton, N & David, A (eds) *Stories in Stone*, 57–70. Lithic Studies Society Occasional Paper No. 4. London: Lithic Studies Society.
- Saville, A 2008 'The beginning of the later Mesolithic in Scotland', in Sulgostowska, Z & Tomaszewski, A J (eds) *Man – Millennia – Environment: Studies in Honour of Romauld Schild*, 207–13. Warsaw: Institute of Archaeology and Ethnology, Polish Academy of Sciences.
- Simpson, G 1973 'More black slip vases from Central Gaul with applied and moulded decoration in Britain', *Antiquaries Journal* 53: 42–51.
- Sommer, C S 1984 *The Military Vici in Roman Britain: Aspects of their Origins, their Location and Layout, Administration, Function and End*. BAR British Series No. 129. Oxford: British Archaeological Reports.
- Stanfield, J A & Simpson, G 1958 *Central Gaulish Potters*. London: Oxford University Press.
- Summerfield, J 1997 'The small finds', in Wilmott, T *Birdoswald. Excavations of a Roman Fort on Hadrian's Wall and its Successor Settlements: 1987–92*, 269–361. English Heritage Archaeological Report No. 14. London: English Heritage.
- Swan, V 1999 'The Twentieth Legion and the history of the Antonine Wall reconsidered', *Proc Soc Antiq Scot* 129: 399–480.
- Symonds, R P & Wade, S 1999 *Roman Pottery from Excavations in Colchester, 1971–86*. Colchester Archaeological Report 10. Colchester: Colchester Archaeological Trust Ltd/English Heritage.
- Tomber, R & Dore, J 1998 *The National Roman Fabric Reference Collection: A Handbook*. Museum of London Archaeology Service Monograph No. 4. London: MoLAS.
- Whitehead, R 1996 *Buckles, 1250–1800*. Chelmsford: Greenlight.

- Wild, F forthcoming 'The decorated samian ware', in Kirby, M 'Excavations at Musselburgh Primary Health Care Centre: Iron Age and Roman Discoveries to the North of Inveresk Roman Fort, East Lothian', *Scottish Archaeological Internet Reports*.
- Wilson, A 2003 'Roman and native in Dumfriesshire', *Transactions of the Dumfriesshire & Galloway Natural History and Antiquarian Society* 77: 103–60.
- Wood, J P 1794 *The Antient and Modern State of the Parish of Cramond*. Edinburgh.