

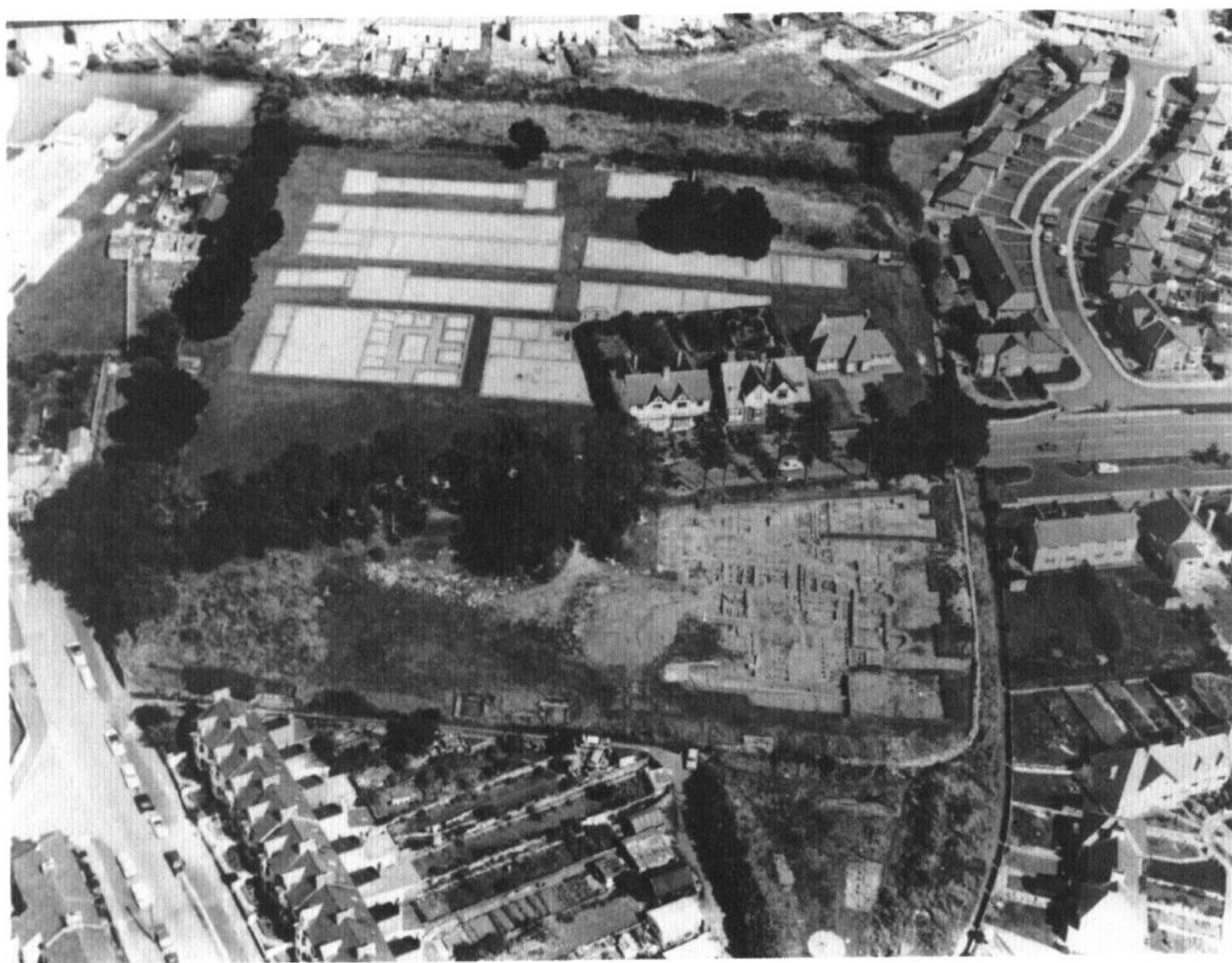


EXCAVATIONS AT SEGONTIUM (CAERNARFON) ROMAN FORT, 1975 - 1979

P J CASEY and J L DAVIES with J EVANS



**Excavations at Segontium
(Caernarfon) Roman Fort,
1975-1997**



The 1975-1979 excavations at Segontium, viewed from the south.

**Excavations at Segontium
(Caernarfon) Roman Fort,
1975-1979**

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Oblique aerial view of the fort at Segontium (Caernarfon), looking west (Photo: Cadw).

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Summary

The report describes the excavations carried out in the south east quarter of the fort of Segontium (Caernarfon) in Gwynedd, North Wales. Approximately 2,000 square metres were explored by area excavation to natural sub soil levels.

The 2.27 hectare fort was erected in the governorship of Gnaeus Iulius Agricola (AD 77-83). The original garrison was either a *cohors milliaria peditata* or two *cohortes quingennariae peditatae*.

Timber barrack blocks of three structural phases were examined dating from the late Flavian to the Trajanic periods and plans of significant parts of these structures were obtained. Between the second and third barrack phases the *praetentura* was cleared of buildings and a heavy fence erected across the east-west axis of the site approximately half way between the southern rampart and the *via principalis*.

In the Trajanic period the soldiers' quarters of the barracks were demolished but the detached centurions' quarters were retained. These apartments were maintained as administrative offices being replaced, in the Hadrianic period, by a stone block comprising seven rooms, with an attached latrine and a separate bath house. In the Antonine period this building was itself replaced by a courtyard building comprising not less than fifteen rooms on the ground floor with, perhaps, a similar number in a second storey. The building consisted of a south range and wings on the east and west; a roofed verandah linked the component parts. An octagonal water tank, with a dressed stone coping, stood in the middle of the courtyard; to the rear was a walled garden in which stood the bath house retained from the previous period. The complex occupied the entire south east quarter of the fort within the confines of the *via sagularis* and the *via praetoria*.

Finds from the complex, including a group of Antonine table glassware, indicate the high status of the occupants whilst *styli* and a balance indicate an administrative function. It is suggested that the building was the residence and offices of an imperial *procurator* concerned with the exploitation of the mineral resources of Anglesey and the north Wales region.

Quantitative studies of pottery and coinage suggest that the garrison during this period consisted of not more than a couple of hundred men.

The earthwork defences of the fort were fronted with a stone rampart in the Antonine/Severan period.

The courtyard building continued to function in the 3rd but by the late-3rd or 4th century the south and east ranges had been demolished, the west wing survived into the 4th century, perhaps in

industrial use. The courtyard was used for pitting and rubbish disposal by AD 380.

Following the demise of the bulk of the courtyard building construction of a bath house was started on a site adjacent to the east rampart, part of the bath being dug into the defunct courtyard buildings south east corner. The bath was never completed and the site abandoned to industrial use and rubbish disposal; a timber cookhouse being the only formal building on the site.

In the later 4th century a deep, curved drain, with a timber revetment, traversed the whole of the excavated area, cutting through all preceding structures. The drain debauched through a long-established conduit which pierced the south east corner of the defences. A new defensive ditch system was dug around the fort in the first half of the 4th century.

Finds from the 4th century phases include elements of military belt fittings and a number of lead weighted spear heads, or *plumbatae*, suggesting the presence of an effectively equipped garrison at a late period.

A study of the coin sequence indicates that military occupation extended beyond the reign of Magnus Maximus; the withdrawal of the garrison may be associated with troop movements initiated by the *magister militum* Arbogastes during the short lived revolt of Eugenius.

Specialist reports discuss the full sequence of coarse pottery, Samian, glass, coins, metal objects, slags, and environmental remains. The site is considered in the context of Wales from the 1st to 4th centuries and within the historical framework of the Roman world at all periods. Special emphasis is placed on problems of military supply and consumption of both organic and inorganic material.

Crynodeb

Mae'r adroddiad yn disgrifio'r cloddio a wnaed yn chwarter de-ddwyreiniol Caer Segontium (Caernarfon) yng Ngwynedd. Cafodd tua 2,000 metr sgwâr eu harchwilio trwy gloddio'r ardal hyd at lefelau'r iabridd naturiol,

Cafodd y gaer 2.27 hectar ei chodi dan lywodraeth Gnaeus Iulius Agricola (OC 77-83). Roedd y garsiwn gwreiddiol naill ai yn *cohors milliaria peditata* neu yn ddau *cohortes quingennariae peditatae*.

Archwiliwyd blociau barics pren o dri chyfnod adeiladu, gan ddyddio o gyfnod diweddar Flavius hyd gyfnod Traianus, a chafwyd cynlluniau o rannau sylweddol o'r adeiladau hyn. Rhwng yr ail a'r trydydd cyfnod yn hanes y barics, cafodd y *praetentura* ei chlirio o'i hadeiladau a chodwyd

ffens drom ar draws y safle o'r dwyrain i'r gorllewin, tua hanner ffordd rhwng y rhagfur deheuol a'r *via principalis*.

Chwalwyd y rhannau o'r barics a berthynai i'r milwyr yn ystod cyfnod Traianus, ond cadwyd llety'r canwriaid a oedd ar wahân. Cadwyd yr ystafelloedd hyn yn swyddfeydd gweinyddol, a'u disodli yng nghyfnod Hadrianus gan floe o saith o ystafelloedd cerrig, a thoiled ynghlwm, a thy baddon ar wahân. Cafodd yr adeilad hwn ei hun ei ddisodli yng nghyfnod Antoninus gan adeilad â chlôs a oedd yn cynnwys o leiaf bymtheg o ystafelloedd ar y llawr gwaelod ac efallai yr un nifer ar yr ail lawr. Roedd talcen deheuol i'r adeilad ac esgyll i'r dwyrain a'r gorllewin; roedd feranda dan do yn cysylltu'r gwahanol rannau. Yng nghanol y clôs roedd tanc dwr wythonglog a chopin o garreg nadd arno; i'r cefn roedd gardd a wal o'i chwmpas, lle y safai'r ty baddon a gadwyd o'r cyfnod blaenorol. Roedd yr adeiladau hyn yn llenwi'r cyfan o chwarter de-ddwyreiniol y gaer, y tu mewn i ffiniau'r *via sagularis* a'r *via praetoria*.

Mae canfyddiadau o'r adeiladau, gan gynnwys sawl darn o lestri ben bwrdd Antoninaidd gwydr, yn dangos statws uchel y preswylwyr. Roedd *styli* a chlorian yn dangos swyddogaeth weinyddol. Awgrymir fod yr adeilad yn gartref ac yn swyddfa *procurator* yr ymerodraeth a oedd yn ymwneud â manteisio ar y mwynau a geid o Ynys Môn a Gogledd Cymru.

Mae astudiaethau mesurol o lestri a darnau arian yn awgrymu nad oedd y garsiwn yn ystod y cyfnod hwn yn fwy na ychydig gannoedd o ddynion.

Roedd gwrthgloddiau'r gaer wedi eu cwblhau â rhagfur o gerrig yng nghyfnod Antoninus/Severus.

Parheid i ddefnyddio'r adeilad â chlôs yn y drydedd ganrif ond erbyn y drydedd neu'r bedwaredd ganrif, chwalwyd yr esgyll deheuol a dwyreiniol, a'r asgell orllewinol yn goroesi i'r bedwaredd ganrif, gan gael ei defnyddio efallai at bwrpas diwydiant. Cafodd y clôs ei ddefnyddio am daflu sbwriel a phyllau erbyn OC 330.

Ar ôl dirywiad y rhan fwyaf o adeilad y clôs, cychwynwyd adeiladu ty baddon ar safle yn ymyl y rhagfur dwyreiniol, a rhan o'r baddon wedi ei gloddio i mewn i gornel de-ddwyreiniol adeilad y clôs. Ni chwblhawyd y baddon erioed, a gadawyd y safle i ddibenion diwydiannol a thaflu sbwriel; ty coginio o bren oedd yr unig adeilad ffurfiol ar y safle.

Yn nes ymlaen yn y bedwaredd ganrif roedd traen dwfn a chrwm, ac â gwrthglawdd pren, yn croesi'r cyfan o'r ardal a gloddiwyd gan dorri trwy'r holl adeiladau blaenorol. Roedd y traen yn gwagio trwy gwnit a oedd yn tyllu trwy gornel de-ddwyreiniol yr amddiffynfeydd. Cafodd clawdd amddiffynnol newydd ei gloddio o gwmpas y gaer yn hanner cyntaf y bedwaredd ganrif.

Ymhlith canfyddiadau o gyfnodau'r bedwaredd ganrif ceir ffitiadau i wregys militaraid, a sawl blaen plwm i wayffyn, sef *plumbata*, a oedd y awgrymu presenoldeb garsiwn ac offer effeithiol ar

gyfnod diweddar. Wrth astudio'r dilyniant o ddarnau arian gwelir fod presenoldeb milwyr yn parhau ar ôl teyrnasiad Magnus Maximus (Mascen Wledig); efallai fod a wnelo ymadawiad y garsiwn â symudiadau milwyr a gychwynwyd gan y *magister militum* Arbogastes yn ystod gwrthryfel byr Eugenius.

Mae adroddiadau arbenigol yn trafod dilyniant cyflawn crochenwaith bras, defnyddiau Samiadd, gwydr, darnau arian, gwrthrychau metel, slagiau, ac olion amgylcheddol. Mae'r safle yn cael ei ystyried yng nghyd-destun Cymru o'r ganrif gyntaf hyd y bedwaredd ganrif, ac y tu mewn i fframwaith hanesyddol y byd Rhufeinig ym mhob cyfnod. Rhoddir pwyslais arbennig ar broblemau cyflenwad militaraid a defnyddio adnoddau organaidd ac anorganaid.

Zusammenfassung

Der vorliegende Bericht beschreibt die Ausgrabung im südöstlichen Viertel des Kastells Segontium (Caernarfon) in Gwynedd, North Wales, in dem 2000 qm bis auf den gewachsenen Boden ausgegraben wurden.

Das 2,27ha große Kastell wurde unter dem Gouverneur Gnaeus Julius Agricola angelegt und war entweder für eine *cohors milliaria peditata* oder zwei *cohortes quingenariae* bestimmt.

In der Epoche zwischen den Flaviern und Trajan wurden drei Perioden Holzkasernen angelegt, in deren Plane entscheidende Einblicke gewonnen werden konnten. Zwischen der zweiten und dritten Kasernenphase wurde das Areal gertiumt und ein stabiler Zaun entlang der Ost-West Achse der Ausgrabungsfläche angelegt, ungefähr auf halber Länge zwischen der südlichen Umwehrung und der *via principalis*.

In trajanischer Zeit wurden die Kasernen abgesehen von den Unterkünften zer Zenturionen abgetragen. Diese Wohnungen wurden als Verwaltungsgebäude erhalten und unter Hadrian durch ein Steingebäude mit sieben räumen, angebauter Latrine und separatem Badegebäude ersetzt. In antoninischer Zeit wurde dieses hinwiederum durch ein Gebäude mit zentralem Innenhof ersetzt, dessen Erdgeschoß nicht weniger als 15 Räumen aufwies, dazu wahrscheinlich eine ähnliche Anzahl von Räumen im ersten Stock. Das Gebäude bestand aus einem Haupttrakt im Süden und einem Ost- und Westflügel. Eine überdachte Verandah verband die einzelnen Trakte. Eine achteckiger wassertank mit sorgfältig hergerichteter Mauerkrone befand sich in der Mitte des Hofes, während sich dahinter ein ummauerter Garten anschloß, in dem das Badegebäude der vorangehenden Periode weiter in Betrieb blieb. Dieser Komplex füllte die Fläche zwischen der *via sagularis* und der *via praetoria*.

Funde aus diesem Komplex, zum Beispiel eine Gruppe Gläser aus antoninischer Zeit, dokumentieren den hohen Status der bewohner während die

styli und die Waage auf eine Verwaltungsfunktion hin. Eine Interpretation dieses Gebäudes als die Residenz und Amtssitzes des kaiserlichen Procurators für den Bergbau auf Anglesey und Nord Wales scheint möglich.

Quantitative Untersuchungen der Keramik und der Münzen legen nahe, daß die Bestattung in dieser Zeit die Zweihundert nicht wesentlich überschritten hat.

Die Rasensodenumwehrung wurde in antoninisch oder severischer Zeit wohl durch eine Steinmauer verstärkt.

Das Gebäude mit Innenhof blieb im dritten Jahrhundert im Gebrauch, aber im späten dritten oder im frühen vierten Jahrhundert wurden der Süd- und Osttrakt aufgegeben und niedergelegt, während der Westflügel im vierten Jahrhundert weiter im Gebrauch blieb und dient wahrscheinlich handwerklichen Zwecken, während der Hof um 330 für Gruben und Abfallbeseitigung genutzt wurde.

Kurz nach dem Abriß des größeren Teil des alten Gebäudes wurde neben der Ostumwehrung mit dem Bau eines neuen Badegebäudes begonnen. Ein Teil des Bades störte die ehemalige Südostecke des Gebäudes mit Innenhof. Das Bad wurde niemals fertiggestellt und das Gelände diente handwerklichen Zwecken und zur Abfallbeseitigung, ein Kochhaus war das einzige Gebäude in diesem Teil der Grabung.

Im Verlauf des vierten Jahrhunderts durchquerte eine tiefe, Holzgefaßte Abflußrinne das Ausgrabungsareal, die alle früheren Strukturen störte. Diese Entwässerung verließ das Kastell durch den alten Durchlaß unter der Südostecke der Umwehrung. Ein neuer Verteidigungsgraben des Kastells datiert in die erste Hälfte des vierten Jahrhunderts.

Funde des vierten Jahrhunderts sind u.a. Teile einer spätrömischen Gürtelgarnitur, bleibeschwerte Speerspitzen (*plumbata*), Hinweise auf reguläre Militäreinheiten in spätrömischer Zeit.

Eine Untersuchung der Münzreihe zeigt, daß die Belegung nach der Herrschaft des Magnus Maximus weitergeht, der Abzug der Besatzung sollte vielleicht mit den Truppenbewegungen unter dem *magister militum* Arbogastes während der Usurpation des Eugenius in Verbindung gebracht werden.

Die Berichte der Spezialisten diskutieren die Bandbreite der Grobkeramik, der Terra Sigillata, Glas, Münzen, Metallfunde, Schlacken und biologischer Überreste. Die Ausgrabung wird im Zusammenhang der Situation in Wales vom ersten bis vierten Jahrhundert diskutiert und vor dem Hintergrund der Geschichte des römischen Reiches. Besonders betont werden Probleme der militärischen Versorgung und Verbrauch mit organischen Material.

Résumé

Ce rapport décrit les fouilles effectuées dans le quartier sud-est du fort de Segontium (Caernarfon) en Gwynedd, Galles du Nord. Une fouille en aire servit à explorer environ 2000 mètres carrés jusqu'au niveau des sous-sols naturels.

Le fort de 2,27 hectares fut construit pendant la durée des fonctions de Gnaeus Iulius Agricola (77-83) en tant que gouverneur. La première garnison était soit une *cohors milliaria peditata*, soit deux *cohortes quingennariae peditatae*.

Des casernes en bois de trois phases de construction furent examinées; elles dataient de la fin de l'époque de Flavien à l'époque de Trajan, et on a pu en tirer des plans de grandes parties de ces structures. Tous les bâtiments de la *praetentura* furent déblayés entre la deuxième et la troisième phase des casernes, et une solide clôture fut érigée au travers de l'axe est-ouest du site, à peu près à mi-chemin entre le rempart sud et la *via principalis*.

Les quartiers des soldats furent démolis à l'époque de Trajan mais les quartiers des centurions, qui étaient séparés, demeurèrent. Ces quartiers servirent de bâtiments administratifs et, à l'époque d'Adrien, ils furent remplacés par un bâtiment en Pierre comprenant sept pièces et des latrines ainsi que des bains séparés. À l'époque d'Antonin, ce bâtiment lui-même fut remplacé par un bâtiment à cour comprenant pas moins de quinze pièces au rez-de-chaussée, avec, peut-être, le même nombre de pièces à un étage supérieur. Le bâtiment consistait d'une rangée au sud avec des ailes à l'est et à l'ouest; une veranda couverte d'un toit reliait les différentes parties du bâtiment. Un réservoir d'eau octogonal, avec un chaperon en pierres taillées, se trouvait au milieu de la cour; il y avait un jardin clos à l'arrière dans lequel se trouvaient les bains, conserves de l'époque précédente. Le complexe occupait le quartier sud-est tout entier du fort dans les limites de la *via sagularis* et de la *via praetoria*.

Les découvertes faites au complexe, y compris un ensemble d'objets de table en verre de l'époque d'Antonin, indiquent le standing élevé des habitants, alors que des *styli* et une balance indiquent une fonction administrative. Il est suggéré que le bâtiment servait de résidence et de bureaux à un *procurator* imperial responsable de l'exploitation des ressources minérales d'Anglesey et de la Galles du nord.

Des études quantitatives de céramiques et de pièces suggèrent qu'à l'époque, la garnison consistait de deux cents hommes au plus.

Les ouvrages défensifs de terre du fort furent revêtus d'un rempart de Pierre à l'époque d'Antonin ou à celle de Sévère.

Le bâtiment à cour était encore utilisé au troisième siècle, ou au quatrième siècle, les rangées de bâtiments sud et est avaient été démolies; l'aile ouest continua à exister au quatrième siècle, mais avec peut-être un usage industriel. La cour servait

à des fosses et des dépotoirs d'ordures en 330.

Après la demolition de la plus grande partie du bâtiment à cour, la construction de bains commença sur un site adjacent au rempart est, une partie des bains étant creusée dans le coin sud-est du bâtiment à cour abandonné. Les bains ne furent jamais terminés, et le site fut abandonné à un usage industriel et à un dépotoir d'ordures; une cuisine construite de bois étant le seul bâtiment formel sur le site.

Pendant la deuxième partie du quatrième siècle un égout en courbe profond, revêtu de bois, traversait toute la zone des fouilles, et coupait au travers de toutes les structures précédentes. L'égout débouchait sur une plus ancienne canalisation qui perçait l'angle sud-est de l'ouvrage défensif. Un nouveau fossé défensif fut creusé autour du fort pendant la première partie du quatrième siècle.

Les découvertes des phases du quatrième siècle comprennent des éléments d'équipements de ceintures militaires et un certain nombre de fers de

lances lestés de plomb, ou *plumbata*, ce qui suggère la présence d'une garnison très bien équipée à une époque avancée.

L'étude de la succession de pièces indique que l'occupation militaire continua après le règne de Magnus Maximus; le retrait de la garnison peut être associé avec des mouvements de troupes entrepris par le *magister militum* Arbogastes pendant la brève révolte d'Eugenius.

Des rapports spécialisés traitent de la séquence entière de céramique grossière, de terre sigillée, de verre, de pièces, d'objets en métaux, de scories et de restes organiques. Le site est considéré dans le contexte du pays de Galles du premier au quatrième siècle et dans le cadre historique du monde romain à toutes les époques. On met particulièrement l'accent sur les problèmes de l'approvisionnement militaire et sur la consommation de matières organiques ainsi que non-organiques.

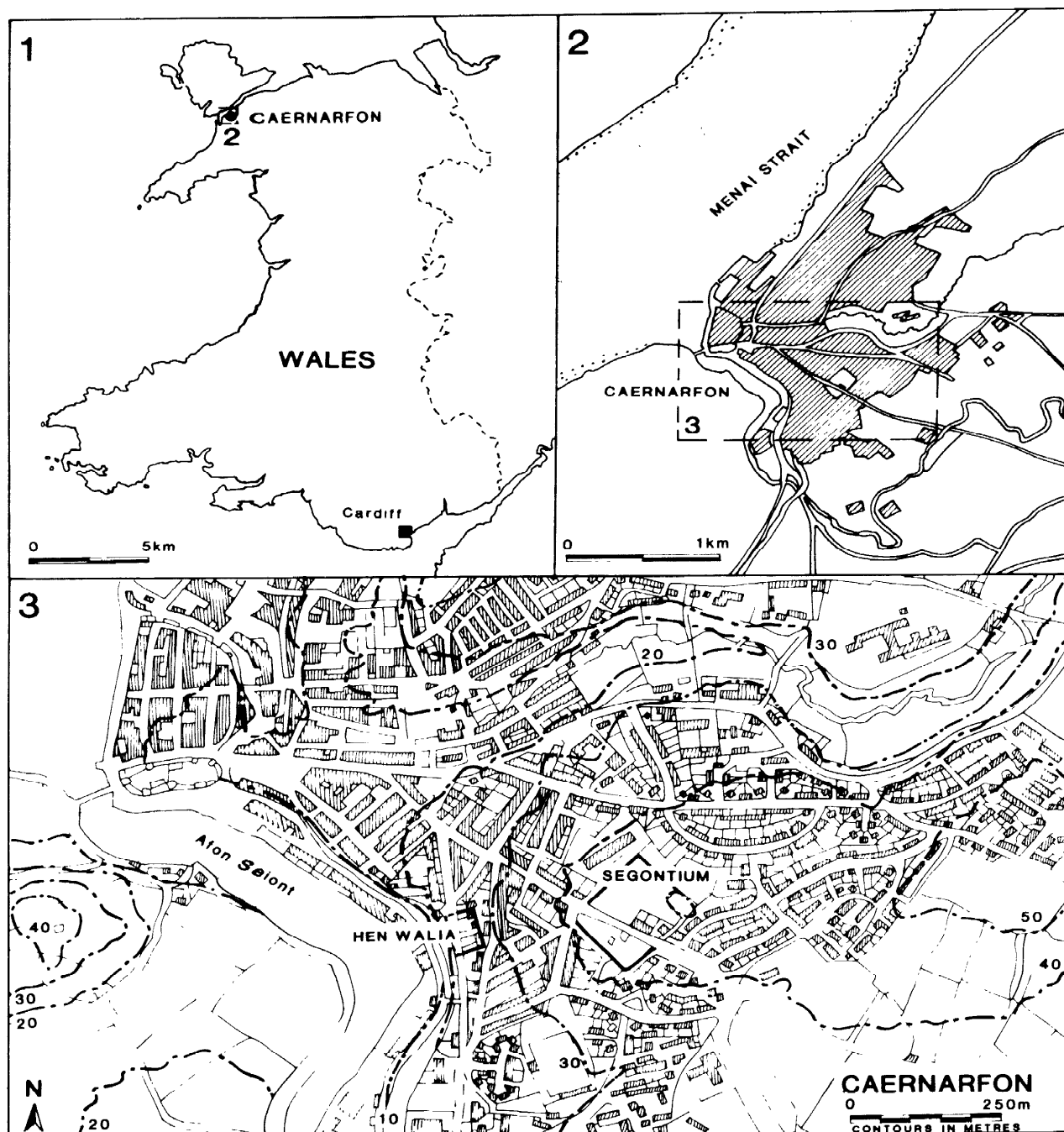


Figure 1.1 Segontium: location and setting.

1 Introduction

Location and setting (Figs 1.1-2)

The fort of Segontium (Rivet and Smith 1979, 454) occupies the end of a ridge rising to between 40 and 50m OD with extensive views over the western entrance to the Menai Strait and Anglesey to the north, the Snowdon massif to the south and the I,lyn peninsula to the west. The only easy access is from the east: to the north and west there are steep slopes to the valleys of the Cadnant and Seiont (Saint) respectively. The tidal mouth of the Seiont would have provided a sheltered roadstead for the shipment of supplies, if not a ferry as an alternative to a ford linking Anglesey and the mainland. Its strategic position commanding the fertile coastal tract north of Snowdonia and the northern route into the Llyn peninsula, coupled with its ready access to Anglesey - traditionally the granary of north-west Wales - remained significant throughout the Roman period and goes some way towards explaining Segontium's longevity as a military post.

The fort, encompassing an area of c 5.6 acres (2.27ha), has its angles aligned on the cardinal points and a north-east - south-west long axis (Fig 1.2).†

The interior slopes gently from north to south. The underlying geology consists of Ordovician shales with overlying deposits of glacial drift. The subsoil within the fort and downslope to the west largely comprises boulder clay (White 1986, 57) although deposits of a coarse, orange gravel were not infrequent in the area of the 1975-9 excavations.

Structure of the report

The report has been arranged in such a way that the interpretive discussion of the site in its historical context is placed first (Chapter 2), followed by the detailed structural evidence (Chapter 3) and discussion of the finds (Chapter 4) on which the interpretive synthesis has been based. The authors hope that this format will help those wanting an outline history of the site without the detailed evidence of the structural sequence and chronological issues. The structural report is, therefore, largely limited to a description of the buildings,

† For the sake of simplicity the axis between the north-east and south-west gates was utilised as the base-line of the site grid. Further references to compass directions in the report will be relative to site grid, not magnetic or true north.

features and major deposits of each period and a discussion of specifics as and where necessary, including problems of chronology. The wider significance of the archaeological data in respect of the internal arrangement and garrisoning of the fort, and the interpretation of the results of the 1975-9 excavations in the context of earlier discoveries is reserved for the discussion.

History of previous work (Fig 1.3a,b)

The first recorded excavations at Segontium were undertaken in 1845-6 during the building of a new vicarage in the south-east quarter of the fort. Since three of the stone buildings partly or completely uncovered by that work were re-excavated in 1975-9, it is worth presenting the evidence of the location and character of these discoveries. The structures were not only subject to large-scale exploration, but in two cases, at least, to major despoliation. Plans of these buildings were published, which are accurate, though stylised, renderings of the structures, although there were planning errors in terms of location. Coupled with the descriptions in *Archaeologia Cambrensis*, these plans show elements which have since vanished (*Arvoniensis* 1846; Parry-Mealy 1846a; 1846b; Foster 1846).

Parry-Mealy, recording discoveries made in 1845, noted that a Roman well found '15 or 16ft from the south west wall of the vicarage' produced pottery, a faunal assemblage and a fragmentary inscription (RIB 430), used as a flue or drain cover, which records the restoration of the fort aqueduct in the period AD 198-209. He also stated that the vicarage was, at least in part, built over a street, and that 8-10ft from its north-east side an opus *signinum* floor was discovered, with traces of a moulding around its circumference. 'Under this floor, and running in different directions, are flues... The foundation of these flues is singular. They vary in size - some exceed a foot square, others about nine inches. The covering of these flues is composed of large coarse slates, then a thick layer of mortar to a depth of three or four inches, and then slate slabs again.'

Parry-Mealy recounts further discoveries in January 1846. A plan of the excavated structure was also published (Fig 1.3a). The hypocausted room discovered in the previous year (his room A) measured c 22 x 12ft with a 'Union Jack' hypocaust arrangement, a flue to the east and walls c 2ft thick. Its long axis lay east-west (it apparently lay only a few feet from the north wall of the vicarage)

SEGONTIUM

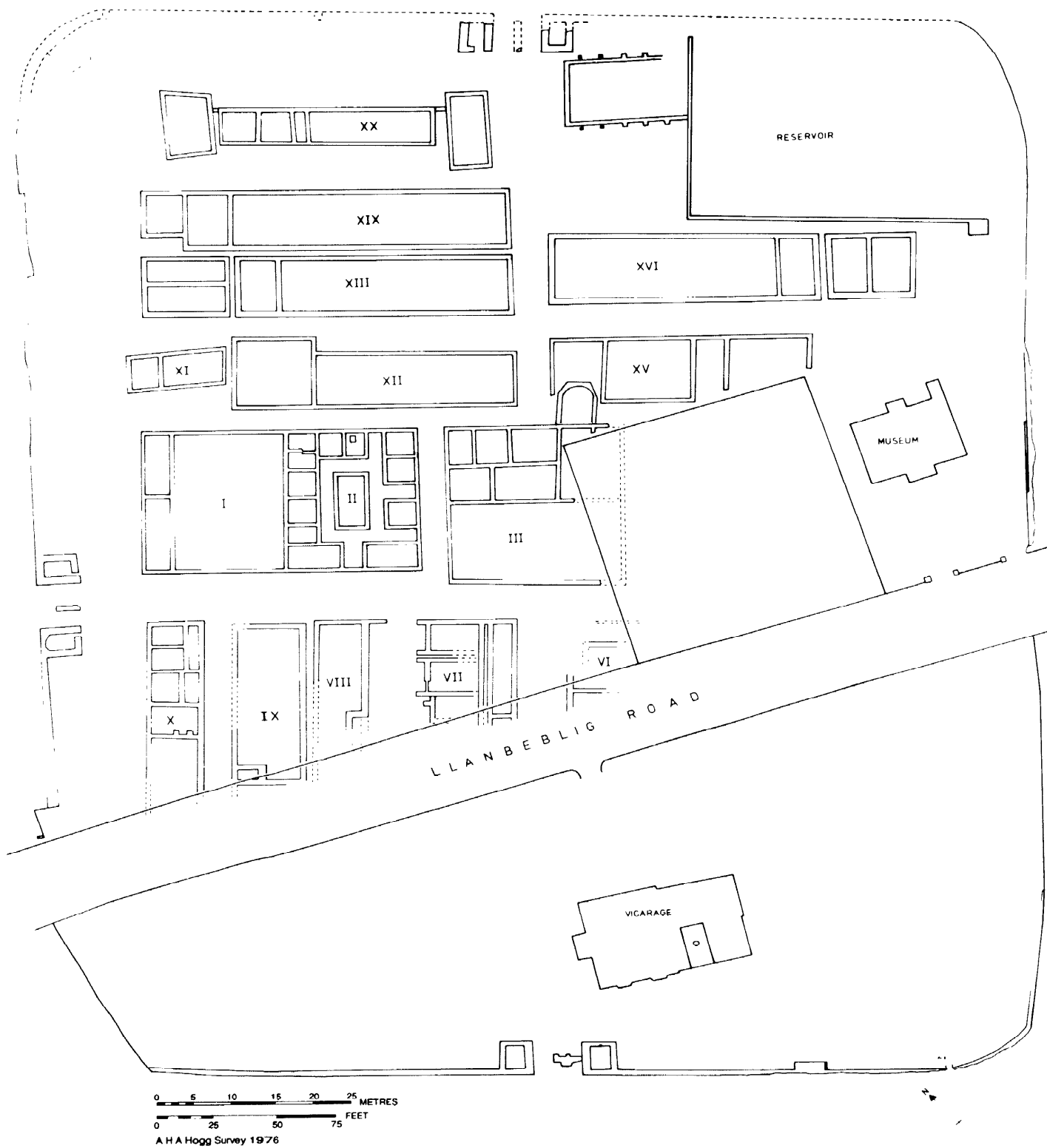


Figure 1.2 Plan of visible structures before excavation, and location of the demolished vicarage.

and was demolished to provide building material.

To the north of the above, and separated from it, was another hypocausted room (B on his plan) measuring 10 x 9ft with a furnace to the north (apparently inserted into an existing room). A curving stone-lined channel, 2.5-3ft wide, was noted a little to the east of the room and although situated opposite a gap in its wall did not make contact with it. Fragmentary walls and floors were found north, east and west of the smaller room, with some of the walls surviving to 3ft in height. The significance of these hypocausted rooms and other structural elements on a north-south axis will be discussed later in the context of alterations to the Period 7 courtyard building (pp 60, 62).

Other buildings recorded include the large and small bath-houses (B2 and B1 respectively) and the east range of SS2, the courtyard building. In the latter room-divisions, which have since vanished, are recorded, whilst the relationship of this range to B2 is accurately represented. This bath-house (Building II on the Victorian plan, Figure 1.3b) was nearly completely cleared and accurately planned. No *pilae* are shown and there is no record of suspended flooring. Rooms are described as 'rudely paved', with the cold plunge (Room 4) 'paved with large boulder stones'. These observations echo the modern excavators' conclusions regarding the unfinished state of this bath.

The accuracy of the plan of the small bath-house (B1) - Building III on the Victorian plan A, bar some curious curvilinear walling south of the *tepidarium* apse was demonstrated by later excavation, recording details (the above 'apse' included) which have since become severely degraded or have otherwise vanished. The *tepidarium* (room 6 on plan) is recorded as having a 'floor covered with tiles'; the *caldarium* (room 7) as 'tiled', 'two always on each other', whilst what may have been the hot bath (room 8) produced 'two square tiles perforated with a large round hole' (through which a pipe may have carried hot water from a boiler into the *caldarium*). These details show that the building had lost its suspended floors and most of the *pilae* by the Victorian era.

Building encroachment following the expansion of Caernarfon in the late nineteenth, and early years of this century, led to the discovery of traces of an extensive *vicus* to the west and south of the fort (Hayter 1921), whilst the threatened disappearance of the fort beneath housing prompted a programme of large-scale excavation and preservation, between 1921 and 1923, of the features north of Llanbeblig Road (Wheeler 1924). Wheeler's prompt publication of the results signalled the importance of the remains and subsequently led to the purchase of the excavated area, the establishment of a site museum and the eventual creation of a Guardianship monument. The vicarage site was acquired by the Ministry of Works in 1955, but apart from small-scale work on the *porta praetoria*, remained untouched until 1975 when the authors were

invited by the Department of the Environment to direct jointly a large-scale programme of excavation.

Wheeler's *Segontium and the Roman Occupation of Wales* was a seminal and influential work, although his conclusions were subsequently modified by Simpson (1962) and Casey (1974a). In the absence of large-scale work on the interior (and indeed on the defences), some of his conclusions, though mistaken, have remained influential.

Wheeler concluded that Segontium was initially an earth and timber fort established c AD 75. The rampart excepted, the only certain structural features of the early, if not primary, fort examined were elements of a timber gate beneath the stone *porta decumana* and postholes under levels which he dated to the 2nd century AD on the site of the *principia* and *praetorium*. Elsewhere there was no excavation below the levels of the stone fort. In the *praetentura* he examined elements of at least five stone buildings of '2nd century' and later date. Four of these, in contrast to buildings in the *retentura*, were aligned *per strigas*, an alignment similar to that of primary buildings in the eastern division of the *praetentura* excavated in 1975-9. It seems inherently likely that a similar primary building-alignment will eventually be found in the earliest phases under the reconstructed stone buildings in the *praetentura*, whilst the *per scamna* alignment of later buildings in the *retentura* is again likely to have fossilised a primary alignment. On comparative grounds it was suggested that the garrison of the early fort was probably a milliary cohort (Wheeler 1924, 24).

The first stone buildings within the fort were dated to the early 2nd century AD. Wheeler (1923, 25) assigned the west gate (but not the others or the fort wall), the earliest stone phase of the *principia* (his building III) and the *praetorium*[†] (building II), three other buildings in the *retentura* (XIX, XX and XXI), possibly the 'granaries' (IV and V) and building X in the *praetentura* to this phase. The *principia* was dated by a denarius of Nerva (AD 96-8) 'in the contemporary flooring near the northern corner of the main courtyard'; the *praetorium* was dated because the primary 'hard clay flooring' of the building contained four coins, the latest being a Hadrianic issue, whilst the pottery from the same level 'might all belong to the period 90-120 AD.' The walls, like those of other buildings assigned to this period, were of 'Cheshire stone'. Buildings IV, V and X were attributed to this period solely on the grounds that they too were built of 'Cheshire stone', as were XIX and XX, although XIX was overlain by a building dated on numismatic evidence no earlier than the reign of Commodus. The buttressed building XXI in the *retentura* was said to be 'not later than the early

[†] Wheeler used *praetorium* to mean *principia*. Nomenclature has changed since his day and in this report *praetorium* means commandant's house, *principia* HQ.

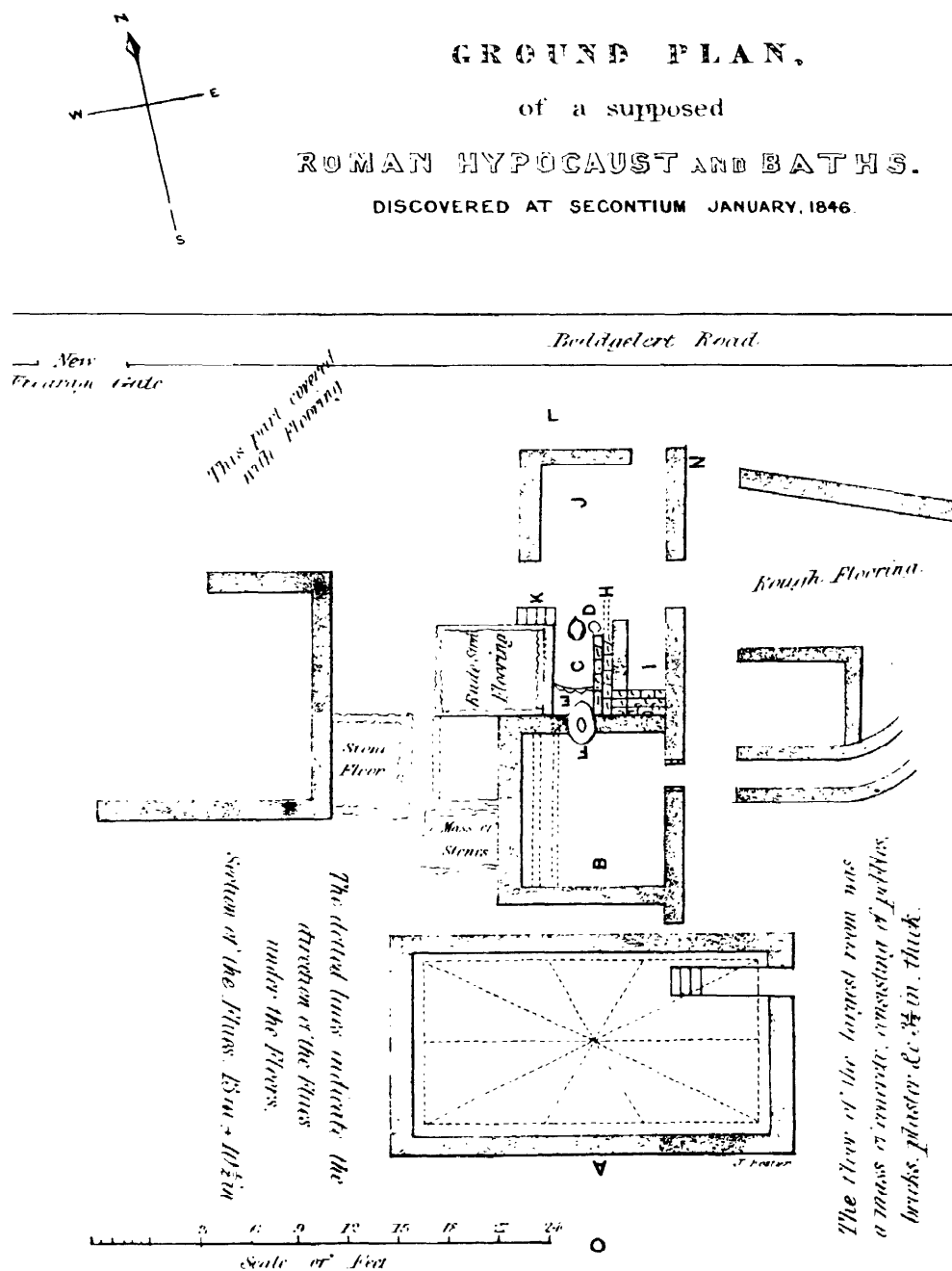


Figure 1.3a Structures in the vicinity of the west range of the courtyard building, excavated in 1846.

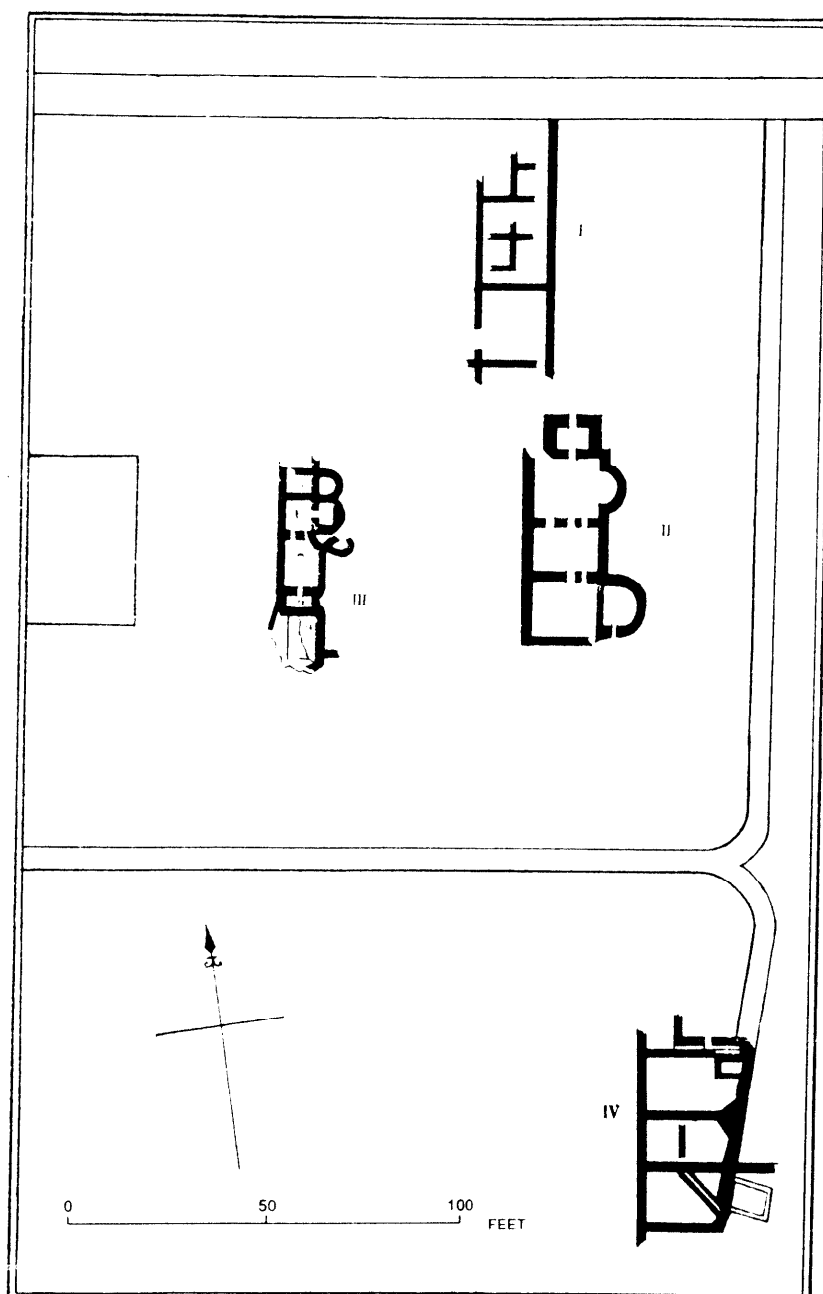


Figure 1.3b Overall plan of structures excavated in the 19th century. I east range of courtyard building; II bath-house B2; III bath-house B1; IV extramural building.

part of the 2nd century' on the basis that it was sealed by a burnt deposit containing pottery of that period (Wheeler 1924, 32-3).

Wheeler proposed that this early 2nd-century phase (his period 2) was followed by an Antonine abandonment on the grounds of an apparent dearth of Antonine coinage and a claimed scarcity of mid to late 2nd-century samian. He thereafter proposed a Severan reconstruction (his Period 4), citing the evidence of the inscription found in the *praetentura* in 1846 (Foster 1846) recording the restoration of the fort aqueduct '*vetustate conlab-sos*' (RIB 430). He ascribed the rebuilding of the *principia* to this period, with later additions being the sunken strong-room in the *sacellum* and the apsidal, hypocausted room in the north range. Numerous other buildings, for example I, XIII, XVI and XIX, were assigned to this period on structural grounds, as were the north and south gates - the latter being of one build with the wall.

Period 4 ended, Wheeler supposed, with the evacuation of the fort (his Period 5) c AD 280-90 (Wheeler 1924, 110), the key factor leading to this proposal being the sequence of deposits in the *sacellum* (Wheeler 1924, 68). Period 6, encompassing the first half of the 4th century, he interpreted as an occasion during which squatters occupied the fort and its environs, with the innermost ditch close to the south corner being filled-in and built-over (Wheeler 1924, 73). Thereafter followed a final phase of military occupation, commencing c AD 350 (his Period 7). Major alterations to the fabric of the north, south and west gates were allotted to this period on the basis of a well-stratified coin sequence. The full width of the *via decumana* was restored within the north gate following the latest alterations to building XX. The principal buildings were substantially affected, especially the *praetorium* which he claims was completely rebuilt. A coin of AD 348-50 in the matrix of a wall provided a *terminus post quem* (Wheeler 1924, 84). A Valentinianic, or later, date was also assigned to the final phase of building XX, whilst a later rebuilding of building XIX, a structure overlying XXI, together with elements of building XVII - all in the *retentura* - were also dated to this period.

Wheeler speculated on the possibility that the fort was abandoned on the revolt in AD 383 of Magnus Maximus since coinage of Honorius and Arcadius was absent. However, he noted the extended coin list from Caerhun, which he did not understand (see below, p 132), proposing that both forts were 'retained until the beginnings of these reigns' (Wheeler 1924, 91-2).

Only two features were interpreted as of post-Roman date, on the grounds that they (apparently) sealed late-Roman deposits. In the courtyard of the *principia* an L-shaped length of walling was interpreted as a lean-to against the south-east corner; whilst a small, clay-bonded 'guardroom', incorporating re-used architectural fragments, was built at

a high level within the east guardchamber of the south gate.

Following Wheeler's campaign no further work was undertaken until Mr G C Boon examined the west guardchamber of the south gate in 1957, and the ditch system south of the north-east corner in 1958, before going on to investigate a rarity in a Welsh context, namely a *mithraeum* situated north-east of the fort (Boon 1960).

In 1971 one of the authors was invited by the Welsh Office to examine the ditch system outside the north gate prior to the development of a recreation area. The details which emerged (Casey 1974a) are of considerable significance for the chronology of the defensive sequence as a whole and are summarized thus:

- 1) The Flavian timber gate was dismantled no earlier than c AD 140 and replaced by a stone edifice.
- 2) Two channels passing through the Flavian gate were shown to be contemporary drains discharging into the fort ditches; no traces of an aqueduct channel being observed.
- 3) Two phases of ditching were noted. The first comprised a double ditch of Flavian date interrupted by a causeway opposite the portal; this was later re-cast in the later 4th century when two larger ditches were dug, the inner of which removed the earlier causeway. A consequence of this excavation is a refutation of Wheeler's suggestion that the inner ditch had been deliberately filled prior to a late 3rd-century abandonment.
- 4) Further evidence of early medieval activity on the site was recovered in the form of a coin of Cnut (AD 1016-36).

In addition to extensive work on the site of the fort our knowledge has also been broadened by complementary work on the extra-mural area beginning with Hayter's excavation north-west of the fort in 1920 (Hayter 1921), and continuing spasmodically thereafter. Prominent is the massively walled enclosure known as Hen Waliau, situated approximately 150m to the west of the fort on the margin of a steep scarp above the River Seiont. This has been successively investigated by A H A Hogg (1952), R G Livens (1962-3) and the Gwynedd Archaeological Trust (1976, 1985) with a view to establishing its date and function. A recent recension of the evidence (information from S Boyle for GAT.) suggests that it is no earlier than c AD 140-80 and succeeds a series of structures presumed to represent a *vicus*, namely pits, road surfaces and post- and stake-built features. Whilst clearly not overtly defensive (lacking a ditch and corner towers), and, by virtue of extensive post-Roman disturbance within, lacking any evidence for contemporary structures, its purpose remains uncertain although its appellation as a 'storage compound' (Nash-Williams 1969, 63) has most to commend it. Significantly, evidence of 3rd-century use was lacking, although there appears to have

been a resumption of activity in the general area in the 4th century to judge by numismatic and ceramic evidence.

North of Hen Waliau, excavations undertaken by the Gwynedd Archaeological Trust in advance of road-widening in 1976-7 (White 1985), revealed further structures which included a tile-kiln and several rectangular timber buildings apparently lying within ditched enclosures and aligned on a street system. Industrial debris was indicative of carpentry, copper-alloy working and leather working in the Flavian to early Antonine period. Thereafter the area seems to have been abandoned, an inhumation being inserted in one of the silted ditches. Traces of very late 4th-century activity were also noted, but the absence of activity between the mid-2nd and later 4th century here, in the vicinity of Hen Waliau and further north between Vaynol Street and the fort (Hayter 1921) is noteworthy. In part this must reflect vicissitudes in the garrisoning of the fort, an observation which holds good in the context of the substance of this report. The only indications of 3rd-century activity in the *vicus* comes from the *mithraeum* excavated by Boon (1960). Built at the beginning of the 3rd century on a site previously used in the Flavian period, this stone building was modified before its disuse at the close of that century and demolition in the mid-4th. This, the excavator's chronology, was influenced by Wheeler's suggested abandonment of the fort c AD 290-350. It is a matter of regret that the opportunity has not been available to investigate a larger sample of the extra-mural area to the east of the fort in order to determine whether further traces of 3rd-century activity may have been localised here. Nevertheless, the consistent failure of the *vicus* to produce evidence of 3rd-century occupation, in contrast to the situation within the fort, is noteworthy and will be the subject of further comment (p 15).

Excavations apart, material from the fort has been subject to periodic re-evaluation. In 1962 Dr G Simpson published an important recension of Wheeler's work (Simpson 1962) with particular reference to the supposed Antonine and late 3rd- to mid-4th-century abandonments. Her most significant observations are summarized as follows:

- 1) The site was a Flavian foundation of the period AD 75-80.
- 2) The earliest stone phase of the west gate was no earlier than the Antonine period.
- 3) The quantity of Antonine samian demonstrated that the fort could not possibly have been abandoned c AD 140.
- 4) Contrary to Wheeler's view some of the earliest stone buildings (for example, building XX) were also no earlier than the Antonine period.
- 5) The site had suffered a major destruction at the close of the 2nd century, necessitating a major Severan rebuild.
- 6) Numismatic evidence rebutted Wheeler's view of abandonment from c AD 290 to c 350.

Whilst some of these observations, such as 51, have been refuted, others have stood the test of time and are significant in providing the framework for the discussion which follows. In this respect the two papers published by G C Boon (1975; 1976), particularly that concerning the numismatic material, played an important role in re-evaluating the later history of the fort.

Excavation strategy 1975-79 (Fig 1.4)

The excavations were prompted by a Welsh Office (now Cadw: Welsh Historic Monuments) decision to excavate and display the buildings found in the 1845-6 excavations, to relate these (and others) to those already consolidated in the *latera praetorii* and *retentura*, and thereby produce an intelligible Guardianship monument. On the assumption that buildings would be better preserved in this area than elsewhere within the fort the needs of conservation and display were paramount. This, coupled with other factors, placed limits on the excavation strategy. Stone buildings and intact concrete floors could not be dismantled to allow access to earlier deposits; this restriction, coupled with extensive nineteenth-century disturbance, eventually imposed a 'keyhole' strategy on the investigation of some of the pre-stone deposits.

Although approximately one-third of the fort was available for investigation, the area chosen for the research excavation lay east of the site of the demolished vicarage. This preference was dictated by two basic factors:

- 1) Three, apparently successive, stone buildings were already known to lie within this area and their relative locations were known. Moreover, the fact that two of these were bath-houses was of the utmost significance, since they indicated that at some stage of its history the garrison of the fort had been reduced (Nash-Williams 1969, 62). Accordingly their dating would be crucial in determining a major event (or events) in its history.
- 2) The area east of the vicarage offered a much greater scope for the investigation of a sequence of building which may have been on varying axes.

A number of specific questions were posed and objectives set at the outset. First, for the purposes of presentation it was necessary to relocate the two bath-houses revealed in 1845-6, together with a stone building north of the eastern bath-house. The latter not only displayed features, as planned, which were untypical of a barrack, but was also manifestly not contemporary with the larger bath (B2). The elucidation of their relative chronology would, therefore, provide an important window into the history of the fort. It was also vital to check the veracity of the 1846 plan, and examine the quality of the remains. A further objective was to determine the chronology of the defences in the light of the work of Wheeler and of later excava-

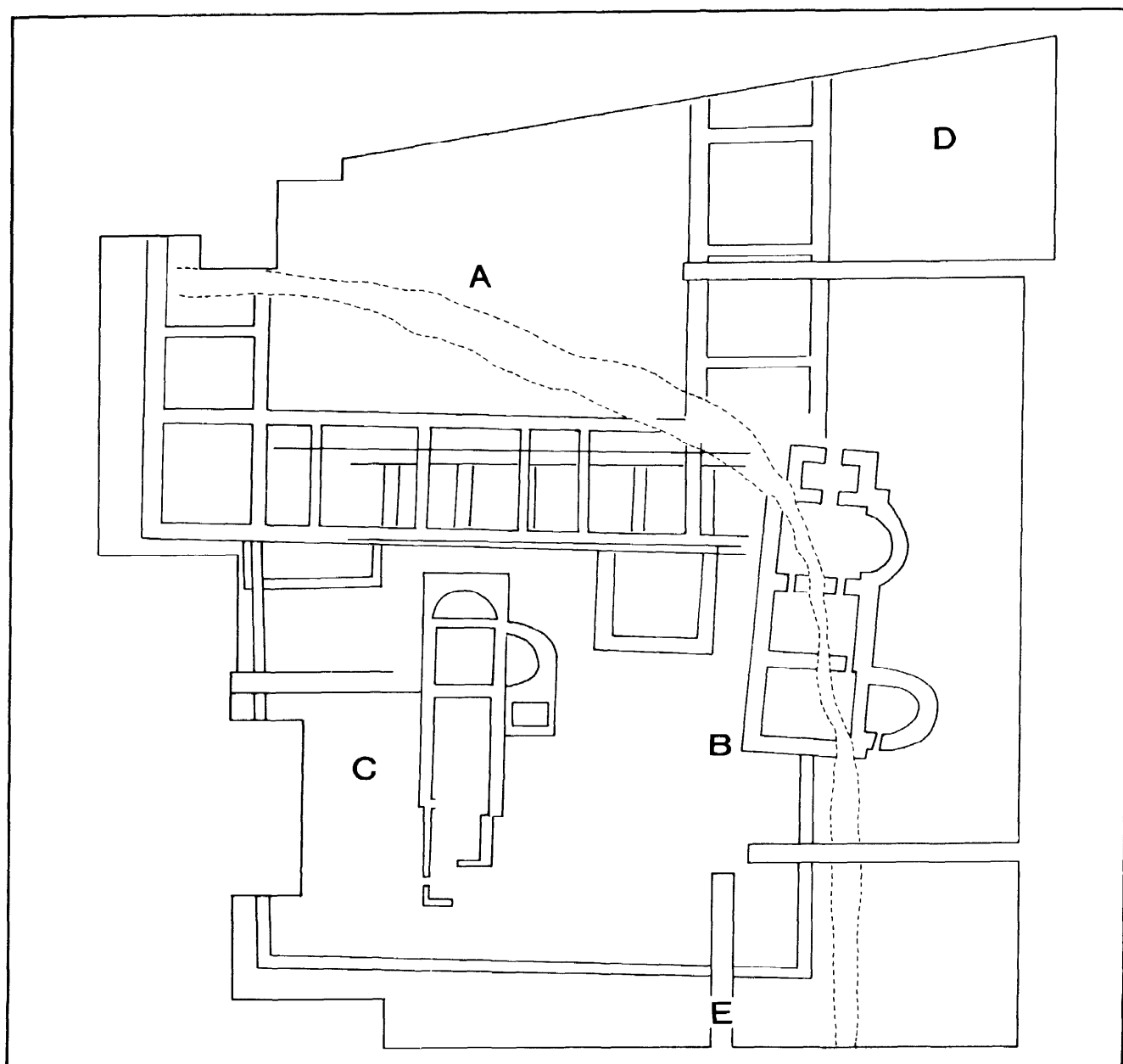


Figure 1.4 Excavation areas in relation to principal architectural features.

tion. A particular emphasis was placed upon the elucidation of the latest phases since Boon had demonstrated that the coin sequence continued into the Theodosian period, thereby making Segontium the latest certain Roman military base in the Principality. Additionally, the appearance of the site in early Welsh heroic literature, the twelfth-century *Dream of Macsen Wledig* (Jones and Jones 1974, 79-88), coupled with the discovery of late Saxon coins in well-stratified contexts (Boon 1976, 79) gave rise to expectations of post-Roman deposits or structures. Finally, the recovery of environmental data in excavations outside the north gate in 1971, coupled with the dearth of well-dated environmental sequences from Roman contexts in north-west Wales, ensured that a high priority was given to a comprehensive policy of data collection in this field.

Once the position of the larger bath-house (B2) and the stone building to its north (SS2) had been firmly established in the first season (thereby, incidentally, vindicating the 1846 plan, with only the small bath-house (B1) being misplaced in relation to B2 by a horizontal distance of some 4m) the excavations proceeded on a rapidly-expanded area basis. The necessity of working on a seasonal basis dictated a strategy of opening areas in a sequence, each area being treated as an integral excavation. Areas A, B, C, D, and E were thus opened in succession, V being a trench dug to examine the fort ditch system on the east. The hopes of recovering very late Roman and post-Roman stratigraphy were dashed once it was realised how extensively the site had been damaged. The factors here were stone-robbing, nineteenth-century excavations, horticultural activity, and levelling. Although areas were initially hand-dug to maximise the chances of locating ephemeral late Roman and early medieval struc-

tures, once the scale of disturbance had been realised mechanical clearance of overburden to the bottom of the nineteenth-century horizon was undertaken. When the vicarage was built in 1846 the top of the site was denuded and the lower end levelled-up by dumping so as to form a platform defined by the standing fort wall at the south. Dumping had two effects: protecting late Roman deposits, but also leading to a relative profusion of nineteenth and early twentieth-century features - stone-packed postholes in particular (some of which were initially indistinguishable from Roman look-alikes) which had to be laboriously disentangled from the ancient structures. In this respect the consultation of a photographic record of the kitchen garden with its fence-lines and other timber features in the 1930s/40s proved invaluable.

One final comment is required in the context of the Victorian exploration of the south-east quarter of the fort and that pertains to the destruction of important evidence. Contrary to expectation the earlier excavators had undertaken the comprehensive clearance of buildings instead of, as expected, simply revealing the wall-tops. Rooms had been cleared wholesale, digging stopping only when *opus signinum*, brick/tile or cobble surfaces were reached. This, coupled with trenching around the periphery of stone buildings effectively dislocated these from their associated stratigraphy, and, in some cases, caused the authors of this report to advance complex arguments to re-establish the contemporaneity, or otherwise, of structures and deposits whose relationships in the normal course of events would have been stratigraphically self-evident. Despite these shortcomings one has to give thanks that stone-robbing was not pursued with greater vigour, and that some of the cuttings were backfilled.

2 Synthesis

Historical discussion

The creation of a fort at Caernarfon is traditionally ascribed to the arrival of Gnaeus Iulius Agricola in the vicinity in the first year of his governorship. Tacitus records:

Shortly after his arrival the Ordovices had almost wiped out an *ala* stationed in their territory... Agricola decided to go and meet the threat...he cut to pieces almost the whole fighting force of the nation. But he realised that he must not lag behind his reputation and that the success of his first enterprises would decide how much his other enemies would fear him. He decided, therefore, to reduce the island of Anglesey.... (Agricola 18)

Modern scholarship has set the limits of AD78-84 for the period, although recent evidence has shown these dates to be erroneous and it is now established that the governorship comprises the years 77-83 (Buttrey 1980). The fixed point in the governorship is the reference in the Agricola to the fact that Domitian was celebrating undeserved triumphs for less than complete victories over the Germans, specifically the Chatti, when Agricola was recalled after the campaigns culminating in the victory at Mons Graupius. Coinage of the Rome mint, with the exception of a single known specimen, records the assumption of the title Germanicus by Domitian on issues of 84. Precedents indicate that that the triumph and assumption of the title should have coincided. On this evidence then Agricola's governorship should have ended in 84 and begun, six years earlier, in 78. But the Rome mint struck coin on a cyclical basis. In this system all of the gold coinage was struck, then the silver and so on through the denominations. This cycle was started at the beginning of the year so that, unless a special issue was put out, an event occurring late in the year would not be commemorated until the following year. This seems to be the case with Domitian's triumph and acclamation. Coins from the mint of Alexandria, which have their date of issue in regnal years inscribed upon them, clearly record Domitian as holding the title Germanicus in 83. Papyri also record this date for the assumption of the title (Buttrey 1980). In the light of this evidence the governorship of Agricola fits into the years 77-83.

Nothing in the excavations, now reported, contradicts the evidence that establishment of the fort dates to the Flavian period. There is no evidence for a Roman presence on the site in the reign of Nero and an association with the activities of Suetonius Paulinus and his Anglesey campaign in 60/61 is not tenable. Although it is not possible, by strictly archaeological methods, to pinpoint the foundation date of the fort to a specific year or a specific governorship the balance of probability indicates that the site is Agricolan and dates to 77 or shortly after.

Segontium (2.27 ha/5.6 acres, measured across the ramparts) is part of a network of forts in the Snowdonian massif established following the seizure of Anglesey, the others being established at Pen Llystyn (1.8 ha/4.5 acres), Caerhun (1.97 ha/4.86 acres), Bryn y Gefeiliu (1.57 ha/3.9 acres), Caer Gai (1.69 ha/4.2 acres), and Tomen y Mur (1.7 ha/4.2 acres) (Nash-Williams 1969). Little is known of the garrisons of these forts but estimates based on their size, a process not accepted by some scholars (Frere and Wilkes 1989), suggest that Caer Gai and Tomen y Mur held 500-strong part-mounted units, and that Caerhun might have held a 1000-strong infantry unit or a 500-strong mixed infantry and cavalry regiment. Pen Llystyn has been examined in detail and a nearly complete plan of its internal structures recovered (Hogg 1968). The presence of twelve barracks in the unredacted fort suggests that it was garrisoned by a force of two individual 500-strong infantry cohorts rather than by a regular 1000-strong infantry unit which might be expected to have required only ten barracks blocks.

Segontium is the largest of the Flavian forts in north Wales. The internal arrangements of the area excavated indicate that the *praetentura* accommodated six barracks whilst the *retentura* has sufficient space to hold a further six or, as the writers believe, four barracks and a range of workshops and store buildings located behind the central administrative range. If this conjecture is correct the garrison of the fort would have comprised a 1000-strong infantry unit. Certainly the pre-eminence of Caernarfon, both in size and location, would support the view that, of the forts of the region, it would have held the most prestigious unit commanded by an officer who was well advanced in the military aspect of the equestrian public career.

The problem of calculating the garrison strength of the 1st- and 2nd-century fort is a difficult one,

exacerbated of late by the revelation of just how densely packed potential barrack accommodation might be - Elginhaugh with the equivalent of a milliary cohort within a 4-acre fort; Strageath with elements of two quingenary part-mounted units in a fort of 4.36 acres; Pen Llystyn with two quingenary cohorts within a 4.5-acre fort - and also how variable and complicated the internal arrangements might be (Hassall 1983; Frere and Wilkes 1989). At 5.6 acres (2.27 ha) Segontium was sufficiently spacious for a full-strength milliary cohort, part-mounted or infantry as suggested by Boon (Nash-Williams 1969, 61), or even an *ala*, though the presence of such a regiment is less likely in respect of the evidence presented below.

Apart from the structural remains, evidence of the earlier garrisons comprises items of military equipment and graffiti. A graffito on a Flavian form 18, and thus particularly relevant, reads 'Ianuarius b(ucinator?), the century of Victor' (Nash-Williams 1969, 33 and Pl XVA); whilst graffiti on Blackburnish vessels of Hadrianic-Antonine date read 'optio' (Wheeler 1924, Fig 76 No 29) and 'the century of Longius Ammonius' (Chapter 15, No 1) respectively. Infantry are thereby attested at two widely separated periods, prior to and after the garrison was reduced.

Diagnostic military equipment includes the crest-holder from a Coolus-type legionary helmet (p 174, No 95) in a Period 5A context, and '*lorica segmentata*' fragments (p 198, No 415) and an apron-mount (p 174, No 83) from those of Period 6A. To these items we may add the earlier discovery of an ivory-hilted infantry sword found outside the fort in the nineteenth century (Wheeler 1924, 142-3). Whilst the presence of legionaries is not improbable it would be unwise to overemphasize the significance of the above items since legionaries are likely as primary builders and legionary centurions may well have been occasionally present as *praepositi*. The above items moreover derive from Period 5A and 6A contexts when scrap collection and disposal seems to have been practised following the demolition of buildings within the eastern side of the *praetentura*, and as such could even have been imported. Alternatively, we might explain these 'legionary' items as the product of a leavening process, or at least non-exclusivity in the context of military equipment which could result in their reaching auxiliary formations (Maxfield 1986).

Five junction loops and a possible harness-mount (p 174, No 84) could reflect the cavalry of a part-mounted cohort, or an *ala*, though they might equally have belonged to officers' mounts.

The minimal building requirements of various types of auxiliary units have recently (Hassall 1983; Frere and Wilkes 1989) been calculated (Table 2.1).

No account has been taken of the last-named formation since other evidence suggests that its presence is unlikely.

Table 2.1 Building requirements of auxiliary units

Unit	Infantry barracks	Cavalry barracks
<i>Cohors quingenaria peditata</i>	6	-
<i>Cohors quingenaria equitata</i>	6	-
<i>Cohors milliaria peditata</i>	10	-
<i>Cohors milliaria equitata</i>	10	46
<i>Ala quingenaria</i>	-	8

Stables are traditionally difficult to identify within forts, although two are likely to have been required for a *cohors quingenaria equitata*, with double that number in a milliary part-mounted cohort. No account has been taken of other requirements such as workshops and stores since they are often difficult to categorize and their numbers are highly variable. We are left with ten buildings as the minimum requirements of a *cohors quingenaria equitata* and eighteen for a *cohors milliaria equitata*.

Wheeler's excavations did not investigate the timber phases in the *retentura*; consequently the number and disposition of buildings is unknown. However, if the alignment and number of later buildings is any guide then they are most likely to have been arranged *per scamnum* and numbered at least eight; four on either side of the *via decumana*. Given the similar depth of the *praetentura* and *retentura* then that total could have been further increased to ten.

The most likely building totals for the Flavian-Trajanic fort is of the order of sixteen, eighteen or twenty. If we subtract two from this total to allow for stores/workshops (a low estimate) then we are left with fourteen, sixteen or eighteen buildings; short of total excavation, there is no means of establishing which (if any) of these figures is correct. On the basis of finds, which are overwhelmingly of a nature associated with infantry, it would appear for the present that the indications are that Caernarfon was garrisoned by a milliary infantry cohort. The higher total would be perfectly in accordance with the requirements of a *cohors milliaria equitata* (fourteen barracks and four stables). On the other hand, the lower total is consonant with a *cohors milliaria peditata*.

The size of the garrison appears to have remained constant until the end of the Trajanic period when the excavated barracks were demolished, never to be replaced. Both the ceramic and coin evidence point to a very marked reduction in personnel at this time. This situation is remarkable given that between the foundation of the fort and the reign of Hadrian the excavated barracks had been replaced no less than three times. The second and third sets of barracks have such features in common that they must represent the building activities of the same unit though they are

markedly different from the first suite. Yet all three sets of buildings suggest the same strength of garrison even though between the second and third phases what may have been a strong fence was erected across the width of the *praetentura*, indicating an hiatus between the demolition of the second and construction of the third set of barracks. Clearly Segontium was intended, for whatever reason, to house a large garrison which was maintained over a long period.

Pertinent to establishing the garrison, at any period, is the disposition, number and type of buildings in the unexcavated areas of the fort. In this part of the fort the disposition of buildings remained essentially the same from Period 2-5 (the Period 4 hiatus excepted), and comprised at least three timber buildings disposed *per strigas*, of which TS4 of Period 3 and TS8 of Period 5 divided into *contubernia* with officer's quarters at their southern ends were manifestly barracks. Despite differing widths all these buildings in Periods 2-3 and 5 can be plausibly interpreted as barracks, without prejudice as to whether they accommodated infantry or cavalry. TS8 was probably divided into eight *contubernia*, with room for a further three before the *via principalis* is reached. Such a barrack most probably accommodated an infantry *centuria* (but see Hassall 1983, 120).

Within this block there is theoretically sufficient space in the unexcavated portion for another two buildings arranged *per strigas*; notionally a barrack 8m wide separated by a 5m street from a building c 5m wide - a store, stable or workshop. Theoretically, then, this eastern division could accommodate four barracks and another building; a situation which if replicated over the span of the *via praetoria* gives a total of eight barracks and two other buildings. That a minimum of eight buildings did indeed occupy the *praetentura* is hinted at by the four stone buildings, of Hadrianic or later date, aligned *per strigas* in the western division (Wheeler 1924, general plan).

The temptation to ascribe structural phases to recorded historical events bedevils Roman archaeology but the apparent coincidence of the demolition of the first period barracks in the 80s (below p 33) with the northern campaigns of Agricola cannot be ignored. To accept that the Segontium garrison was removed at this time raises a number of problems. Paramount is the question of why, if the garrison was removed, was it restored in full strength? The removal suggests that there was a surplus of troops in the area, a restoration suggests that this was an optimistic view of the degree of control needed in north Wales. However, it would be improper, on the excavated evidence to claim boldly that the whole unit was removed. In the absence of knowledge of the early levels of the *retentura* and the unexcavated part of the *praetentura* the possibility of the unit being temporarily split up should not be dismissed.

A temporary reduction in part of the garrison can be advanced with the demolition of the Period 3 barracks when the enigmatic fence line was established across what had formerly been accommodation. It must be concluded that the fence was functional and implies a garrison still quartered within another area of the fort since there is no evidence for an opportunistic civilian occupation. The broad dating context of the demolition of the Period 3 barracks and the erection of the fence, based on the ceramic evidence, is in the decades c 90-120 but the broad dating context of the Period 5a barracks which replaced the fence is c 100-20, suggesting that the hiatus, represented by the fencing of the site, was of very short duration. We have already commented on the similarity of structural detail between the Period 3 and the Period 5a barracks and observed that they were probably constructed by the same troops. Clearly there is a strategic or logistic aim underlying the observed structural sequence but this cannot be determined without unrealistic speculation based on the scantily recorded historical events of the period. A war in Britain late in the reign of Trajan is well established, though there is no direct documentary reference to this event (Frere 1987). In any event this would be too late to account for the sequence observed at Segontium, whilst Trajan's Dacian Wars of 101-2 and 105-6 seem too distant to be consonant with the brevity of the period of dislocation and with the return of the same unit to the site.

If it can be argued on structural grounds that the excavated barracks indicate a large garrison from the foundation of the fort, their subsequent fate clearly demonstrates a sharp reduction in strength. The three barracks of period 5a which were investigated were in large part demolished in the late Trajanic, or earliest Hadrianic, period. A number of Welsh forts show signs of abandonment or troop reductions at this time. The Trajanic fort at Gelligaer represents a reduction of size to accommodate a 500-strong infantry unit (originally 2.4 ha/6 acres reduced to 1.5 ha/3.7 acres), and both Caerau (originally 1.7 ha/4.2 acres reduced to 1.2 ha/3 acres) and Tomen y Mur (reduced to 1.34 ha/3.3 acres) show Hadrianic reductions in size, implying garrison reductions. Pen Llystyn was reduced from a fort of 1.8 ha/4.5 acres to a fortlet covering only 0.5 ha/1.2 acres in the early years of Hadrian (Hogg 1968). Outright Hadrianic abandonment is evident at Trawscoed (Nash-Williams 1969; Davies 1984). A parallel situation to that found at Segontium, where part of the fort is relinquished without an overall reduction in the size of the defences, is claimed at Caersws where barracks in the *praetentura* were demolished before the Antonine period, at the latest, whilst others in the *retentura* were retained (Daniels *et al* 1969).

The demolition of the barracks was selective with the *contubernia* being stripped of fittings and then fired. The centurions' quarters were retained as

standing units. The sequence of destruction is clear: in each structure a general level of burned debris covers the barrack with the exception of the *contubernium* immediately adjacent to the centurion's apartment. This was demolished to create a firebreak between the part of the building which was to be retained and that which was to be destroyed. The brisk prevailing wind from the south-west ensured that the fire burned away from the retained structure.

The retention of elements of what had been barracks heralded a long period in which a series of structures, apparently unprecedented in Romano-British military archaeology, occupied the south-east quarter of the fort. These structures are the free-standing centurions' apartments of Period 5a, their replacement in Period 6, a substantial stone building with its own bath house (SSI) and the replacement of this building by the imposing courtyard building which was to occupy most of the area until the end of the 3rd century.

The function of this series of buildings is entirely a matter of conjecture. Two forts are now known with substantial courtyard buildings in the south-east sector, South Shields (Tyne-Wear) and Piercebridge in County Durham. In both cases the buildings are later than the series at Segontium. At Piercebridge the courtyard building is of mid-3rd-century date and represents the commandant's house in a newly constructed fort (Scott forthcoming) whilst the South Shields example is of 4th-century date and again represents provision of housing for the commandant (Bidwell forthcoming). The most developed of the Segontium buildings is not comparable to these since it is the culmination of a series of structural changes which represent the evolution of the courtyard building in its final form.

If we consider the courtyard building as a development from the earliest structures on the site, the free-standing centurions' apartments, in terms of function we appear to have a situation in which some activity took place which grew in importance, and thus in space requirements, to culminate in the erection of a possibly two-storey building of great architectural pretension. A normal interpretation of the courtyard building might be that it was the commandant's house, implying a scheme to transfer the buildings of the central range on the north side of the *via principalis*, to the south. Such a scheme would involve a move of the headquarters building, which would then face north, and the paired granaries normally found beside the headquarters building. Wheeler's excavation of the visible commandant's house, whilst not entirely adequate in terms of elucidating its early history, certainly shows that a building, elements of which survive in the late house, occupied the location when the courtyard building was in use. It seems unlikely, then, that the courtyard building was a commandant's house. Further, although no excavation has taken place in the area

where a headquarters might have been expected in a radical realignment of the fort, no sign of the expected granaries were found in the south-west quarter of the *praetentura* when Wheeler examined its northern end adjacent to the *via principalis* and the *porta principalis dextra*.

Let us, for argument, assume that the detached centurions' quarters, the first stone building and the courtyard building are functionally related. What circumstance might give rise to the presence of someone who could command the use and construction within a fort of buildings which surpassed the accommodation provided for the commanding officer? In this model we are looking for a person who, if the rapid improvement in the buildings is a guide, increased in status between the early Hadrianic and the mid-Antonine period. In terms of associated evidence this is a period during which the garrison declined in strength. The ceramic evidence (below) indicates a diminished presence between Hadrian and the end of the 2nd century and this supports the highly speculative figures derived from the coin deposits (below p 127). We thus have an enhancement of the buildings but a decline in the number of forces, possibly to as low a figure as two centuries. Such a force might normally be commanded by a senior centurion rather than by an equestrian tribune and a centurion of an auxiliary unit did not have the status implied by the courtyard building or even its predecessors. But an administrative official such as a *procurator* or a *centurio regionalis* would have this status. Of these two officials the status of the procurator is best attested.

The procuratorial service of the Roman state extended throughout the area of administration concerned with the emperor's financial affairs. A Provincial Procurator, appointed to supervise the financial control of a province, would have under him a series of sub-procurators who exercised direct supervision of specific aspects of the fiscal service. Of especial interest in this regard is the function of procurators appointed to supervise the mineral resources of the provinces. A number of inscriptions attest the widespread employment of procurators to control production of mines and metal working. Of particular significance is the inscription from Villalis, in Spain, which refer to the activities of a *Procurator Metallorum*, an imperial freedman Aurelius Firmus, who appears to be in some way in charge of soldiers of *cohors I Gal[lica]* and who clearly outranks Valerius Marcus the decurion of *ala II Flavia* who is the co-dedicattee of an inscription in honour of Commodus dating to 22 April 191 (AE 1966, 188). Villalis is both the centre of widespread Roman mining activity and the location of a fort which may be the centre from which the procurator operated (Garcia y Bellido 1959; 1961). Similar associations of imperial freedmen procurators and serving soldiers may be cited, all in the context of the control of mining activities in this area (ILS 9125-31) in which the

imperial freedman procurator outranks other military dedicatees.

Procurators appear to have at their disposal both legionary and auxiliary troops, no doubt deployed to supervise mining activities, whether carried on by free or convict labour, and perhaps administer the mines, or to maintain a grip on widely spread imperial properties in remote areas.

Whilst the case for procurators being active in military contexts is very strong it remains to consider whether a context existed in north Wales which would have justified the presence of such an official. We have already stressed that mining activity appears to be one of the contexts in which procurators were deployed, and the attested mineral exploitation of Anglesey and the north Wales coast (O'Leary *et al* 1989) may be seen as providing one reason for the presence of the present hypothesised official. A *procurator metallarum* would be paid on a sliding scale depending on the nature of his responsibilities. The official who oversaw the mineral exploitation of Pannonia and Dalmatia was paid 100,000 *sestertii* (HS) per annum (Pflaum 1950, 591; *ILS* 1421). Similarly the procurator overseeing iron production in Gaul was paid on the same scale (Pflaum 1950, 291; *ILS* 9011). We would expect that a civil official living in the courtyard building, at the height of its development, would be paid on a higher scale than the commander of an auxiliary cohort or the rump of one (HS20,000: Dobson 1972). An official drawing a salary of either HS60,000 or HS100,000 would certainly supervise a very large area, probably the whole of north Wales.

The courtyard building continued in use to at least the end of the 3rd century and the enclosure of the bath building (BI) by a wall possibly in the second half of the 3rd century (Period 7a) to give what amounted to a private garden within the fort defences, suggests that the status of the building did not decline. Nor apparently did the re-establishment of a regular military force in the Severan period appear to undermine the position of its occupant. With the re-establishment of a full strength garrison of a quingenary cohort the senior centurion, who we have suggested would have commanded a reduced garrison of two centuries, would have been replaced by an equestrian *praefectus* who would have required large accommodations for himself, his family and his entourage.

Wheeler produced no evidence for a reconstruction of the commandant's house in the Severan period though the adjacent headquarters building was rebuilt after what, on the model advanced here, had been a long period of neglect. It might be thought that the new commander would occupy the courtyard building *in lieu* of his formal housing. But the reality of Wheeler's dating of the commandant's house may be questioned. A coin of the Gallic Empire was found in a pre-4th-century phase, whilst slight structural features also appear to be of 3rd-century date, and pottery, though not

distinctive in Wheeler's view, can be clearly interpreted as being of neither his first nor last phase. On balance the use of the commandant's house is probable rather than unlikely. This is especially so since a procurator, especially an imperial freedman, vastly outranked a mere equestrian officer who might, himself, after the completion of a military career and if he had the right patronage, aspire to an equestrian procuratorship.

Assumption of a continued administrative function for the building in the 3rd century may be prejudiced by the fact that there are two other instances in Britain where buildings which can reasonably be interpreted as commandant's houses are found occupying the south east quarter of the *praetentura* of forts. At Piercebridge the south-east quarter is occupied by a building grouped around two courtyards and is provided with a separate bath suite. Piercebridge was a newly-founded fort in the mid-3rd century and there is no information as to the disposition of buildings within the defences (Scott forthcoming). At South Shields, after many wide-ranging structural changes, the 4th-century fort was provided with a courtyard house in which the inclusion of a *triclinium* indicates that it was intended for the commander (Bidwell forthcoming). Both the Piercebridge and South Shields buildings were maintained for as long as the forts were occupied. In contrast to these buildings the Segontium structure dates from the 2nd century and did not continue in use into the 4th. It may be advanced that the demise of the building coincided with it becoming redundant in terms of the demise of the administrative system for which it had been designed.

With the administrative reforms of Diocletian and the division of Britain into four provinces the necessity for imperial procurators operating as agents of the central administration probably declined. The latest attested equestrian procurator occurs in the late 3rd century (Pflaum 1950). In the 4th century procurators are attested in the Theodosian code who are specifically concerned with mining and metalwork. These officials were assistant to a *comes metallorum* (*Cod Theod*). However the status of such procurators in no way compares with that of their early imperial predecessors since they were elected, reluctantly, to the post from among the decurions of the urban communities and served as enlisted members of the administration. A further consideration is that mining in the area may have ceased, though this is unlikely.

The fact is that the Diocletianic reforms and the formalisation of the *annona militaris* devolved a great deal of primary fiscal administration to the army. The papers of Flavius Abinnaeus are an eloquent testimony of the part played by unit commanders in the collection and safe custody of produce levied in taxation. A similar concern with collection and distribution extended to manufactured goods and the product of mines and quarries.

The Diocletianic re-instatement of forts, and the provision of new ones, can be seen as being as much a function of financial as of purely strategic concerns.

The late 3rd and 4th centuries herald a period in which renewed deposits of coins and pottery demonstrate an upswing in density of occupation. Even allowing for the very grave methodological problems outlined in the coin report, the results are not inconsistent with the ceramic or indeed the environmental evidence. As far as the latter is concerned the bone evidence shows that new, heavier breeds of cattle are present. This may suggest that the smaller 3rd-century garrisons could easily exist on local produce, but that the larger 4th-century unit was provisioned from elsewhere, presumably as part of their endowment from the *annona militaris*.

Structurally the enhanced numbers of troops suggested by the interpretation of the numismatic evidence presents a problem to the present excavators, since no barrack accommodation was found in the area under excavation. The siting of the Period 8 bath house, overlying the now defunct *via sagularis*, leaves a very great deal of space in the south-east corner of the fort in the Constantinian period. Equally the Constantinian cookhouse (TS12) is confined to the back of the rampart, suggesting that what might have been a potential fire hazard was located away from buildings. It is possible that buildings of sill-beam construction did indeed occupy this area, though no trace of them was found, and that these survived until the area became a dumping ground for hot industrial waste later in the century.

Contrary to this view may be cited the construction of stone barracks in the *retentura* in the first half of the 4th century, which suggests that timber barracks were not an element of the 4th-century scheme of refurbishment. Be that as it may the fact that the bath was never completed beyond the below-ground level suggests that the inclusion of accommodation, or other buildings in the area, could have been planned but never implemented. The Constantinian garrison-strength figure achieved by manipulating the coins is extraordinarily high and may owe as much to the nature of the coinage of the period as to an unrealistic conclusion drawn from a speculative numismatic methodology. However the ceramic evidence does show a very marked upturn at this period (below p 250-1).

It may be noted that the discussion of the coinage of the 4th century includes comment on the very high incidence of coins at a period when the operation of payment by the *annona militaris* might be expected to reduce the volume of cash available to soldiers and thus reduce the volume of coin available for loss. We may consider whether these deposits reflect the presence of the army or of civilians in the fort. Of the small finds from the excavations the most immediate candidates for

consideration as evidence of civilians are the twenty-two bronze wire bracelets which, broadly dated, are of types extant throughout the 4th century.

An association between bracelets of this type and female burials can be found at a number of sites. In the Lankhills cemetery six graves, where the sex could be determined, contained women furnished with bracelets. In contrast eight graves with belt fittings, knives and cross-bow brooches proved to be male burials. The association of grave goods was mutually exclusive on the basis of sex (Clarke 1979). The cemetery associated with the late Roman fort at Oudenburg, in Gallia Belgica, yielded a similar association; where sex could be determined, females are buried with bracelets and men with cross-bow brooches, knives and belt fittings (Mertens and van Impe 1971). On this evidence it seems very likely that a component of the 4th-century population was female; a corollary of this would be the presence of children. On the other hand the report on the small finds notes a relative lack of bone pins which '... may reflect the paucity of feminine items from the site.' Assuming a civilian presence to have been proved, it is unlikely to have existed outside the context of the military; that is that we have evidence of the families of garrison troops, since the refurbishing of the stone defences and reconstruction work on the headquarters, as well as the presence of military equipment, is unlikely to have taken place outside a military framework.

We are in a quandary as to where to put our enhanced garrison, whether made up of soldiers with a small family component comprising officers' families, or a general community in which, relative to troops, there was a large civilian presence. A possible addition to available accommodation might be found in the buildings partially excavated by Wheeler in the western half of the *praetentura*. Of these one, at least, is ascribed to the 2nd century (Building X) but others (Buildings LX, VII and VIII) are of uncertain date. Such buildings will not have been required to house the garrison of the 2nd century and might have been redundant for most of the 3rd. Were these to be of a 4th-century date they would leave the unfinished bath house properly isolated in the empty eastern quarter of the site. Unfortunately no finds whatsoever are associated with these structures, so that the matter must rest on conjecture.

The use of the excavated area in the later 4th century was as a zone in which domestic and industrial waste was deposited. The courtyard of the Courtyard Building contains rubbish pits dated, on numismatic grounds, to the middle of the 4th century. These pits cut into the defunct peripheral drainage system of the courtyard as well as into the gravelled courtyard proper. The octagonal pool which stood in the centre of the courtyard was almost entirely obliterated by a large pit which contained both food debris and large quantities of

building materials. Nonetheless it is to this mid-4th century period that we may ascribe the rebuilding of the south-east wall of the fort (below p 73). Thus despite the low status enjoyed by the area in general the maintenance of the defences remained a functional priority. It may be observed that Wheeler's excavations in the *retentura* showed considerable building activity associated with coins of the House of Valentinian, suggesting a phase of building activity with a *terminus post quem* of 364. Though Wheeler himself associated this activity with the coin dates it is by no means necessary to accept this equation, which is based on a historical determinist model derived from the text of Ammianus Marcellinus. In monetary terms the Valentinianic coinage would have been an acceptable currency medium through to the last decade of the 4th century.

Structurally the important feature of the area in the last decades of the 4th century is the provision of the water channel which debauched through the culvert in the south-east corner of the fort wall. This long-established feature of the defences had been used as the proposed drain of the uncompleted bath of Period 8 and although probably not in use any longer to drain the *via sagularis*, its prominence as a feature of the fort wall ensured that it remained available for reactivation as needed. This re-activation became a necessity when the blocking of the south gate (*porta praetoria*) interrupted drainage by way of the *via praetoria*.

The point of origin of the new drain (D12) remains obscure because of the destruction of deposits at its north-western extremity. Following the curve as at present visible, the drain would reach the *via praetoria* at a point south of its junction with the *via principalis*. It was in the region of the north-western extremity of the drain that the inscription revealing the presence of the *cohors I Sunicorum* in the Severan period was discovered being used as a drain cover. There is nothing to associate that unspecified drain with D12 but the fact that the inscription records the restoration of an aqueduct may reflect on its function. The inscription presumably comes from a fountain house or settling tank strategically placed near the intersection of the two main roads, with the water entering the fort through the *porta principalis sinistra*, all other gates being fully visible and no sign of a water course being found. Surplus water would normally flow away through the ring drains or be used to flush latrines such as those attached to the Courtyard Building and its predecessor.

We can contemplate a situation in which, at a late period, the water supply still operated but the normal outlets for the surplus had ceased to function. The new drain, which curves across what was an area of wasteland, takes the shortest line to the traditional point of drainage for this area of the fort. Possibly the water channel was an open leat

and the provision of water may have been associated with industrial activity though it should be noted that the channel cuts through deposits of industrial waste so that the provision of water did not initiate the creation of an industrial zone. Further D12 is in the latest structural phase of the site and its construction may have anticipated developments which the withdrawal of the garrison abruptly curtailed.

The last phase of military occupation at Segontium has been discussed in relation to the numismatic evidence both from this site and other sites in North Wales (below pp 131-2). To anticipate, briefly, the points made, the coins from Segontium, from the Holyhead Tower and from Llys Awel all show that coinage was available in military contexts throughout the reign of Maximus and down to the issues of the joint reign of Theodosius and Arcadius. However, coins of Honorius are not found in north Wales contexts and this indicates a cessation of supply in, or about, the year 393. This date is that of the revolt of Eugenius, and the withdrawal of garrisons from Wales at this time to contribute to the army which was defeated at the Frigidus in 395, seems a very reasonable deduction from the numismatic evidence. The fact that Welsh sites do not figure in the *Notitia Dignitatum*, compiled in 395, appears to confirm this deduction. Any association between Segontium and Magnus Maximus must yield to this evidence and to other numismatic evidence which refutes the Gildasian account of this reign (Casey 1979; 1991).

The end of a military presence on the site does not mean that Romanitas was extinguished. Little is known of the extensive *vicus* which embraced the fort on three sides. The church of St. Publicus or Publicius, Llanbeblig, stands at a distance of about a hundred metres outside the *porta principalis sinistra* on the east side of the fort. The area was occupied during the maintenance of the fort by a cemetery. There is, of course, a well-known coincidence between cemeteries and *martyria* in both civil and military contexts. The dedication of the church to a saint with a Latin name may be significant, perhaps indicating a continuity of cult from the Roman period. If this suggestion is correct then it assumes a continuity of population after the formal military phase had ended. No physical evidence for such occupation was found in the area investigated, although the excavation strategy was deliberately framed to detect such evidence. None of the C14 dates obtained from samples specifically derived from contexts which might have been post-Roman fell outside a range centring on the historical phase of the site.

The walls of the fort remain a formidable physical barrier to this day and it is unlikely that it did not serve as a defended site either continuously or at various times in the post-Roman period. In this regard the discovery of a coin of Cnut in the outer ditch beyond the north gate calls for comment

(Casey 1974a), as does the presence of a stycca of Eanred found in the south-east guard chamber of the *porta principalis dextra*. The silver coin of Cnut was found in the 4th-century outer ditch, at a depth which Wheeler erroneously identified with the primary silt but which was in reality the mid point of the filling. The nature of this silt suggests that the ditch was still a considerable water-filled obstacle at this time. The presence of early medieval coins in or adjacent to two of the fort gates is suggestive of continued use of these features. The absence of identifiable internal structures does not, of itself, eliminate the possibility of occupation of the fort at the time when the coins were in circulation. On the other hand the coins may have been casual losses or deposited in the course of work to recover building material from the fort. The detailed survey of the destruction of the Roman buildings surviving into the medieval period at Caerleon shows how late major Roman buildings survived in the Welsh landscape (Zienkiewicz 1986).

The dating of the periods

No attempt is made to define strict chronological limits to periods since the basis of dating is ceramic and the boundaries of ceramic phases are themselves flexible. Consequently some structural phases overlap with ceramic phases (cf Periods 7-8). However, broad temporal divisions are offered as follows:

Periods 2-i5A Flavian-Trajanic

5B Trajanic-Hadrianic

6-6A Hadrianic-?Early Antonine

7-7B Hadrianic/Antonine-late 3rd century

8 Late 3rd-early/mid 4th century

9 Early-mid 4th century

10 Late 4th century

11 Late 4th century-?

3 The structural report

Introduction

The structural report is divided into chronological periods which represent the main series of phases of activity on the site. These periods represent the amalgamation of a number of individual phases. These phases were defined separately for each area of the site, as the original recording of the areas had been undertaken independently. The detailed descriptions and stratigraphy of these phases are recorded in the level III archive. The original division of areas of the site (into A, B, C, D, E and V) has been retained in this report. These are shown on Fig 3.1. As noted above (p 1) all references to cardinal points are related to the site grid, for simplicity of recording with North regarded as coinciding with the *porta decumana* and South with the axis of the *via praetoria*.

The wider significance of the buildings in such terms as the garrisoning and layout of the fort, and the relationship of the 1975-9 excavation to those of R E M Wheeler, are reserved for the synthesis. In arriving at their synthesis the authors have given full weight to the evidence provided by the specialists' reports.

Period phase components

The phasing of the excavation has been accomplished, essentially, on stratigraphic grounds. The phases have then been grouped together into chronological periods by means of stratigraphical, plan and dating evidence. The main grounds for the Period allocation of the phases is explained below.

Note that the phase designation system is to be read as eg A/BB = Area A phase BB. There is no implied equivalence between the phasing designation of different areas, thus A/BB is not the same as phase B/BB.

Period 1

A/BB Old soil horizon, sealed by A/BA of Period 2.

A/BH Features lacking finds of irregular plan and not aligned with later fort structures. Sealed by A/BK and A/BE of Period 2. C 14 date.

B/AU Old soil horizon, sealed by B/AT of Period 2.

C/AS Features lacking finds and not aligned with the later fort structures; apparently sealed by C/AR of Period 2

C/BA Possible pits cut by C/AZ features of Period 2.

The phases of this period have been placed together as they are primary and the features comprising them are not aligned with those of fort.

Period 2

A/AY Part of the primary eastern barrack block (TS1) sealed by A/AW of Period 3.

A/BA Primary rampart.

A/BG Apparently part of the primary eastern bat-rack block (TS1). Cut by A/BF of Period 3.

A/BK Pat-t of the primary central barrack block (TS2). Probably cut by A/BJ features of Period 3.

A/BS Pat-t of primary western barrack block (TS3). Probably cut by features of A/BM of Period 3.

B/AT Part of primary rampart.

C/AR Part of primary eastern barrack block (TS1), equivalent to A/AY, sealing C/AS of Period 1 and sealed by C/AQ of Period 3.

C/AZ Part of primary western barrack block (TS3), equivalent to A/BS, probably sealed by C/AY of Period 3.

V/AC Primary ditches.

The primary defences must clearly belong to the first period of the fort's occupation whilst the first barracks have all been grouped together on the logical assumption that the three barracks were contemporary. The dating evidence from the barracks does not contradict this.

Period 3

A/AW First metalled *intervallum* road (R1), sealing verandah of Period 2 barracks.

A/BF Part of the second eastern barrack block (TS4) apparently sealing A/BG of Period 2 and sealed by A/BO of Period 4.

A/BJ Part of the second central barrack block (TS5), apparently cut by features of A/BP and sealed by A/BN of Period 4.

A/BM Pat-t of the second western barrack block (TS6), probably cut by A/BL of Period 5 and perhaps cutting A/BS of Period 2.

B/AM First metalled *intervallum* road in Area B; a continuation of the road R1.

B/AN Two gullies on the rampart-back in Area B; sealed by B/AL of Period 4. Possibly associated with the road R1, but they could be features of Period 2.

C/AQ Southern part of the second eastern barrack (TS4); equivalent to components of A/BF, sealed by C/AP of Period 4 and sealing C/AR of Period 2.

C/AY Part of the conjoined centurions' blocks of the second central and western barracks (TS5 and TS6), equivalent to A/BJ and A/BM, sealed by C/AV of Period 5 and possibly sealing C/AZ of Period 2.

D/AN A construction slot of the southern part of the central barrack (TS5); cut by D/AM of Period 5 and therefore assigned to this period as it must be of this period or earlier.

As with Period 2, provided the phasing of the timber structures is sound, the buildings fit logically together as part of a coherent reconstruction. There is no evidence to demonstrate that all of the timber structures were contemporary, although neither is there any to question it.

Period 4

- A/BN Small oval arrangement of postholes apparently sealed by A/BI (Period 5) and sealing A/BJ (Period 3).
 A/BO Soil deposits possibly sealed by A/BE and A/BI (Period 5) and perhaps sealing A/BF of Period 3.
 A/BP East-west palisade(?) slot across the site probably cutting through foundations of A/BF, A/BJ and A/BM of Period 3.
 B/AL Truncation and subsequent dumping in a section of the rampart-back in Area B. Sealed by B/AK (Period 5) and sealing B/AM of Period 3. Since the two latter phases are road surfaces associated with timber buildings, B/AL would seem to belong in this period.
 C/AP Deposits perhaps relating to the demolition of C/AQ (Period 3), sealing C/AQ (Period 3) and sealed by C/AM of Period 5.

All the phases placed in this period would seem to fall between the second and third sequences of timber barracks and therefore would seem to be parts of a single period. A/BP, A/BN and perhaps A/BO and C/AP would seem to fit together as parts of what may be a stock enclosure.

Period 5

- A/AV Second *intervallum* road in Area A (R2), sealed by A/AV of Period 5A and sealing A/AW of Period 3, is placed in this as the latest possible and because a *new intervallum* road would seem most probable when a new series of buildings was being constructed across the site.
 A/BE Part of the third eastern timber barrack (TS8), sealed by A/BC of Period 5A and cutting A/BP of Period 4.
 A/BI Part of the third central timber barrack (TS9), sealed by A/BC of Period 5A and sealing A/BN of Period 4.
 A/BL Part of the third western timber barrack (TS10), sealed by A/BC and probably cutting A/BM of Period 3, is placed in this Period since it is the latest to which it could belong and on the assumption that the barracks are contemporary.
 B/AK Second *intervallum* road in Area B (R2) - equivalent to A/AV, sealed by B/AJ of Period 6 and sealing B/AL of Period 4.
 C/AM Southern part of the third eastern timber barrack block (TS8), sealing C/AP of Period 4, equivalent to A/BE and sealed by C/AL of Period 5B.
 C/AO Part of the third eastern timber building (TS8) sealed by C/AN of Period 5A and sealing C/AP of Period 4, equivalent to A/BE and C/AM.
 C/AT This comprises foundation slots of the central timber buildings which could not be properly phased and have, therefore, been placed here in the latest Period with early Roman timber buildings (TS9).
 C/AV Conjoined centurions' blocks of the third central (TS9) and western (TS10) timber barracks. Probably sealed by C/AW of Period 5A and apparently sealing C/AY of Period 3, equivalent to A/BI and ABL.
 D/AM A foundation slot of the central barrack (TS9), cuts D/AN (Period 3). It is placed in this Period as the latest to which it could belong (sealed by D/AL of Period 6).

All the phases of this period would seem to belong together provided that the timber barracks comprise three buildings in each period. C/AM could have extended into Period 5B, since it mainly comprises the earliest floors of the centurion's block of the eastern building, this block remaining in use after the demolition of the *contubernia* further north (see below Periods 5A and 5B).

Period 5A

- A/AU Rampart-back ovens sealed by A/AS, the *intervallum* road (R4) of Period 6 and sealing A/AV of Period 5. They are placed in this period since A/AS is clearly primary in Period 6 and A/AV similarly in Period 5.
 A/BC Burnt clay debris across Area A, from the demolition of

- Period 5 *contubernia*; sealing A/BE, A/BI and A/BL, of Period 5 and sealed by A/AK and A/BD of Period 6
 C/AN Burnt clay debris, equivalent to A/BC over *contubernia* in the east of Area C. Sealed by C/AI of Period 6 and sealing C/AO of Period 5.
 C/AW Burnt clay debris, equivalent to A/BC and C/AN in northern part of the west side of Area C, seals C/AV of Period 5 and probably sealed by C/AX of Period 5B.

The actual demolition deposits which comprise this phase should have followed immediately on the end of Period 5; however, this surface would seem to have been left exposed during Period 5B and some material could have been incorporated at this stage.

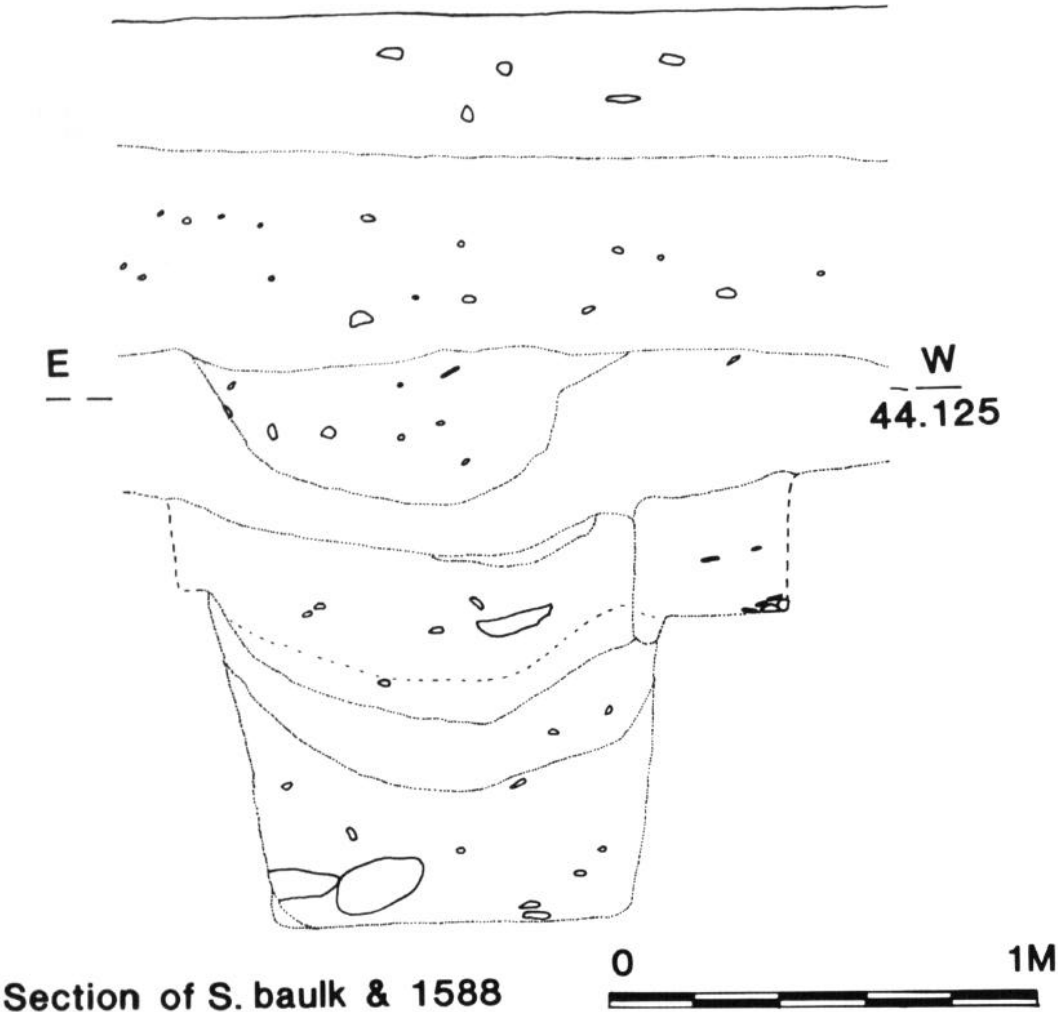
Period 5B

- C/AK Third level of flooring in the centurion's block of the eastern barrack (TS8) in Area C. Seals C/AL (also Period 5B) the second level of flooring, and sealed by C/AV (also Period 5B).
 C/AL Second level of flooring in the centurion's block of the eastern barrack (TS8) in Area C. Seals C/AM, the primary floor of Period 5 and sealed by C/AK (also Period 5B). The pottery from this deposit, and succeeding floors of this phase, contains a quantity of Black-Burnished category 1, in contrast to deposits of Periods 5 and 5A, and would, therefore, seem to be later than them (p 259). The termination of Period 5A demolition deposits in a line just north of the centurions' quarters also suggests that only the *contubernia* were demolished in Period 5A with the centurions' blocks being retained for some purpose.
 C/AU This phase would seem to represent debris from the demolition of the centurions' quarters of the eastern Barrack block. It sealed C/AK the last floor levels, and was probably sealed by C/AI of Period 6.
 C/AX This phase would seem to represent the demolition of the conjoined centurions' blocks on the west side of Area C. It is sealed by phase C/AI of Period 6 and probably seals C/AW of Period 5A. Unlike on the eastern side of the site no floor levels survive for the Period 5 structures, so that continuity of use here is based not so much on dating evidence as on analogy with the eastern structure and the cessation of Period 5A deposits immediately north of the centurions' blocks. It remains possible that this phase should really be placed in Period 5A.

The phases comprising this period from the eastern side of the site would clearly seem to belong together. The status of C/AX is less certain.

Period 6

- A/AR The first stone building in the excavated area (SS1); apparently sealed by A/BQ and sealing A/BC. Equivalent to C/AI the eastern Wing of which runs up to the centurion's block foundations of Period 5-5B. It seems improbable that the latter continued to stand once this wing was built. Provided the wing was primary the structures of Period 5B would have been demolished before its construction. The first stone building (SS1) of this phase certainly stood through most of Period 6A, but the brief metalworking episode (A/BQ) seems to follow its demolition.
 A/AS Third *intervallum* road (R4) and stone-lined drain (D2A), sealing A/AU (Period 5A) and sealed by A/AI' (Period 6A). The drain is part of a system with that in C/AI, D/AL, and E/AC.
 A/AZ Dump in the cut back rampart behind the fort wall, probably the construction trench for the primary stone fort wall. Seals A/BA of Period 2.
 A/BD A timber building (TS11) in north-east corner of the excavations. Cuts through A/BC demolition debris of Period































	Turf		Yellow clay
	Topsoil		Greenish clay
	Fine humic soil		Black clay
	Brown soil		Grey clay
	Brown gritty soil		Burnt clay
	Black soil		Turf & clay
	Grey soil		Brown silt
	Yellow soil		Grey silt
	Mixed soil		Sand
	Clay & soil		Gravel
	Clay		Stones
	Red clay		Slate
	Brown clay		Mortar
	Orange clay		Burning

Figure 3.1 Minor sections I.

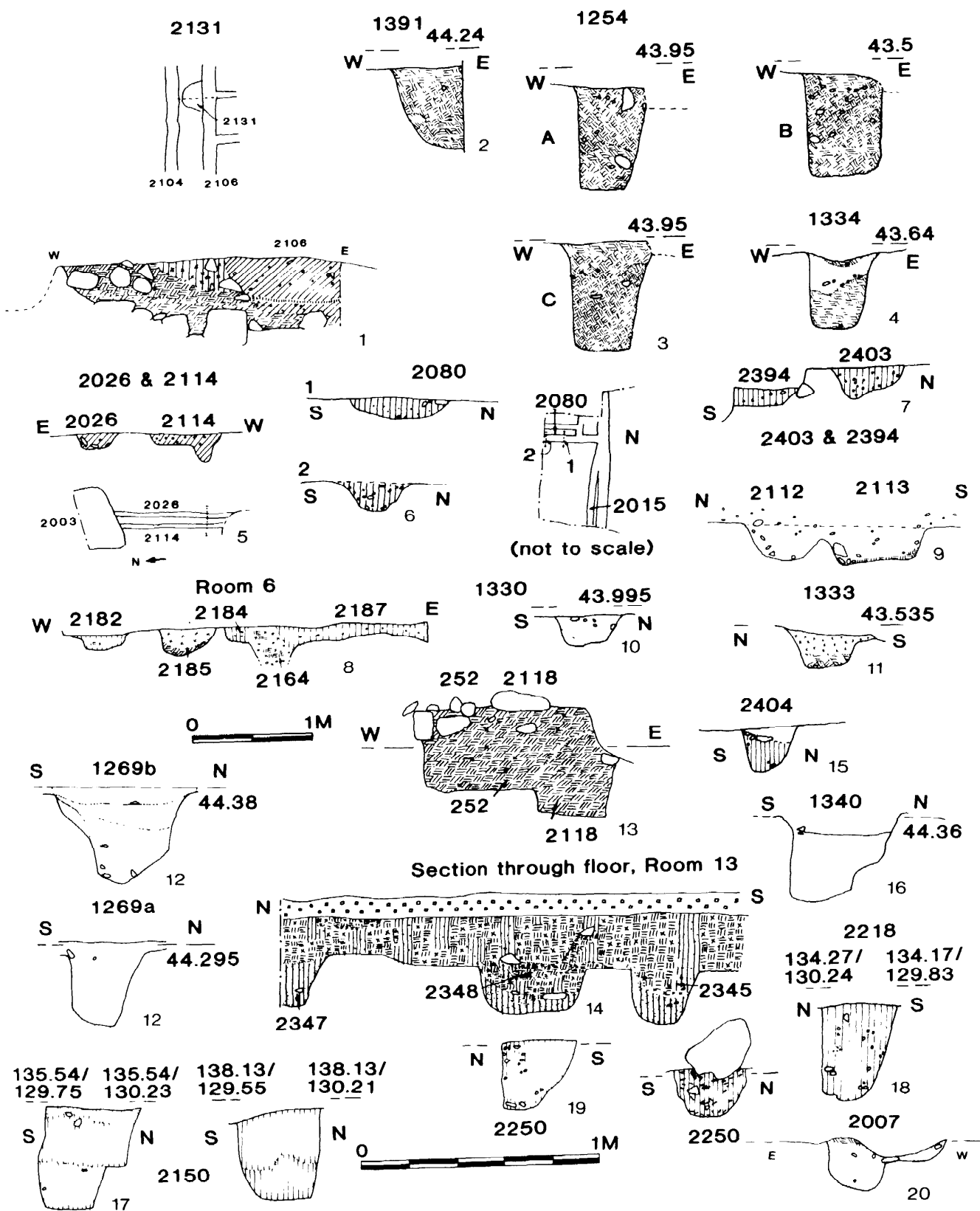


Figure 3.2 Minor sections II.

5A and is sealed by the construction of the courtyard building (SS1; phase A/AM) in Period 7 and probably cut by A/AX (Period 6A). This could date back to Periods 5B or 6 and has only been placed in this period as the latest to which it can be ascribed.

B/AJ Third *intervallum* road (R4) in Area B, a continuation of the road in A/AS and therefore of this period Sealed by B/AI of Period 7 and sealing B/AK of Period 5.

B/AS Primary construction trench and fort wall foundations in Area B. Sealed by B/AR of Period 9 and sealing B/AT of Period 2. Placed in this phase for the same reasons as A/AZ (see above p19).

C/AI Equivalent to A/AR proto-courtyard building; sealed by C/AJ of Period 6A and sealing C/AU and C/AX of Period 5B.

D/AI, Construction of stone-lined roadside ring-drain (D2B) in Area D, connected to proto-courtyard building and probably to the similar drain in A/AS. Drains from the fort through culvert in E/AC. Sealed by D/AK and D/AQ of Period 6A and sealing D/AM perhaps of Period 5.

E/AC This comprises a stone-lined drain (D2C) which passed out of the fort through a culvert in the fort wall.

The main phases of this period are clearly linked together by the drains (D2) and must be of one period. The association with them of the fort wall is a more difficult problem, but what evidence there is in terms of plan would suggest the primary construction of the fort walls belongs to this period. Similarly the dating evidence from previous excavations (Casey 1974a; Simpson 1962) would suggest that their construction ought to fall in or about this period. Provided the drain (D2C) in E/AC is of one scheme with the others the fort wall would also seem to be of this period. This is because the drain was of one build, and it seems unlikely that the drain should have been left in situ when the rest of the early rampart was cut back for the insertion of the wall and the wall built over it without reconstruction.

The dating evidence for this period (and therefore for this phase being of this Period) is not incompatible with that produced by Casey (1974): a sherd of Antonine samian as a *terminus post quem*, at the north gate and Simpson's (1962) reconsideration of Wheeler's evidence there for a Hadrianic-Antonine construction.

Period 6A

A/AP Rampart back oven, sealing A/AS of Period 6 and sealed by A/AT, also probably of this period.

A/AT Dumps over the *intervallum* road (R4), rampart-back and rampart-back drain (D3), sealing A/AP probably of this period and sealed by A/AO of Period 7. Since A/AS is of Period 6 and A/AO a primary phase of Period 7 both this and A/AP must belong to this period.

A/AX Drain in Area A (D6) sealed by the foundations SS2 (phase A/AM; Period 7), cutting burnt debris of A/BC Period 5A and very probably cutting A/BD probably of Period 6. This could conceivably belong to Period 6 if A/BD were of Period 5B; Period 6A is the latest period to which it could belong.

A/BQ Pits and a gully, apparently associated with metalworking, sealed by A/AM of Period 7. The gully (2018) cuts through the demolished foundations of the first, stone building SS1 (A/AR) which certainly must have continued in use throughout most of this period. The other features merely cut through deposits of A/BC of Period 5A and could conceivably be contemporary with Period 5B rather than this, which is the latest to which they could belong.

A/BT Postholes and pits below the courtyard of the Period 7 building SS2, sealed by the latter and cutting A/BC deposits of Period 5A. Placed in this period as the latest to which they could belong.

B/AY This consists of a single burnt clay deposit in Area B which was sealed by B/AX of Period 7. It has been placed in this phase as the latest to which it could belong.

C/AJ A small bath-house (B1) south of the A/AR building (SS1) seals C/AI of Period 6 and continues in use into Period 7 which is probably when modifications were made to it in C/AH.

D/AK Southern part of bath-house (B1), equivalent, to C/AJ. Seals D/AL and sealed by D/AP and D/AJ of Period 7.

D/AQ Postholes cut into road surface (R4) of D/AL (Period 6), sealed by D/AP, therefore placed in this period, although they could belong to a late stage in the life of Period 6.

With the exceptions of A/AX, A/BQ and A/BT the phases making up this period are securely located together in a stratigraphic horizon. These three phases are placed in this period as being the most economical hypothesis.

Period 7

A/AM Large courtyard building (SS2) sealing A/AX, A/BQ and A/BT of period 6A and A/AR of Periods 6-6A. Modified in Period 7A (A/AL).

A/AO Final *intervallum* road (R5) sealing A/AT of Period 6A and sealed by A/AL of Period 7A. In terms of layout this together with A/AM must be a primary structural phase of the period.

B/AI Equivalent to A/AO in Area B, seals B/AJ of Period 6 and sealed by B/AG of Period 8.

B/AX Soil deposit, sealed by C/AE (Period 7A) and seals B/AY of Period 6A. Placed in this period as the latest to which it could belong.

C/AH Soil levels and surfaces in Area C and modifications to the bath-house B1 (C/AJ; period 6A) which continued in use in this period.

D/AJ Alterations to the bath-house B1, equivalent to C/AH in Area C. Sealed by D/AH in period 7A and sealing D/AK in period 6A.

D/AP Latest road surface (R5) in Area D, logically equivalent to A/AO and B/AI. Seals D/AQ of period 6A cut by D/AH of Period 7A, although it, may have remained in use during part of that period.

The phases of this period seem to make up a coherent building scheme, although some of the soil deposits in phases B/AX and C/AH are less securely tied into the scheme.

Period 7A

A/AL Alterations to the courtyard building SS2 (A/AM) which remained in use and the insertion of a new drainage system after the preceding was blocked in Area C by the construction of a boundary wall. The *intervallum* road R5 of A/AO, B/AI and part of D/AP would seem to have remained in use through this period.

C/AE A boundary wall south of the courtyard building SS2 enclosing the site of the bath-house B1. Equivalent to D/AH in Area D. Seals C/AH and B/AX of Period 7, and sealed by C/AD of Period 9. The small bath-house is assumed to have been demolished in this period as its drains were blocked and backfilled.

D/AH Boundary wall in Area D, equivalent to C/AE and robbing and backfilling of bath-house drains. Sealed by D/AI (also Period 7A) and cutting D/AP, which may have partly remained in use in this period.

D/AI Soil deposits in Area D subsequent to boundary wall (D/AH; period 7A) sealed by D/AG.

Period 7B

A/AJ Black soil horizon over the former courtyard of courtyard building SS2. Cut by A/AH (period 10) and sealing courtyard of A/AL (Period 7A). This soil may have started to accumulate during the life of the building but it is more likely to be a feature postdating the demolition of SS2. Certainly no appreciable quantity of demolition debris is to be found in it, as might be expected if it had already started to accumulate when demolition of part or all of the building took place. Dating evidence for this phase extends from the late 3rd century to the early 4th century (p 274). It was very likely contemporary with period 8, but it probably extended on into Period 9.

A/AK A hypocaust inserted in the remodelled west range of the courtyard building SS2. The phasing of this is difficult due to Victorian disturbance. Coin evidence suggests the hypocaust is disused after 337-41, a date contemporary with Period 9 deposits. Given the implication that the west range of the courtyard building SS2 was remodelled after the demolition of the east and south ranges in Period 8 it seems most likely that these alterations were made when those two ranges were demolished.

These two phases, A/AJ and A/AK, have been placed together as a period since the dating evidence and stratigraphic evidence suggests that they may have been contemporary both with Period 8 and part, at least, of Period 9.

Period 8

A/AF Edge of the cut for the foundation raft of the planned, but unfinished, bath-house B2. Equivalent to B/AG in Area B. Sealed by A/AE, probably of Period 9, and cutting A/AL of Period 7A.

A/AN Masonry and rubble from the demolition of the east range of the courtyard building SS2. Succeeds A/AL (period 7A) sealed by A/BR.

A/BR Clay dump over A/AN (this period), sealed by A/AC of Period 9. Placed in this period as it is subsequent to A/AN, which is the demolition of the south and east ranges of the courtyard building (SS2) prior to the construction of the bath-house (B2). This dump is conjectured to derive from the excavation of the emplacement for the foundation raft of the bath-house B2.

B/AG Unfinished bath-house B2, sealed by B/AF (Period 9), and equivalent to A/AF.

B/AH Clay dump over Period 7A road surface R5 in Area B, probably equivalent to A/BR, perhaps spoil from foundation excavations for the bath-house B2. Seals B/AI of Periods 7-7A, sealed by B/AD of Period 9.

D/AF A similar clay deposit to A/BR and B/AH over the latest road surface R5 in Area D. It is sealed by D/AD of Period 9 and seals D/AH of Period 7A.

D/AG Clay dump over much of Area D, seals D/AI of Period 7A and sealed by D/AE of Period 9. It contains no dating evidence and is placed in this period as being the latest to which it could belong and on analogy with the other clay dumps of this period.

The attribution of the unfinished bath-house B2 to this period after the demolition of the courtyard building SS2 is secure, although the association of this with the clay dumps over the final road surface R5 is less certain, although still highly probable.

Period 9

A/AB Slate dump on the rampart-back in Area A, overlaying the clay dump (A/BR) of Period 8. Seals A/AC, probably of this period. The slate dump was perhaps intended to provide access, over the quagmire of clay dumped in the previous period, to the rampart-back building (TS12) in the north of Area B.

A/AC Postholes in Area A sealed by A/AB (this period) and cutting A/BR of Period 8. Possibly traces of a rampart-back building.

A/AQ Cut along the rampart at the back of the fort wall, probably for the reconstruction of the fort wall. Presumably, the equivalent of B/AR, cuts through A/AZ of Period 6 and contained a mortarium rim, pressed into the hack of the trench edge, dating to the 4th century. As B/AR, should be of this period as rebuilding might be expected to be contemporary with the new fort ditches (see V/AC).

B/AD Accumulation or dump of material on the rampart-back in Area B. Seals B/AE of this period and sealed by B/BA of Period 10. Contains nine coins, the latest of AD 346-8, so that it seems more appropriate in this period than in Period 10.

B/AE Rampart-back building (TS12) in Area B, seals B/AG of this period and sealed by B/AD, probably of this period. It may be associated with A/AB and contains three coins, the latest of AD 337-41.

B/AF Rampart-back dump sealing B/AG of Period 8 and sealed by B/AE of this period.

B/AO Rampart-back dump in Area B, sealed by B/BA of period 10 and sealing B/AP of this period. It contains mid-4th century pottery (p 280).

B/AP Clay and slate dump on rampart-back, sealed by B/AO and sealing B/AQ.

B/AQ Slate dump on rampart-back in Area B, sealed by B/AP probably of this period and sealing B/AR of this period. Contains early 4th century material and would therefore seem very likely to be of this period rather than later.

B/AR Cut along front of rampart containing mortar in primary fill; probably for refurbishment of fort wall. Cutting B/AS of Period 6 and sealed by B/AQ probably of this period. Placed in this period rather than earlier on the grounds that the most logical time for this to occur was at the same time as the digging of the 4th century ditches. (See V/AB for the date of these, below). Probably equivalent to A/AQ.

B/AW Deposits in Area B, cut by R/AC of Period 10A and sealing B/AG of Period 8. Contains material running up to the mid 4th century (p 280) and therefore placed in this rather than in Period 10.

C/AG Meandering gullies in Area C, sealed by C/AB of Period 10 and cutting C/AD of this period.

C/AD Dump in Area C, sealed by C/AC probably of this period and sealing C/AE of Period 7A. Contains 4th century pottery (p 280) and, therefore, cannot be earlier than this period.

D/AE Soil dump in Area D, sealing D/AG of Period 7A (or later) and sealed by D/AD of Period 10. Contains seven coins, the latest being of AD 337-41; therefore very probably of this period.

D/AR Deposits in Area D, sealed by D/AO of Period 10, perhaps of this period. It is placed in this period as the latest to which it can be assigned.

V/AB Cutting of two new ditches for the fort, cuts through early ditches of V/AC (period 2-8). Their dating to this period depends upon Casey's (1974) excavation of the north gate where a deposit (51308) perhaps capping the inner early ditch fill, or else as a primary silting of the 4th century ditch, contained three coins of AD 335-7. The 4th century ditches would, therefore, appear to belong to this period.

The phasing of this period is less secure than that for the immediately preceding ones, though it seems generally reasonable but depends on the interpretation of the succeeding period. Period 10 is basically represented by a series of pits across the site, together with deposits which must belong to that period on the grounds of the dating evidence they contain. Other phases which are stratigraphically earlier than Period 10 and contain earlier material, have generally been placed together to constitute Period 9.

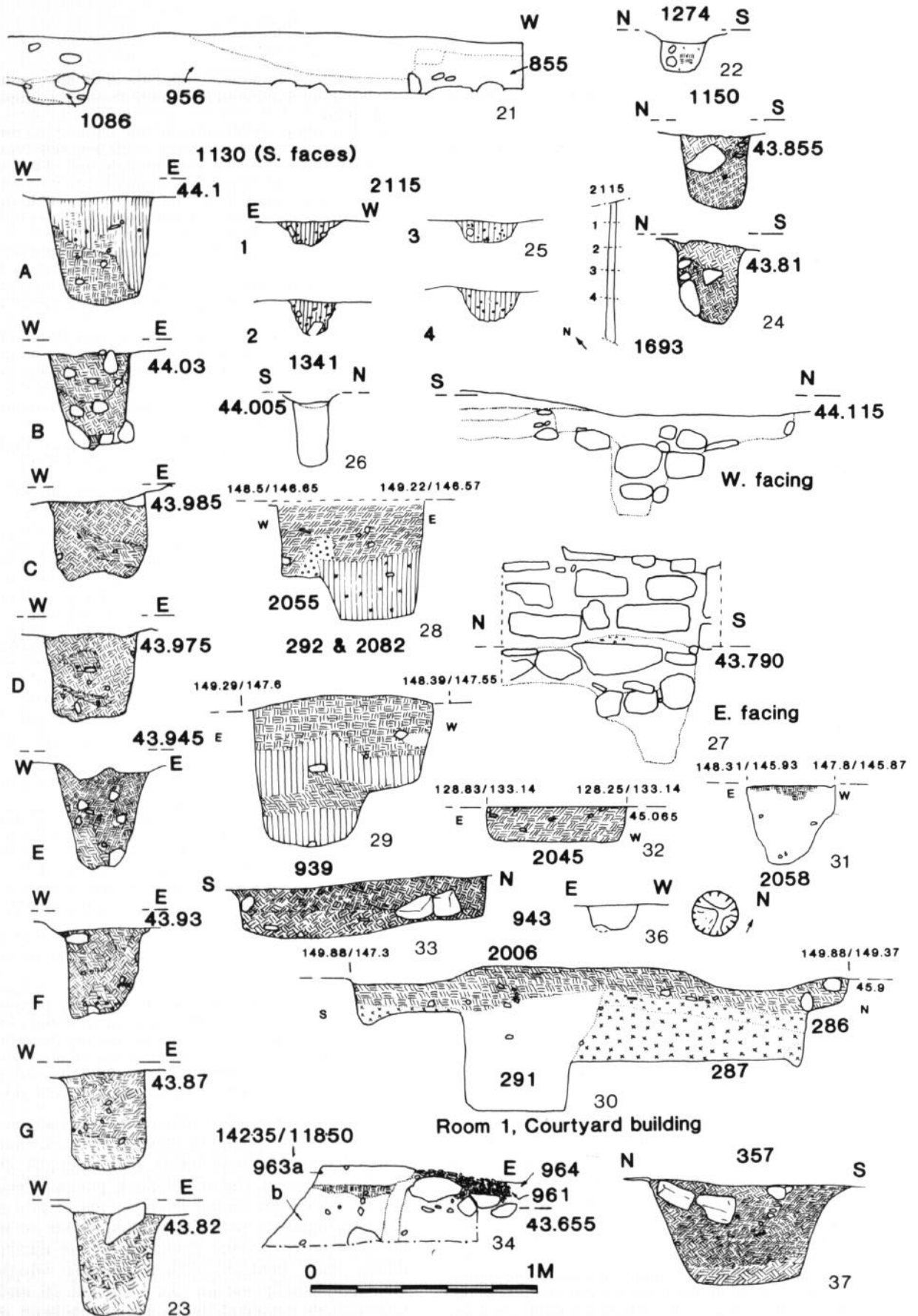


Figure 3.3 Minor sections III.

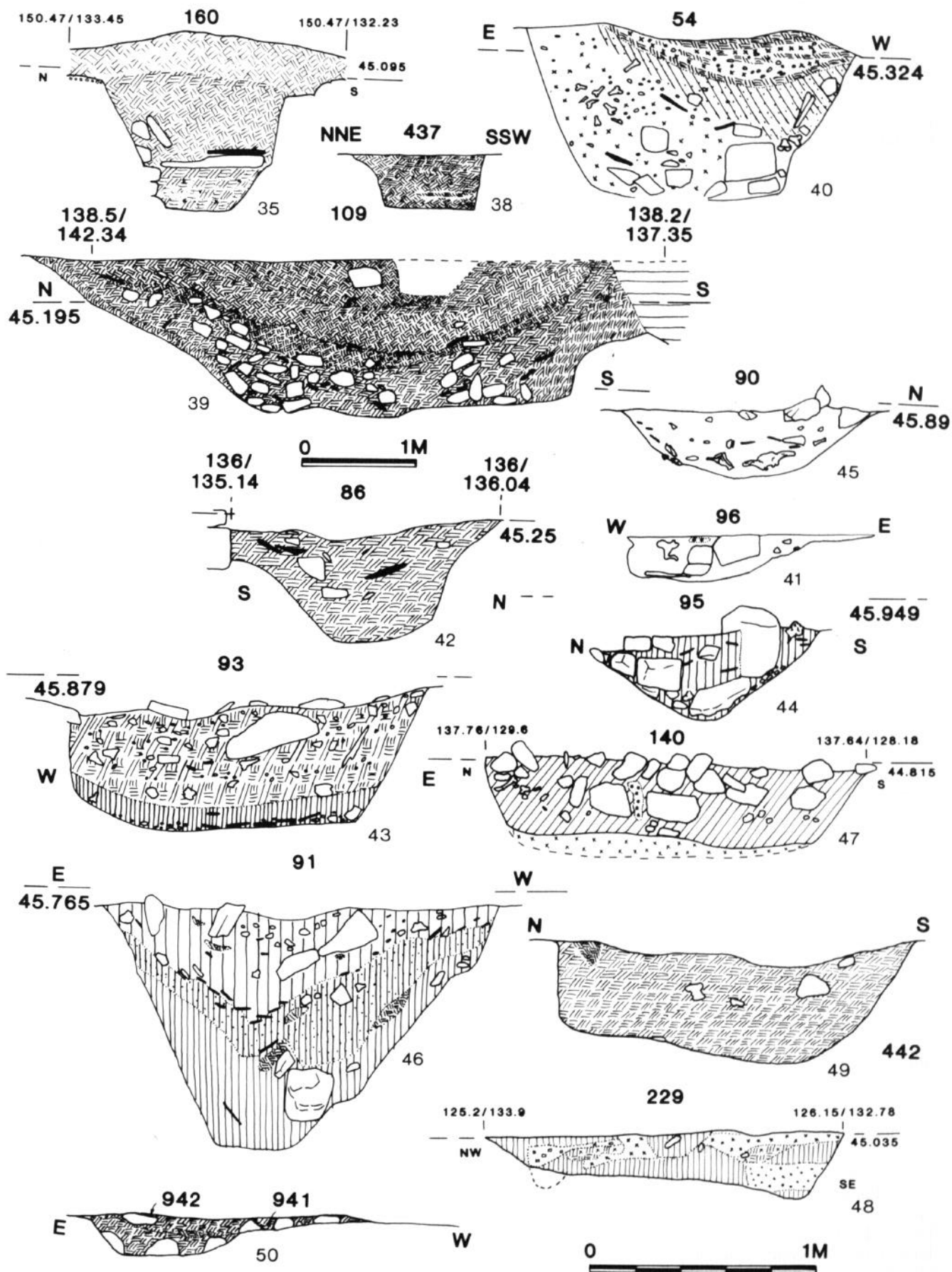


Figure 3.4 Minor sections IV.

PERIOD 1

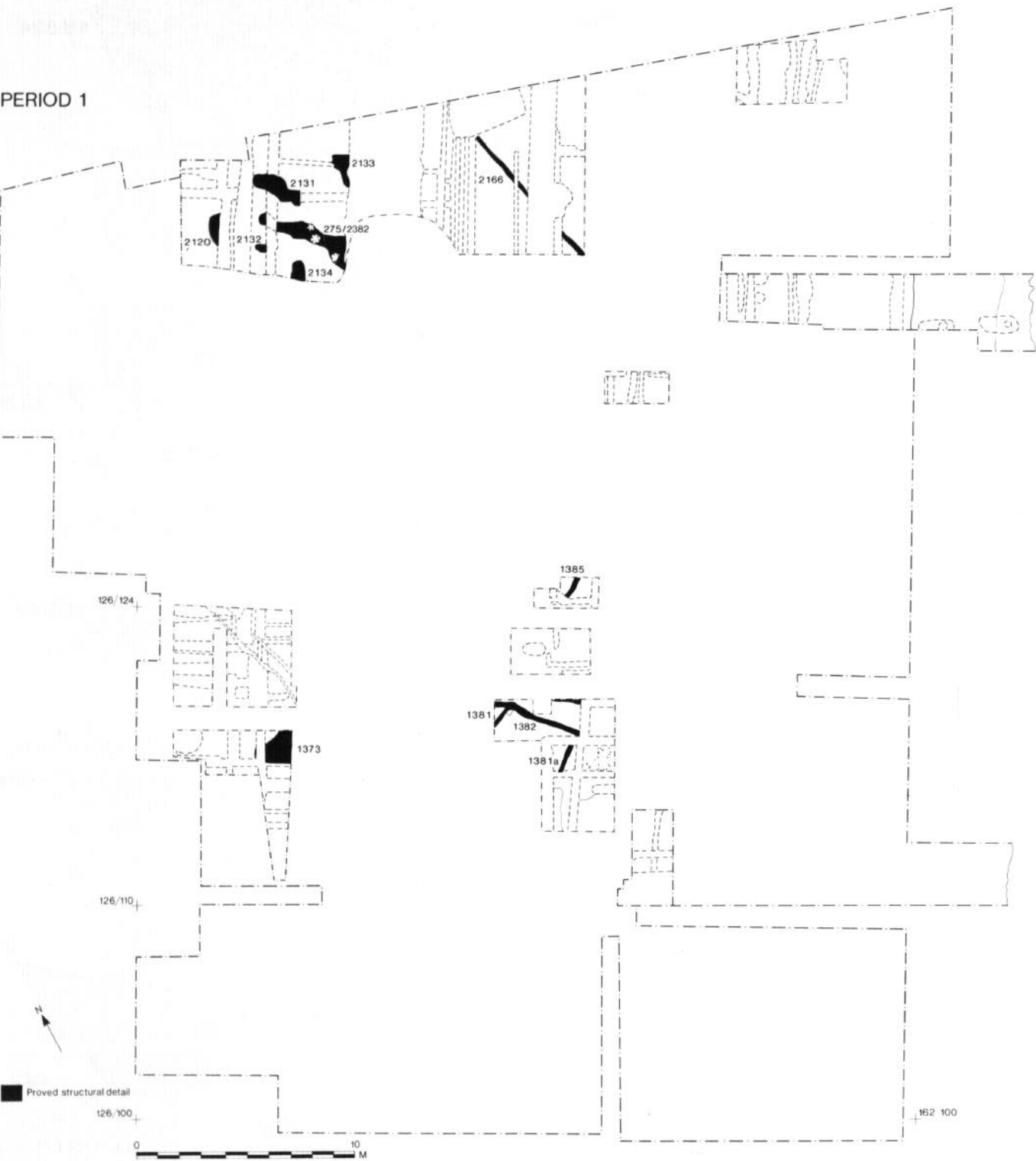


Figure 3.5 Period 1 plan.

Period 10

- A/AE A clay layer with two hearths between areas A and B. It seals A/AF of Period 8 and is sealed by A/AD of Period 11. Since it contains three coins, the latest of AD 367-75, it should either belong to this period, or possibly Period 10A.
- A/AH Pits and furnaces in Area A, later than A/AJ of Period 7B. Some are cut by the drain D12 (2000) of A/AG (Period 10A). Some of these features could be contemporary with Period 9 and others of Period 10A. Features have been placed in this period, since this is the latest period to which they might all belong.
- B/BA Oven on the rampart-back and associated burnt clay spread, sealed by B/AC of Period 10A and sealing B/AD and B/AO probably of Period 9. Contains late 4th century material (p 290) and therefore should either belong to this period or Period 10A.
- C/AB Pits and hearths in Area C, presumably equivalent to A/AH, cutting C/AC probably of Period 9. These have been placed in this period on grounds of analogy with A/AH and the date of material they contain is consistent with this.
- C/AF Pits, hearths and possible walls in the west of Area C, sealed by C/AG, probably of this period and sealing C/AE of Period 7A. Placed in this period on analogy with A/AH and C/AB and as the latest period to which they might belong.
- C/AG Dumps in west of Area C, sealing C/AF, perhaps of this phase.
- D/AD Pits in Area A, some cut by D/AC of Period 10A and sealing D/AO, probably of this period, and D/AE of Period 9. They contain dating evidence consistent with this period.
- D/AO Pit and clay surface in Area A; sealed by D/AD of this period and sealing D/AR of Period 9. Placed in this period as the latest to which it might belong.

The phases comprising this period have been placed together mainly on account of their comprising pits scattered across the site, a number containing dating evidence suggesting that they belong to the later 4th century. They are placed in this period rather than with Period 10A as two major pit complexes (99/106/107/109 and 1513) are cut by Period 10A. However, the assumption of rigid contemporaneity of the pits is rather optimistic and it seems more likely that they span from Periods 9 to 10A.

Period 10A

- NAG This comprises a major drain (D12), and its backfill. It cuts A/AH of Period 10 and contained forty coins, the latest of AD 395-402.
- B/AV This was a trench along the back of the fort wall in Area B. A similar trench could have existed in the section against Area A, but modern truncation would have removed it there. The trench would appear to have been for repair to the fort wall to judge by its location and its primary fill of stones and mortar. It seals B/AQ of Period 9 and has been placed in this period as it contains two late coins the latest being of AD 375.
- B/AC An area of stone hard-standing and a covered oven on the rampart-back in Area B, sealing B/BA of Period 10 and sealed by B/AB of Period 11. Contained late 4th century material (pp 298,300) and a *siliqua* of AD 388-92 which had been clipped (p 130).
- B/AZ The equivalent of A/AG, the continuation of the drain D12 through Area B. It is sealed by B/AB of Period 11 and cuts through B/AG of Period 8.
- D/AG The equivalent to A/AG and B/AZ and mainly represents the continuation of the major drain D12 through this area to its exit from the fort in Area E. It is sealed by D/AB of Period 11 and cuts D/AD of Period 10.
- E/AB The equivalent to A/AG, B/AZ, and D/AC and is the continuation of the drain (D12) through Area E and out of

the earlier culvert in the fort wall. It cut through E/AC of Period 6.

The phasing of this period seems to be secure, with the late drain (D12) cutting through features of all earlier periods and the rampart-back deposits in Area B containing sound late dating evidence.

Period 11

- A/AD A dark earth deposit equivalent to B/AB, seals A/AE of Period 10.
- A/AI Dark earth and rubble over south range of demolished courtyard building, seals A/AH of Period 10. Placed in this period on analogy with other deposits of the period and as the latest possible to which it could belong.
- B/AB Dark earth deposit probably sealing B/AC and B/AZ of Period 10A.
- D/AB Dark earth deposits probably sealing D/AC of Period 10A.

The phases of this period have been placed together since they seem to represent similar accumulations of material after the latest phases showing Roman activity. They may well represent a mixture of a natural soil accumulation and post-Roman agricultural activity.

Period 1 (Fig 3.5)

Pre-fort activity

The excavations produced the first evidence for activity pre-dating the foundation of the fort. However, since only a relatively small area could be excavated to the subsoil the opportunity for the recording of such features was correspondingly limited, and caution should be exercised over their interpretation. The features appear to fall into two basic types: trenches, some containing post-settings, and pits.

Two irregularly-dug, apparently linear features, 2131 and 275/2382, lay at the north-western end in Area A. The northern, 2131, apparently ran from south-east to north-west; was at least 2m long and c 0.3m deep (Fig 3.2, Section I), and had a number of postholes set in a slot (2387) filled with clay and packing stones. About 1m to the south a roughly parallel feature, 275/2382, held stakes 2395 and 2376, and a post (2393). In neither case was their full extent explored and interpretation must be regarded as tentative. If contemporary, they could represent the overlapping butt-ends of palisade trenches forming the entrance to an enclosure sited just below the brow of the ridge, i.e. with its interior to the north.

A number of what may be regarded as pits were noted in the vicinity of the linear features. About 2.40m south of the 'entrance' a roughly circular feature (2132), c 0.50m in diameter, unexcavated, with a fill of brown loam, is probably a small pit. Another may be located a little to its south-east, 2134, unexcavated, c 0.80m by 0.55m. A comparable feature, 2120 (c 1.50 x 0.30m), partly obscured by the stylobate wall of the Period 7 courtyard building, was not excavated. To the north of the

SEGONTIUM 1975

Southeast Defences

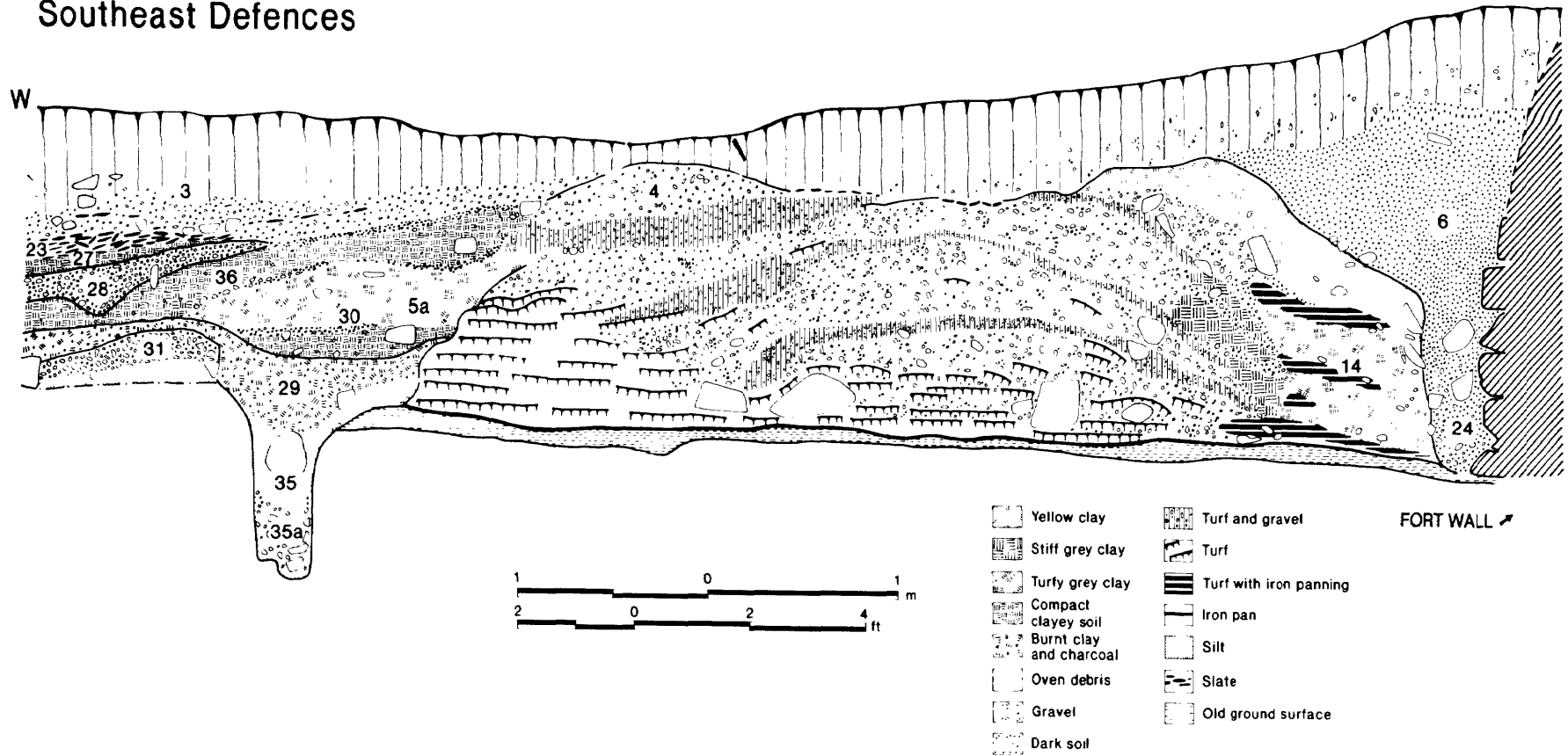


Figure 3.6 Defence section I. Rampart and rampart-back features of south-eastern defences.

SEGONTIUM 1975

Southeast Defences

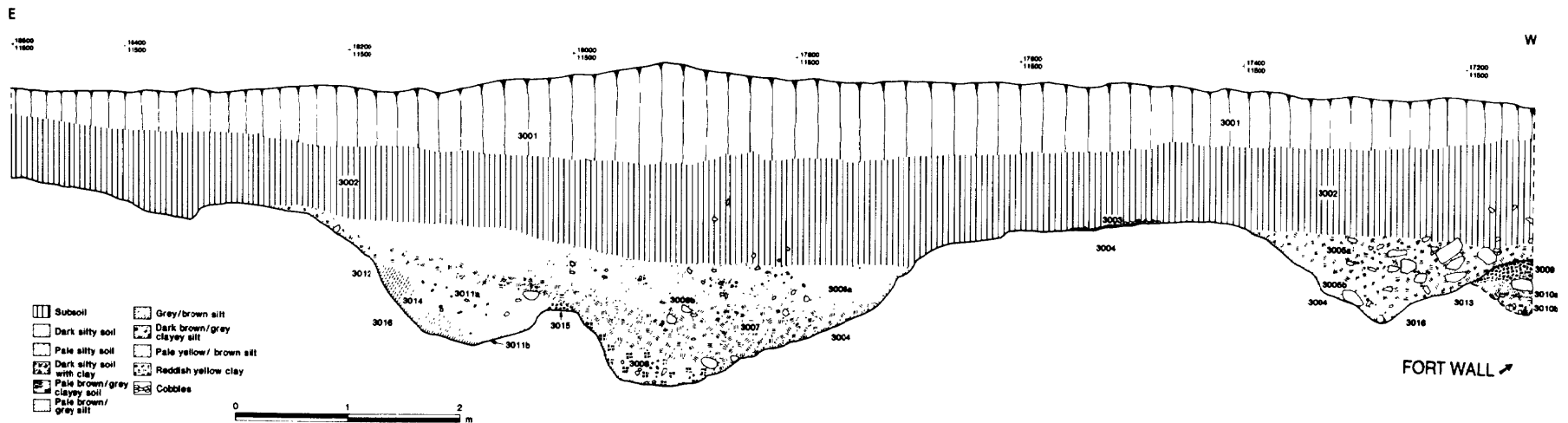


Figure 3.7 Defence section II. Ditch system of the south-eastern defences.

'entrance' another irregular feature, 2133, severely truncated by later features, was probably a pit. Some 8m to the east of 2133 a wall-trench or gully, 2166 (c 0.20-0.25m wide x 0.05- 0.10m deep), with a fill of loam with some stones was traced for a distance of 7.50m. Its markedly straight north-west to south-east alignment and relative narrowness compares favourably with similar features in Area C (see below) and may, thus, be of Roman origin. However, it was cut by a Period 3 wall-trench, 2107, and its eccentricity in respect of the alignment of the earliest fort buildings suggests a pre-fort, if not pre-Roman origin.

Further east a grey soil overlying fine, yellow gravel seemingly represented a buried soil beneath the fort rampart, with similar traces to the rear in Area B, 484. Similar patchy traces of the same were noted elsewhere in Areas A and C. The survival of this soil towards the eastern margin of the site may hint at the limits of pre-Roman activity in this direction.

In the centre of Area C comparable trenches or gullies to those in A were noted. Two of these, 1381 and 1381A (both 0.2m wide), were on approximately parallel north-north-east to south-south-west alignments and seemingly linked at their northern ends by a similar feature, 1382, although this could have been the base of a later wall-trench. Some 5m to the north another trench/gully, 1388 (0.2m wide x 0.10m deep), was traced for a distance of 1m. Its alignment was akin to that of 1381 and 1381A: it had a blunt V-shaped profile and a fill of discoloured soil.

No convincing explanation can be offered for these features. Their rectilinearity hints at a Roman military origin as, for example, drainage gullies around a tented encampment. However, interpretation as elements of a pre-fort settlement should not be excluded.

Finally, two pits, probably of pre-fort origin, were noted, but not excavated, on the western side of Area C. Pit 1373 measured in excess of 1.30m east-west; Pit 1374 was only observed in section.

Period 2: Primary fort (Figs 3.6-8)

Early fort defences

The section (Fig 3.6) through the defences in Area A showed that the primary rampart (5) consisted of a turf base capped by a central dump of gravel with layers of turf at intervals of c 0.35m. It survived to a maximum height of 1.20m. The rear was revetted by a turf stack, whose truncated remains were c 1.50m wide and 0.70m high. The front of the rampart had been removed by the insertion of the later fort wall. Only a c 4.70m width of the rampart survived (Fig 3.6). However, the overall width of the north gate (Casey 1974a) suggests that the rampart must have been a minimum of 5m wide and a figure nearer 6m seems likely.

Pre-dating its building in the construction sequence, and set within the body of the rampart,

were the front and rear posts of one side of an interval tower. The squared posts were founded in elongated post-pits, 32 and 33, measuring 0.75-0.85m east-west x 0.40m north-south. They centred at 3m apart and had decayed in situ in the gravelly clay fill of the post-pits in the body of the rampart. The voids show that the posts had been of 0.15m scantling. Given the probable position of the *porta principalis sinistra* and the south-east corner tower of the fort these posts must represent the northern pair of a four-post tower about 3m square (10 Roman feet). There is no evidence that these were ever replaced in timber, and certainly not in stone, as was the case with the corner towers of the fort. It was not possible to determine whether the tower survived until the fort was provided with stone defences. However, given the likely date-range for the latter such a survival is extremely unlikely. This leaves two alternatives: either another, later, interval tower underlies the rampart to the south, or interval towers were redundant and not replaced.

Excavations in Area V, outside the eastern defences, revealed two ditches (Fig 3.7). The innermost of these corresponds to the outer of the double ditch system explored at the North Gate (Casey 1974a). The full depth of this ditch could not be ascertained but it was at least 0.45m. The corresponding ditch at the North Gate was 2.30m deep. The primary fill, 3010B, was a stony, grey-brown soil, capped by silt, 3010A, which was accumulating into the 3rd century. Indeed the whole fill may well be a deposit of that period on the assumption that the ditch was regularly cleaned out. Some 8m to the east was a further ditch, 1.60m wide and 0.65m deep, cut by a 4th-century ditch. Its primary fill, 3014, of compact grey-brown silt may have originated in Period 2, but its upper silting, 3011A/B, like 3010A in the inner ditch, probably extends into the 3rd century.?

The interior

The excavated portion of the *praetentura* of the fort revealed evidence for three timber barracks (TS1-TS3) aligned *per strigas*. There is no evidence for a metalled *via sagularis* in this period, it is probable that the perimeter road was a timber corduroy.

The easternmost building, TS1, was defined by elements of four north-south foundation trenches

† The inner ditch of this period was sectioned by G C Boon immediately south of the north-east corner tower in 1958. Its inner face lay only 1.30m from the later fort wall, and it proved to be 0.60m deep. If a singleton it would have only been about 1.30m wide; but Casey's excavations (Casey 1974a) showed that this had a W-shaped profile, the outer half having been truncated by the innermost 4th century ditch. Hence the inner ditch of this period must have been around 2.50m wide.

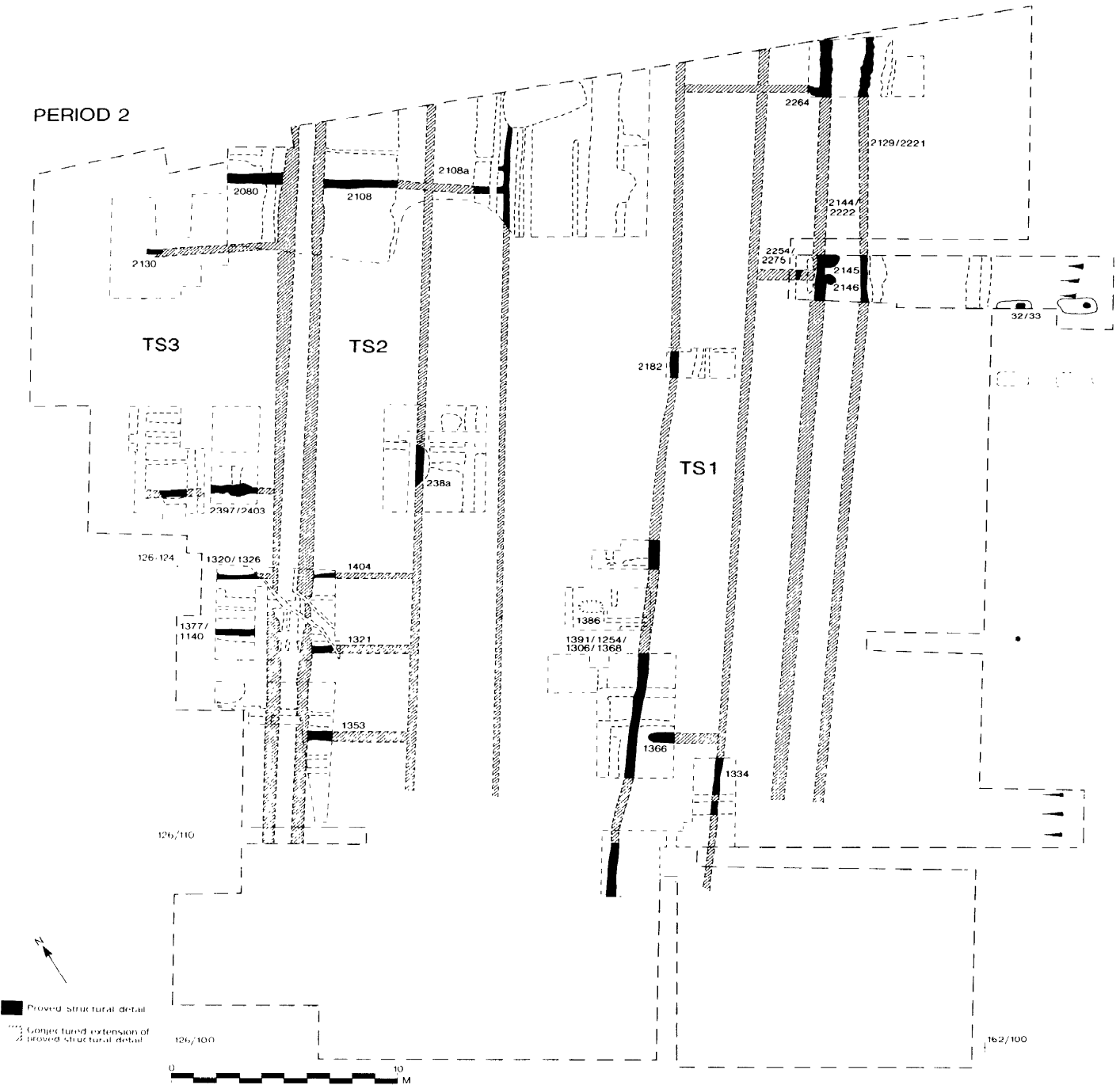


Figure 3.8 Period 2 plan.

and a very few east-west room-divisions. The barrack east wall was represented by 2144/2222, 0.47m wide and 0.20-0.25m deep with a fill of discoloured soil. No post or stake settings were noted in its length, although two postholes or pits lay adjacent to it in the defence section in Area A, 2145 and 2146 (0.65m and 0.50m in diameter respectively). Whilst these are not certainly contemporary it is possible that they represent additional supports or repairs to a studded wall. The west wall was scarcely discernible in Area A and is mainly recognised from C. The fragment of this trench in Area A (appearing as 2182) was largely represented in Area C by 1391 and 1254/1306/1368 where it was 0.35m wide and 0.50m deep (Fig 3.2, Sections 2-3). Nine closely-spaced timbers, all between 0.10m and 0.14m in diameter, were noted along its length. The building appears to have been divided longitudinally, to judge by the discovery of a length of foundation trench, 1334 (0.25m wide and 0.35m deep; Fig 3.2, Section 4) in Area C. This contained three post-settings, all about 0.14m in diameter.

In Area A two foundation trenches, 2264 and 2254/2275, were observed to join the east wall of the building at right angles from the west. These represent the division of the barrack into a series of rooms. The only visible room-division between the western and median walls was represented by wall-trench 1366 in Area C which contained two post-settings (0.15-0.20m in diameter). Although this trench did not link up with 1306, the west wall, it can plausibly be interpreted as a *contubernium* division.

About 1.50m beyond the east wall of the building in Area A lay a parallel trench, 2129/222 1 (0.34-0.45m wide and 0.16-0.22m deep), representing the front of a verandah. Uncharacteristically this was not based upon a series of individual posts set in pits, but on a continuous foundation trench. However, post settings were not noted and its role as a drain is not beyond the bounds of possibility. On the other hand, it lacked the characteristic silt of all other early drains on the site.

Despite the lack of surviving internal divisions, it is clear that TS1, at least 43m long and 8-10m in overall width including the verandah, was a barrack. The existence of a verandah and the fact that the median wall divided the building into a slightly wider *papilio* to the west and narrower *arma* to the east (c 3.75m and c 3m respectively), confirms this interpretation. Like many timber barracks, wall alignments are characteristically imprecise, veering as it does from north-south in Area A to a little east of north in Area C. As seems to be the case with all the early timber buildings on the site its framework seems to have been composed of untrimmed timbers of 0.10-0.15m diameter set in trenches dug mainly to facilitate the laying out of the basic framework. There is no evidence for the use of sill-beams. The remainder of the fabric, in what was essentially a post and studding frame-

work, was presumably daubed and plastered to eaves level. Whilst there is no evidence for the form of the roofing the simplest solution would have been to provide a continuous down-slope from the rear (west) wall to the verandah, thereby giving extra headroom within the *papiliones*. Since very little roofing tile was found in this period (p 232) it seems likely that the barrack was provided with a roof of thatch or wooden shingles.

At a distance of 5-7m to the west lay TS2. The intervening space showed no evidence of metalling and a timber roadway is assumed as in the case of the *via sagularis*. If such was indeed the case then an oval pit, 1386 (1.10m east-west x 0.19m deep), with a fill of yellow clay, situated approximately mid-way between TS1 and TS2 in Area C must pre-date this putative road.

TS2 was another barrack represented by relatively few foundation trenches on north-south and east-west alignments. These foundations ranged from 0.15-0.50m in width and from 0.03-0.20m in depth. The west wall was represented by a trench, 2114 (Fig 3.2, Section 5). About 0.80m north of this transverse trench the junction of another trench, 2108A (no section) with 2114 was noted. However, it seems not to have extended further than 0.25m from 2114 and may either represent an additional wall-support or an error in the laying-out of the *contubernia*. It is assumed that the west wall of TS2 was removed by a wall of the Period 5 building, 2106, since nowhere did it survive. The median wall was represented by a short length of north-south trench, 238A. Evidence for further internal divisions is provided by short lengths of trenches, 1404, 1321 and 1353 in Area C, all of which are presumed to have joined the vanished west wall. The northernmost of these, 1404, aligned with a room-division, 1320/1326, in TS3 to the west. Foundation trench 1321 lay 3.40m south of 1404, and 1353, assigned to this phase on grounds of spacing, was 3.90m south of 1321.

This barrack was at least 30m long and 9m wide overall. If the median and west walls were correctly located the building would have faced east; the rear rooms (*papiliones*) would have measured c 3.40m x 4.40m, the front room (*arma*) c 3.40m square.

The scanty remains of TS3 lay immediately west of TS2. In the absence of firm evidence for the placement of its east and west walls the recognition of the structure as a barrack depends on the room-divisions. These, like those of TS2 varied in width from 0.25-0.40m and 0.15-0.50m in depth. The northernmost crosswall is 2080 (Fig 3.2, Section 6). Wall 2130 was only observed in the base of the 4th-century drain (2000). Wall trench 2397/2403 (Fig 3.2, Section 7) contained five timbers. Two further east-west trenches represent room-divisions. The northernmost, 1320/1326 lined up with 1404, a room-division in TS2; whilst 2.50m to the south lay 1377/1400 the last visible element of TS3.

It is assumed that the north-south trenches of this period were removed by those of Periods 3 and

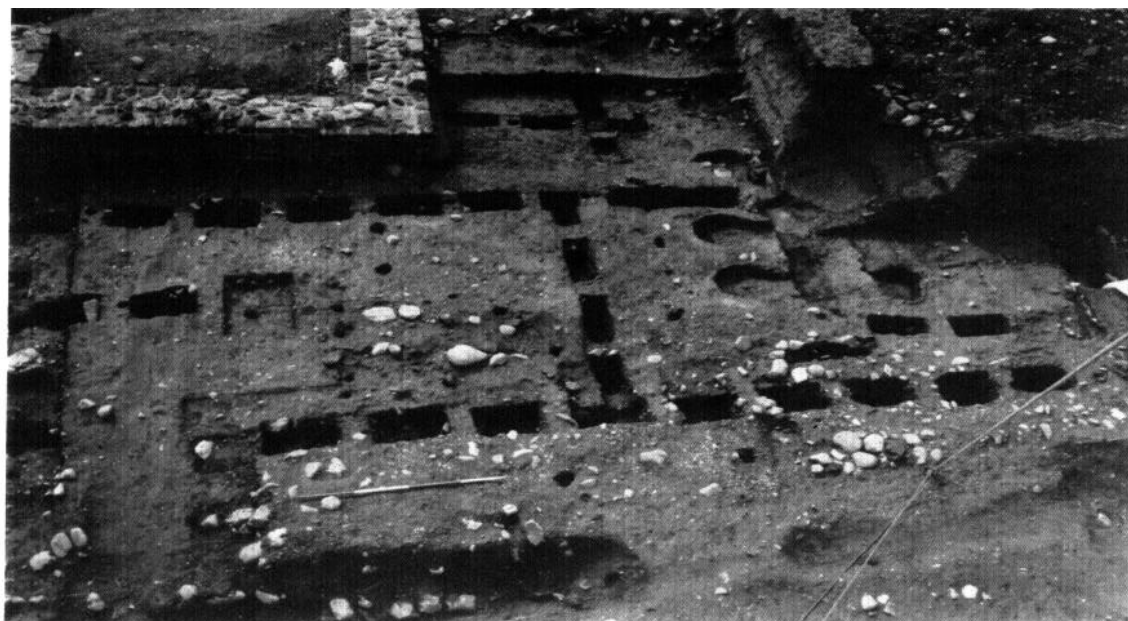


Plate 3.1 Centurion's quarters, with bank of ovens, in Period 3 timber barrack (TS4). View east.

5 (pp 35-6 and 40 below). No median wall was recognised either. The overall plan of TS3 is, thus, highly speculative, but its interpretation as a barrack is reasonable. TS2 and TS3 will, then, have been placed back to back, with only a narrow alley between. Whether they were conjoined at their south ends, as were their Period 3 and 5 successors, is uncertain.

No floor levels survived in these buildings. They may either have been removed during the course of construction work in Period 3, or the floors consisted of planking; not inappropriate on a sloping site. Equally no demolition debris survived either, suggesting a thorough clearance of the site prior to rebuilding.

Period 3 (Fig 3.9)

The interior

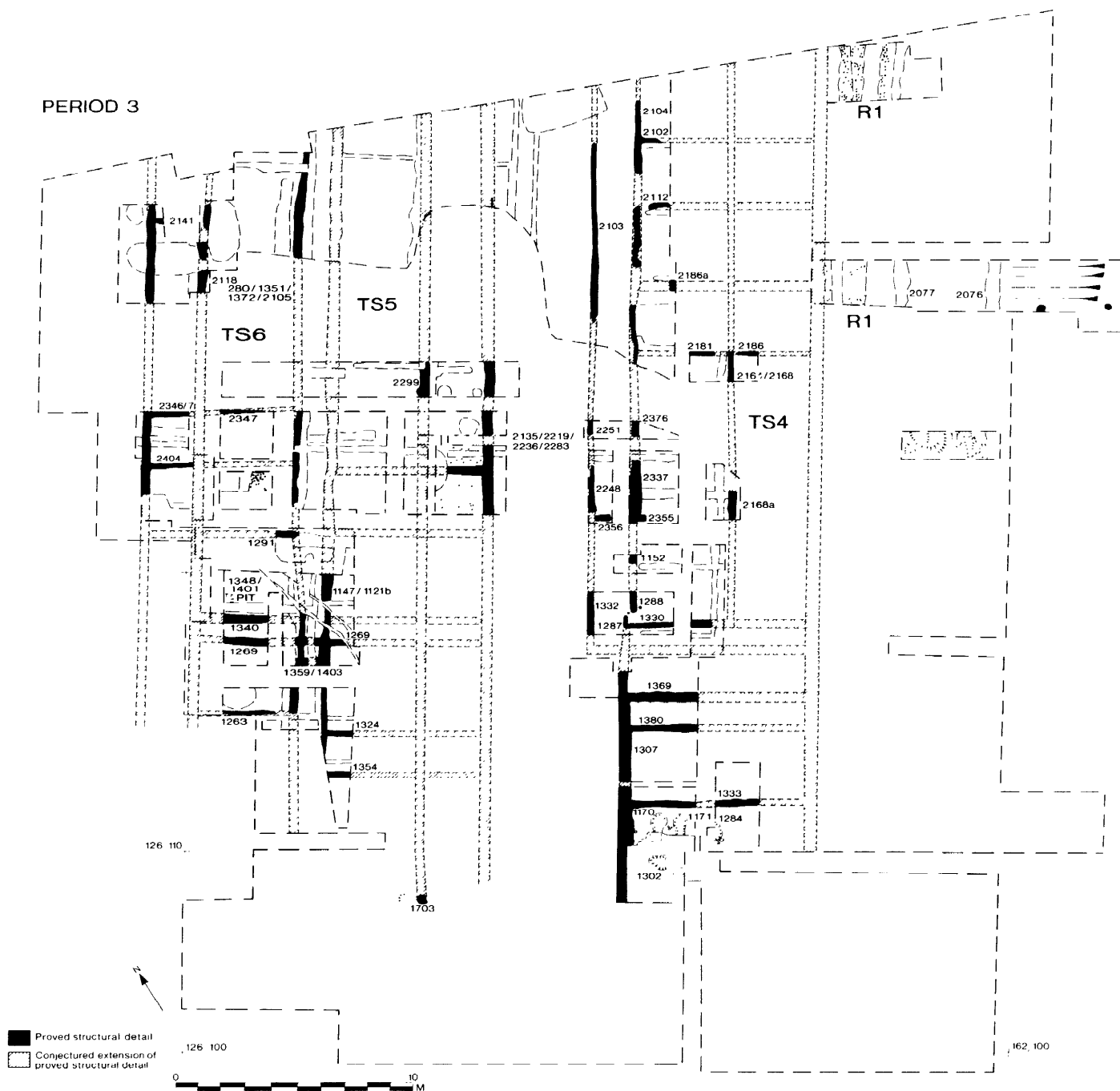
The defences appear to have remained unaltered in this period. To the rear of the rampart a metalled *via sagularis* (R1) was laid down (433/2049/2124). It was sited c 5m from the tail of the rampart, was at least 1.80m wide and composed of greenish (river) gravel and chips of 'pencil slate'. The *intervallum* comprised an area of disturbed ground traversed by two gullies, 2076 and 2077, with fills of discoloured clay. These ran roughly parallel with the eastern margin of R1. The western, 2077, lay next to the road; 2076 (1.10m wide x 0.20m deep) three metres distant.

A barrack, TS4, lay west of R1. Its east wall was not located and may have lain wholly beneath the

east range of SS2, the Period 7 courtyard building; the west wall survived as a number of lengths of foundation trench, ranging from 0.30m-0.40m in width and 0.25-0.35m in depth (features 2107, 2337/2376, 1152/1288/1289, 1307). Most of these features contained stake/post-impressions ranging from 0.05m-0.15m in diameter. Those in 1307 were set irregularly at intervals of as little as 0.10m.

At a distance varying from 1.35-1.65m to the west of the above (but seemingly only running as far as the southern extremity of 1289) lay a parallel foundation trench (2103/2248/2251/1332), about 0.20m wide and 0.20m deep at maximum. Further north it appears to have been truncated by later activity. Since this trench, with one exception, had no linking east-west foundation trenches, and lacked a silt indicative of its use as a drain, it is interpreted as the front of a verandah. An east-west trench, 2356 (c 0.15m), containing a 0.20m diameter post setting (2385), may represent a step in a boardwalk at this point.

The median wall of TS4 was observed at two points, namely 2164/2168/2168A. It lay some 4m west of the west wall, was 0.40m wide (Fig 3.2, Section 8). A number of room divisions were noted within the barrack, although only one of these (2186) lay east of its median wall. Trenches 2186 and 2181 seem to represent matching room-divisions within its eastern and western halves respectively, although it must be pointed out that no trace of the expected continuation of the latter was observed beneath the verandah of the Period 7



building. 3m north of 2181, part of what may have been another western room division was noted beneath a baulk. About 3.50m to the north again a definite room division, 2112 (0.30m wide x 0.15m deep; Fig 3.2, Section 9), was noted; the last division was 2102 some 3m north of 2112. At the southern end of the building the room divisions ranged from 0.25-0.45m in width and in excess of 0.15m in depth, the majority being unexcavated. The most northerly was 1330 (Fig 3.2, Section 10) which had a short length of wall trench (1289) extending north from its western extremity and ending close to, but slightly west of 1288; presumably a setting-out error. About 3.20m south of 1330 were two parallel wall-trenches, some 1.20m apart, 1369 and 1380, the latter containing stake and post impressions. 3.50m south of 1380 lay a further parallel trench, 1333 (Fig 3.2, Section 11) whose western continuation to link up with 1307, the west wall of TS4, was indicated by four voided post-impressions.

In contrast to the north of TS4, floor levels and other internal features survived in the southernmost room. In this room a level platform of compact, yellow clay (1159) had been laid, about 0.20m high, extending at least 1.40m south of the wall (1333). Set in this were a pair of domed clay ovens (1170 and 1171). These measured 0.95m north-south and 0.65m east-west, and showed evidence of several re-linings (P1 3.1). A third oven (1284) of similar size, and on the same alignment was situated 0.80m east of 1171 but could not be fully examined. Deposits of burnt clay and charcoal representing rake-out and repairs extended south of 1170 and 1171 and sealed yet another oven, 1302, set in a floor of orange brown clay, 1300. This measured c 0.60m north-south (Fig 3.2, Section 10) and unlike the others was aligned east-west. Its clay lining had been renewed at least once. The remnants of another oven appear to have lain to its south, but were unexcavated. It was only in the south of this area that the original floor level within the room (1301 a grey-brown clay with charcoal patches) was seen, having been cut by 1309/1392.

In plan TS4, at least 40m long and at least 6m wide - excluding the verandah - with its apparent division into pairs of small rooms, may be plausibly interpreted as a west facing-barrack. Although its east wall was not located, its position beneath the Period 7 courtyard building (SS2) can be inferred. This suggests that the outer rooms of the *contubernia*, of which five were identified with space for a further three, were of unequal size to the inner (c 4m east-west for the *arma* and c 3m for the *papilio*; both averaging 3-3.50m north-south), a reversal of the usual arrangement. The southern end of the building may have been a detached block south of wall-trench 1330: a further pointer to a structural difference being the apparent failure of the verandah wall-trench to continue south of this line. The south end of the block was divided into at

least two, large, unequal-sized rooms by an east-west corridor represented by wall-trenches 1369 and 1380 and must comprise the centurion's quarters of a barrack, the sequence of ovens representing a kitchen range within the apartment.

An unmetalled gap of 4m separated TS4 from TS5 to the west. The phasing of the components of TS5, and TS6 further west, is not firmly established. The eastern wall of TS5 was represented by foundation trench 2135/2219/2236/2283 (c 0.45m wide), containing 18 post-impressions, generally of the order of 0.06-0.10m in diameter. Only an 8m length of this trench survived, the rest having been entirely removed by a series of later disturbances and by SS1, the small bath-house. Little trace of the west wall of TS5 was found, it having been largely eradicated by the Period 5 building (TS9) except on the south (1147/1121B, c 0.25m wide); but this was sufficient to show that the building had an overall width of about 7.30m. It appears to have been divided by a longitudinal wall, 2299 (c 0.40m wide) containing two timber impressions. A further probable element, 1703, was seen at the base of drain D2. The building was possibly divided into a series of paired eastern and western rooms by a number of east-west foundation trenches ranging from 0.25-0.40m in width and 0.20-0.40m deep. The most northerly of these, 2194 (Fig 3.2, Section 11), ran west from the east wall and was dug through an area of compact, greenish clay, 2158/2162, which either represented a Period 2 floor or a levelling deposit of Period 3. Two room divisions, 1324 and 1354, some 2m apart, were observed in the western portion of the building: 1324, revealing post-impressions of c 0.10m diameter. It was 4.5m to the north of 1324 that evidence emerged to suggest that TS5 and TS6 were conjoined. A wall-trench, 1269 (Fig 3.2, Section 12), extended east from TS6, representing a continuation of a room-division common to both. Furthermore some 0.60m to its south a short length of foundation trench, 1359/1403, linked the west and east walls of the two buildings.

Although TS5 lacked an east-facing verandah and the greater part of its plan must remain conjectural, its relative width, apparent division into a range of eastern and western rooms, c 2.50m and 3.60m wide respectively, and the fact that it was conjoined with TS6 towards its southern end indicates that its was an east-facing barrack.

Structural detail for the plan of TS6 is as scanty as for that of its neighbour. Like TS5 it was of post-in-trench construction, the main members being set in trenches averaging from 0.20-0.35m in width and 0.15-0.40m deep. Elements of its east wall, 280/1351/1372/2105, give an overall length of at least 28m. Running parallel to this, and about 3.50m to the west, foundation trench 2118 (Fig 3.2, Section 13), defined a median wall, whilst some 2m further west another parallel trench, 2119/2349, represented its west wall, giving the building an overall width of 0.20-0.50m in width and

0.20-0.50m in depth, the deeper elements occurring where the transverse trenches linked TS5 and TS6. The northernmost of these trenches was 2141. Further south trench 2346/2347 (Fig 3.2, Section 14) extended across the full width of the building. About 2.40m distant, 2404 (Fig 3.2, Section 15) seems certainly to have linked the western and median walls. About 3.20m to the south a short length of foundation trench, 1291, is a further room-division. Three more divisions were noted further south. The northernmost, 1340 (Fig 3.2, Section 16), the deepest founded trench within the building, could have represented the dividing wall between the *contubernia* and the centurion's quarters, whilst 0.60m to its south another deep, parallel trench, 1269 (Fig 3.2, Section 12), formed part of the structural elements linking TS5 and TS6 as well as defining a possible corridor within the centurion's quarters. Finally, about 3.20m to the south another transverse trench, 1263 appears to represent a further internal division of this period.

The only other feature which may belong to Period 3 was a pit. Just north of 1340, and apparently within TS6, was a circular pit 1348/1401, about 0.35m deep with a fill of mixed soil.

Structure of the Barracks

Although substantial elements of the plans remain conjectural, the broad outline of the Period 3 barracks is reasonably clear.

TS4 faced west and probably had a single-pitched roof, most likely of thatch or shingles, which sloped west to a verandah. The latter was based on individual posts set in a continuous foundation-trench. This does not seem to have continued along the front of the centurion's quarters. Four *contubernia* were located at the north end of the barrack, with sufficient room for four to the south and at least a further pair beyond the limits of excavation to the extreme north. The centurion's quarters to the south seem to have been detached.

Barracks TS5 and TS6 lay back to back and may have been joined at their southern end. However, irregularity of planning is a feature of barracks of this period and overcutting of foundations is normal (see below p 40 for discussion of joined barracks in relation to those of the next period). Had the barracks been joined, no doubt some sort of provision was made to prevent water ponding in this gap, which will have served as a light well between the *pupilonēs* of TS5 and TS6. In order to catch the light the two barracks must have been separately roofed, at least up to the junction of the conjoined centurions' quarters.

Period 4 (Fig 3.10)

This period is largely represented by activity following the demolition of the Period 3 barracks, although there appear to have been localised

alterations in the *intervallum* area.

In the southern defence section, the *via sagularis* and deposits in the *intervallum* appear to have been considerably truncated, either in this period or late in Period 3. Subsequently a deposit of turf 0.40m thick was dumped to the rear of the rampart forming a roughly level platform. This deposit was not encountered elsewhere. Its relative width and apparent localisation suggests that it may have been the base of an *ascensus*.

The striking feature of Period 4 was a foundation trench, 2150/2175/2218/2250/2258/2282/2294/2339/2345 (0.30-0.40m wide x c 0.40m deep), running east-west for a distance of about 23m beneath the south range of the Period 7 courtyard building (SS2). It did not continue as far as the *intervallum* and its western end lay somewhere beyond the limit of excavation. It cut the wall-trenches of the Period 2 and 3 barracks and was sealed by R3, the Period 5 road. Beneath Room 10 of SS2 two fills were recorded. A step in the profile (Fig 3.2, Sections 14, 17-19) could indicate a recutting or simply a narrowing. About 4.5m from its last recorded western position two postholes, 2313 and 2338 (0.50m and 0.20m in diameter respectively), the latter revealing a post setting 0.09m in diameter, were located immediately adjacent to it to the north.

Just east of the former a 1.10m length of foundation trench, c 0.20m wide and containing at least one timber, extended north from the main trench and may be plausibly interpreted as a brace for a fence line.

Immediately south of this fence-line, and beneath rooms 10 and 11 of SS2, was a group of post and stake-holes in a roughly oval setting enclosing an area of c 2.5 x 2m. Few exceeded 0.15m in diameter. They were sealed by a deposit of burnt clay and charcoal, 2212/2369.

These features apart, a characteristic of Period 4 was the accumulation of a series of deposits comprising layers of brown soil, generally containing stones and with charcoal inclusions. These were preserved mainly beneath the south range of SS2 and sealed foundation trenches of Period 3 and earlier. They were in turn sealed by R3, a Period 5 road. Of this period, and sealing TS4, were similar brown soils (whilst in the northern portion of C they consisted of clay deposits, 1070/1071). In contrast, over the south end of TS4 there were spreads of clay, burnt and unburnt, and charcoal; possibly associated with the demolition of the Period 3 barracks. The brown soils, in contrast, could represent the formation of a 'natural' soil following demolition.

In Period 4, then, the whole area formerly occupied by barracks was empty, with the exception of the post and stake setting, and the east-west trench which was apparently designed for the setting of vertical timbers. This has all the characteristics of a 'normal' foundation trench for a building, but the fact that it was unaccompanied by

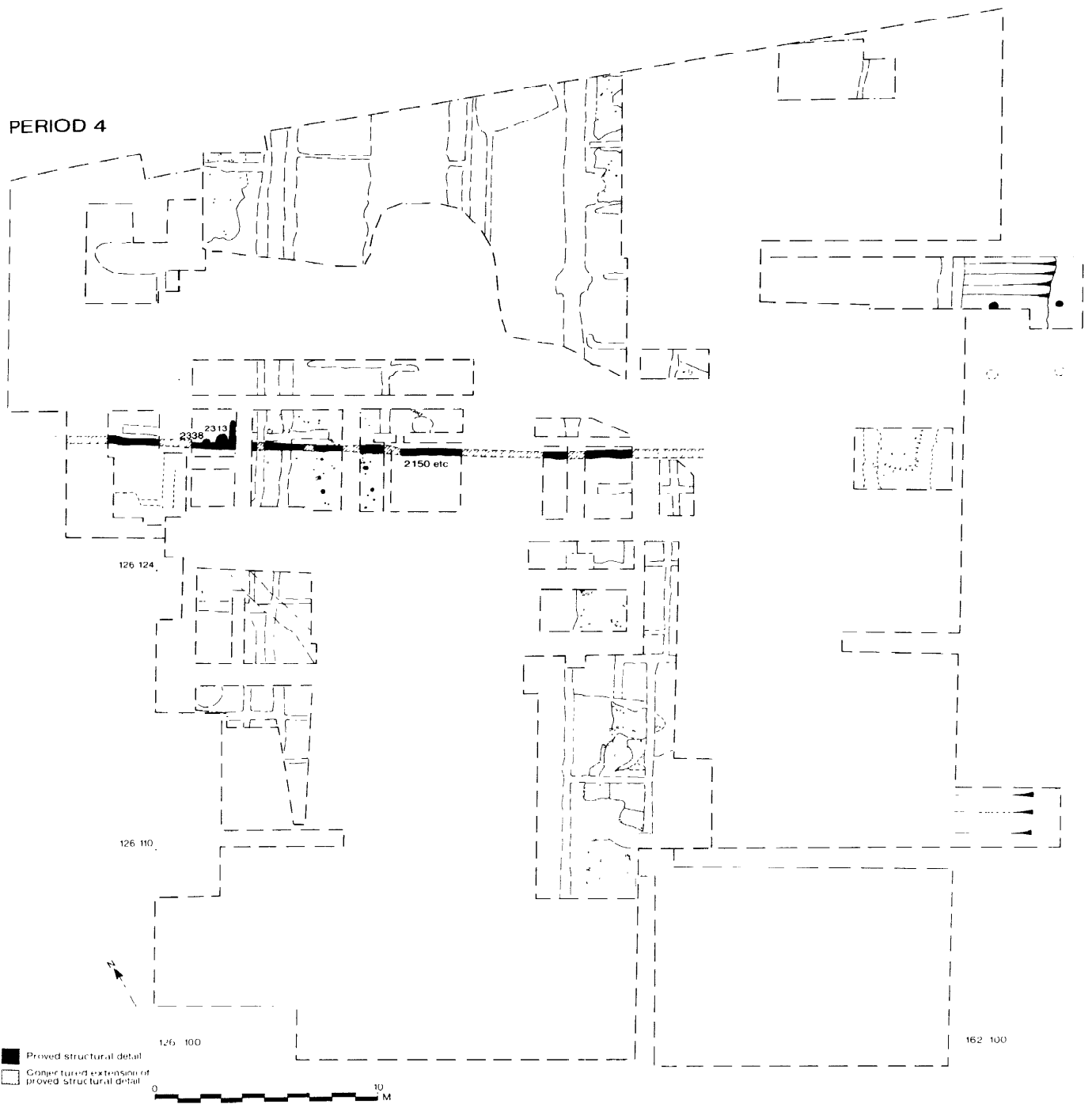


Figure 3.10 Period 4 plan.

a parallel trench to the north or south must rule out that possibility. The existence of a brace suggests that it was a substantial fence which divided the *praetentura*. Manifestly, its existence represents a hiatus in the occupation of the *praetentura*.

Period 5 (Fig 3.11)

The defences seem to have remained unaltered in this period. The interior saw the rebuilding of barracks in what is apparently the last 'normal' use of this area of the *praetentura*. Further building also took place in the *intervallum*, following the laying of a new *via sagularis*, R2.

The road R2, 2021/298/2208, was made of rammed gravel; had a maximum width of 2.40m, and was badly disturbed by later drains. Whilst clearly observed as a separate feature (2098) in the southern defence section, further north it lay directly on R1 and was, therefore, recorded with that as 2208. It then continued as 2021, being composed of different materials, although largely of pitched stones and 'pencil slate'. On its eastern side it appears to have been resurfaced with 'pencil slate' set in a matrix of brown clay (2036) and patches of green gravel in orange clay.

Flanking R2 on the east was a drain, D1 2128/2220 (0.40m wide x 0.10-0.15m deep) with a fill of gravel, pebbles and grey clay with charcoal inclusions. A gully, 2035, c 0.25m wide, with a fill of silt and gravel, traversed R2 from north-west to south-east. It appears to have been a continuation of D1, functioning as an eaves-drip for a rampart-back building TS7, before deviating to the east to follow the rear of the rampart, thereby allowing a much wider *via sagularis*, at least 6.5m in width.

The timber buildings (TS7) occupying the *intervallum* were of post-in-trench construction. A north-south alignment of four timbers, 0.06-0.09m in diameter, was noted some 4m from the rear of the rampart and immediately east of D1, although no foundation trench was found. These are plausibly interpreted as the west wall of a building. About 8m to the north a foundation trench (2293) at least 2m long (c 0.20m wide x c 0.10-0.20m deep; Fig 3.2, Section 19), containing five timbers, lay immediately east of D1 but at an alignment slightly east of north. Running east from this was a line of four timbers (c 0.06m in diameter). These represent an internal division within a back-of-rampart building aligned roughly north-south, possibly a continuation of that which lay to the south. A pit, 2292, at least 0.30m deep, possibly a latrine, lay within TS7.

Immediately west of the *via sagularis* (R2) lay TS8, a barrack at least 41m long on a north-south alignment. Its plan is fragmentary, the east wall having been removed by that of the courtyard building (SS2). Like the earlier barracks it was of post-in-trench construction, with main members set in foundation trenches ranging from 0.30-0.45m wide and 0.10-0.45m deep (the deepest

occurring towards its southern end) with room divisions set in trenches averaging 0.25m in width and 0.15m deep.

The west wall of TS8, 123/2200, continuing further south as 2007 (Fig 3.2, Section 20), where it showed a stepped profile, perhaps indicating a re-cut, thereafter continued as 965/1086 (Fig 3.3, Section 21) and 1252, the west wall of the centurion's quarters. The median wall was traced for 29m (north to south features 292, 2184, 2188, 1272, 966). Eight clay-floored *contubernia*, or at least the outer rooms, could be distinguished. The dividing walls were of post-in-trench construction (features 2101, 2113, 2267, 2190, 1285/2359, 1077, 1273/1331). The first three divisions appear to stop short of the west wall although 2190 practically reaches its course with its terminal skewed to the north.

Room division 1285/2359 traversed the median wall, 966/1272; indicating that the eastern half of the barrack shared common room-divisions with the western, as did 1077/7411387 (Fig 3.3, Section 22), the next room division to the south. Foundation trench 1273/1331 defined the southernmost *contubernium* within the barrack. Two of the eight rooms thus defined, the *arma*, measured c 2.80m north-south and c 3m east-west.

The *contubernia* were separated from the north wall (967/1110/1305) of the centurion's quarters by a gap of 0.75m. The west wall of the centurion's quarters, 1252, continued the alignment of the *contubernia* and retained 33 timber voids, generally c 0.08-0.10m in diameter spaced some 0.20-0.40m apart. A dividing wall, 1039/1130 (Fig 3.3, Section 23), showed signs of similar timber construction and although broadly continuing the course of the median wall further north was offset some 0.30m to the west. A cross-wall, 1150 (Fig 3.3, Section 24), containing five timbers, divided the western portion of the centurion's quarters into two large rooms; the northern c 6 x 3.30m, the southern of similar width and at least 6m long, its limits lying beyond those of the excavation. These rooms had primary floors of yellow-brown clay, 1080, with a stone concentration, 1129, in the southern room, succeeded by two further floors which have been assigned to Period 5B.

Immediately west of TS8 was a road (R3), c 3m wide composed of 'pencil slate' on a foundation of large cobbles (207/277/956/961/977/1089/1 1151/2 125; Fig 3.3, Section 34). The road was apparently cut by 6 post-holes (2030, 2249, 2385, 1111, 1206 and 1207) running in a staggered line along its eastern margin. The northernmost, 2030 (c 0.35m in diameter), lay marginally nearer TS8; 2385 (c 0.20m in diameter and 0.10m deep), was 2m distant from 2249 and 0.80m from TS8.

To the west of R3 lay TS9, another barrack parallel to TS8. It had been badly truncated by later features, and like its precursors on this plot the phasing of its components remains tenuous.

TS9 was of post-in-trench construction, its main framework set in trenches averaging 0.20-0.40m in

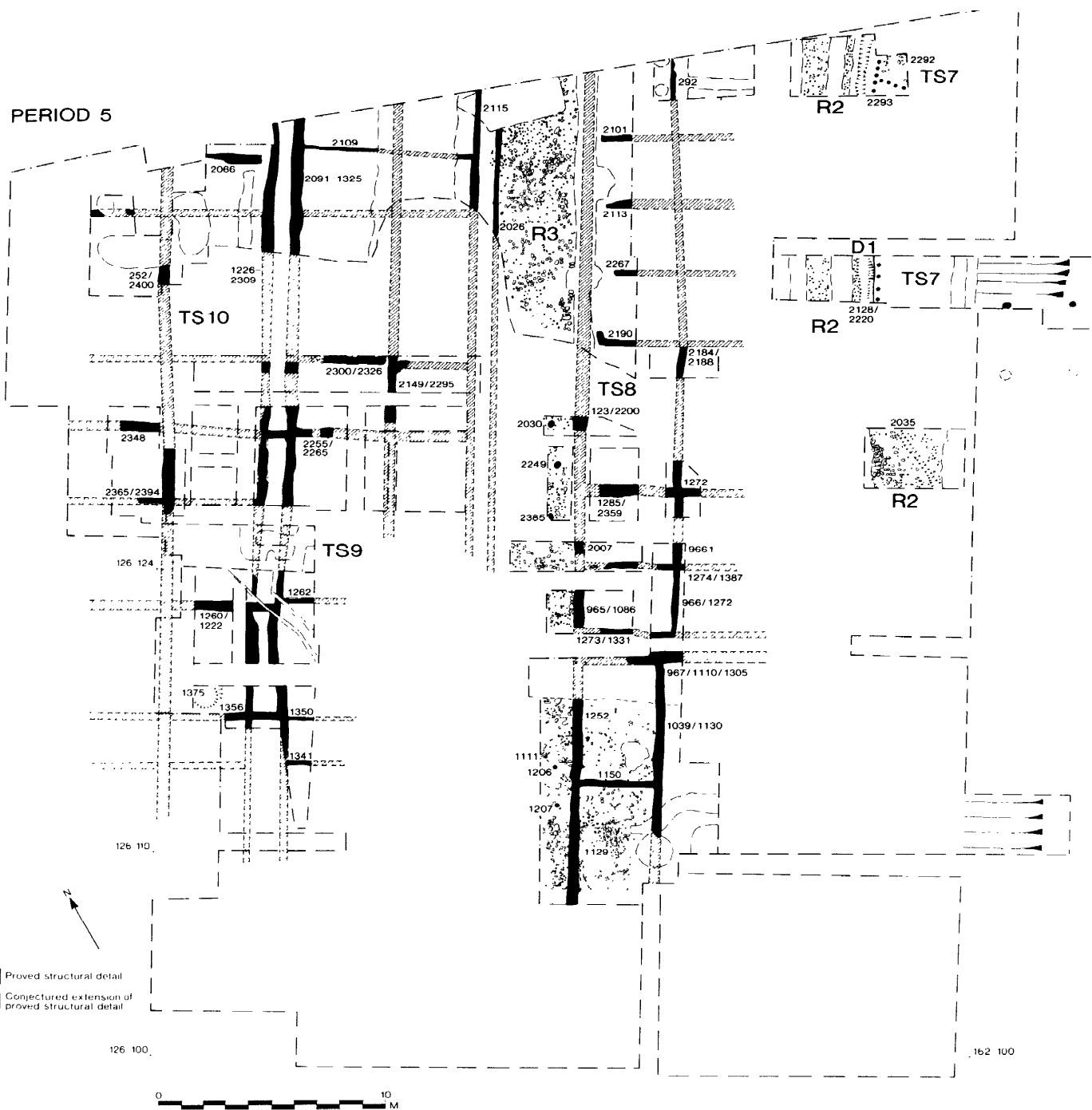


Figure 3. 11 Period 5 plan.

width (with exceptions of 0.50-0.60m) and 0.15-0.30m deep, with room divisions set in trenches averaging 0.20-0.30m wide and 0.10-0.30m deep. The east wall was only defined by a 6m length of foundation trench, 2115 (Fig 3.3, Section 25). About 0.75m to its east and marginal to R3 was a parallel trench, 2026 (c 0.15m wide x 0.07m deep) which either served as a drain or, less likely, as the foundation of a verandah since no transverse divisions ran up to it from the west. 31m of the west wall were traced (2091/2106/2202, 990/1292/1325). It appears to have followed an identical line to that of its Period 2 and 3 precursors (see pp 32, 35). Little of the median wall survived later disturbance; where it was seen (2 149/2295) it divided the barrack longitudinally into rooms approximately 3m deep to the east and 3.80m deep to the west, the overall width of the building being c 8m.

Only three room divisions were found. The northernmost, 2109, extended west from 2115, the east wall, to link with 2106, the west wall of TS9. No further transverse divisions were observed in the north end of the building although one may have been missed c 3m south of 2109. About 10m to the south of the above, 2300/2326 formed a room-division in the western portion of TS9 and may have linked with part of a room division in the eastern portion of the same. Another western room-division, 2255/2265, was observed 3.20m to its south. This also ran west to link with the eastern wall of the neighbouring TS10. The fact that this and other east-west foundation trenches behaved in a similar fashion, could be interpreted as suggesting that TS9 and TS10 were buildings whose south ends were joined, but it is more economical to argue that the pair of barracks were erected in a prepared grid of foundation trenches, some of whose elements were unused when the superstructures were raised. Otherwise problems of roofing and drainage would have been incurred for which we have no evidence of a solution.

About 8.50m further south a further transverse trench, 1262, ran east from the west wall of TS9, more or less continuing the line of yet another trench, 1222/1260, which linked TS9 and TS10. If TS9 had a centurion's quarters at its southern end, as seems likely, and if its dimensions were approximately the same as that in TS8, then trench 1262 may have marked its party wall with the first *contubernium*. About 5.50m to its south foundation trench 1350 ran east from the west wall of TS9, continuing the alignment of a more substantial foundation trench, 1356, which linked TS9 and TS10. Some 2m further south 1341 (Fig 3.3, Section 26) represented the last observed room division within the western portion of TS9. The close spacing between 1350 and 1341 - far too narrow for a *contubernium* - indicates that these room-divisions, at least, most probably lay within the centurion's quarters.

Immediately to the west of TS9 lay TS10, a west-

facing barrack whose back wall 1226/1378/2104/2203/2210/2309 was situated c 0.75m from its neighbour, and traced for 29.50m. This foundation trench, c 0.35m wide and 0.25m deep, contained 12 timber impressions, generally 0.08-0.13m in diameter. Some 4m to the west a parallel trench, 252/2400, c 0.65m wide and 0.40m deep (Fig 3.2, Section 13), represents the median wall of the barrack. Its west wall was not located but transverse room-divisions were observed to run west of the median wall.

A number of room-divisions were established. The northernmost, 2066 (0.40-0.60m wide), appears to be that of a *pupilio*. Some 3m to the south, representing a western room-division (presumably of an *arma*) was 2141. 10m south of this was a further outer room wall, 2348 (c 0.45m wide x 0.25m deep), more or less aligned with 2255/2265, the corresponding division wall of the neighbouring barrack. 3.30m to the south the foundation trench of the south wall was 2356/2394 (0.30m wide x 0.20m deep). Some 4.75m to the south foundation trench 1260, with 1262 in TS9, probably marked the limits of the centurion's quarters. To judge by the spacing between 2365/2394 and 1260 there was room for a corridor as well as a *contubernium* of c 3m width to the north of 1260. Finally, some 5m to the south of 1260, room-division 1356 (c 0.20m wide and deep) shared a common foundation trench with its corresponding room in the next-door barrack. Within this room defined by walls 1226, 1260 and 1356 was a circular pit, 1375, a little over 1m in diameter and c 0.60m deep. It was filled with dark humic soil with clay inclusions: it may have been a latrine.

There was surviving evidence for clay floors in both TS9 and TS10. These were burnt a brick red upon their demolition in Period 5A, they were especially so in the north and central area.

Period 5A (Fig 3.12)

This period saw the demolition of the *contubernia* of the barracks TS8, TS9 and TS10, and the burning of their debris in situ. This demolition did not extend as far as the centurions' quarters. Short-lived features in the *intervallum* have also been placed in this period since in one case they clearly post-date TS7, although they could belong to Period 5. In any case, they were sealed by R4, the third *via sagularis*, which would seem to be an integral feature of Period 6.

In the northern rear of the rampart section, timber building TS7 was sealed by oven deposits, which were in turn sealed by a brown soil, 2195. The former comprised layers of fresh and burnt clay, and ash (2167, 2196, 2197 and 2281) largely derived from oven rake-out; 2281 was interleaved with lenses of fine, grey clay probably representing silt accumulations between successive cleanings or repair of the oven. The oven, 2271, comprised a compact mass of orange clay which extended

PERIODS 5A and 5B

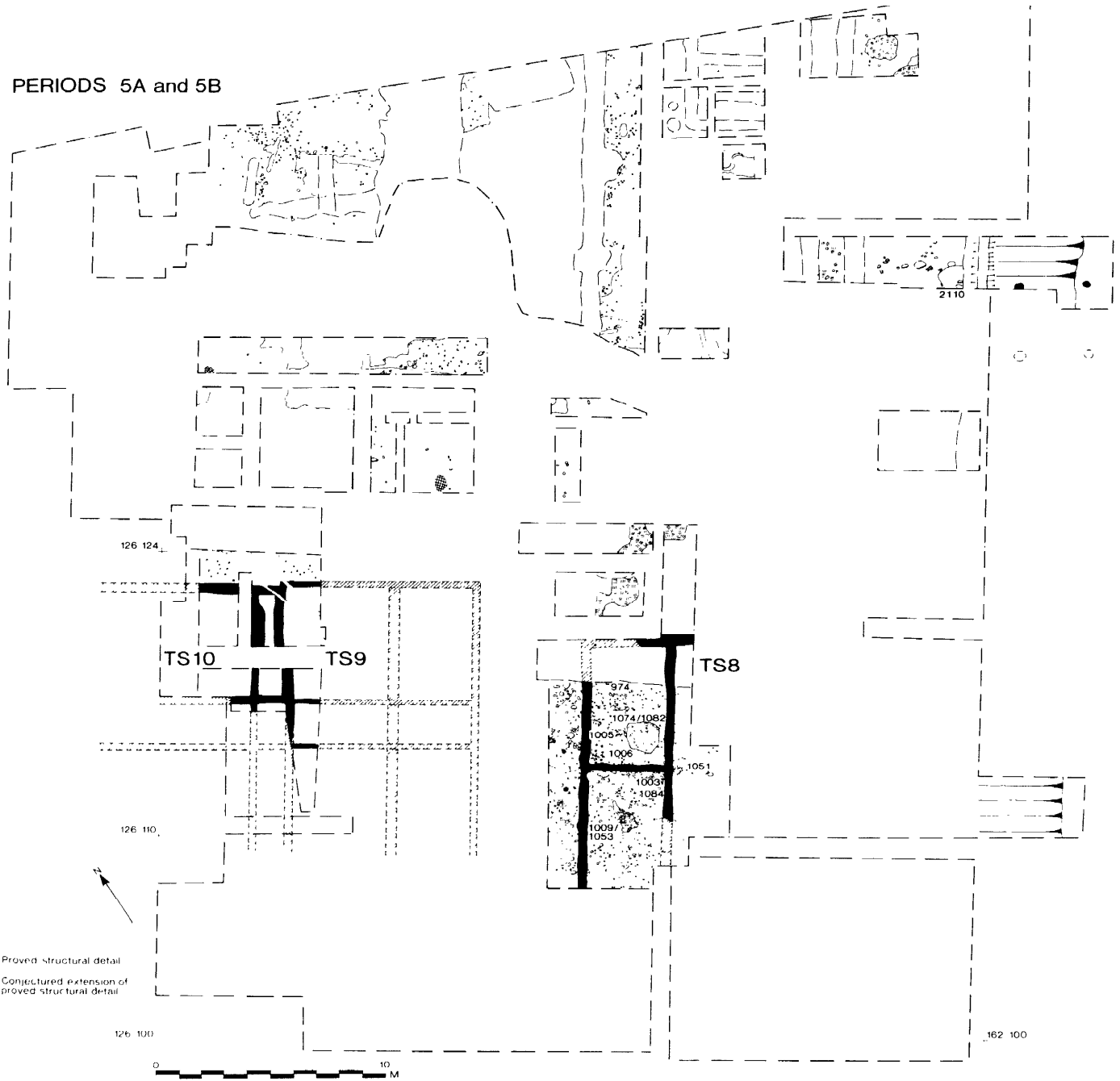


Figure 3.12 Period 5A / B plan.

beneath the trench margins. Its chamber appears to have been at least 0.50m in diameter and the oven probably measured 1.50m east-west. Whilst the lenses in 2281 indicate recurrent use they may be rapid accumulation and need not suggest use over a long period. The brown soil (2195) sealing the oven may be a natural accumulation, so it suggests that the oven area was not 'open' for some time before it was sealed by the Period 6 road, and that the soil was accumulating in Period 5B.

The northern defence section (Fig 3.6) revealed a deposit of dark, ashy soil, 2094, sealing a hearth, 2110, composed of yellow clay and small stones covering an area of 0.70 x 0.90m. Around the hearth was a deposit of yellowish clay with patches of burning. These features are unlikely to have had a life extending into Period 5B.

The *contubernia* of the barracks were covered with a thick deposit of bright red ashes and clay resulting from the burning of the *contubernia*. That the demolition of the barracks was selective is shown by the fact that the clay floors of the northern rooms of TS9 were burnt brick red as were those which lay beneath the south range of SS1, the Period 6 building. These burnt deposits stop short of the centurion's quarters on the east of TS8 and west of TS9 and TS10, indicating controlled demolition, apparently restricted to the *contubernia*, and probably involving the dismantling of the fabric and the burning of unusable woodwork in bonfires.

Period 5B (Fig 3.12)

The only certain structure belonging to this period is the centurion's quarters of TS8 whose two floors produced evidence of use post-dating the demolition of the *contubernia*. However, since the Period 5A destruction horizon also stops to the north of the conjoined centurions' quarters of TS9 and TS10 these also seem to have remained in use. TS11, a narrow timber building situated over the northern extremity of the plot formerly occupied by TS8 could also belong to this period, although assigned to Period 6 as the latest to which it could belong.

The centurion's quarters of TS8: phase 2

The primary floors of this part of the barrack are those of Period 5, which remained in use. These were succeeded by two phases of flooring. The phase 2 floor in the northern room comprised a spread of yellowish clay and stones (1081). Into this was inserted a large central hearth (c 1.50m square) (1074/1082). The floor of the south room was identical to the northern, and the remains of a hearth made of broken tile set in clay, 1084 (0.90m east-west x 0.65m), were set north of centre on this surface. A 0.55m wide strip of compact, pale clay, with a squared stone set in it (1003) lay next the north wall of the room.

The centurion's quarters of TS8: phase 3

The floor of the northern room now comprised a dark, ashy clay, 1004, beneath which lay a make-up of dark, yellowish clay with charcoal flecks and gravel (1032/1079). An irregular patch of stones, 1005, lay near the centre of the room, with a similar deposit, 1006, in its south-west corner. A hearth (974) comprising a clay platform measuring 0.70m x 0.95m, surfaced with tile fragments, and repaired with cobbles on the south, lay just west of centre. The floor of the southern room consisted of mixed, ashy clays (1008), and had a hearth (1009/1053) comprising small stones and tile fragments set in a matrix of burnt clay surrounded by spreads of burnt clay and sand near its centre.

The situation east of these rooms is unclear, but it is possible that this area was occupied by a single room 8m and more in length. A single floor level of this phase was found, 1051, a pale, compact clay with charcoal inclusions.

Demolition of centurion's quarters of TS8

Phase 3 floors were largely sealed by layers of brown clay (976, 1010), probably the products of demolition and subsequent levelling. A layer of ash and soil (1612/1623) over the southern half of the building may have a similar origin. This was cut by a posthole, 1615, apparently an isolated feature. In Area C, a deposit of reddish-yellow ash (1031) was sealed by 976, whilst the south-western sector of the area was levelled with clay (1148) and other minor deposits.

The centurions' quarters of TS9 and TS10

Whilst there was no surviving evidence of floors in the south rooms of these two buildings, there are layers which appear to derive from demolition. The principal deposit was 1148, a dark, clayey loam sealing spreads of yellowish clay and stones (1164 and 1221A).

Period 6 (Fig 3.13)

This period saw the erection of the first masonry building (SS1) in this quarter of the fort, and alterations in the *intervallum* (and, probably at the end of the period, or early in the next, the building of the fort wall in stone).

The intervallum and drains

A third *via sugularis* (R4) with its associated drains was laid at the north end of the site. R4 (30/31/2180/2325), c 5.40m wide, was generally composed of rammed pebbles and gravel set in a matrix of orange clay, though with patches of 'pencil slate'. Close to its western margin lay a drain, D2A, (2401/2166), set in a trench 0.80m wide, with sides reduced to a single course of roughly squared

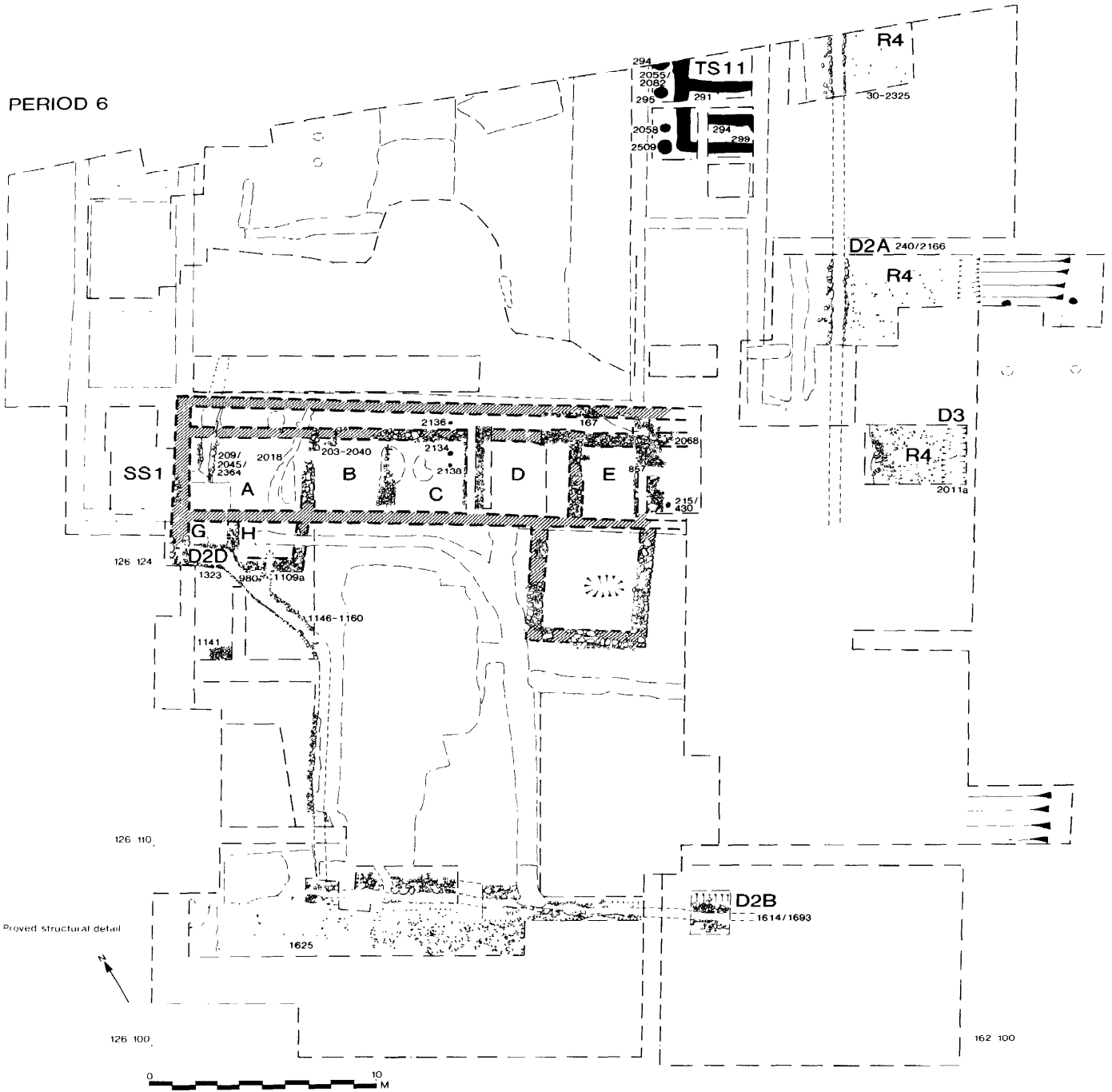


Figure 3.13 Period 6 plan.



Plate 3.2 Area E drain through south rampart, internal view.

masonry giving the drain a width of *c* 0.45m and a depth of 0.35m. When abandoned it was backfilled with yellow clay (265/2165). East of the road was another drain, probably of this period, D3 (2011A), which channelled water off the rampart back. It was vertical-sided, *c* 0.30m wide and *c* 0.80m deep (and was subsequently filled with silt, small stones and charcoaly soil).

Further south, R4 was superseded by 284, a surface of gravel and medium-sized cobbles on a make-up of large cobbles set in brown clay (270). The road was badly truncated on its western margin, surviving only as a deposit *c* 0.13m thick and 2.20m wide.

R4 (1625), at least 2.30m wide, also followed the

course of the southern rampart. Here its composition was rather different, consisting of 'pencil slate' on a foundation of medium-sized cobbles (1669/1690). Drain D2B (1614/1693), analogous to D2A ran along its northern margin. This too was stone-lined with sides reduced to a single course of roughly squared masonry in a channel 0.50m wide filled with silt and stones (Fig 3.3, Section 27). Like D2A its capstones and sides had been robbed.

It is not known where the new drains debauched from the fort. In the south-east corner is an arched stone culvert which would seem to be the most appropriate exit (P1 3.2-3). This culvert is of course integral with the stone defences. The date of these defences is uncertain but samian recovered from

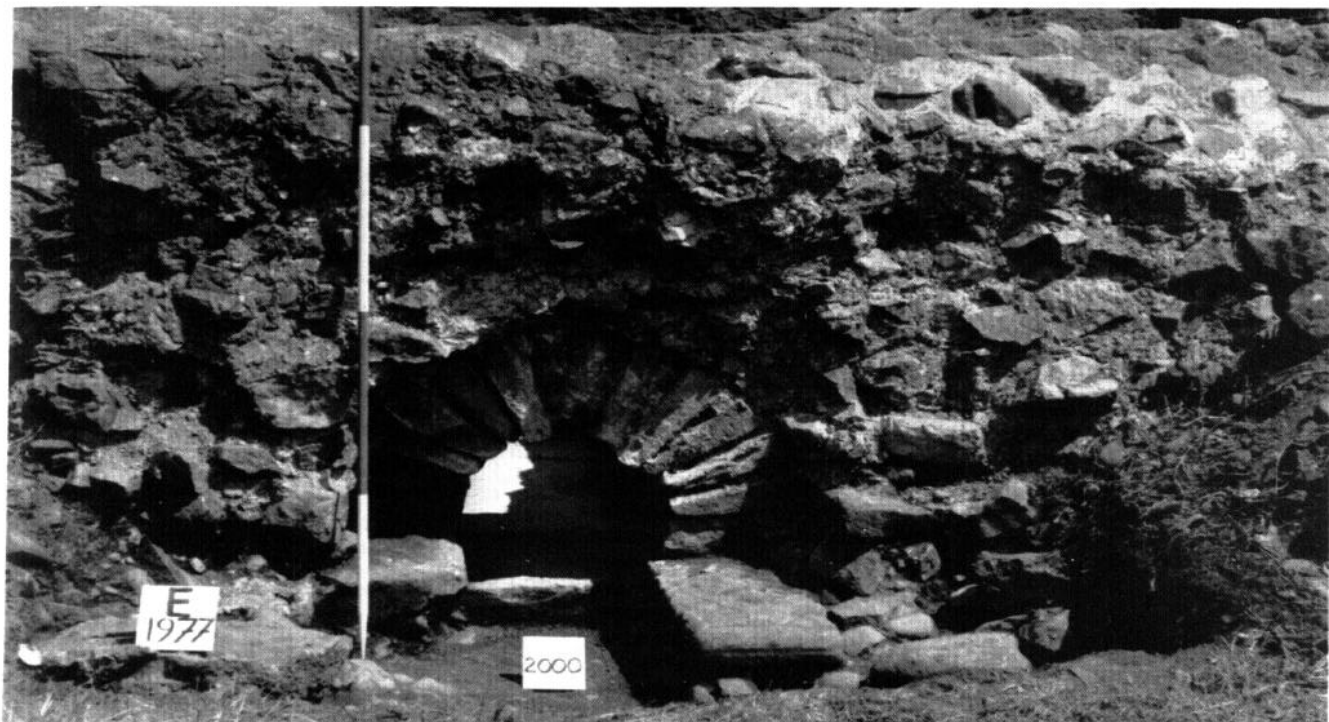


Plate 3.3 Area E drain through south rampart, exterior view.

the backfilling of a post-pit of the Flavian timber North Gate shows that replacement of the timber-phase defences did not take place before the Antonine period. Since Period 6 (and 6A) are of Trajanic-Hadrianic date it is difficult to see how the provision, for the first time, of stone-lined drains can be equated with the construction of the stone defences. It will be argued below that the defences themselves are best associated with Period 7, the Antonine phase.

Building TS11

Although the principal building in the interior was SS1, to its north end, bordering the *via sagularis*, was the south end of a timber building (TS11). This may have extended north to front onto the *via principalis*. This building could have belonged to Period 5B, when anomalous timber buildings appear in this part of the fort, but it has been placed in Period 6 as the latest possible period to which it could belong.

The building was of post-in-trench construction: its west wall comprising foundation trench 2055/2082 (c 0.50m wide x c 0.50-0.65m deep; Fig 3.3, Sections 28-9); its south by 299, c 0.65m wide and 0.65m deep. Running parallel to the last, and some 0.80m to the north, was 297 (c 0.40m wide and deep), whilst 1.30m to the north again was a

further parallel trench, 291 (0.60m wide x 0.50m deep; Fig 3.3, Section 30). The east wall of TS11 was not found, having apparently been removed by those of SS2. If such was the case then the maximum overall width of the building will have been about 4.50m.

Running parallel to the west wall were four postholes. The southernmost, aligned with the corner of TS11, was 2509, 0.60m in diameter, with a mixed fill of clay and soil with ashy inclusions. Another, 2058, lay about 0.40m to the north; measured c 0.40m in diameter and 0.35m deep with a similar fill (Fig 3.3, Section 31). The next, 295, lay some 1.40m distant (c 0.60m in diameter and c 0.40m deep) with a fill of mixed, charcoaly soil. The northernmost, 294, was observed in section at the limit of excavation (c 0.75m in diameter) with a fill of gravelly soil and several large, angular stones. These four postholes lay only some 0.20-0.30m from the west wall of TS11, so that they could not be verandah posts. While their association with the adjacent building is based upon spatial and stratigraphic considerations no satisfactory explanation for their function can be offered.

Building SS1

This lay some 13m south of TS11 and in Period 6,

comprised a stone-footed building of six rooms on an east-west axis, entered from a north-facing verandah with two further rooms projecting south; one from its western end, the other from close to its eastern extremity. Only the foundations survived its demolition. Part of these foundations were used in the building of SS2. It measured at least 22m east-west by 6m wide; c 4.50m excluding the verandah. The two rooms extending south from the main block were not symmetrical; the western was a shallow latrine block only 2.25m deep, the eastern comprising a large room, 5.50m in depth.

Room F, at the eastern end, lost its gable wall and most of its interior when B2, the Period 8 bath-house, was built; its east-west dimensions, therefore, remain uncertain although they are unlikely to have exceeded 4m internally. A fragment of the north wall foundation, 2068, representing a continuation of 203/2020/2027/2028/2040, survived. The foundation of the west wall, 857, comprising a cobble-filled trench c 1.60m wide, was considerably wider than elsewhere in the building. Given the excessive width and the fact that it transected the line of the verandah to the north, it is suggested that Room F was an addition, the building having initially comprised five axially-arranged rooms with an overall length of c 20m (Fig 3.13). Such an addition would also explain the asymmetrical position of the southward-projecting Room I. Thus although Room I is an addition to the building it is an earlier addition than Room F. If this had formed an integral part of the initial scheme, occupying a position at the eastern end of the five-room block, it would have balanced the latrine block at the western end. That symmetry was lost with the addition of the extra room at the eastern end. The foundations of the south wall of Room F were largely sealed by those of SS2 but were apparently represented by 200/858 comprising large cobbles in a red-brown clay matrix set in a trench c 0.90m wide. The remains of an orange clay floor make-up (171/411) were observed within, sealing a posthole (215/430), c 0.25m in diameter, which cut the Period 5A deposits-

Room E to the west, with internal dimensions of 3.70m north-south and 2.30m east-west, was defined by wall foundations 857/885 on the east, 203 to the north, 189 to the west and 200/858 on the south. The foundations of the north wall consisted of layers of orange clay and large cobbles (up to 0.30 x 0.15m) set in a trench c 0.60m wide. The west wall survived best, representing actual footings rather than mere foundations. It was c 0.50m wide and comprised rather irregularly-shaped facing stones of yellow, crystalline sandstone with a clay-bonded rubble core. Within the room a deposit of orange-brown clay, 188, either represented a floor make-up or contemporary floor.

Room D was c 3.70m square internally and defined by wall 189 on the east, 203/2020/2027/2028/2040 on the north, 200/358 on the south, and 2075, a cobble-filled foundation trench c 0.90m

wide on the west. There was no trace of a floor.

Room C, measuring c 3.60m north-south and c 3m east-west, was delimited by walls common to its eastern neighbour and 2042 on the west. The last was composed of angular blocks of yellow sandstone set in light brown clay and retaining traces of white mortar. In the western half of the room a yellowish clay (2043) represented either a floor or make-up. To the east three postholes (2136, 2137, 2138; all 0.15-0.20m in diameter) formed a north-south alignment, but their relationship with 2043 could not be determined. However, like 215/430 in Room F, they cut the demolition deposits of Period 5A - in this case layer 2039 - and either belong to Period 5B or 6, most likely the latter. Their function remains unknown, although it is possibly connected with the construction of SS1.

Room B, measuring 3.60m north-south by 2.90m east-west shared a wall common to Room C, its west wall being defined by a trench 0.60m wide filled with angular, part-mortared yellow sandstone blocks set in a brown clay. A solitary posthole, 0.25m in diameter, with two packing-stones, lay c 0.40m from its west wall in a context analogous to those in Rooms F and C. No floor survived.

Room A at the western end of the main block was also the largest, measuring 3.60m north-south and 5m east-west. It shared a wall common to Room B together with 180, its gable wall, which lay beneath that of SS2. The remnants of a clay make-up or floor deposits survived in the south-central portion of the room. A drain or water channel (209/2045/2364) ran through a culvert in its north wall (2040), although truncated by a modern disturbance at this point. The channel was on average 0.60m wide, its upper sides being defined by a single course of roughly dressed blocks, probably designed for the reception of capstones. No appreciable quantity of silt was noted in its bottom; instead the lower fill comprised a dark, ashy loam, whilst the upper consisted of dark soil, stones and a mortar spread (Fig 3.3, Section 32) which seems to represent a deliberate backfill. Backfilling took place when the building was demolished. This channel could not be traced more than 3m beyond the north wall of SS1 where it presumably originated in a water tank; the channel being designed to flush the latrine at the western end of the building.

Running parallel to, and only c 0.80m from the north wall at the eastern end of the main range, was a wall foundation (167), composed of cobbles set in a yellow clay matrix set in a trench about 1m wide. Further west this had been obliterated by a wall-foundation of SS2. This foundation either represented a stylobate wall for a verandah, or given its solidity, possibly the north wall of the building in its own right; thus providing a corridor linking the individual rooms. At marginally under 1m wide this would have been inconveniently, if not impossibly, narrow. North of wall-foundation 167 were a number of postholes; 2089, 2142, and 2189, all c 0.35-0.45m in diameter, which like

others found within the building possibly relate to its construction.

At the western end of the range, and south of Room A, was a shallow wing of two rooms, G and H. Room G measured 1.80m north-south and c 1.70m east-west internally. Its west wall, 1100 (c 0.95m wide), was composed of facing stones of roughly dressed yellow sandstone and a rubble core. The south wall, 1069 (c 0.60m wide), was of similar construction, as was 1347, the party wall beneath Rooms G and H. The junction of walls 1347 and 1069 was pierced by a latrine outfall. Wall 1069 continued to form the south wall of Room H, while 1090 (c 0.60m wide), of similar fabric to the remainder, formed its east wall; continuing at a slight angle to join the main range at the junction between Rooms B and A. Room H was, consequently, of irregular shape, measuring c 1.80m north-south and averaging c 2.50m east-west.

Both rooms had been used as latrines. A trench, c 0.50m wide and deep, and 1.50m long (980) faced with yellow sandstone blocks ran along the north side of the south wall in Room G, leaving the building via a culvert and then running south-east. This external drain (980), 0.50m wide, was also lined with blocks of yellow sandstone. Another drain (1109A), c 0.40m wide, ran 2m south from Room H, apparently another latrine, through a culvert in wall 1069 to join 980.

Within the northern stretch of 980 - hereafter referred to as D2D - were two sets of timber features, 1323 and 1146/1149/1160 (Fig 3.12), some 4.40m apart, comprising a narrow timber slot at right angles to the axis of the channel and two stake holes, one on either side of the slot. 1323 was situated just where D2D left Room G, whilst 1146/1149/1160 was located about 2m south-east of the junction between 980 and 1109A. These features appear to have functioned as sluices, with the objective of either retaining solid matter for removal by hand or, alternatively, creating a sufficient head of water to ensure the proper flushing of the whole system.

Beyond the southern sluice D2D changed course and ran due south. It linked with D2B at the *via sagularis*. The south stretch of D2D immediately north of the *via sagularis* had a series of stakes along its western side (the eastern having been destroyed by B1), serving either as an additional revetment for the stone lining, or more probably representing an earlier phase of lining. D2D presumably had capstones, removed when the drain went out of use in Period 6A.

The initially south-easterly course of D2D from the latrines may be explained by the presence of a rectangular setting of large cobbles, 1141, bedded in mortar. This was clearly designed to bear a considerable weight, perhaps that of a water tank.

Towards the eastern end of SS1, and south of Rooms E and D lay Room I with internal dimensions of c 4.70m north-south and c 3.90m

east-west. Only its foundations survived. Its south wall, 930, represented by two lines of large cobbles with a smaller infill, was set in a foundation trench c 0.70m wide filled with cobbles and clay. Its east (855) and west (885) walls were of similar construction. It appears to have been floored with a pale yellow clay (803B) on which lay a hearth (946) consisting of a disturbed horseshoe of tile fragments bounding an area of pink clay set centrally against its north wall. Occupying the centre of the room was a shallow, oval pit (939) measuring c 1.80m by c 1m (Fig 3.3, Section 33). Its upper fill comprised a clayey silt and a little gravel; the lower a mix of gravel, charcoal and lumps of fired and fresh clay.

TS11 excepted, it appears that SS1 was the only building in this quarter of the fort in Period 6. That it was residential is certain, the provision of a latrine-block conferring a measure of comfort and privacy to the occupants. Its function is discussed on p 13. The location is puzzling: it lay at least 20m from the *via principalis* frontage, possibly hinting that it may have been the intention to construct eastern and western ranges forming a courtyard arrangement - a harbinger of the Period 7 plan. If such was the case then it did not reach fruition, unless the enigmatic TS11 represents one such element. No contemporary roadway approaching the building from the north was found, an omission which could be construed as indicating that access was from the *via sagularis* on the east.

Period 6A (Fig 3.14)

This saw the building of B1, a small bath-house south of SS1; other minor features of this period were noted in the *intervallum* and the area north of SS1, whilst the latest features belong to the demolition of SS1 and the phase immediately preceding the construction of SS2 of Period 7.

B1, the small bath-house

This building was discovered and extensively cleared in 1846; excavation and subsequent stone-robbing having severely damaged the remains. The bath-house was of row-type with the *caldarium* and stoke-hole on the south and a double-apsed *frigidarium* at the north. Entry was probably from the north-west, although there was no specific information on this point. Although B1 was not wholly symmetrical with SS1 it was essentially so insofar as it was inserted between its two south-projecting rooms. In this respect it was clearly designed to serve the occupants of that building and, given SS1's apparent isolation from other habitable structures, designed for their exclusive use.

During the building of B1, drains from the latrines in Rooms G and H were blocked with rubbish and yellow clay (1108, 1109B). Room G appears to have ceased functioning as a lavatory.



Plate 3.4 B1, the bath-house associated with SS1, the 'Hadrianic' stone administrative building. View East.

In Room H a new latrine trench (1107/1145), 2m long, c 0.60m wide and 0.50m deep was dug passing through the east wall (1090). Outside the room a new drain, D4, was dug, comprising a channel lined on both sides with a single course of masonry and covered with capstones (849B/952/959), the original trench being backfilled with gravelly silt (957). D4 was originally aligned east-west, being positioned more or less equidistant between the foundations for the south wall of SS1 and the northern extremity of B1. It then curved around the eastern apses of the latter to assume a southerly course before being joined by the outfall drain from the cold-plunge (913A). The unified drain thereafter continuing south to feed into D2B, the main ring-drain.

The bath-house had been built in a large, roughly rectangular pit measuring approximately 15m north-south by 6.5m east-west. Only the substructure of the building survived. The masonry employed was a yellow sandstone similar to that used in SS1. The footings of the west wall (908) were composed of rubble bonded by a cream mortar set on a foundation trench (9151, 0.60m wide filled with red clay.

At the north end of B1 were the pitched rubble foundations of a room with an internal apse defined by foundations extending some 1.80m north from the robbed-out north wall of the

frigidarium. It was set back some 0.50m from the *frigidarium* and had a radius of c 2.80m. It was not quite centrally aligned within its foundations or in relation to the walls of the *frigidarium*; hence its west wall was only some 0.40m thick.

Fronting the apse to the south was the robber trench, 955, of the north wall of the *frigidarium* (0.60m wide and 2.35m long). The east side of this room, which measured 2.40m square internally, was defined by the foundations of the apsidal cold plunge (911). The foundations were of mortared rubble set in a trench c 0.50m wide with a basal fill of red clay. Nowhere did the substructural floor of the *frigidarium* survive, although a layer of reddish, clayey soil (912) either represents its make-up or a specially prepared raft of the type encountered in the case of B2 (see p 62).

The foundations of the cold plunge were of pitched rubble set in a trench c 0.60m deep, and extended in an arc of 2.60m wide and 1.50m deep. Running into drain D4 from the centre of the apse was a short outfall composed of two slabs, 0.50m square, set on edge. Given the fact that this outfall demonstrates that the eastern apse housed the cold-plunge, the north apse probably functioned as an *apodyterium* with shallow niches for clothing in the depth of the walls.

The wall dividing the *frigidarium* from the *tepidarium* to the south was badly disturbed and

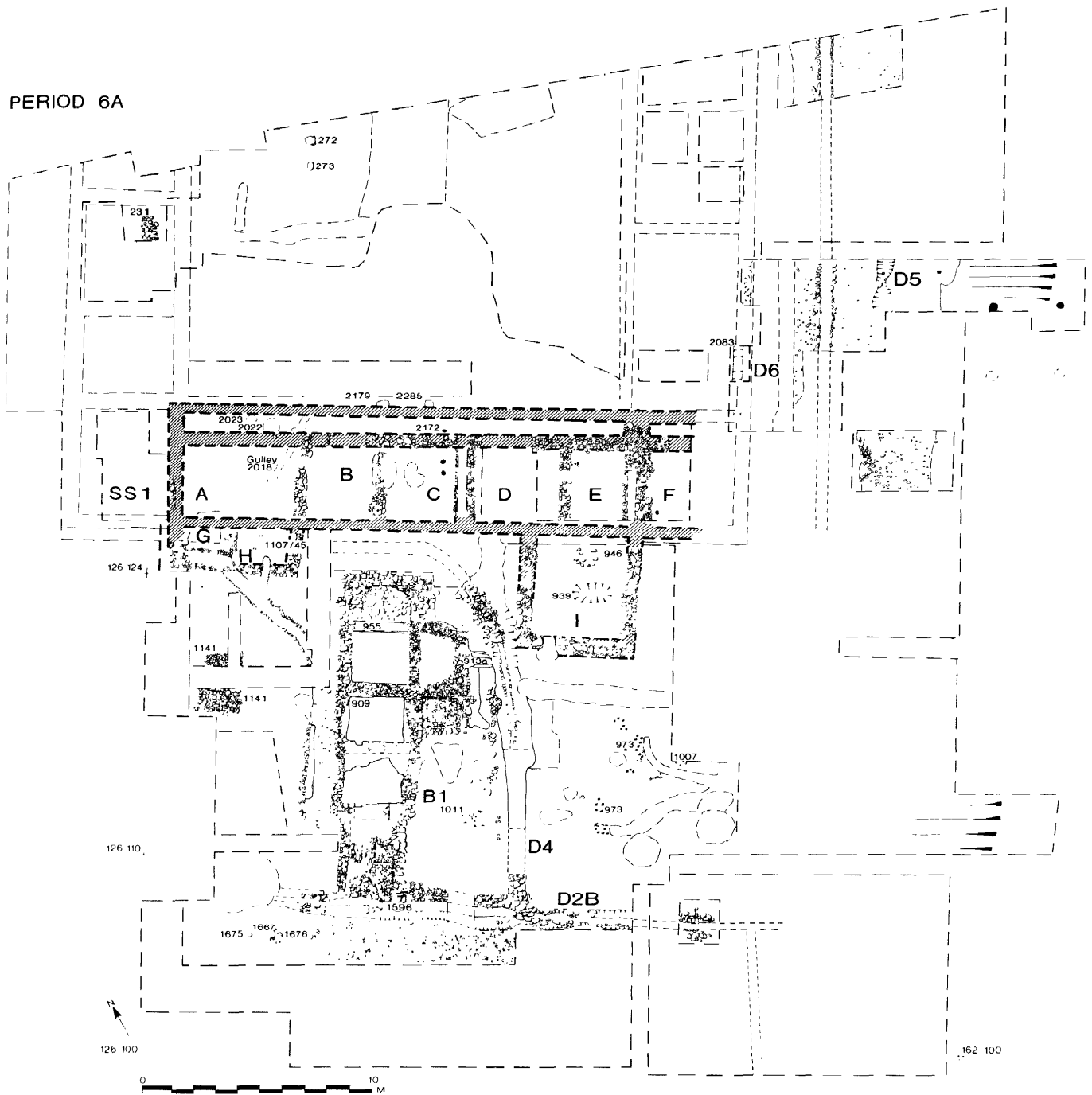


Figure 3.14 Period 6A plan.

survived largely as a cobble foundation set in a trench c 0.70m wide filled with yellow clay (909). Within this room, c 2.20m square internally, a substructural mortar floor (905) survived, upon which were the impressions of two hypocaust *pilae*. Their size and shape confirm that they were brick *pedales*.

To the east of the *tepidarium* was a cobble platform, roughly 2m square (923), set in brown clay. On this were mortar stains and three areas of rubble set in mortar, 910, 921 and 922 - the last a re-deposit. Whilst these mortared areas appeared to form part of an apse, they lay far too close to the margin of the platform to represent certainly such a feature. The 1846 plan (Fig 1.3) shows this platform as apsidal externally, and rectangular internally, linked by a flue to the *tepidarium*. Whether this plan was the product of over-enthusiastic interpretation, or the footings survived better than in 1977-78 is unclear. Where opportunities for testing the Victorian plans exist they have been shown to be remarkably accurate; hence, the existence of a room, whether apsidally-ended or not, on this platform seems inherently likely. The alternative possibility is that the platform formed the base of a tank feeding the cold-plunge to the north.

The wall dividing the *tepidarium* and the *caldarium*, 917, survived only as a few sandstone facing-blocks set in a linear patch of decayed mortar. The 1846 plan (Fig 1.3) shows two flues piercing this wall. The *caldarium* measured 2.60m north-south by 2.70m east-west and had a concrete sub-structural floor (919/925) bearing one brick *pila* and three impressions. To the south two piers and the northern limits of the furnace-chamber defined a tiny room measuring only 1.90m east-west and c 1m north-south internally. It is uncertain whether one or more flues linked this with the *culdarium*. Two floor levels were revealed within: an upper of heavily burnt clay (920), and a lower of bricks (926). This floor could well have been sub-structural if the room had housed a hot bath, instead of a boiler next to the furnace arch (the reconstruction drawing - Figure 18.1 - has assumed the latter). A drain (1596), which began under its floor, and ran beneath the furnace arch to debouch into D2B suggests that it was periodically necessary to drain away surplus or dirty water as would have been necessary in the instance of a hot bath.

At c 0.95m wide the south wall of this room was much wider than any of the others in the building, presumably because the furnace arch passed through it. The west side of the flue (1599) survived to a height of 0.55m. Elsewhere the flue and arch had been robbed to foundation level. The foundation consisted of a cobble platform (1019/1602/1691/1699) which also formed the floor at this point. The west wall of the furnace chamber, 1556/1598 (1.50m long x 0.40m wide), survived to about 0.50m high.

Approximately 4.00m west of B1 and 3.50m south of Room G of SS1 lay a rectangular platform of mortared rubble (2.00 x 3.00m) which may represent the setting for a water tank (1141).

Minor features of Period 6A

To the east of B1 drain D4 ran south, serving both bath-house and latrine in SS1. West of D4 an oval setting of burnt clay (1011), was possibly a hearth.

A number of features have been assigned to Period 6A as the latest to which they might belong. Beneath the area to be occupied by the west wing of SS2 was a stone foundation (231), 0.50m wide, running north-south for a distance of 1.40m. Its function remains unknown. To the east, in the area of the Period 7 courtyard, were two postholes, 272 and 273, 0.40m and 0.35m in diameter respectively, again of unknown function.

The rear of the east rampart was the scene of general cooking activity, represented by spreads of charcoal and burnt clay. It was sealed by a dump of soil cut in turn by D5, an irregular gully running north-south. Whilst very shallow (c 0.10m) at its northern end, it deepened to a sump at the southern.

West of the *via sugularis* and beneath the wall of the Period 7 building, was a deep, north-south drain (2083), D6. Originally about 0.65m wide and 0.50m deep, it had a primary fill of silty soil capped by a possibly deliberate fill of ashy soil (2067/2097). It may have replaced D2A, the Period 6 *intervallum* drain, which had been filled with clay.

The demolition of SS1

The building was demolished at the end of Period 6A and replaced by SS2. Prior to the construction of SS1, a number of features represent a short-lived phase of activity, although some have been simply placed in Period 6A as the latest possible.

A V-shaped gully, 2018 (0.30m wide and deep), cut 2019, the foundation of the north wall of SS1. This ran from north-east to south-west; its northern starting point was obliterated by later disturbance, whilst it appears to peter out to the south. The fill was stony loam. To the west and underlying the verandah of SS2 were two pits, 2079 and 2085, the former measuring 0.60m x 0.25m and only 0.80m deep, the latter 0.60m x 0.35m and only 0.10m deep. Both were filled with burnt clay and ash. Pits 2179 and 2285 were situated further east, the former measuring 0.60m x 0.90m with an upper fill of burnt clay and ash overlying dark clay and pebbles; the latter measuring at least 0.50m north-south and 0.20m deep with a fill of dark soil and ash.

Beneath the Period 7 floor in Room XI of SS2 were two features connected with metalworking. 2022 was a hearth, c 0.40m in diameter and 0.10m deep, comprising a thin deposit of ashy brown soil overlying a thicker stratum of charcoal incorporat-



Plate 3.5 South range of the courtyard building (SS2).

ing crucible fragments (see p 212). A small pit, 2023, 0.25m in diameter with a fill of ash, lay next to the hearth, whilst a little to the north-west of this feature was a deposit of ash, burnt clay and crucible fragments representing further debris. To the south of this cluster a further pit, 2087, measuring 1.90m × 0.55m and 0.15m deep with a fill incorporating lumps of unfired and fired clay, may possibly be associated with the above.

Beneath the Period 7 floor in Room X of SS2 lay a pit, 2172, measuring 0.80m × 0.90m with a fill of burnt clay and charcoal, including crucible fragments (see p 212) and a considerable amount of discarded metalwork, including part of a '*lorica segmentata*'. Cumulatively this evidence suggests bronze working in the interlude between the dismantling of SS1 and the completion of building of SS2, although there is a possibility that this activity is to be ascribed to Period 5B. Finally, beneath the Period 7 floor in Room VII of SS2 lay a further pit, 1367, measuring 1m × 0.65m and with a layered fill of burnt daub, charcoal, loam and mortar. This appears to be unconnected with those associated with metalworking.

Period 7 (Fig 3.15)

This period saw considerable activity: the laying down of a new *via sagularis* (R5), the digging of new drains and the modification of B1. The prin-

cipal projects, however, were the replacement of SS1 by a large courtyard building (SS2) whose eastern, western and southern ranges fell within the excavated area; a further range lay beneath the modern road, i.e. fronting the *via principalis*. In this period the earthwork defences were also replaced by a stone circuit wall.

The via sagularis and drains

The road R5 (28/34/268/278/399/405/409/479) was about 6m wide, and comprised a core of large cobbles (2154), c. 0.20m in maximum diameter, surfaced with smaller cobbles and rammed gravel, with a strip of 'pencil slate' and smaller gravel along its western margin. A stone-lined drain, D7 (256/281/2084/2140; 0.50m wide and up to 0.80m deep) lay to its west. Its filling varied from ashy black loam in the north to brown clay, mortar and wall plaster to the south, apparently from the demolition of the east range at the close of Period 7A. No capstones survived, these too having been seemingly robbed at the end of its life.

The courtyard building, SS2

This building lay adjacent to R5 and comprised east, west and south ranges of a minimum of 15 rooms in the first instance, disposed around a porticoed courtyard. The building measured 30m

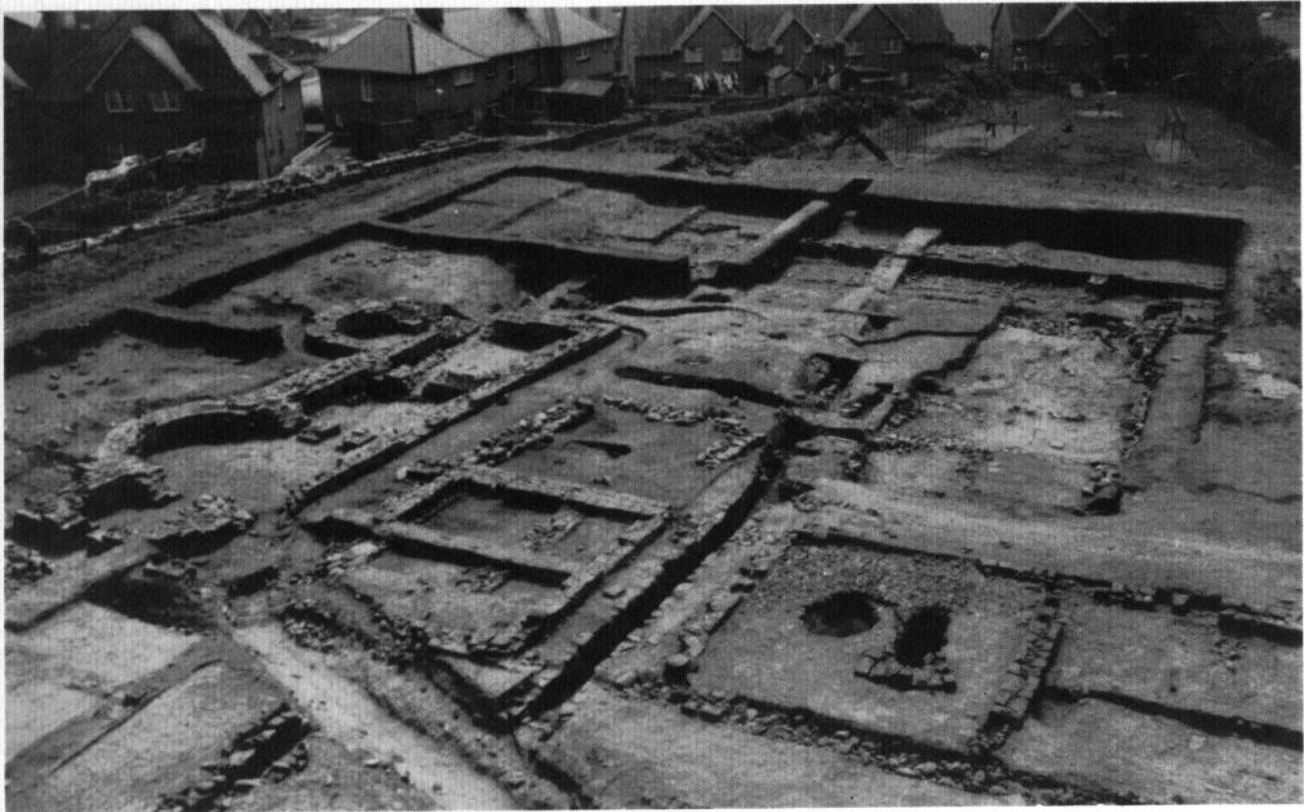


Plate 3.6 South range of the courtyard building (SS2).

east-west and at least 24.5m north-south, although the latter dimensions could be extended by a further 10-12m, if, as seems likely, a north range fronted the *via principalis*. In this event the overall dimensions would be in the order of 30 x 36m. The courtyard measured c 14m east-west by a minimum of 13.5m north-south.

The east range was c 6m wide and defined by wall 9 to the east and 44 to the west, 0.80m and 0.60m wide and 0.35 and 0.30m high respectively. The former was built on foundations of large, water-worn cobbles set in brown clay in a trench c 1.20m wide and 1m deep. The walling comprised headers and stretchers of red sandstone and gritstone with a mortared rubble core. Traces of a hard white plaster on the exterior of wall 44 corroborates the 1846 account (*Arvoniensis* 1846) which records that the walls of the east range were plastered externally.

Room I, the most northerly, was defined on the south by wall 49, of similar construction to the other walls, but only 0.40m wide. No floor levels survived although a yellow clay may have represented a make-up. Partly projecting from the northern limit of excavation a strip of yellow clay 2m long with occasional insets of worked sandstone (285), on an east-west alignment, might represent a wall foundation. If so, then Room I measured 2.60m north-south and 4.60m east-west.

Room II was defined on the south by wall 42,

0.45m wide, and measured 4.60m east-west and c 5.50m north-south. No floor levels survived, other than some possible make-up of yellow clay. A tile-patch, centrally located on the line of wall 42, probably indicates a doorway linking Rooms II and III to the south.

The south wall of Room III (12) was approximately 0.55m wide, but had been badly robbed; the overall dimensions of the room was 4.60m east-west by 5.85m north-south. It was floored with pink *opus signinum* (10), with a quarter-round convex moulding at the junction of the floor and wall. Its west wall, 9, retained traces of a creamy white plaster. In the north-east corner a rectangular setting of pink plaster, measuring 0.50 x 0.30m, was set on the floor and abutted the wall. It was not repeated elsewhere and is tentatively interpreted as a stand for some decorative fixture, such as a pilaster.

Room IV had been much disturbed. Its south wall, 134, c 0.65m wide, defined a small room measuring 4.60m east-west by 2.75m north-south. This too had been floored with *opus signinum* founded on a levelling deposit of sandstone rubble, cobbles and gravel (159/2031), and also given a quarter-round moulding. Its walls had been internally plastered, the south wall additionally showing traces of wall-painting in reddish-pink and yellow-ochre.

Room V, at the junction of the east and south

PERIOD 7

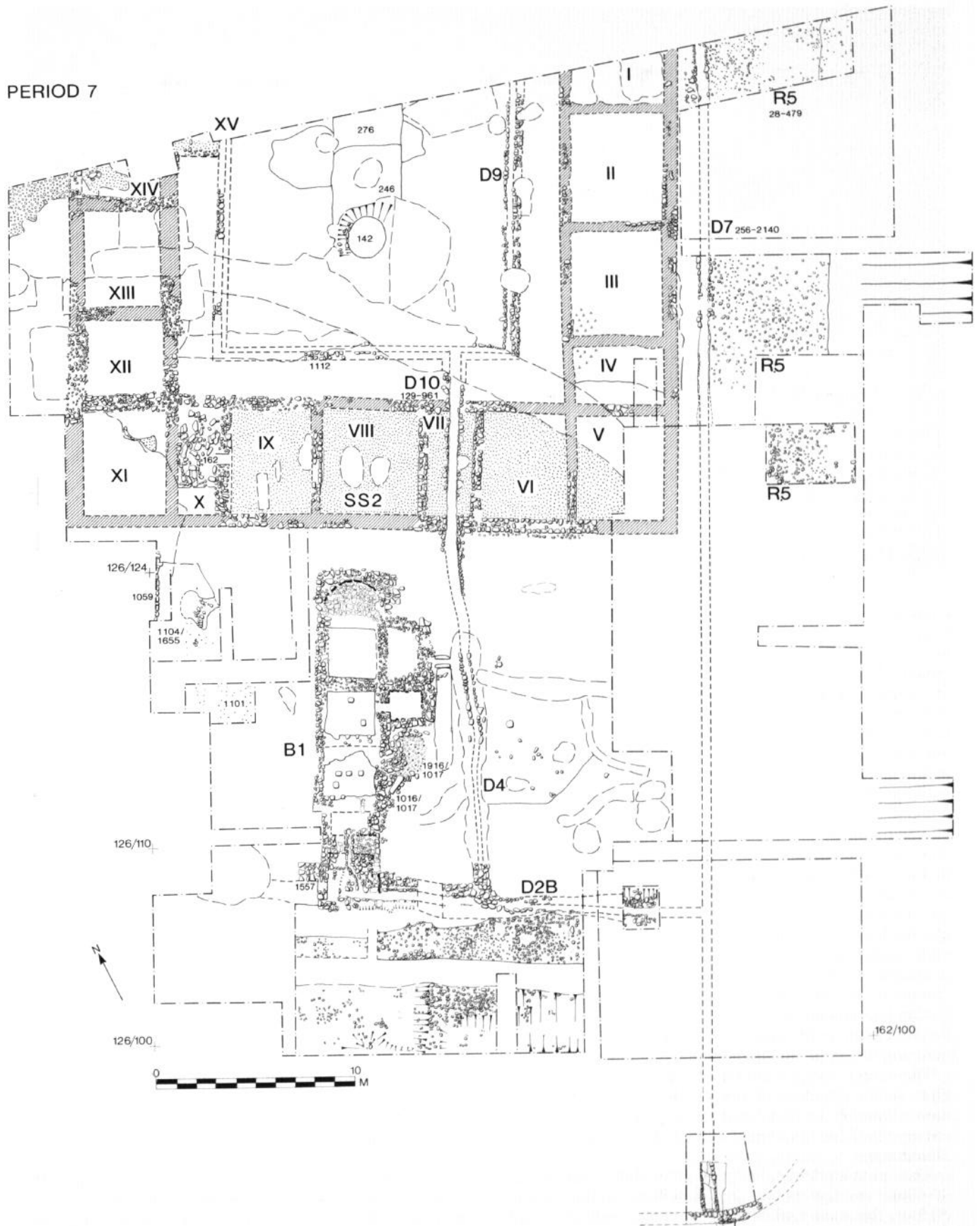


Figure 3.15 Period 7 plan.

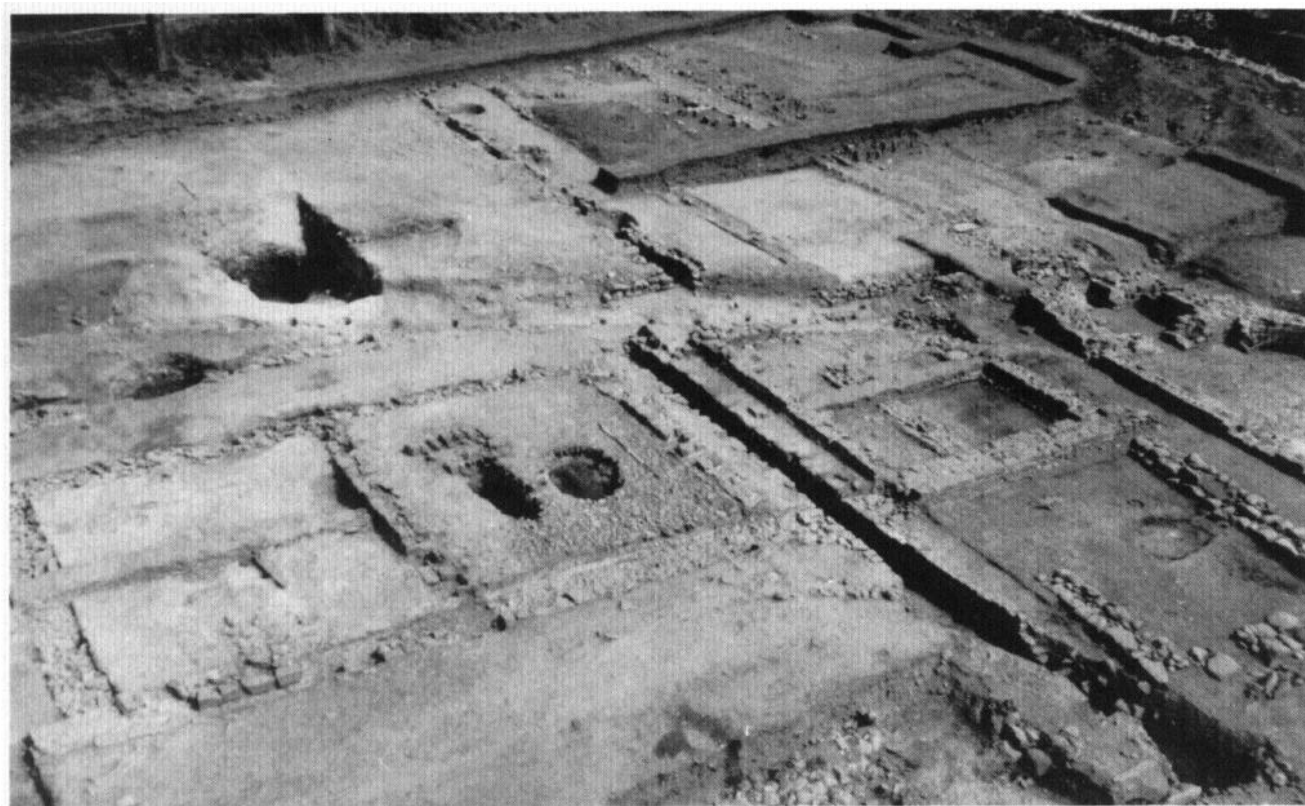


Plate 3.7 Rear and east ranges of the courtyard building (SS2). B2 cuts the south-east corner of the east range. Feature 2000 swings diagonally, west-east, through the building.

ranges, had been all but eliminated by the construction of the Period 8 bath-house (B2). Its south wall was that of the south range (131/415/805), 0.78m wide, reduced to 0.63m by an offset at the second course. Built of red sandstone, it was set on a foundation trench, 421; filled with grey clay and cobbles. The greater width of this wall, like that of wall 9 in the east range, may indicate that it carried a greater structural load and stood higher than the inner and partition walls. The west wall of the room, 813 (0.45m wide), of similar composition to its southern, was also founded in a substantial trench (208), c 0.70m wide. Although the east wall had been removed there is little doubt that it corresponded with that of the east range as a whole, in which case the internal dimensions of Room V would have been 4.60m east-west and 5.45m north-south. It was floored with a single deposit of gravelly concrete (141) laid on an underpinning of small sandstone rubble and chippings.

The south range comprised six rooms (excluding that at the junction of the south and west ranges), two of which were so narrow as to be reasonably interpreted as passages allowing access through the range.

The most easterly, Room VI, was defined by walls 134/861 on the north, 131/415/805 on the south, 813 on the east and 806 on the west, with internal dimensions of 5.45m north-south and 4.35m

east-west. Its north wall was 0.60m wide founded on a foundation trench 0.80m wide filled with clay, cobbles and sandstone chippings. The west wall was of similar construction, though only 0.45m wide. The room was floored with a single layer of gravelly concrete (135).

Room VII, to the west, had its west wall 0.40m wide set on a foundation trench (835) of similar width, filled with red clay and stone chips. Like Room VI, it was floored with gravelly concrete (834), founded on a make-up of red sandstone chippings and mortar fragments, which appears to have sealed the capstones of a drain (D10) which ran axially through the room. The drain was of one build with the north (129/134/199/861) and south (131/415/805) walls. The drain, 0.62m deep, had sides (859, 866) of coursed mortared sandstone; the eastern having a partial tile course near the top. It was clear from impressions in the concrete floor that the drain had been robbed of its capstones, the drain silt having been subsequently sealed with stones and much mortar soil. D10 was intended to empty D9, the courtyard drain to the north; subsequently feeding into D4 (849) to the south of the range. The relative narrowness of the room (5.50m north-south x 2.25m east-west) strongly suggests that, like Room X to the west, it functioned as a service passage between the courtyard and the area to the south of the building, where the bath-house

was situated. The room was also sufficiently wide to have accommodated a staircase to an upper storey.

Room VIII measured 5.35m by 4.75m internally, with a west wall (115) c 0.45m wide. The base of its walls showed that it had originally been plastered internally. The floor comprised a gravelly concrete (187) on a make-up of sandstone rubble (2037), and had been subject to several repairs with patches of *opus signinum* (271).

Room IX was defined by the foundations of its west wall (168), set in a trench 0.60m wide filled with sandstone rubble and mortar. It was floored with gravelly concrete (164), and measured 5.25m north-south by 4.25m east-west internally.

The south wall of Room X had been destroyed and its west wall (180) badly robbed, surviving only as a solitary facing-block and a rubble core set on a foundation trench 0.60m wide. The room had been floored with irregularly-shaped slate flags (162). Measuring only 5.40m north-south by 2.20m east-west, like Room VII it may have merely served as a passage, but it is wide enough to have housed a staircase.

Room XI at the junction of the south and west ranges had been almost wholly wrecked, possibly by its nineteenth-century excavators. The south wall had been entirely removed, as had most of the west wall with the exception of a northern fragment (183/211), c 0.80m wide, set on a foundation 1m wide of cobbles and pieces of sandstone. The foundations of its north wall (199) survived rather better, comprising cobbles set in a trench c 0.85m wide, and representing a continuation of the north wall of the south range (129/134/861). Its internal dimensions appear to be of the order of 5.25m north-south by 4m east-west. Traces of a gravelly, concrete floor (181) survived in the north-east corner of the room.

North of Room XI the west range continued to be severely disturbed by stone-robbing. Room XII, c 4m square, being the only one to survive reasonably well. Its east wall (224), 0.70m wide, was composed of red sandstone with a rubble core, set on a foundation of clay and cobbles 0.80m wide. However, since it was joined by a Period 7A flue, it must, at least in part, have been reconstructed. Only the cobble foundations of its west and north walls survived, the former (183/211) set in a trench 1.10m wide, the latter (225) being 0.70m wide. No floor survived the insertion of a hypocaust in Period 7A.

Room XIII was slightly larger but was represented only by vestiges of the footings for the east and west walls, with a more extensive cobble footing 0.70m wide for its north wall (230). Its internal dimensions appear to have been 5m north-south and 4m east-west. No contemporary floor survived.

Room XIV was somewhat better preserved under a hedgebank and dumping from the modern garden. Its west wall (144) continued the line of

183/211 to the south. The wall, 0.55m wide, of mortared red sandstone on a cobble foundation, was slightly narrower than its counterparts in the east and south ranges. The location of its north wall could be deduced from the placement of wall 146 which ran across the line of the verandah, indicating that the room probably measured about 2.40m north-south by 4.20m east-west; dimensions which, like those of Rooms VII and X, suggest that it may have functioned as a passage through the range. Its floor was composed of gravelly concrete (145) on a rubble make-up.

The most north-westerly element of SS2 to be excavated was wall 146, 0.62m wide, again composed of mortared red sandstone. On the north side of wall 146 was a small fragment of *opus signinum* (217) suggesting the floor of another room; and, furthermore, suggesting that the room thus defined (Room XV) extended across to take in the full width of the wing so that the verandah stopped at this point. It is also significant that 146 was wider than the usual room divisions in the east and south ranges, thereby indicating that it was designed to bear a greater load. Irrespective of whether this was the case the extension of wall 146 across the line of the verandah indicates a change in the roof-line at this point.

Since the east and west ranges ran down-slope, the builders had terraced them, substantial differences in original floor-levels being observed in the northern and southern rooms. For example, there was a 0.30-0.35m drop in floor level between Rooms III and IV but only 0.05m between Rooms IV and V at the southern extremity. Although floors did not survive in Room II, to judge by the level of the substructural (ie pre-hypocaust) remains the floors within these rooms must have been clearly stepped up in relation to that of Room III. Overall differences in floor levels between that surviving in Room XIV, the northernmost, and the earliest concrete floors within Rooms VIII, IX and XI is of the order of 0.82m.

Although there is no architectural evidence to support such a claim it is not impossible that all three ranges were of more than one storey, a likelihood which appears more probable in the context of the wider east and south ranges with their differential wall-thicknesses. Evidence for roofing was, again, lacking. Tilt or slate would be equally likely, perhaps with a bias towards the latter in the light of its occurrence as a flooring material within the south range.

The wings of the building flanked a courtyard from which access to the individual rooms was by way of a peripheral verandah 1.60m wide. The verandah edge was defined by a stylobate wall (112) and a drain (D9) which took water from the pent roof. The unmortared wall must have had a columnar facade. No fragments of stone columns were recovered, hence the columns are likely to have been wooden. No certain contemporary surface survived on the verandah although patches

of mortar and slate fragments overlay a possible make-up of brown clay (153). The drain, the inner side of which was also the stylobate, was 0.30m wide, and was stone-built throughout. As was noted above (p 55), the verandah of the west wing extended only as far as Room XV, at which point the wing widened to take in the width of the verandah, presumably to provide large rooms in this quarter.

Within the courtyard mixed deposits of cobbles, gravel and 'pencil-slate' (114/178) set in a greyish clay, delimited by the verandah, form a level freely-draining surface. The centre of this area was occupied by a number of features, the majority of which may be connected with water-storage. The earliest features comprise two irregular pits occupying the northern extremity of the courtyard. These were cut by 276, a shallow rectilinear pit measuring 3.40m by at least 2m, with a fill of ashy clay and stones. This, in turn, was cut by another rectangular pit, 246, measuring 3.40m by at least 6m, and 0.50m deep with a filling of interleaved lenses of brown soil and yellow clay. The fact that it cut pit 276 axially suggests that it was its lineal successor and was presumably designed to fulfil the same function. In this location they are most likely to have been water tanks.

Pit 246 was further cut by 142, a shaft 2.50m in diameter and 3.80m deep from the surface of the courtyard. It retained the remnants of a multangular well-head of sandstone blocks set in clay. A number of stake-holes were also observed around its margin but may belong to a later period. The shaft had been dug into the natural boulder clay and the large boulders in this geological formation may have proved an impediment to further deepening. Its upper zone produced a backfill of yellow clay, gravel and numerous large stones, changing at a depth of 1.30m to a silty, dark grey clay producing fragmentary food remains and specimens of wood and other organic matter indicative of silting. Despite the relative shallowness and the fact that it was observed to be virtually empty in dry weather, it seems reasonable to infer that this feature functioned as a well rather than an ornamental pool. The *principia* well excavated by Wheeler (1924, 27) was, after all, only 4.15m deep.

Apart from the *via sagularis* which flanked the building to the east there was evidence for the existence of a heavily metallised surface, a street or a lane, to its west. At the north-west end of the excavation a thick deposit of rammed gravel and 'pencil-slate' on a foundation of cobbles ran up to the footings of the west wall of Room XIV and survived to the south-west for a distance of some 3m.

Bath-house B1 and areas south of SS2

B1 appears to have continued in use, receiving a number of modifications, probably in Period 7. A secondary flue (1916/1017) was inserted centrally

through the east wall of the *caldarium*. This was 1.40m long, aligned to the north-east, tapering from 0.75m on the east to 0.40m at its junction with the *caldarium* wall, and floored with tiles and sandstone blocks.

At the southern end of the building the furnace-chamber was also modified, probably in this period. A rectangular block of mortared masonry (1557), measuring 1.10 x 0.95m and 0.40m high was built abutting its west wall (1556). This may have been a buttress or perhaps the base for a water tank feeding the boiler. Abutting and running south from 1556 a wall (1579; 0.70m wide) of yellow sandstone was built over the ring-drain (D2B). The drain had been backfilled with clayey soil mixed with mortar (1685). Another wall (1555), 0.55m wide and at least 0.36m in height, of identical stone, butt-jointed with 1579 and ran east for 3.20m, ending on the same line as the east wall of the furnace-chamber, whose extension had been destroyed. These elements indicate that the furnace-chamber had been extended south, presumably to ease the stoking of the flue or perhaps to provide a larger, covered fuel-store. In the south-west corner of the chamber thus formed some cobble underpinning (1597) and a possible floor remnant (1601) survived.

To the east of B1 the accumulation of a silty clay (1614) at the base of drain D2B shows that this was steadily silting throughout this period. Elsewhere, a series of clay deposits (803a, 932, 940, 968) appear to have been laid (later pottery from 932 appears to be intrusive: see p 274).

Immediately south of Rooms IX and X of the courtyard building a series of metallised surfaces (1104, 1655) seem to have been laid in this period. Both surfaces were composed of cobbles and some 'pencil-slate' set in clay. To the south a spread of fairly loose gravel (1101) sealed an earlier stone platform (1141). Only just appearing in section, and possibly of this period, was a 3.50m length of the east face of a sandstone wall (1059), possibly, but not certainly, sealed by the metallised deposit 1058. It had been robbed at its northern end, consequently its relationship to the latrine block, and the south range of SS2 in general is unclear. It could, however, be later than the latrine block of SS1 and may even represent its successor in the new building, latrines being otherwise conspicuously absent from an overtly residential complex.

Finally, the latest surface of R5, the *via sagularis* to the south of B1, also belongs to this period. It was of composite construction, comprising cobbles of variable size embedded in gravel (1589/1594/1613/1627/1662/1664/1672/1674) and was about 7m in width.

The dramatic transformation in the internal layout of the south-east quarter of the fort in Period 6 is heightened by the new courtyard-planned building of Period 7. Although courtyard buildings can be shown to have very different functions, including in military contexts their use

as workshops (*fabricae*; von Petrikovits 1974, 404) the appointment of SS2 is such that, like its Period 6 precursor, it cannot be considered as anything other than residential, although an administrative function could have been combined. Rooms III and IV were provided with *opus signinum* floors with quarter-round mouldings, the former with a plaster 'architectural feature', the latter with wall-paintings. The remainder of its rooms, barring the 'service-passages', were also commodious and provided with high-quality floors. The only noticeable lack of facilities is that of a recognisable kitchen, and that may either have lain in the badly damaged west wing or may have comprised a raised, bench-type oven complex which left no traces on the floors. The well-worn floor of Room VIII might indicate just such a kitchen. Finally; the provision of a bath to the south provides additional evidence for the exclusivity of the building complex, a topic whose wider significance is discussed in detail on p 58.

The fort wall

The building of the fort wall is assigned to Period 7 on the following grounds. Although stone drains were first introduced in Period 6 the line of the north-south drain D2A when projected does not make a junction with the culvert in the south-east corner of the fort wall, a culvert which appears to be contemporary with the erection of the wall. On the other hand the new drain D7, which was constructed in Period 7, is in exact alignment with the culvert. The culvert was floored with slate slabs and built in masonry of different character to that of the Period 6 drains, D2A and D2B. Slate was used to floor parts of the courtyard building of Period 7. The date range of Periods 6 and 7A is Trajanic to Hadrianic. Excavations at the North Gate (Casey 1974a, 57) found Antonine samian in the backfill of a post-pit of the tower of the Flavian gate. The new wall ran over these filled post-pits. It follows that the wall must be of Antonine or later date.

The building of the fort wall necessitated cutting back the front of the rampart to provide room for building; a sequence which may be readily paralleled at many fort sites in Wales in the 2nd century AD. The sequence is best illustrated by reference to the section through the defences (Fig 3.6). The front of the rampart was cut back at least 2m. The wall's foundation-trench was dug into the resulting enlarged berm. The wall was built from the east against the surviving earthwork; the lowest part of the space between the new wall and the slope of the cut-back rampart was filled with loose, greyish soil containing fragments of creamy mortar similar to that used in the core of the new wall. The bulk of the space between the old rampart and the back of the new wall was filled with a yellow clay with turf lenses (469/476). The wall was of undressed limestone blocks, faced on the outside with ashlar.

Period 7A (Fig 3.16)

This period saw alterations to SS2, and the building of a wall to enclose BI and adjacent areas. The bath-house may thereafter have gone out of use.

The courtyard building, SS2

Room II in the east range was divided. An east-west dividing wall, 45/46, partitioned the room into slightly unequal halves. The wall was of mortared sandstone, 0.45m and 0.39m wide. Another wall (67), 0.49m wide, ran south from wall 45/46 and was apparently integral with it. Thus two rooms were created out of the south part of Room II. A small hypocausted room was created in its south-eastern corner (Room IIB), measuring 2.75m north-south by 1.80m east-west. Wall 67 was pierced by a badly-disturbed flue c 0.40m wide, the north side of which was further defined by a cheek of pitched sandstone footings (2062), this cheek extended some distance to the west into the second of the newly created rooms (Room IIC), as is indicated on the 1846 plan (see Fig 1.3). The floor of the flue was of burnt clay. Nine *pilae* survived within the hypocausted chamber (Room IIB). These (66) were sub-quadrangular, roughly-dressed grey sandstone blocks, the largest measuring 0.45m x 0.25m. A substantial deposit of pink and black ash lay on the floor of the chamber, testifying to extensive use.

Major alterations in Room IV are directly related to developments in Room VII of the south range. At some stage D10, which emptied the courtyard drain (D9) and ran beneath the floor of Room VII, was blocked. The blocking (226) consisted of sandstone blocks, slightly recessed into the drain, backed by a thick plug of yellow clay, inset just north of the point where D10 ran into a culvert under the north wall of Room VII. Within the room the concrete floor (834) was cut by a trench (867) dug to rob the capstones. The distinctive dark humic silt (868B) which represents the Period 7 silting was then capped by 868A, a dark loam with much rubble and concrete. It is unlikely that the robbing of the capstones and filling of the drain occurred in Period 7, since it would have made the floor of Room VII intolerably messy and uneven, for there is no evidence of a subsequent re-flooring.

The blocking of D10 was occasioned by the building of the compound wall (see below, p 60), which necessitated the re-routing of the outfall of D9 from the south to the east. This was achieved by digging a new drain to the east through the walls and floor of Room IV to link up with D7, the drain bordering the *via sagularis*.

In Room IV the *opus signinum* floor (13) and east wall were cut by trench 160/212, located close to its party-wall with Room V. A stone-sided and capped drain (D11) was then inserted, the gaps between the trench sides and drain being backfilled with a stony soil (160; Fig 3.4, Section 35). Although the Period 10A drain (D12) had removed the critical

junction it is a reasonable assumption that D11 had run from the south-eastern corner of D9 through Room IV to debouch into the drain on the *via sugularis*. Later D11 filled with a considerable quantity of clayey, ashy silt. No attempt was made to cover the capstones of the drain in Room IV, despite the fact that they would have presented an unsightly contrast with the painted walls. This strongly suggests a forced change in room function, perhaps occurring towards the end of its use as a domestic apartment.

The majority of rooms in the south range were re-floored, some more than once, although not all these re-floorings need have occurred in Period 7A.

Room V at the junction of the east and south ranges had its primary concrete floor resurfaced with gravel set in a yellowish clay (416), followed by a second deposit of clay, 417 (probably a floor make-up) observed only in the southern half of the room. Room VI had a solitary resurfacing of pale clay (804), with a similar layer of orange clay in Room VII; both are likely to represent floor make-up. Room VIII revealed traces of at least three surfacings. The first of these comprised flagstones (ZOOS), set in mortar, laid on the primary concrete floor (187). Only a single fragment of flagging remained. The flagstone measured 0.40 x 0.30m, the position of the remainder being indicated by impressions. This floor was removed and the surface sealed by a second 'floor' of yellow clay (186, 253), itself succeeded by a cobble underpinning (130) which extended over only the southern half of the room. This, in turn, supported a further clay deposit (132); apparently an underpinning for a further floor of flagstones set in mortar, only fragments of which have survived.

These re-floorings in the south range represent major episodes in the history of the building. No specific reason for re-flooring could be advanced although dampness permeating the poor-quality concrete of the primary floors may be an important factor. Significantly, no such re-floorings were noted in the east range. Perhaps non-concrete floors were removed by the nineteenth century excavators. The west range was so badly preserved, and in parts so much altered by later building, that no significant flooring survived.

In the courtyard only a few minor features attributed to Period 7A were noted. Towards its north-eastern limits a layer of compact, gravelly clay (119) was laid down on the gravel surface. A small hearth (156), made of several slates set in an area of clay and charcoal lay on this surface. To the south was a small pit (237), about 0.65m diameter and 0.10m deep with a fill of dark loam.

Bath-house B1 and the compound wall

Initially, at least, B1 seems to have remained in use in this period, since it was wholly enclosed by a compound wall. On the south this wall encroaches onto R5, the latest *via sugularis*. Such an extension

over the road would have been unnecessary unless it had not been designed to enclose the bath and its extended *praeurnium*. The extension overrode the perimeter drain D2B, putting it out of use.

The compound wall (441/1025/1514/1617/), c 0.65m wide, was built of dressed red sandstone blocks with a rubble core, bonded with clay, and stood some 0.50m high. On the *via sagularis* it was set in a wide foundation trench filled with clay (1590/1652/1663/1686). Given its composition it probably stood no higher than 2m. Relative instability, at least on the south, is indicated by a short length (c 1 x 0.05m) of buttress wall on the north side, just south of the *praeurnium* of B1. To judge by surviving elements, the wall enclosed an area of c 22.50m north-south by c 25.40m east-west; extending from the south-east corner of the courtyard building to the south range opposite the party wall between Rooms X and XI. The fact that the north-western end did not coincide with the south-west corner of the courtyard building, as might be expected, seems to confirm the existence of a building (or structure) close to this corner - possibly represented by wall 1059, tentatively interpreted as an element of a Period 7 latrine (see above, p 56).

As outlined above, the building of the compound wall must have been designed to enclose the bath-house, thereby providing privacy for its users, who had access through the passage(s) in the south range of SS2. No gaps were noted in the south wall of the compound, thereby precluding access from this direction. No obvious gaps were observed in east or west walls either, although considerable stretches were not available for excavation on the west, whilst the eastern sector was badly disturbed. Apart from the bath-house no other structures occupied the compound in Period 7A. Whilst the enclosure's use as a garden is not impossible, that option would demand the demolition of B1 and the deposition of hundreds of tons of imported soil. No such deposit was encountered. Its use as a storage or 'working area', however that may be defined, remains a poor, third option. The bath-house apart, only minor features lay within it, all in its eastern division. The northernmost was a pit, 869, measuring 1.70 x 0.45m, with a fill of dark soil. To its south were three postholes, 934, 937 and 943 (Fig 3.3, Section 36); with another pit, 928, 1m in diameter, with a fill of dark soil, to the east.

Paradoxically, the building of the compound wall seems to have been responsible for the demise and demolition of the bath-house. It has already been noted (p 58) that the extension of the *praeurnium*, with its consequential effects on drainage, saw the backfilling of drain D2B, thereby forcing all flow to the east. However, with the building of the eastern wall of the compound, the wall overrode D2B and was carried on a dump of grey clay (1632) which wholly blocked the drain. This made drainage from the compound impossible. We have already discussed the consequence of this in relation to the

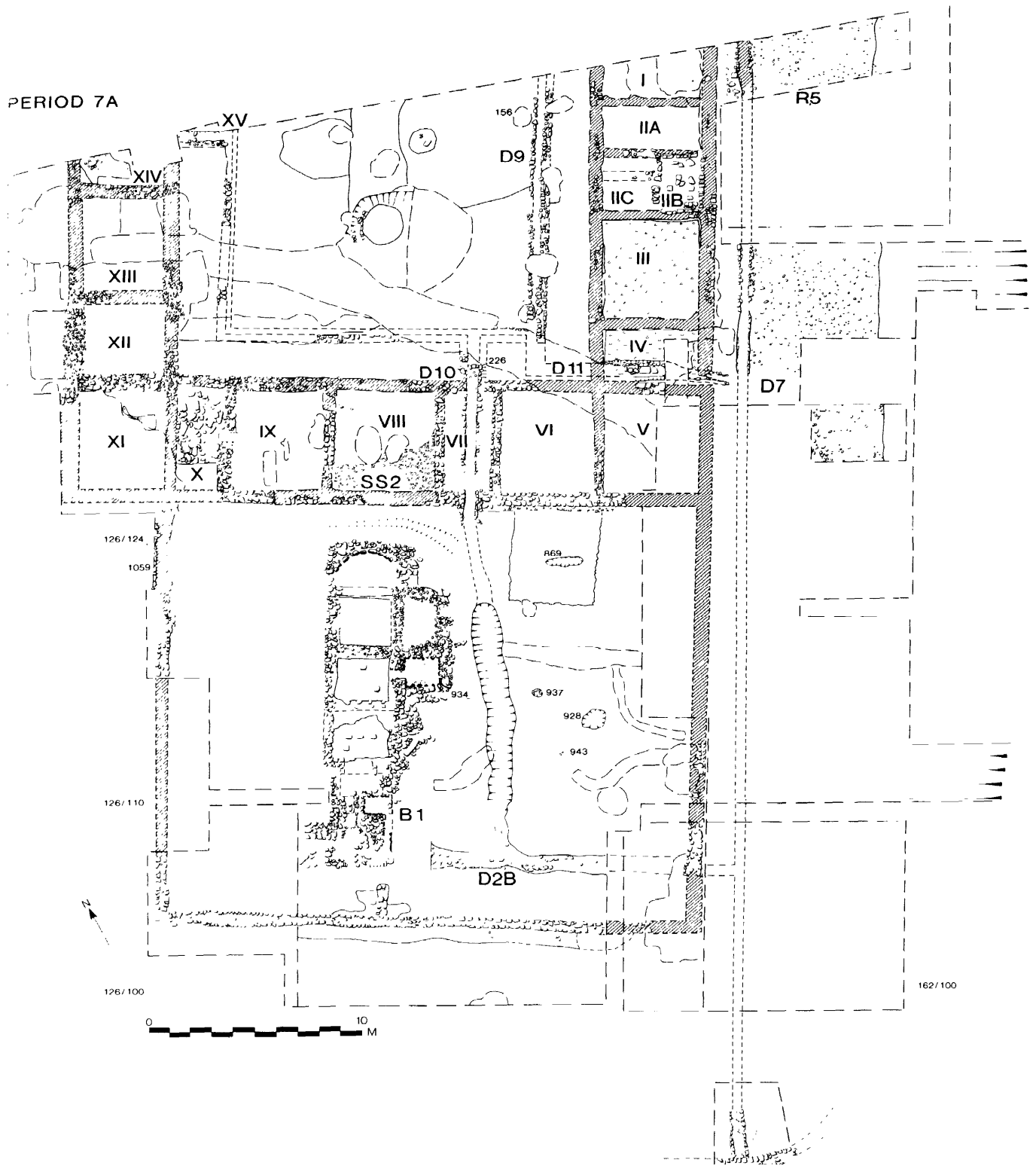


Figure 3.16 Period 7A plan.

drainage of the courtyard (see pp 57-8). Unless the bath-house continued to operate, but without its cold plunge, then the disuse (and perhaps eventual demolition) of the facility was inevitable. In any event it may have come to the end of its working life; had drainage been a problem it would have been easy enough to culvert the compound wall, or simply breach it, options which were not taken up.

Because of the major clearance of the building in the nineteenth century evidence for the last stages were unavailable. Indeed, the only evidence for demolition consists of a series of dumps overlying the northern apse of the *frigidarium* (1021-24/1028/1044-5), which were sealed in turn by two successive gravel spreads, 900 and 981. These may belong to the end of this period. The robbing of the capstones from drain D2B, where inoperable, and from D4, its northern link, may also belong to this latter stage. D2B was then backfilled with large, water-worn stones and clay (1618/1631/1641/1671/1679), with similar fills in the southern (849B) and northern (949/949A) stretches of D4.

South of the compound wall the *via sugularis* (R5) was eventually covered by an accumulation of dark soil (1585). Similarly, on the east, the road shows a similar silty accumulation: both deposits perhaps reflected the disuse of the road south and south-east of SS2 and its compound.

Period 7B (Fig 3.17)

The precise chronological and spatial relationships of structures assigned to this period is uncertain, their assignation within the overall structural sequence being heavily dependent upon the assumption that the west range of SS2 was modified and continued in use, whereas the east and south ranges may have been abandoned as residential units and completely, or partly, demolished.

The key to the sequence is the insertion of a hypocaust into Room XII in the west range, with a flue (175) cutting across on the verandah, at the intersection of the south and west ranges. This flue also dislocated the peripheral drainage system of the courtyard. Whether the south and east ranges continued in use for some appreciable time thereafter is uncertain. Certainly the rooms at the intersection had been demolished in Period 8. The scant dating evidence also suggests that structures which began in Period 7B continued in use through Period 8 and into the early stages of Period 9. Even continued use in Period 10A is not impossible in some instances, if the relatively well-preserved nature of some of the elements of the west range recorded by the nineteenth century excavators is regarded as significant.

The scanty nature of the remains and the high degree of uncertainty inherent in linking the ephemeral features excavated in the 1970s with those of the century before makes what follows a necessarily tentative interpretation.

The fill of a Victorian trench (194-6/226) excavated to the west of Room XII in SS2 revealed several facing blocks, in situ, from an extension, Room XIIA, measuring approximately 5.50m north-south by 2.70m east-west. Within, a deposit of pebbles set in a brown clay (219) either represents a contemporary floor or possibly a Period 7-7A gravel surface akin to 143 further north. Abutting its robbed north wall was a well-built rectangular stone setting measuring 1.90m x 1m; probably a buttress.

The extension to Room XII could be contemporary with changes effected within; namely the insertion of a hypocaust. Wall 221, 0.65m wide, was built immediately within the south wall foundations (199). Running north from its west end was a linear earth 'platform' with a solitary facing block (220); the last vestiges of another wall. No trace of a northern companion to wall 221 was found, but the north end of Room XII was badly robbed. Walls 220 and 221 need not have replaced those of Period 7, rather they functioned as supports for a, now vanished, suspended floor. This had been supported by a number of composite, mortared stone *pilae* (222) set on a stony compact clay (223) over which there were traces of ash. Of three part-surviving *pilae* the best preserved measured 0.50m square and 0.15m high. If the thus modified Room XII is identified with Room B on the 1846 plan (Fig 1.3a) then the attribution of flues to its western margin on the plan may either indicate a more complex, part-channelled/part-gridded hypocaust system, or simply the position of wall 220.

The hypocaust was served by a flue (175), 0.45m wide and c 3.80m long, composed of clay-bonded, burnt sandstone blocks, which entered Room XII at roughly the mid-point of its east wall. It was filled with ash and burnt clay, its eastern terminal being a large firing-pit (227) whose lower, silty fill was overlain by substantial deposits of charcoal.

The 1846 plan shows a furnace to the north of Room B, and also a stone-lined flue or drain, curving to the north-east at its eastern end, aligned on a gap in the east wall of the room but separated from it by more than 1m. Whilst it is tempting to equate this feature with the flue entering Room XIIA from the east its northern curvature is inexplicable. Indeed an equation between Rooms XII, XIII and Rooms/areas B-J on the 1846 plan becomes even more improbable, despite inherent similarities in configuration and location in respect of the Vicarage foundations, because of the difficulty of equating Room A on the Victorian plan with Room XI at the junction of the south and west ranges. The 1846 plan shows Room A as measuring 4.60m north-south by 7.30m east-west overall, and with a flue close to its north-east corner. Before its destruction the room was also stated to have had an *opus signinum* floor with traces of a moulding (Parry-Mealy 1846a, b, 77). Room XI has vestiges of a concrete floor in its north-east corner and it was manifestly not suspended. Moreover, to

PERIOD 7B & 8

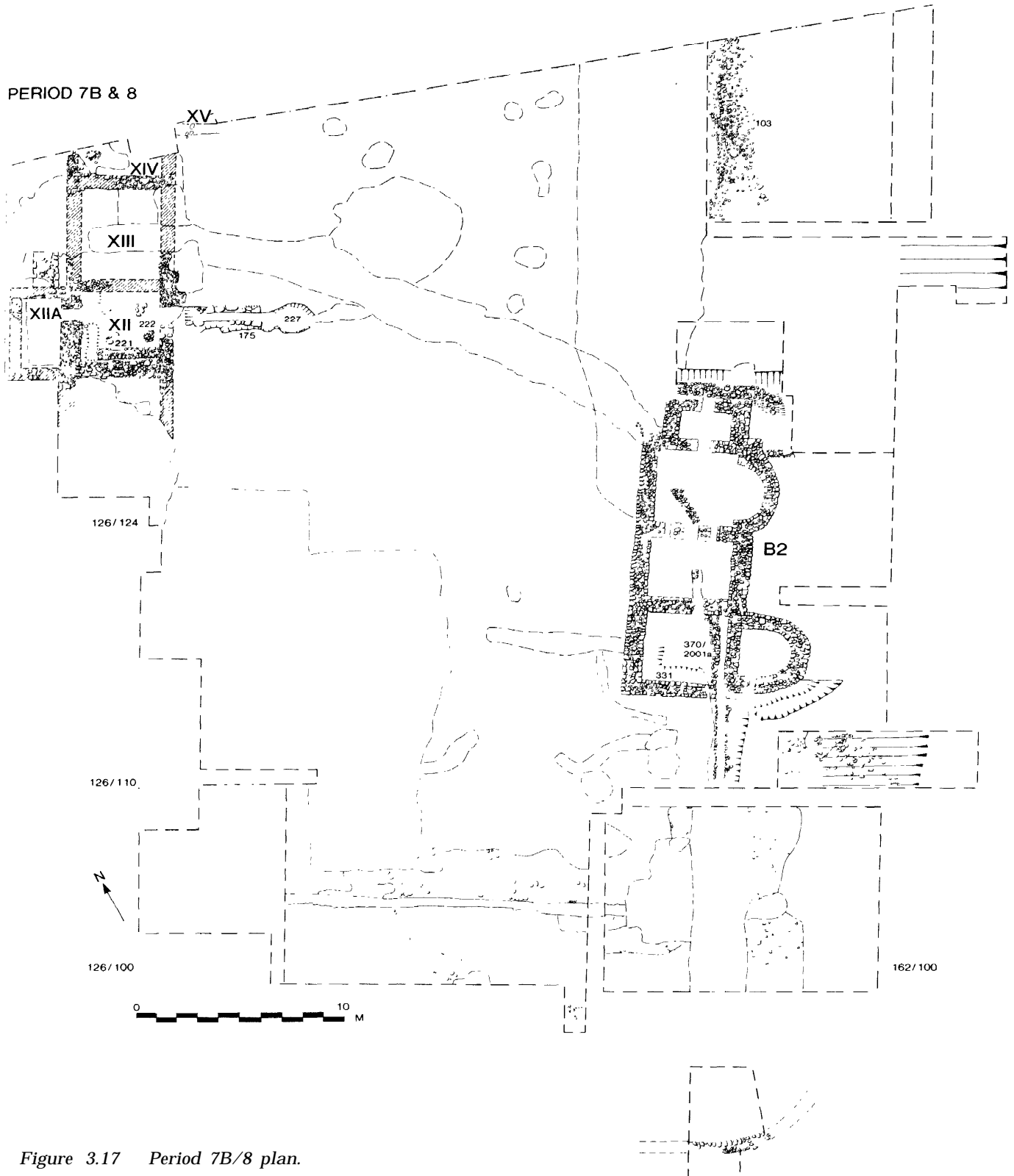


Figure 3.17 Period 7B/8 plan.

equate with the archaeological remains in the south-west quarter of the courtyard building and correspond with the evidence of the 1846 plan the eastern limits of Room A would have to equate broadly with the party wall between Rooms IX and X, but here there were no traces of hypocausted structures and certainly no evidence for an eastern flue. While there is a possibility that Room A may have been entirely removed, robbed for its stone as described in the *Archaeologia Cambrensis* account (and Room XI shows clear traces of Victorian, or later, destruction) is this likely to have been achieved without grossly interfering with the remains as they now appear? This is unlikely. We are, therefore, forced to conclude that the building traces revealed in 1845-6 must perforce lie to the west of the courtyard building, and that the Period 7B alterations to its west range are not reflected in the 1846 plan.

Another feature of this period is the accumulation of a 'black earth' horizon, consisting of a black loam with an admixture of rubble and roofing slate, extending over the whole of the courtyard of SS2. Dating evidence (see below) suggests that this began to form in Period 7A, continuing thereafter, with some material being trampled into its surface in period 10 when it formed a surface through which pits of that period were dug.

Period 8 (Fig 3.17)

This period saw the construction of a bath-house (B2) adjacent to the rear of the rampart, a project which necessitated the demolition of the junction between the east and south ranges of the courtyard building, and by implication, adjacent rooms. Additionally, clay was dumped on the latest *via sagularis*.

The demolition of SS2

Apart from B2 impinging on Room V, the clearest evidence for demolition was observed over the *via sagularis* flanking the east range. Here a mass of worked sandstone blocks set on edge, many with mortar adhering to them and indicative of a fallen but still intact wall mass (103), extended some 2m beyond the east wall and apparently ran its full length. This deposit suggests that the lower portion of the wall had either been toppled outwards or that stone from the demolished range had been laid over R5.

Comparable evidence for demolition was not found in the south range. Indeed, the placement of furnaces and pits, which respect the limits of Rooms VIII and IX in Period 10, suggests that they were in a standing, or part-standing, building. However, in Room IX a mixed deposit of clayey soil, rubble and mortar (148) could be construed as representing demolition, whilst the absence of verandah floors is probably due to flagstone removal.

The clay dumps

As noted above masonry derived from the demolition of the east range (103) was overlaid by a thick dump of clay (27/74/84/282). This deposit was matched by a similar dump (407), up to 1m thick, further south along the rear of the rampart (330/333/473/474/475), thereafter continuing to the rear of the southern defences. Here the *via sagularis* was sealed by a greyish clay (1511/1532/1551/1572), with a similar dump (1563/1568-70/1573) north of the road. The courtyard wall had also been demolished by this period since its stub was sealed by a similar clay dump, 1533.

The origin of these dumps is not known, although the most likely explanation is that most derive from the pit excavated for the foundations of the Period 8 bath-house (B2). Their deposition over R-5 is also inexplicable unless that road had become redundant. Alternatively, in addition to providing a convenient repository for large quantities of spoil, the material may have been intended as a make-up for a new road, which, on the east, would have provided access to B2: a project left unfinished.

The bath-house, B2

This was of simple row-type, aligned north-south with the *frigidarium* at the southern end; both *frigidarium* and *caldarium* were furnished with east-facing apses. The foundations had been laid in a specially-dug pit floored with a raft of large, water-cobbles set in yellow clay, capped with the same, covering an area of c 16m north-south and up to 11m east-west. On the east this pit had truncated the earlier intervallum roads, whilst on the north it had removed most of Room V of the courtyard building. Whereas its walls normally rested on the cobble and clay raft, those of the *frigidarium* and its apsidal cold-plunge apparently cut it.

The masonry comprised toothed headers of sandstone bonding a heavily mortared rubble core, the whole averaging 0.80-0.90m in width. The surviving walls ranged in height from c 0.30m on the west to 0.60m on the east, the difference being explicable by later 4th-century dumps on the rampart spilling west partly to mask its remains. It is significant that all the quoins had been removed, indicating that the building had been at least partly robbed, probably, but not certainly, in Roman times. The building had been wholly cleared of most of its archaeological deposits in 1846, thereby creating a major dislocation between deposits on the rear of the rampart and those to the east of the bath. The 1846 account makes no reference to *pilae* or suspended flooring and none were found by the present writers. The building seems to have altered little since its nineteenth-century discovery except that the cold-plunge was used as a cesspit by the occupants of the rectory after excavation.



Plate 3.8 B2, the unfinished bath-house. Feature 2000 cuts from the north-east to south-west corner. The Victorian excavation trench outlines the apses of the caldarium and the cold plunge of the frigidarium.

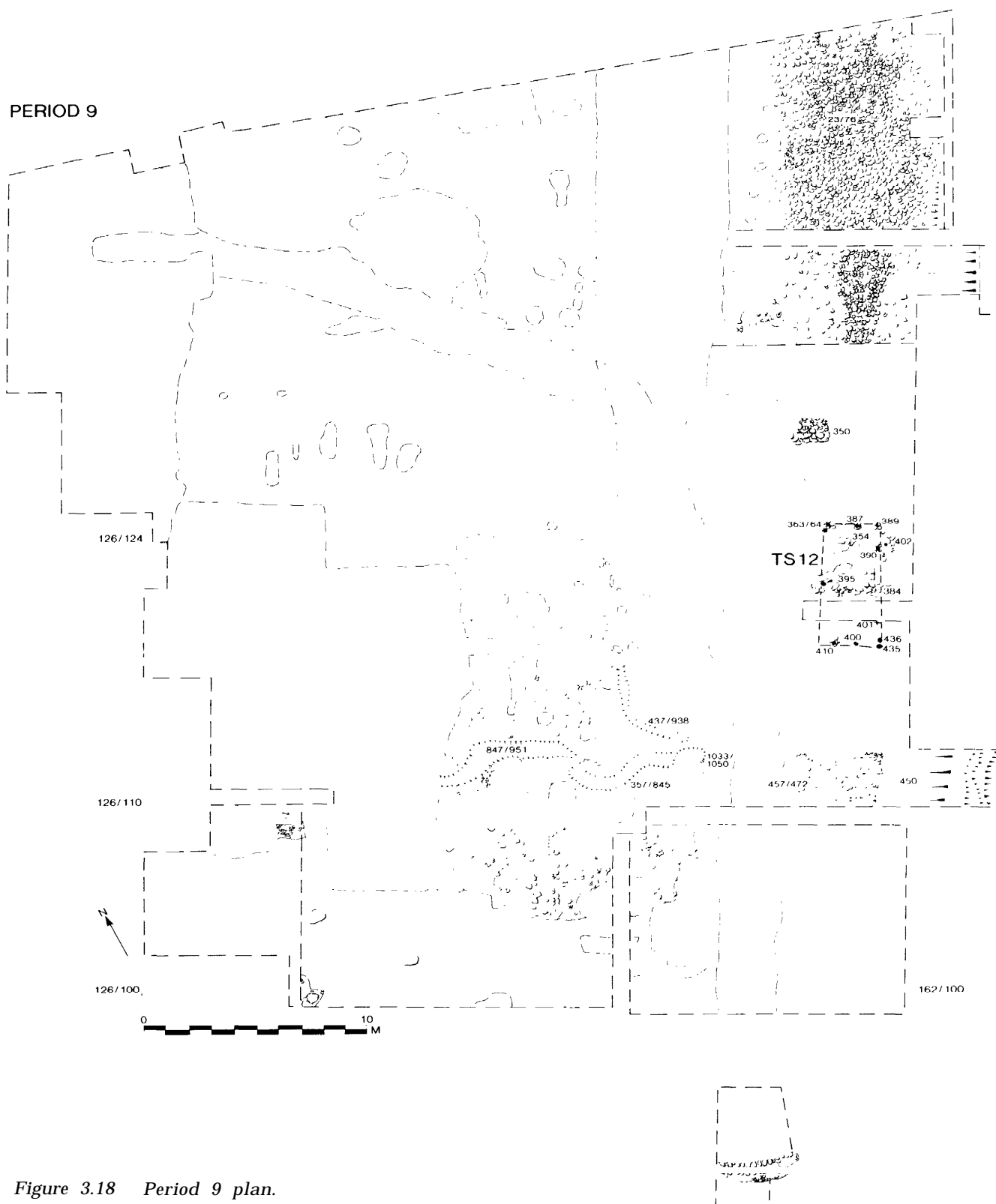
The *frigidarium* at the south end of the building measured 3.75m north-south by 4m east-west internally, its west wall having been built against the side of the construction pit; the small gap left was filled with clay. What appears to be a construction trench (331) cutting the clay and cobble raft ran around the inner margin of its walls. This was filled with sandy soil and building stones. A stone-lined drain (370/2001A) aligned north-south, lay within the eastern margin of the room; its east face being coterminous with the east wall. Although culverted through the party wall separating *frigidarium* from *tepidarium*, and clearly of one build with the wall, it did not continue further north. This is an inexplicable omission since it would have been practical to continue it as far as the *caldarium* in order to empty the hot bath or hot laver, or simply remove moisture from below the floors. The drain ran from the *frigidarium* via a culvert in the south-east corner, thereafter continuing south to debouch through the culvert in the fort wall. Its course is practically identical to D7; the bath in all probability was deliberately aligned to take advantage of the pre-existing drainage system still visible as the culvert in the south-east angle of the fort wall.

To the east of the *frigidarium* was an apsed cold plunge, measuring 2.55m north-south by 2.45m east-west internally which survived to a depth of c 0.75m. The narrowness of the party wall between the apse and the *frigidarium* (0.65m as opposed to 0.80-0.90m) suggests that it may not have been a major load-bearing wall, but merely formed the

western side of the plunge. A drain outfall lay close to the junction of the apse and the *frigidarium*. Although no stone-lined drain was noted beyond this outfall it is clear that it had been the intention to lead a drain from this point into the southward continuation of the *frigidarium* drain, 2001A.

The *tepidarium* measured 3m north-south and 4m east-west internally. Its floor, like that of the *caldarium* to the north, was covered by a deposit of silty clay with large quantities of angular sandstone and mortar spalls apparently representing the construction horizon. The substructure was connected with that of the *caldarium* by means of three flues; 0.25m, 0.65m and 0.30m wide from west to east. No arches survived.

The *caldarium* measured c 3.90m square internally, excluding a shallow, eastern apse, c 1.40m in maximum depth, whose building appears to have been implemented with scant respect for proper planning. On the north a square buttress was built to receive the return of the apse, which had been built with a greater radius than was appropriate and whose wall was further thickened on the north in order to achieve symmetry. This explains the variable thickness of its wall: 0.80m on the south, 0.70m at its mid-point and over 1m on the north. Whilst the west wall of the room was 0.90m thick, its north wall was only 0.65m, a difference which may be explicable if there was an arched opening between its north end and the smaller, rectangular chamber beyond. This measured 1.50m north-south by 2.50m east-west internally, with two opposed flues, each 0.65m, located centrally in its



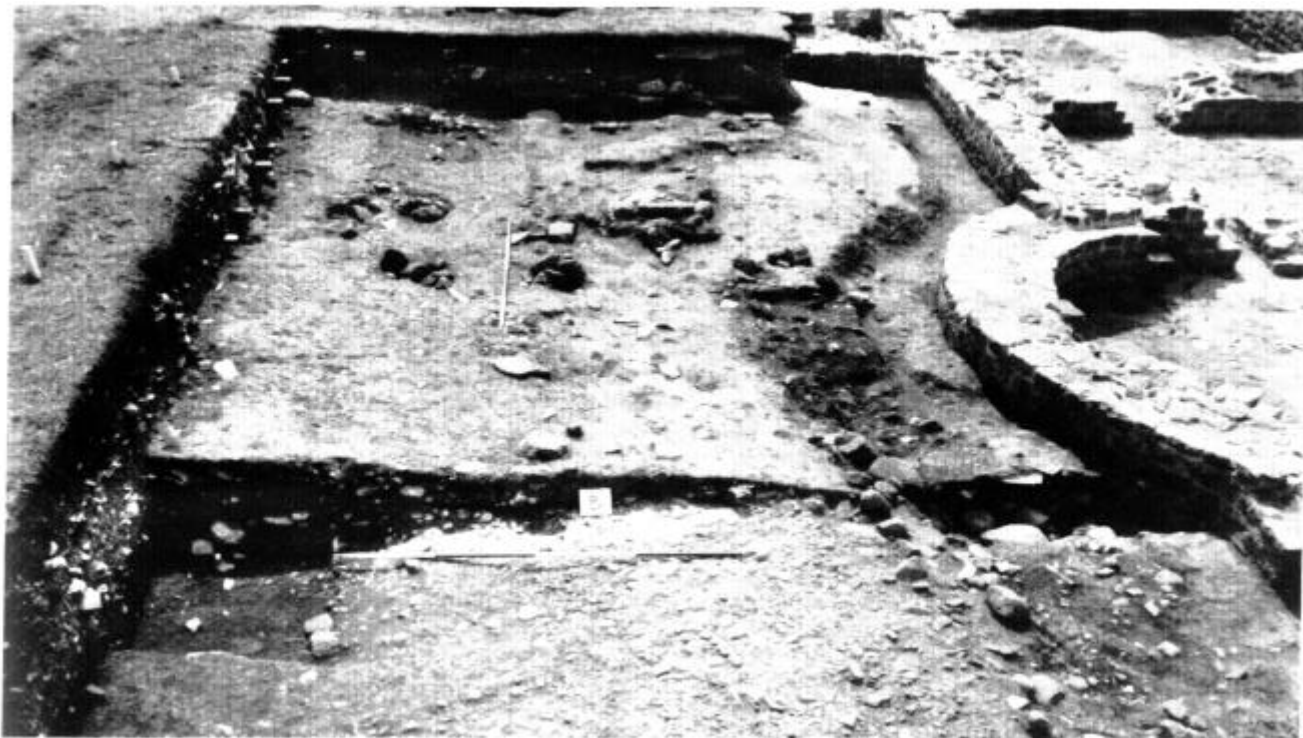


Plate 3.9 TS12. Period 9 oost-built timber structure to the rear of the east rampart, on material sealing the disused *via sagularis*.

north and south walls. Whilst this chamber may have been designed for the reception of a boiler feeding steam into the *caldarium*, or hot water to a basin in its apse, it may have been intended to house a hot bath next to the furnace. It is significant that none of the rooms in the building produced evidence for a floor, other than the clay surface of the foundation raft. This shows no signs of having been heated. There was no covering of ash in the *catdarium* or *tepidarium*. All of the clay surfaces were unburnt and still plastic. No furnace chamber or stoke-pit was found at the north end of the building, nor were the walls and floor of the cold plunge rendered with waterproof cement. The cumulative evidence demonstrates beyond doubt that the bath-house was never completed. Further, since neither the *caldarium* nor the *tepidarium* showed ghosts of *pilae* it is probable that work on the building stopped at the substructure stage.

Period 9 (Fig 3.18)

The most significant event of this period seems to have been the recasting of the eastern defences. In addition, there appears to have been considerable activity on the back of the rampart, including the erection of a timber building; a number of gullies were also dug south-west of B2.

The defences

In the refurbishment of the fort wall the surviving early earthwork defences were further cut back. In the southern defence section this took the form of a major cut beginning some 2m from the fort wall, stepping down to a depth of 1.50m before ending some 0.50m from the inner face of the wall. In the process it cut the primary trench dug for the insertion of the fort wall. The backfill of this secondary excavation comprised a brown soil with mortar inclusions at its base (468B), changing to a fine, mixed soil (468A) above. A similar sequence was observed further north (Fig 3.6), though here the outer face of the rampart had been badly disturbed by an intrusion associated with modern rebuilding of the wall. Although only the very bottom of the uncoursed, unmortared rubble rear 'face' of the fort wall survived it appears to be contemporary with a foundation trench (24) at least 0.40m deep. This was filled with a dark, stony loam which produced two sherds of a mortarium pressed into the front of the dump of turf and clay (141, and seems to have been the backfill of the primary construction trench.

On this evidence it is clear that Period 9 saw the partial substantial rebuilding of the fort wall. If a Period 9 reconstruction is accepted then it is reasonable to see a synchronous re-arrangement of the ditch system. Indeed, numismatic evidence

from the later ditches outside the *porta decumana* (Casey 1974a, 70) suggests that their excavation is broadly contemporary with Period 9 alterations to the eastern defences.

The inner ditch of the original defensive system (Fig 3.7), already deeply silted, was capped by a gritty, reddish clay - at least over its eastern margin - and a new ditch (c 2.60m wide x c 0.70m deep) was dug some 4m east from the fort wall. This had a primary fill (3005B) of pale silt with a few large stones, capped by a dark, soft silt incorporating a larger quantity of building stones (3005A), derived from the collapsing fort wall. These deposits represent a gradual accumulation spanning the whole of the 4th century and beyond.

About 3m to the east of the above was an outer ditch (c 5.70m wide x c 1m deep) with a shelving profile. It contained a series of silt deposits, the primary (3008), overlain by a darker stony silt (3007), in turn capped by an upper silt (3006B) and finally by 3006A, a fine dark soil. These ditches correspond in relative location and widths with those found at the North Gate, but are not so deep.

The ditch system had also been examined by Mr G C Boon just south of the north-east corner in 1958 (Unpub mss). An inner ditch c 3.30m wide x 0.70m deep, with a shallow V-shaped profile, lay 2.65m from the fort wall. It was filled with silt overlain by a thick deposit of clay and rubble, probably derived from the collapse of the wall. Two postholes, about 0.60m apart, with a possible third in between, lay to the east. Although Boon suggests that these might represent part of an obstacle such as a 'cheveaux de frise', they are just as likely to represent an element of an early extra-mural building, as, for example, at Trawscoed (Davies 1984). Beyond this ditch and a narrow berm lay an outer ditch c 4.60m wide and c 1m deep, with a primary silting sealed by a thick deposit of clay and rubble.

If the ditches observed by Boon can be equated with those later ditches examined east of the fort then the final stages in the evolution of the fort defences appear to have involved the digging of two ditches similar to those fronting the north rampart, but neither of which can be considered to represent so serious an obstacle as the latter.

Structures on the rampart-back

Activity to the rear of the rampart in Period 9 may be divided into two categories, dumping and building.

Following the extensive deposition of clay over the latest *via sagularis* in Period 8, further dumping took place on the east. Two major deposits were encountered on the rear of the rampart; 397, a spread of dark soil and building stones, and further up the slope of the rampart, 398, a stiff, clayey soil.

Deposit 397 was overlain by a post-built, rectangular building (TS12) measuring c 6.40m north-south and at least 3m east-west. Its north

wall was represented by four, stone-packed postholes; 363, 364, 387 and 389, ranging from 0.15-0.30m in diameter; 363 and 364 represented the original post and a replacement respectively at its north-west corner. Its east wall was represented by a further four stone-packed postholes; 390, 401, 435 and 436, the last two also including a replacement; the south wall by 400 - matching a gable post on the north - and 410 near its south-west corner. Only one post, 395, was located on the line of its west wall. The apparent absence of other posts may indicate that the building was open-sided, providing a roof to shelter the ovens and their users. At the north end of the building lay an oven (354) composed of two dressed sandstone blocks and a slate base set in clay, the whole measuring 1.30m north-south x c 1.10m east-west with the oven mouth to the east. A patch of burnt clay and charcoal (391) to the south of the oven represents rake-out. About the mid-point of the east wall of TS12 lay a rectangular setting of dressed stone (384), probably representing the base of some vanished internal feature; an isolated posthole, 402, lay just east of this building.

In view of its location this building seems to have been a cook- or bakehouse. A dump of dark, humic soil containing much animal bone, mollusca, ash and slate fragments (348) appears to have accumulated - or been dumped - over its remains after its disuse.

Another possible timber structure was represented by three postholes some 10m to the north. These, 190, 191, and 213, 0.14-0.17m deep, could be construed as the corner of a building measuring c 6m east-west and c 2.50m north-south.

A further structure which is probably connected with the building(s) to the rear of the rampart is a stone platform (350), c 1.80m east-west by at least 1.50m north-south made of lightly-packed, re-used dressed stone with a strip of vertically-packed slates along its southern margin. It produced a fragmentary sculptured votive plaque (below, p 216). The stone setting probably functioned as a base for a tank or water butt. Its situation midway between TS12 and the putative northern timber building suggests that a single tank may have served both.

A prominent feature at the north end of the rampart back was a large dump of slates 6-7m wide, 23/76. These sealed the feature represented by postholes 190, 191 and 213, and the frequency of nail holes in the slates indicates beyond doubt that they were a dump of roofing material. A similar deposit, 457/472, had been dumped on the rampart-back further south. Whilst the location of these dumps may be explicable simply in respect of a wish not to clutter important areas with trash, they may also have been intended, misguidedly, to provide a firm footing to structures such as TS12 which, otherwise, could have been marooned in a sea of sticky clay.

Further dumps seem to have served simply to

heighten the rampart in this period. Apparently contemporary with 457/472, and interleaved with its eastern margin, was 450, a deposit of clay on the rampart crest. This was topped by a greyish soil (464), c 0.35m deep, sloping down the rampart and capped by a clay (454) of similar depth; both were seemingly bounded at their rear by a kerb. This was, in turn, sealed by 455, a heavy clay incorporating building stones, 453 (stones and cobbles in loose soil), and, finally, 452, a dark loam incorporating large stones.

Dumping also appears as a prominent feature over the south of the explored site, although the dumps were of varying character. The most characteristic was a very mixed deposit of black, ashy soil and a brilliant orange-red ash, containing a little slag (below, p 213; 901/1516/1546-7/1576/1580/1582-3116300651), prominent within the eastern half of the Period 7A compound. In several instances it effectively buried the remains of the compound wall, extending a little beyond its limits as 1548, of similar composition to the northerly ash deposits.

On the eastern side a deposit of yellow clay (812/825/848) would, on the basis of stratified material, appear to belong to this period, otherwise being essentially similar to the clay dumps of Period 8. Sadly, the fate of the unfinished bath-house (B2) in this period is unknown, although its subsequent treatment in Period 10/10A suggests that this too was being buried by material tipped to the rear of the rampart. Close to its southern margin, and subsequent to the deposition of 812/825/848, three meandering gullies were dug. Two of these, 847/951 and 3571845, ran roughly east-west whilst the third, 437/938, curved around the south-west corner of the bath-house. Feature 847/951, about 1m wide, with a dark silty fill, had its alignment more or less continued by 357/845, 0.65m wide and 0.45m deep (Fig 3.3, Section 37). A pit (1033/1050) with a fill of gritty soil was dug into the base of the latter. 4371938, 0.50m wide and 0.25m deep (Fig 3.4, Section 38), had a fill of loam. The function of these gullies is unclear, since if they were specifically designed to drain the area they might have been expected to have continued on a downhill course.

Period 10 (Fig 3.19)

This period may have seen a considerable overlap with Period 9, although the activity range was considerably greater, and of different character. Important activities were the digging of a complex of rubbish pits, mainly in the north-eastern area of the site; and the construction of furnaces and ovens; the erection of some ephemeral structures, employing re-used stone, largely, but not exclusively, in the western zone of the site.

Pits

The digging of the rubbish pits is a dominant feature of site activity, examples being noted in most excavated areas. Most of these, if sealed at all, are only sealed by features of Period 11 and have been allotted to Period 10 either on the basis of their relationship with D12, the timber-lined drain of Period 10A, or their numismatic or ceramic contents. It is possible that some pits - for example 1510, 1668, 2003 and perhaps 2032 - may have been dug in Period 9. The majority of the pits contained 4th-century pottery types - southern shell-tempered ware, dated, at the earliest, to c AD330 (see below p 256). Additionally, numismatic evidence for some of the pits suggests that they continued to be dug in Period 10A (see above, p 27).

Rubbish pits were largely concentrated within the eastern half of the courtyard of SS2, with a few in the rooms of what had been the south range. They avoided the rampart-back, and also the site of the east and west ranges, only one pit lying to its west. Their distribution strongly suggests some overall spatial structuring to the activity in this northern area which cannot be accounted for by the simple avoidance of debris or wall-stubs, since approximately half of the courtyard lacks pits whilst others were dug within rooms in the south range.

The centre of the courtyard was occupied by a complex of pits; 106-9. 109 (Fig 3.4, Section 39), measuring c 2.50m in diameter, was 0.70m deep with a fill largely composed of dark loam and clay with tip lines of rubble, slate, mortar and mollusca. It also produced iron slag (see Chapter 11, p 211). D12 had intersected it. To the south-east lay a further group; pit 2032 had a fill of yellow clay and stones, contrasting strongly with the fill of 54/55 (measuring c 1.40m in diameter x 0.70m deep; Fig 3.4, Section 40) whose main fill comprised a black loam with rubble and much faunal material, capped by burnt clay, ash, stones and black loam related to furnace 68/69 to the north. Pit 96, just south of 54/55, was small, only 1m in diameter and 0.20m deep (Fig 3.4, Section 41). 4m to the south of pits 100-9 lay 101, about 0.90m in diameter, and cut by D12. Pit 86 to the west was c 1.20m in diameter and 0.55m deep (Fig 3.4, Section 42), intersecting the stylobate of the south range. Two further pits lay next to the limit of excavation within the north-eastern portion of the courtyard. Pit 93 was ovoid, c 1.50m across its north-east to south-west axis and 0.55m deep (Fig 3.4, Section 43). A little to its west lay 95, 1m in diameter and 0.40m deep (Fig 3.4, Section 44). Immediately to its west an area of hard-standing comprising dressed sandstone blocks and slate slabs up to 0.10m thick (104, 105) extended north beyond the limit of excavation. This sat on (or in) the top of a large, sub-rectangular pit (2003) measuring c 4 x 2.20m with a fill of dark loam with tips of roofing slate.

Two postholes, 2383 and 2384, 0.50m and 0.35m in diameter respectively, and both about 0.10m deep, either represent contemporary or earlier features. A group of three other pits lay to its south: 90 measured c1.10m in diameter and 0.30m deep (Fig 3.4, Section 45); 91, c1.00m in diameter and 1.00m deep (Fig 3.4, Section 46); and 97/100, c1.00m north-south by c280m east-west, but only 0.12m deep.

Although pits lay close to the east range none were dug into its rooms. A solitary pit, 198/242B, measuring 1.60m north-south and with a fill of dark loam and rubble, lay just beyond its rooms at the limit of excavation.

In contrast pits were recorded within the south range although they appear to be functionally different to those to the north, some being apparently associated with furnaces. Pit 140, of elongated form, measuring 1.70m north-south and 0.30m deep (Fig 3-4, Section 47), was dug into the latest floor surface in Room VIII and next to furnace 133. Two pits lay in Room IX. Pit 149 was elongated, measuring 1.90m north-south by 0.80m east-west and only 0.20m deep. Pit 216 was another slot-like pit on a parallel alignment to furnace 238. It was at least 0.90m long and 0.25m wide. In it two post-impressions were noted. As such it is more plausibly interpreted as a trench designed for the emplacement of a series of posts, or stakes, possibly serving as a windbreak for the furnace if the walls of the courtyard building were no longer standing. A further pit, 229 (Fig 3.4, Section 48) was dug within Room XI.

Four pits, 844, 851, 897, and the complex 360/442/941-2/1283, were sited in the south of the excavated area. Pits 844 and 851 were small, c1.30 and c0.80m in diameter respectively. Pit 897 in the south-east corner was 1.40m in diameter and 1m deep with a fill of ashy loam and ash tips in its lower portion. At least some of its fill appears to have derived from metalworking activity, since it contained crucible fragments and iron slag. Pit 360/442/941-2/1283 (Fig 3.4, Sections 49-50), 1.80m in diameter, had a complex ashy fill, capped with charcoal-rich loam. Pits 1040 and 996 cut deposits of dark soil and rubble, 1013 and 991, which sealed the northern and southern parts of this area respectively. Pit 996, about 1m in diameter, had a fill of charcoal-rich soil; 1040 a fill of stones.

Pits were also a prominent feature of the extreme south-east corner of the fort, with a complex (1513) sited west of, and cut by, the Period 10A timber-lined drain, D12. Pit 1513, one of the largest on the site, measured c4.40m north-south by c3.20m east-west, and had entirely removed the south-east corner of the Period 7A compound wall (1514). Its fill was composed of dark, ashy soil and burnt stone, apparently derived from an industrial process since it also contained iron slag. A shallow pit, 1520, with a contrasting fill of yellow clay lay to the north-west, and was either contemporary

with, or later than, 1513, and was cut, in turn, by 1607 (c1.00m in diameter x 0.35m deep). Two intersecting pits, 1604 and 1588/1608-9, pre-dated 1607. Only a small part of 1604 was excavated, because it extended beyond the southern limits of excavation. It was clearly earlier than 1588/1608-9 (Fig 3.4, Section 51), a more or less circular pit (1.10m in diameter x 0.95m deep). Other features comprise pit 1506A, on the margin of, and probably cut by D12, and 1537, a spread of dark, ashy soil which may represent the uppermost fill of an unexcavated pit.

The remaining pits in this area lay to the west, their phasing resting largely on the assumption that they represent a single phase of activity. The most prominent was 1668, at least 3m in diameter and up to 0.90m deep, but whose limits lay beyond those of the excavated area. Its fill was tips of ash, rubble, gravel, slate and soil.

While it has been observed that pit-digging was selective, with pits producing faunal material - animal bone and shellfish - predominating in the courtyard area and the south range of SS2, in respect of the distribution of metalworking debris the distribution is relatively even. Two pits in the courtyard of SS2, 91 and 109, produced fuel ash slag and iron slag respectively; pit 897 in the east produced iron slag and crucible fragments. Pits 1513 and 1510 also both produced iron slag. Although the quantity of metallurgical debris is small when taken in conjunction with the evidence for furnaces (see below) it may signify a change of emphasis in the general use of the site.

Ovens, furnaces and hearths

These structures occurred within the courtyard and the south range of the defunct SS2. In the courtyard, feature 68/69 was a clay-lined circular chamber (0.75m in diameter) with walls of clay-bonded stone, and with a flue about 1m long and 0.25m wide projecting to the south. This re-used a section of the stylobate wall (112) of the east range for its flue. It is not clear whether this feature should be classed as an oven or a furnace. Whilst it showed clear evidence of intensive firing no metal slag was recovered, although lead-slag was found in the nearby pit 93 (see below, p 211).

Inside Room VIII was a furnace (133), comprising a slightly raised rectangular setting of re-used facing stones (c0.95m north-south x 1.60m east-west) with a core of rubble and ashy soil, and a flue 0.80m deep extending 1.50m to the south, with a fill of ashy soil and a little iron slag. Feature 133 was set some 0.10m above the latest floor level of the room. Another furnace (238) was located in the south of Room IX. It consisted of a channel (1.80m long, 0.60m wide), which gradually increased in depth from 0.10 to 0.40m towards the south. It was aligned roughly north-south; the northern end showed considerable signs of burning. The fill of the channel was a dark, ashy loam,



gradually changing to a lighter, more stony fill towards the south.

On the back of the rampart the disuse of the cookhouse, TB12, was followed by the deposition of black soil, rich in organic material (348). This in turn was sealed by a spread of burnt clay (431) which derived from an oven seen in section only. Also observed in section were two deposits of burnt clay and slates, 122 and 126, which were set in brown clay (125). These deposits probably represent hearths rather than ovens.

West, of the rampart to the south of the excavated area, a large hearth (840) and two furnaces (841 and 842) in a linear alignment were noted. The hearth was squarish (1 x 0.80m) with a base partly composed of a large, slate slab and re-used dressed stone blocks. To the east was a furnace or oven (841). This took the form of roughly rectangular (2 x 1m) area of ashy soil intermixed with lumps of burnt clay, possibly the remains of a clay lining. It lay on a north-south axis. A comparable feature (842) to the east was better preserved. Of figure-of-eight configuration, it was dug some 0.40m in maximum depth into a clay deposit (812/815/848). It measured 4.60m east-west and was 1.30m in maximum width. The furnace or oven chamber lay on the west, and was filled with ashy loam, stones and much burnt clay. Some of the clay bore wattle impressions indicating its use as formers for an oven dome or furnace chimney. The fill of the flue was a substantial deposit of unadulterated charcoal.

The only other features in the south of the site were two possible hearths, 1029 and 1571. Feature 1029 consisted of a circular patch of burnt clay, 0.70m in diameter, edged with tile lying on a clay surface (1041). West of pit complex 1513 lay a charcoal-filled, rectangular scoop (1571), about 0.60m across and 0.40m deep. This too may represent a hearth.

Walls and areas of hard-standing

Several areas of hard-standing were encountered within the courtyard of SS2. A small, sub-rectangular setting (56) lay west of pit 54/55, with another, more extensive area sealing the large, sub-rectangular pit immediately to the south of 56. In the south-western sector of the courtyard two lengths of near parallel walling, 150 and 151, also appear to belong to this period. The walls (c 0.55-0.70m wide), composed of clay bonded sandstone blocks, were about 2.70m long and lie about 0.80m apart. Their sides were unburnt where they faced one another, and the structure, therefore, cannot be interpreted as a flue for a furnace. Their purpose remains unknown.

In the southern half of the site, and cutting clay deposit 1041, was a 1.20m length of east-west walling, 1046, truncated at both ends by nineteenth century digging. The wall was 0.55m wide and composed of facing-blocks and an unmortared

rubble core. Possibly, but not certainly, related to it was 992, a badly disturbed basal row of facing blocks, the last vestiges of a wall.

Finally, to the north-west of the pit complex 1513 was a deliberately laid area of hard-standing, encompassing an area of at least 2m north-south by 4m east-west.

These disparate elements suggest that in some areas of the site there may have been stone-built structures of this period, although none can claim recognition as buildings. It is also possible that selected areas of hard-standing were associated with buildings of sleeper-beam construction, and not merely concerned with the necessity of providing firm footing in the vicinity of muddy pit-margins. However, if such was the case, then judging by the surviving elements these buildings were very small and possibly connected with small-scale industrial activity.

Period 10A (Fig 3.20)

As noted above (p 67), some features assigned to Period 10, for example the pits and ovens/furnaces, may continue in use into Period 10A, whilst other features, whilst broadly contemporary with D12 of this period may be even later. Essentially Period 10A activity may be classified as follows: first, the provision of a large timber-lined drain (D12) traversing the whole site obliquely, and thence running south to debouch through the culvert in the fort wall; secondly, the further provision of hard-standing and the continuation of cooking activity on the back of the rampart; thirdly, an apparently localised repair to the fort wall.

The timber-lined drain (D12)

The drain, as it survives, appears to start from Room XIII of the west range of the courtyard building but this is fortuitous since all levels in this area had been reduced to such an extent that the very lowest level of the foundations of the building itself only just made their mark in this area. It continued south-east across the courtyard as a trench c 2.60m wide and c 1.10m deep of blunt, V-shaped profile dug for the reception of a timber-lined drain. The gap between the sides of the drain and those of the trench were filled with dirty soil, in most instances the backfill being indistinguishable from the later fill of the drain itself.

In the courtyard area pairs of stakes (2002) on opposite sides of the trench (2000) between 0.70 and 2m apart, represented the supports for a planked, or more plausibly wicker-lined, channel varying in width from 0.80m to 1.10m. Traces of these supports were not found at the southern extremity of the drain, partly through lack of excavation and partly because of Victorian destruction. It is likely, however, that supports, and consequently a timber lining, existed along the full width of the drain.

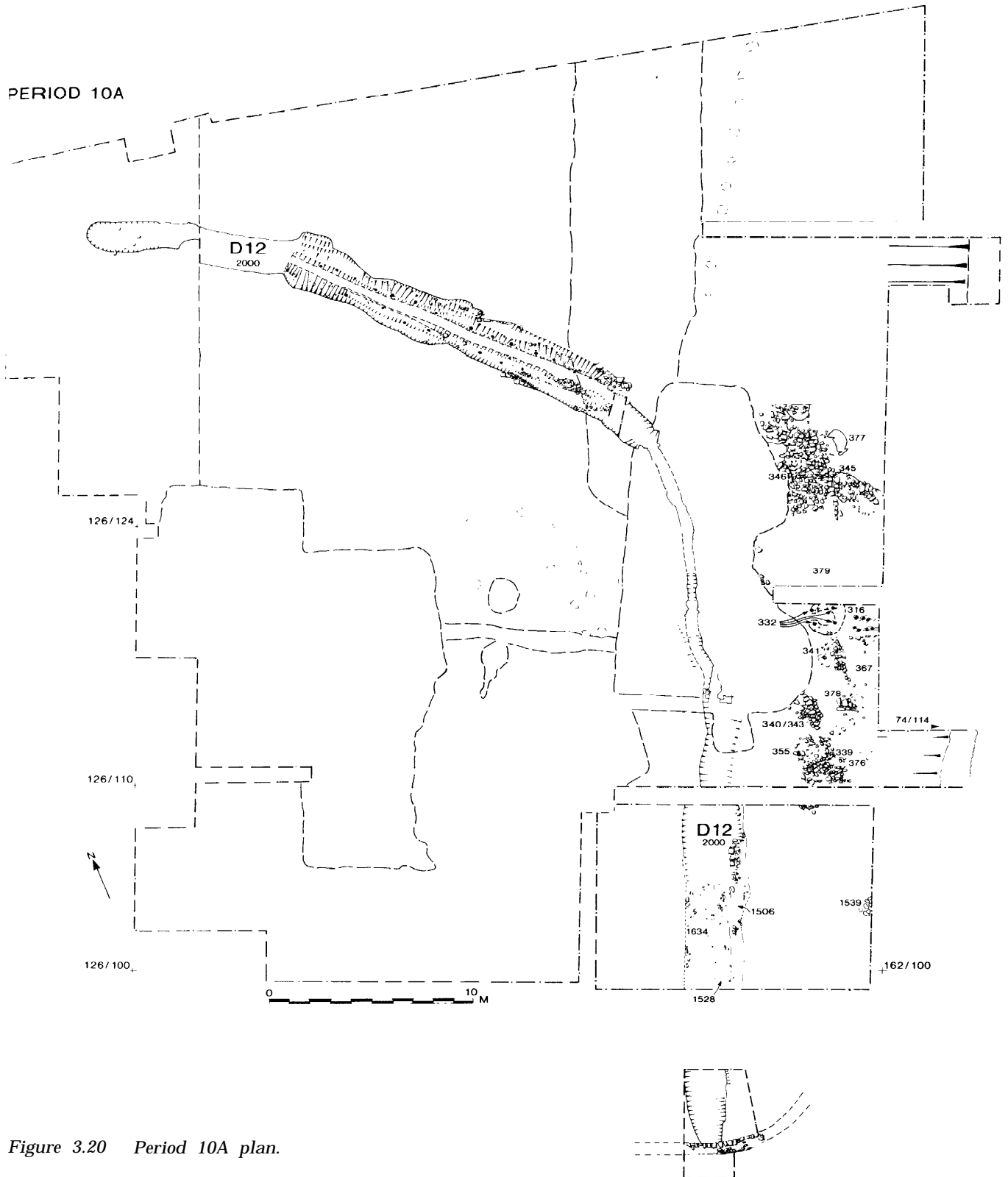


Figure 3.20 Period 10A plan.



Plate 3.10 D12 (feature 2000). View south showing stake settings of revetment.

Having traversed the courtyard, D12 was excavated through the junction of the east and south ranges, and it thereafter assumed a southerly course through the deposits overlying bath-house B2, and where necessary, its foundations. This may indicate that the bath was invisible when the drain trench was excavated. Certainly, the construction of D12 removed the north-west corner of the *caldarium* to its clay and cobble raft, and it then traversed the room and the party wall between it and the *tepidarium* via its central flue. It continued across the *tepidarium* before breaching the wall between the *tepidarium* and *frigidarium* to exit via the south-east corner of that

room. On leaving the bath building the drain assumed the shortest line to the culvert in the fort wall. It thus overlay, and cut into, a series of earlier drains which had taken this line.

D12 was clearly designed to carry a large volume of water from a source which originates close to the middle of the west range of the defunct courtyard building. Although evidence is lacking in respect of a continuation of the trench to the west, because of denudation of the site at its high point, it is probable that the flow originated from an above-ground source, at or near the junction of the *via principalis* and *via praetoria* which lies not too distant from the north-western corner of the exca-

vated area. If such was the case, and the flow was not the product of a late 4th-century drainage system within the *latera praetorii* or *retentura*, then the most likely source will have been the overflow from a *castellum aquae*, a central water-distribution point comprising a large, raised tank or fountain akin to that at Corbridge (Richmond and Gillam 1950, 158–68). In this respect the discovery of fragments of a Severan aqueduct inscription in this vicinity (RIB 420; Foster 1846, 77–8) may be highly significant. No trace of an underground aqueduct channel entering the fort via the north, west or south gates has been noted, and we do not know where and in what manner the aqueduct entered the fort. If D12 was indeed designed to cope with the excess from an aqueduct flow then it would have been logical to drain this through the south-facing *porta praetoria*. This was apparently not done because that gate was blocked (unpublished information from Mr G C Boon); hence, the diversion to the culvert in the south-east angle. An alternative would be to see the diversion as a means of providing a ready supply of water for industrial activity in this quarter of the fort.

Whatever its origin and function D12 seems to have become redundant fairly quickly, either because the water-supply had failed or because the drainage had been re-routed, since the channel was backfilled with refuse after minimal silting. The fills (53/62/75/92/334/342/362/1506/1528/1534/1803/1805/2000) comprised black humic soil, together with various dumps of building stones and roofing-slate fragments. The fills produced large quantities of organic remains, pottery, coins and other artefacts, all indicative of rubbish disposal in the late 4th century, or later.

The defences

A section through the defences showed an intrusion which was observed to the rear of the fort wall. It comprised a steep-sided trench, 0.90m wide at the top, c.1.0m deep and narrowing to c.0.50m at its base. It had been filled with a series of clay and soil deposits (459, 458/460, 461 and 470) which overlay a primary fill (462). This consisted of yellowish mortar and large-medium blocks of stone. The character of this fill suggests that it is residue from a wall repair. Although traversing the complete width of the cutting the full extent of the repair remains unknown. In the section of the defences further north modern repairs may have removed all evidence of this period. In the northern sector, and south of the area of hard-standing 345, was a layer of dark, humic soil (379, 381/383) on the top of the rampart. Towards the crest a deposit of gritty sand (336) may represent its last heightening.

Hard-standing and ovens

Deliberately-created areas of hard-standing or

paving immediately to the rear of the rampart were as prominent a feature of this period as they were of Period 10: their possible synchronism has already been noted.

On the back of the rampart east of bath-house B2 an extensive spread of re-used building-stones (including a pivot-block) formed a crudely-paved area extending over an area of at least 6 x 3m. On its western margin, but largely destroyed by the nineteenth-century excavators of the bath-house, were the remains of what may have been an oven (346), comprising part of an arc of two courses of stone bedded in clay, heavily burnt on its inner face. It is possible that areas of hard-standing such as that described above provided roughly level, dry, detritus-free zones for the efficient working of ovens and hearths to the rear of the rampart at a time when the dumping of refuse in their vicinity created a dirty, and possibly noxious environment.

To the south of these features a further association between areas of hard-standing and ovens was observed, together with tantalising hints of timber structures of uncertain plan, but possibly akin to TS12 of Period 9. At the north end of this area was a clay oven (316) 1.80m in overall and c.0.85m in internal diameter. It was surrounded by a quartet of posts (332) 0.10–0.15m in diameter, presumably either supporting a roof over the oven, or, conceivably, forming part of its superstructure. To the south a spread of burnt clay (312) may have either derived from its operation or rebuilding. Further south still was an extensive area of broadly level hard-standing, 339 and 1539. A further strip of hard-standing (340/343) extended north-west from 339; possibly an access route to a building whose floor may be represented by 339 since a substantial, stone-packed post (355) seems to have lain at its western margin. A little to the west of 340/343 the remnants of an oven or hearth may be represented by an area of partly burnt clay (380), whilst about 1m to its south a roughly square stone setting (378) sealed by clay and some ash may also represent a separate, but functionally undefined, structure of this period. Finally, lying between the hard-standing 339 and the oven 316 was a rough scatter of water-worn, laid stones (341) running north-south for a distance of 2.40m, with a return to the east represented by smaller stones. In the absence of postholes it would be too optimistic to regard these disparate elements as defining a rectilinear structure. A deposit of sandy clay incorporating stones and slates (367) may conceivably represent the floor of one building located, in the main, beyond the limit of excavation.

Period 11

The characteristic feature of this period, itself most probably post-Roman in date, is dark, organically-rich soils which are common on the back of the rampart on the east and south, but elsewhere indistinguishable from a similar soil created by

relatively recent horticultural activity in this quarter of the fort. An intensely dark deposit of loam and rubble (303/304) matched 315, a similar, but more silty, soil to the south, and a brown soil (317) on the rampart-back. A dark, silty soil (1515/1523) to the west of D12 appears to be equivalent to 315, whilst 1517, a brown, gravelly loam, extending east of 1515/1523 onto the rampart, is probably equivalent to 317. These deposits apparently overlie the completely filled D12.

Not surprisingly these deposits produce a mixed Romano-British assemblage, with a preponderance of 4th-century finds. A radiocarbon date of AD 110 \pm 80 HAR-8448) from a charcoal sample in

layer 317 suggests that much of the organic material in these late layers was residual. Their origin is uncertain. If they reflect early medieval activity, as opposed to weathering/silting processes affecting the latest Roman deposits, then that activity was not archaeologically distinguishable within the excavated area. The area itself was badly disturbed by robbing, horticultural activity, the erection of fences, notably represented by a line of nine stone-packed post-holes running north-south behind the east range of the courtyard building SS2, and other activity in the nineteenth century and later activity in the vicarage garden in the nineteenth and twentieth centuries.

4 Sources of supply

Supply and consumption

Only a very limited selection of what must have been a manifestly much more extensive range of equipment and consumables supplied to the normal garrison of a Roman fort (Davies 1971; Bowman and Thomas 1983) - imported and probably obtained locally - is attested in the surviving range of containers and environmental data. The information available essentially concerns the supply of foodstuffs, and the provision of pottery and glass.

Foodstuffs

While detailed discussion of plant and animal species is confined to the specialists' reports, it is worthwhile attempting a review of long-term dietary trends as revealed by these remains and those of specialised containers.

Cereals

Several varieties of cereals reached the fort; wheat, especially the species represented by spelt, which was the most extensively represented (66% of the total of identifiable cereal grains), and dominant throughout the fort's occupation. This is entirely in keeping with its high incidence at other Welsh forts; for example, Flavian-Hadrianic Pen Llystyn (Hogg 1968) and Loughor (Marvell, forthcoming). Emmer was present in very small quantities from Periods 4-9, and, though seemingly very common in Period 6, 6A and 10, represents only 1.7% of the total identifiable grain. The small showing is entirely consonant with its decline in later prehistoric contexts (Jones, M 1981), though it is still present in cereal assemblages at some producer sites of both PRIA and Romano-British date in Wales; Collfryn (Britnell 1989b) and Arddleen (Britnell and Musson 1984) in mid- and Cefn Graeanog II (Mason and Fasham, forthcoming) and Bryn Eryr (Longley, forthcoming) in north-west Wales. At Cefn Graeanog II it occurred in such small quantities as to suggest that it was merely a contaminant of the main crop, spelt. If such is the case then a similar explanation may be offered for its presence at Segontium and Loughor.

Bread wheat makes its first appearance in Period 7, and thereafter occurred in Period 9 and 10 contexts. Even so it represented only 1.3% of the total identifiable grains. By way of contrast at Loughor it was present in reasonable quantities; was not a contaminant of the main crop, spelt, and may even have been stored separately.

Though hard or rivet wheat, together with the remains of coriander and dill, occurred in the fill of a late 1st century well in the *vicus* at Segontium (White 1985) this species was not represented in the fort.

Barley was present from Period 3 onwards, representing some 30% of identifiable grain. It occurred in fair quantity in Period 6 and 6A contexts and was very common in Period 10. It was also present, though in smaller quantities in respect of wheat, at Pen Llystyn (a mere 5%, of the six-rowed variety) and Loughor where it was apparently stored separately in the granaries. Though normally considered as animal feed, or only used as an emergency ration or for malting, there seems to be no reason why it should not have been a commonly-consumed cereal. At the nearby native site of Cefn Graeanog II barley was being produced in appreciable quantities, and most likely as a food crop (Mason and Fasham, forthcoming). The relatively high proportion of barley from Segontium, particularly from Period 10 contexts, probably represent locally-grown grain, consumed by a garrison long-accustomed to a readily available staple crop.

A few grains of oats were also identified in the environmental samples, but like those from Loughor and Cefn Graeanog II, where a little rye was also present, there is no evidence that it represents a crop, and thus must be regarded as a wild species and a contaminant of the wheat or barley.

Nye has suggested that on the basis of the dearth of chaff (see below p 83) the grain brought within the fort had already been threshed prior to storage. This is fully in keeping with the evidence from Loughor. The fact that it was stored only after processing need not necessarily indicate that it was received in a cleaned state. The evidence of plant remains at a local producer settlement, Cefn Graeanog II, only 15km distant, suggests that grain was stored in the sheaf (Hillman in Mason and Fasham, forthcoming) prior to processing and consumption. If this was normal practice then the Segontium grain could have been cleaned by soldiers charged with its collection or purchase prior to storage. In this respect one of the Vindolanda (Chesterholm) letters refers to the military purchase of unthreshed grain, either directly or through an intermediary, and arrangements made by a certain Octavius for its threshing prior to transportation to Vindolanda (Bowman *et al* 1990).

The place of origin of the cereals consumed at Segontium cannot be satisfactorily resolved. The

small 'weed' assemblage associated with the cleaned grain indicates that it could well have been acquired locally. The non-native species, sun spurge and stinking mayweed only occurred once, whilst the identification of speedwell was uncertain. As such these cannot really prove long-distance transport of cereal to the fort. At Loughor also the general absence of weeds of cultivation in the grain samples hinders the resolution of the problem of the origin of this fort's grain supply. Here the weed species were generally consistent with the crops having been grown locally, though there is nothing to show that they were not grown further afield.

That the derivation of food supplies is likely to have varied from fort to fort need occasion no surprise, given differing agricultural regimes, productivity and military requirements over time. Most writers are agreed that local supply, as far as possible, was the norm, except in exceptional circumstances, or at the very least we might expect a regionally-based supply network. This is what appears to be implied by the Vindolanda letter referred to above. Octavius informs Candidus that he has purchased 5000 *modii* of *bracis*, and though he does not mention its source reference to his obtaining hides from Catterick, and the general context suggests that the grain, too, was obtained from north-eastern England (Bowman *et al* 1990).

Grain was certainly readily available in north-west Wales (Kelly 1990), with spelt as the main wheat crop at Cefn Graeanog I and II, though a little bread/club wheat also seems to have been grown at the former and at Bryn Eryr on Anglesey (Longley, forthcoming), whilst barley was also a staple crop. We might, therefore, consider the coastal plain of Arfon and Anglesey, well sprinkled with farmsteads, as the most likely source for much of the fort's grain. Of some interest is the fact that bread wheat makes its first appearance in Period 7 contexts at Segontium 'suggesting either imported grain or a slight change in local agriculture' (see below p 83). In the absence of an extensive and well-dated sequence of grain samples from producer sites in north-west Wales, it is impossible to determine precisely when bread/club wheat was introduced, except broadly in the Romano-British period, and even then its presence is nowhere seemingly strong. Elsewhere in Wales the incidence of bread/club wheat in the Romano-British agricultural economy is more pronounced; for example at Collfryn (Britnell 1989b), and at Biglis (Parkhouse 1988) where it predominated in 2nd- to 3rd-century contexts. It is notable that bread wheat was apparently common at late 1st- to early 2nd-century Loughor, but was not present in contemporary contexts at Segontium. Its early Roman frequency at the former may be explicable by this crop either being more commonly grown in the southern part of Wales (it has been apparently noted in a Bronze Age context at Carne, Pembs) or by Loughor's ready access to the short sea-route for agricultural supplies from the West Country and

beyond. Whatever the explanation the difference exhibited in the wheat supplied to these two forts at opposite ends of the Principality suggests that they obtained their grain from differing catchments, and at Segontium the continuing low incidence of bread/club wheat suggests that the garrison received their supply from an essentially north-western regional source.

Animal products

The table below notes the percentages of the main meat-yielding animals by period or block of Periods.

Period	2 - 4	5 - 6	7 - 7 B	8 - 9	10	10A
Cattle	44	45	54	72	69	81
Sheep	18	19	9	7	7	4
Pig	26	28	27	16	17	12
Goat	-	1	1	1	< 1	< 1

Noddle (see below p 97) notes that in all periods the bulk of the bone is of cattle, with a considerable increase in the proportion of identifiable fragments in the 3rd-4th centuries. This, in part, could be a function of changing waste-disposal practices within the fort since the quantity of bone in late contexts is very much greater than from earlier periods. The animals seem to have arrived on the hoof for slaughter, and butchery took place within the defences.

This dramatic increase in cattle at the expense of sheep, with pig remaining fairly constant, is typical of the majority of Romano-British sites (Grant 1989), and the dietary preferences of the garrison over time compares favourably with the pattern for 3rd-4th century sites as a whole. The decline in the proportion of mutton or lamb in the diet is consonant with the increasing importance of cattle on producer settlements.

Main Meat-Yielding Animals
Percentages: by period or block of periods

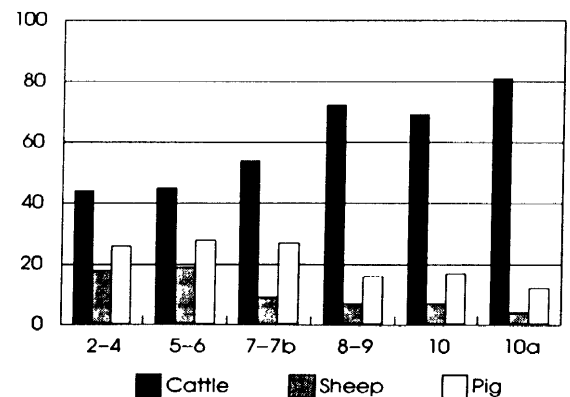


Figure 4.1 Histogram showing relative proportions of cattle, sheep and pig bones recovered.

Grant (1989) writes 'The dominant impression is that the majority of cattle were killed when they were fully mature, as in the PRIA, implying their use for other purposes in addition to the provision of meat'. The hides of mature animals will have been more valuable, their meat weight greater and they will have fulfilled other functions prior to slaughter. This is clearly the case in respect of the remains of cattle in the mid- to late 3rd-century rubbish dumps in the *natatio*, and 4th-century proximal deposits, in the legionary baths at Caerleon (Zienciewicz 1986) which are preponderantly mature beasts. Segontium presents a dramatic contrast in a later Roman context with a change from the normal provision of 67-69% mature beasts in Periods 2-6 to an average of about 44% from Period 7 onwards, with a low of 30% of mature beasts in Period 10. This is not the proportion that one would expect if the cattle were derived from 'normal' producer settlements (Maltby 1981; Grant 1989), and Noddle (see below p 98) suggests that this imbalance has an economic significance, the implication at Segontium being that from Period 7 onwards the demand for beef could not be met by older and breeding stock, and that this led to a change of economic emphasis. By the later 2nd or 3rd century the majority of the beasts arriving for slaughter at the fort were coming from producer settlements which primarily raised cattle for their meat, with a presumption that only sufficient adult animals were being kept to ensure the maintenance of the herds.

It is singularly unfortunate that no substantial bone assemblage survives from any native Romano-British farmstead in north-west Wales which can be compared with that from Segontium. Consequently, it is impossible to determine whether or not the cattle were locally obtained, though the balance of probability suggests that they were. The bone assemblage shows that larger animals were also becoming available from the 3rd century onwards, with some exceptionally large beasts present, mainly in the 4th century, though older forms of cattle - 'native or mountain breeds' - were still to be found. The larger animals may have been the product of good grazing within north-west Wales, and not necessarily imports- Maltby (1981) has shown that although there is evidence for much larger cattle and a greater range of size in the Roman period, with animals as small as those of The PRIA in late Roman contexts (for example at Exeter and Caerleon), there are also regional variations in cattle size, with large cattle absent in some areas. The pattern seems to be complex with the full range of sizes represented at some settlements, but not all. Again, the absence of comparanda from north-west Wales prohibits further discussion of the origins of the larger cattle represented at Segontium.

Mutton declined in importance in the diet after the 2nd century, a decline consonant with the proportionally lesser importance of sheep in the

Romano-British economy (Grant 1989). Noddle (see below p 100) notes that no robust species such as Romano-British Cotswold sheep are represented, and, consequently, the sheep are likely to be native in origin. No north-western Welsh comparanda exist.

Goat seems to have been of marginal significance and never made up for the decline in the consumption of sheep.

Pork was a favoured meat, normally consumed as sucking-pig or as a juvenile. Noddle (see below p 100) notes that the size of some of the mature animals suggests that it was derived from the wild form, and, therefore, represents the contribution of hunting to the military diet, as does that of deer, red and roe. Indeed the proportion of deer bones remained pretty constant at about 5%, indicating the relative abundance of this animal in the locale.

Birds too were hunted; mallard, barnacle and brent geese, golden plover, woodcock and wood pigeon being represented in the bone assemblage. However, domestic fowl account for some 75% of the bird remains, with geese and ducks also being important.

The presence of fish and mollusca in the diet, from Period 5 onwards, is no surprise given the fort's coastal position. Of the latter oyster and wrinkle were the most common, the species of fish being undifferentiated.

Wine, oil and goods carried in amphorae

Webster (see below p 257) has noted the relative sparsity of amphorae in the pottery assemblage and the disappointingly small range of commodities and sources represented by these. It is not known whether this is partly a function of the fort's isolation in respect of sea-borne traffic or the substitution of some commodities for others. The minimum number of vessels, per type and spanning all periods is tabulated below.

Type	Origin	Commodity	Date	No	% of total
Dr 2-4	Italy	Wine	Cl-mid C2	12	7
Dr 20	S Spain	Oil	Cl-C3	114	69
Pel 47	S Gaul	Wine	Cl-C3	26	16
Cam 186	S Spain	Defrutum	C1	1	0.6
Cam 186	S Spain	Fish sauce	Cl-early C2	8	5
Cam 189	Medn	?Fruit	early Flavian	4	2

Periods 2-5 produce the full range of amphorae listed above, thus representing a typical early Imperial 'administrative distribution' pattern of Mediterranean-derived products. This does not seem to have outlasted the earlier 3rd century. The most important amphora-borne commodity from the 1st to the 3rd century was Spanish olive oil, followed by south Gaulish wine and then some way behind by Italian wine. Only Gallic wine, though, seems to have been imported after the mid-2nd century with its importation seemingly continuing

into the 3rd judging by Pelichet 47 sherds from Period 7 and 7A contexts. Apart from wine and oil no other Mediterranean products transported in amphorae seem to have been reaching the fort after the mid-2nd century, whilst all amphora-borne commodities vanish after Periods 7-7A, when amphora sherds are thereafter deemed residual.

Other commodities were arriving in barrels, and may have continued to do so after the cessation of amphora-borne trade. *Vicus* contexts at Segontium have produced the remains of barrels of larch wood, which Boon (1975) interprets as containers for Gallic wine transported by way of the Rhine, whilst a recent find of a small barrel of silver fir (White 1985) may derive from a similar source.

As for the disappearance of olive oil containers, this clearly indicates a change in food preparation (?and fuel for illumination) after the 3rd century. R W Davies' suggestion that bacon fat (lard) was used as a substitute (Davies 1971) has much to commend it,

Pottery

Periods 2-5A

The supply of pottery to the site in the Flavian-Trajanic periods is generally similar to that of other forts in western and northern Britain. It comprises coarsewares in oxidised fabrics and some greywares, mostly probably produced locally, perhaps by military sources, together with imported samian and mortaria. With the exception of the samian very little pottery of Continental origin is represented. There is a sherd from a Lyons beaker, probably from the Flavian occupation, whilst nearly all the stratified mortaria derive from the Verulamium region, with only one from a North Gallic source.

Samian comprises around 10% of the ceramics of the Flavian-Trajanic period. It is predominantly South Gaulish, with the Les-Martres-de-Veyre fabric appearing in Period 5 and Central Gaulish in Period 5A (Chapter 16, Table 16.1a-d). The centurion's quarters show a higher percentage of samian than the *contubernia*, and also a higher ratio of decorated to plain, thus confirming the higher status of their occupants.

Period 5B

The pottery supply of the Trajanic-Hadrianic period sees a change from what may be deemed 'military orientated supply' to one largely reliant upon existing civilian sources. There is a decline in the volume of oxidised wares, though what may be locally produced greywares continue at a level similar to that of Periods 2-5A. The only stratified mortarium is a product of the Verulamium region, but unstratified material dating to this period has products mainly from Holt and north Wales. Continental imports are again very rare, compris-

ing only a colour-coated beaker from Köln. Samian remains at around 10% of the assemblage, mostly South Gaulish with a little from Les-Martres-de-Veyre and Central Gaul.

Periods 6/6A

Little can be said about the pottery supply of the Hadrianic-early Antonine periods because of the high proportion of residual material in the deposits; mainly dumps and make-up layers. There appears to be a decline in the proportion of Verulamium region wares among the coarse pottery, perhaps reflecting the cessation of supply of Verulamium ware mortaria. Otherwise the proportions are similar to those of Period 5B, with the exception of a rise in the proportion of locally produced greywares, which may reflect a trend from Period 5A or early in Period 6. A beaker in rough-cast ware from Northern Gaul and a Lezoux beaker (residual in a Period 8 context) stand out among the assemblage.

The source of at least some of the tile, and possibly the water pipes used in these periods, was the legionary works depot at Holt (Clwyd), since there is a stamped tile of XX *Valeriu Victrix* (see below p 233) from a Period 6A context.

Periods 7-7B

There is a lack of stratified pottery in the Hadrianic/Antonine-late 3rd century periods, though unstratified material discloses some trends. From what little can be determined for Periods 7-7A (see below p 276) pottery supply seems to have been dominated by the Dorset Black-Burnished 1 industry, with Severn Valley ware making its first appearance. Period 7B shows a change in pottery supply; most of the diagnostic material coming from a deposit belonging to the close of the period which has quite substantial proportions of Oxfordshire and shell-tempered wares.

Very few mortaria of later 2nd-century date were found, whilst those of the early 3rd century were not numerous. Period 7 saw a change in their source, most now being derived from the Mancetter-Hartshill centre in the Midlands with an occasional specimen from Cantley, south Yorkshire. By way of contrast there is no lack of later 2nd to early 3rd century samian, with the CGIII group being the most strongly represented of the Central Gaulish groups; CGIV being the second-best represented (see below p 248). East Gaulish samian is uncommon, but its weak showing when compared with sites in eastern England may be the result of distributional factors. The comparatively high proportion of samian relative to coarse pottery may reflect its greater use in the courtyard building.

Samian apart, Continental imports are few. There are no Moselle or Lezoux colour-coated wares, though there is a possible Köln beaker and some North Gallic rough-cast ware.

Period 8

Black-Burnished 1 from Dorset comprises the bulk of the coarse pottery in the later 3rd-early/mid 4th century, together with some Severn Valley ware. The Oxfordshire and, to a lesser extent the Nene Valley industries, provide the finewares. The latter appear only in Period 8 shortly after the first appearance of Oxfordshire products at the close of Period 7.

The supply of mortaria saw a change, the market being split between Mancetter-Hartshill and the Oxfordshire industry (see below).

Possible evidence of contact with the Loire comes in the form of a vessel decorated à l'éponge (see below p 284). This may have implications for the supply of wine to the fort at a date when all wine amphorae are residual, but when barrels of larch and silver fir are known from the *vicus* (see above p 78).

Period 9

Black-burnished 1 ware seems to have provided the bulk of the coarse pottery in the earlier/mid 4th century-c 360s, but was now supplemented by southern shell-tempered ware (Sanders 1973) and Severn Valley ware (see below p 286). The mortaria are mainly from sources similar to those of Period 8, though Oxfordshire products seem to have been increasing at the expense of Mancetter-Hartshill, and minor components were provided by the Nene Valley, Cantley and perhaps the Crambeck industries. No Continental imports reached the fort in this period.

Period 10

The pottery supply shows a development of Period 9 trends c 360s-late 4th century, with Black-burnished 1 still providing the bulk of the coarseware but with southern shell-tempered ware increasing in quantity. The proportion of Black-Burnished shows some evidence of a decline, although this may be due to a slightly increased residual component resulting from waste disposal in pits. The remaining major coarseware fabric is severn Valley ware, although the proportion of this too seems to begin to decline in the period. Small quantities of East Yorkshire Crambeck grey ware and calcite-gritted ware also appears from this period.

The fineware seems to have been increasingly provided by the Oxfordshire industry, with a few Nene Valley products reaching the fort.

Mortaria supply sees a tailing off of Mancetter-Hartshill products and the dominance of the Oxfordshire industry. There are also small contributions by the Nene Valley, Cantley and Crambeck industries.

Period 10A

A further development of changes already discerned in Periods 9 and 10 can be seen at the close of the 4th century with a further rise in the volume of southern shell-tempered ware, though apparently not at the expense of Black-Burnished 1. This effect may, however, be illusory because of the lower residual component in the assemblage of this period. Severn Valley ware also continued to reach the site, if at a slightly lower level, whilst a small quantity of East Yorkshire material was also being used.

Oxfordshire and the Nene Valley provided the finewares, with a notable rise in the proportion of Nene Valley material from Period 10.

As in Period 10 the supply of mortaria was dominated by the Oxfordshire industry, with minor contributions from the Nene Valley, Cantley and Crambeck industries.

Period 11

The pottery fabric proportions almost certainly represent those of the latter part of Period 10A, all the material being residual, but with a lower proportion of earlier residual material. These indicate that the proportion of Black-Burnished 1 was probably declining in Period 10A and being replaced by shell-gritted ware, and confirms the strength of Nene Valley as well as Oxfordshire supply at the close of the 4th century.

Glass and other commodities

Period 2-5A

Relative to the quantity of pottery, at around 2-4% glassware was in common use in the timber forts. There is no evidence for its local manufacture, or for its use in glazing. It is clear that the vessel glass was disproportionately the property of the officers as most of it was found on or around the centurions' quarters of the barracks (see Finds Synthesis below, Table 4.1).

Period 6 and 6A

The high proportion of vessel glass relative to ceramic finewares in Period 6, together with the first incidence of window glass in Period 6A reinforces the view that the occupants of SS1 and SS2 were of high status.

Period 7-7B

A good supply of 2nd- to 3rd-century glassware continues, whilst the range of small finds (see below p 81, Table 4.1) adds interest to these periods with quantities of gaming pieces, medical and toilet implements, metrological equipment and 'gardening tools', all of which were previously

either absent or rare. The diversity of material, with an emphasis on a more leisured lifestyle, seems to reflect the higher social status of the occupants of the courtyard building (SS2). In contrast, the rising ratio of animal bone to ceramics, especially from Period 7B, shows the beginning of a breakdown of structured waste-disposal habits with more material being allowed to accumulate on site (see Finds Synthesis, below), or is evidence for a general rise in the consumption of meat.

Period 8-10A

There appears to have been a marked decline in the quantity of glassware being used in the later Roman period, with relatively few vessels represented. This appears to be consonant with the change in the status, and ultimately the demolition of the courtyard building (SS2).

The proportion of animal bones to other refuse continued to increase and suggests that changes in waste-disposal practice, already evident in Period 7B, were now radically different.

Finds synthesis

J Evans

This section attempts to examine the general distribution of small finds on the site through time and to some extent according to area preliminary to the specific finds reports.

Detailed analyses are attempted in Table 4.1, where the small finds are divided into functional categories (generally following Crummy 1983). The proportions of finds are expressed as a percentage of the total body of finds for each period. Although coins are included in the table, they are ignored in the following discussion since their rising number with time, a factor of currency depreciation, tends to obscure trends in other classes of material. The sequence starts at Period 4 because of the low number of small finds from earlier periods, and the figures for Periods 5, 5B and 7B must be treated with extreme caution for the same reason.

The first point which seems to emerge is that there are no major chronological trends in the data (excluding the coins). This is reassuring, since the aim of the analysis is to examine changes in the functional use of the excavated area rather than chronological changes in the classes of small finds used. Apart from the unclassifiable finds, placed in the 'Unknown' category, by far the commonest class of material is that of personal items (ie brooches, bracelets, beads, pins, earrings etc). The quantity of this class does not seem to change very significantly between periods except in 5B and 7 when it is rather low. The latter is also true of Periods 6 and 6A, but here the figure is probably simply depressed by the high level of unclassifiable material. However, a detailed breakdown does show a chronological trend, confirming that bracelets are a late phenomenon. The beads show a

more typical early bias, though also included is a reasonably large proportion from late Roman contexts.

Turning to an examination of Table 4.1 in sequence, Period 4 shows comparatively high levels in the categories of transport, military, writing and agricultural small finds. The transport class, which is mainly horse fittings, may fit in with the suggested use of the area as a stock enclosure (see above, p 19).

Period 5 comprises a very small group of finds. Nothing seems very notable about the Period 5A group except for a rather large number of unclassifiable finds; given that this period is basically a demolition deposit, much of the material is probably residual from Period 5, though the unclassifiable finds, many of them studs, may well be a result of the demolition.

Period 5B seems to have a comparatively high proportion of what may be woodworking tools, which might suggest that building TS8 was a tool store or workshop. The number of unclassifiable finds from Period 5A may be related to the demolition at the end of the period.

In Period 6 all other figures are depressed by the very large peak of unclassifiable finds, again many of them studs, perhaps residual from Periods 5A and 5B demolition deposits, since most deposits of Period 6 are of make-up for the building SS1. Period 6A small finds are dominated by the short metalworking phase after demolition of building TS8 which accounts not only for the metalworking small finds, but also for the militaria and many items of the unclassifiable group, which were in a group of scrap in a pit.

In Period 7 the most noticeable feature is the peak of gaming counters, perhaps relating to the use of the bath-house, or the generally more leisured lifestyle of the inhabitants of the courtyard building (SS2). Similarly, toilet articles, medical instruments and scales appear for the first time. The agricultural tool (SF948) seems a little out of place here, though if it was a hoe rather than a ploughshare it would be consistent with a garden associated with the courtyard building and bath-house. The absence of many of these more exotic small finds from Period 7A and the presence of wood and metalworking implements may reflect work being carried out on the courtyard building in this period.

Period 7B seems to have more transport and bone-working finds than might be expected, but this is a small group and the data may not be reliable.

Period 8 includes some woodworking and writing tools, but most of the finds from this phase are liable to be residual since they are from make-up deposits. Period 9 finds, although mainly from the rampart back, are similar to those of other periods, the only notable item being a woodworking tool.

Period 10 shows a change, though this is partly the result of there being more finds. The metal-

working and woodworking tools seem to reflect activity in the area, with the furnaces providing clear evidence of the former. The stoneworking tool and quernstone would also fit in here, though the toilet instrument is probably brought in as refuse or is residual. The group from Period 10A, which is probably partly contemporary with Period 10, is very similar.

The Period 11 group is also basically similar, including toilet instruments, a quernstone and a balance. On stratigraphic grounds, it seems probable that all this material is residual, deriving mainly from Periods 10 and 10A.

Distribution of glass and finewares

There is a clear trend in the glassware with a decline in time to a very low level after Period 7A. Generally glassware was associated with the 1st- to 2nd-century timber periods, though with a notable concentration in Period 6 associated with the first stone building, presumably reflecting the higher status of its occupants.

Concentrations of finewares occur in Periods 4,

5B, 10A and 11. Material from Period 11 is probably residual from Period 10A. The concentration in Period 4 is inexplicable, presumably originating from material brought in from elsewhere in the fort or residual material from Periods 2 and 3. In Period 5B the centurions' quarters of the barracks were converted to administrative use, and, as shown below, and elsewhere (Millett 1983), high-status buildings often have less fine wares. This may be because their occupants were making a greater use of metalwork and glassware. The quantity of finewares in Period 10A is not easily explained but may be due to the dumping of domestic refuse from elsewhere on the site.

Observation of the spatial distribution of the glass and samian suggests that the centurions' quarters produce more finds of glass than the *contubernia* or the *intervallum* area. The samian, on the other hand was more evenly distributed between the soldiers' quarters and those of officers with slightly less deriving from the latter contexts than from the *intervallum* area. Both the *intervallum* and centurions' quarters produced more decorated samian vessels than the *contubernia*.

Table 4.1 Percentage of small finds by category, periods 4-11

Period	4	5	5a	5b	6	6a	7	7a	7b	8	9	10	10a	11
unknown	15	30	57	38	85	47	25	32	11	28	25	22	18	18
Personal	30	34	23	15	6	11	20	25	20	19	25	14	12	14
Transport	10					3		3	4				1	
Household	5		4				4	3		5	4	2	2	2
Military	15		4		3	17		3		3	2	2	1	1
structural	5		4	8		11		7		5	2	4	2	
Metalwork								3				2	1	
Woodwork				15				3			3	3	2	
Tool		18	8	23		3	10		4	5	5	2	4	6
Stonework												2	2	
Script	5					3				5		2	2	
Agric	5						4					2	3	2
Wt/measure							4							2
Game	5					3	20				2	2	1	
Textile													1	
Bonework					3		4		8					
Coin	5	18			3	3		15	53	30	32	37	47	55
Medical							4							
Toilet							4	4				4	1	

5 The botanical report

Sandra Nye

Introduction

Segontium is situated on the coastal strip between the Menai Straits and the Mountains of Snowdonia, near the mouth of the River Seiont. The bedrock here is of Ordovician shales overlain by boulder clay and the coast-line low lying and including extensive mudflats. The area is exposed with mild winters, long cool summers, and over 1000mm of rain per year. Today the agriculture is mainly pastoral.

Samples for archaeobotanical analysis were collected from a range of contexts including foundation trenches, pits, drains and dumps, and were processed on site using a flotation machine with sieves of 1.4mm and 0.5mm mesh size. Both fractions were dried and bagged separately. Unfortunately with a few samples either one or other of the fractions has been lost. A total of 94 samples covering the period of occupation from the Iron Age through to the late 4th century were selected for investigation. The material was scanned using a stereoscopic microscope, magnification x10, and the botanical material picked out. Only if the fraction was very large or very unpromising was a sub-sample scanned. The material recovered was carbonised; the abundant charcoal present was ignored since it was considered that in the time available more useful information could be gained from the cereal and seed remains.

Carbonised assemblages are random mixtures resulting from deliberate and/or accidental burning activities during occupation, however they can provide insights into the environment and economy of the settlement.

The results are presented in Tables 5.1 and in 5.2 and note is made of which contexts were sub-sampled and which had one fraction missing, together with the sample sizes in litres. The results will be discussed under the headings of Ecology, Economic plants, and Distribution.

Ecology

Many of the seeds were in good condition; only a few damaged ones were of uncertain identity or indeterminate, but certain seeds were not identified to specific level, eg fat hen (*Chenopodium* spp), as the little extra information gained was not thought to repay the effort.

The species identified are today found in North Wales (Hyde and Wade 1957; Ellis 1983), although three, sun spurge (*Euphorbia helioscopia*), stinking

mayweed (*Anthemis cotula*), and field speedwell (*Veronica agrestis*), are not considered to be native but colonists from England. The species list suggests the following habitats; woodland and hedgerow, pasture, marshland, heathland, and waste or cultivated land. There is overlap between the various habitats, but all could be expected in the vicinity of this fort.

The abundance of charcoal alone, which in some postholes was of oak, might represent imported wood rather than exploitation of local woodland. Species such as wild strawberry (*Fragaria vesca*), elder (*Sambucus niger*), dog rose (*Rosa canina*), nettle (*Urtica dioica*), three nerved sandwort (*Moehringia trinerva*) and bugle (*Ajuga reptans*) are common in open woodland and hedgerow, usually on moist, fertile soils. There are many areas of mixed woodland along the North Welsh coastal strip today.

Buttercups (*Ranunculus acris* type), self heal (*Prunella vulgaris*), bugle, and ribwort plantain (*Plantago lanceolata*) indicate pasture. This pasture was possibly damp in places and graded into marshland, or even into the coastal mudflats, both characterised by abundant sedges (*Carex* spp), with some lesser spearwort (*Ranunculus flammula*), spike rush (*Eleocharis cf palustris*), bristle scirpus (*Isolepis setacea*) and blinks (*Montia fontana ssp chondrosperma*). With the exception of blinks, these species require a constantly high water table. Blinks and knot grass (*Polygonum aviculare*) will grow in seasonally wet pasture.

Species which grow on heathland or moorland include sheep's sorrel (*Rumex acetosella*), bilberry (*Vaccinium* spp) and sedges. Sheep's sorrel and bilberry favour acid soils.

Man's activities create disturbed and enriched niches, ideal habitats for opportunistic species, many of which are also recorded from other Roman sites (eg Hillman 1978; Reid 1901; Boon 1978). Fat hen, docks (*Rumex* spp), henbane (*Hyoscyamus niger*) and nettles thrive on enriched soils, such as in farmyards and on middens, while greater plantain (*Plantago major*) survives the trampling which destroys many plants. Species such as corn spurrey (*Spergula arvensis*), stinking mayweed, chickweed (*Stellaria media*), hempnettle (*Galeopsis angustifolium*), knotgrasses (*Polygonum* spp) and brome grass (*Bromus* spp) are today considered to be common weeds of arable land, although they may not always have had that reputation. They probably indicate that a range of soil types was being cultivated. Corn spurrey thrives on light, sandy soils, especially where lime is absent, stinking

mayweed favours heavy base rich clay soils (Lane 1929; Kay 1971). Many of the 'weeds' thrive in damp conditions, eg chickweed, knotgrasses (Lane 1929; Simmonds 1945). These conditions exist in North Wales today.

Economy

Cereal grains, many of which were broken, and a few fragments of chaff were recovered. The dominant cereal appeared to be spelt wheat (*Triticum spelta*), the occasional glume fragment of emmer wheat (*Triticum dicoccon*) was noted from the earlier periods and a few grains which might have been of bread wheat (*Triticum aestivum*) noted from the later periods. Spelt is a hardy wheat variety which could grow in this exposed area, and will grow on a wide range of soil types (Jones 1981).

Barley grains were found in small numbers in many of the samples, only context 109 contained more than 100. It was of a hulled variety, and the presence of asymmetrical grains, as well as symmetrical grains, suggests a six-row variety *Hordeum vulgare*. Barley thrives on well-drained loam soils (Usher 1974).

A few oat (*Avena* spp) grains were noted, but in such small numbers as to suggest a wild oat growing as a weed rather than as a main crop. The species present could not be determined since no floret bases were found. Oats are thought to have been introduced into Britain as a weed of wheat and barley and were being cultivated by the Roman period in Northern Britain (Jones 1981).

No rye (*Secale cereale*) was identified. The history of rye in Britain is unclear. There are Roman and Iron Age records of grain, however pollen data suggests its presence at an earlier date (Chambers and Jones 1984).

Cereals were an essential part of the economy, providing food, fodder, malt for ale, and straw for use as bedding or thatching material. A few culm nodes were noted suggesting the use of straw. In order to improve storage cereals would be parched, or dried, by heating. This would be essential in such a damp mild climate. However several germinating grains were noted, especially from contexts 1549, 109, 1548, 1579 and 1585. This could be the result of poor storage, or alternatively malting. The small amount of chaff suggests that the cereals were threshed before being brought into the fort and the 'weed' assemblage indicates that they could have been grown locally. The non-native species, sun spurge and stinking mayweed were each of single occurrence, and the identification of the speedwell not certain, so that as such they can not really prove long-distance transport of cereal.

A plant which might have been used with or instead of wheat and barley is brome grass which was present scattered through out the samples and in higher numbers from contexts 1585 and 1525. There are records of it being used in Denmark this century when the rye crop failed (Jones 1981).

Other possible food plants recovered include elder, dog rose, hazel (*Corylus avellana*), *Prunus* family, possibly including wild cherry since a whole stone recovered measured 5mm x 6mm, and strawberry. Corn spurrey is still grown as a fodder crop in continental Europe and once was used as a food for man (Grigson 1975). In the historical past the leaves and seeds of fat hen, docks and knotgrass have been used as food, as have the seeds of the larger vetch (*Vetch/Lathyrus*) species and the tubers of onion couch (*Arrhenatherum elatius*).

Some plants have known traditional medicinal uses, many other uses are probably forgotten. Henbane, although poisonous, can be used as an anodyne and sedative, speedwell has astringent properties and bugle and self heal assist in the healing of wounds (Grigson 1975; Grieve 1978).

Sedges might have been collected for use as a thatching material, for animal bedding or for strewing.

Distribution

The plants identified do not show any dramatic change during occupation, suggesting that the environment and economy remained relatively stable.

Spelt wheat was the predominant wheat grown in Britain during the Iron Age and Roman period having replaced emmer gradually during the 1st millennium BC, and was itself eventually replaced by bread wheat from about the late Roman period. Both spelt and bread wheats prefer heavier, wetter soils than emmer, and were probably more suited to conditions in North Wales. The presence of few emmer glume bases during the earlier periods, and of the few bread wheat grains during the later periods suggests that Segontium was occupied between the decline of emmer and the rise of bread wheat in this particular part of Wales; there is no evidence that either was grown here at this time. Hillman (1978) also noted that spelt wheat was the dominant wheat recovered at Roman Carmarthen.

The contexts sampled from the early periods were mainly foundation slots and trenches which would not be expected to be rich archaeobotanically, and few remains were recovered.

The reduction of garrison size from Period 5A appeared to be accompanied by demolition and burning. The recovery of many cereal grains and sedge nutlets, as well as other seeds, might suggest burning of waste food, as well as waste such as thatch.

The context richest in species from Period 6 was 2043, clay make-up/floor. The floors of Periods 7 and 8 were also make-up. These were periods of reconstruction, when material from previous periods was reused, so that any environmental evidence would be mixed and of an uncertain date. Layers 1579(?) and 1585 of Periods 7 and 7A contained abundant cereal and some brome remains, and possibly they represent domestic

waste. Many grains were germinating, maybe the result of malting or poor storage. Contexts from Period 9 were dump deposits over the drain along the north side of the road in Area D and in a pit and gulley in Area C; they also contained germinating grains.

There were many pits in Period 10 and of those examined only 109 included abundant cereal and seed remains, among which some of the cereals were germinating. This was possibly a domestic rubbish dump, but the purpose of the other pits is unknown. The few botanical remains from the furnace flue (context 238) support the theory that its use was industrial rather than domestic.

The mixture of contexts containing germinating grain does not provide any obvious evidence as to whether the grain was germinating because of poor storage or deliberately for malt.

Summary

The botanical remains recovered from Segontium included a high proportion of spelt wheat, with lesser amounts of barley and traces of emmer, and bread wheat. About 65 other plant species were noted.

The plants identified suggest that the habitats in the vicinity of the fort were woodland and hedgerow, pasture, marshland, moorland and cultivated or waste land. The species were mainly native species, three being possible colonists from England, but they are found growing wild in North

Wales today. The plants though indicate that the soil conditions tended to be wet or poorly drained. The fact that very little chaff was recovered suggests that the cereals were possibly not threshed on site. It seems likely that they were grown locally; spelt and barley are hardy cereals and both could grow in North Wales. There was no evidence that either rye or oats was cultivated.

The only changes noted over the period of occupation were the presence of a few emmer glume bases in the earlier periods and of a few possible bread wheat grains in the later periods. Also more germinating wheat grains were noted from the later periods but this could reflect the better preservation and greater numbers of grains recovered from these periods.

During the period of occupation of the fort at Segontium, the evidence from the plant remains suggests that the cereals could have been grown locally, and that the main cereal utilised was spelt wheat. The cereal was probably threshed before being brought into the fort. The plant remains throughout the periods of occupation provide no evidence of changing environment or economy.

Acknowledgements

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Table 5.1 Segontium samples in phase order, species in taxonomic order

Period	1	2	2	3	3	3	3	3	3	3	4	4	4	4	5	5	5	5	5	6	5
Sample code number	1	2	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	22	23	
1 Ranunculus acris-type - buttercup								2		2											
2 Ranunculus flammula - lesser spearwort								1							1	1			1	1	
3 Thalictrum flavum - common meadow rue																					
4 Cruciferae - cabbage family								1													
5 Brassica/Sinapis - wild cabbage/mustard																					
6 cf Viola sp - violet					1																
7 Caryophyllaceae - pink family										1											
8 cf Caryophyllaceae																					
9 Stellaria media - chickweed										2											
10 Moehringia trinerva - three-veined sandwort																					
11 Spergula arvensis - corn spurrey						1	1			1								1			
12 Montia fontana ssp chondrosperma - blinks								3													
13 Chenopodium sp - fat hen							2	6		3					1			1	2		
14 Atriplex sp - orache											1										
15 cf Trifolium sp - clover								1	1	1									1		
16 Vicia/Lathyrus - vetch/vetchling										1											
17 Rubus fruticosus - blackberry																					
18 cf Rubus fruticosus																					
19 Potentilla sp - tormentil																					
20 Potentilla palustris - marsh cinquefoil																					
21 Potentilla reptans type - creeping cinquefoil																					
22 Fragaria vesca - strawberry																					
23 Aphanes arvensis - parsley piert								1		1									1		
24 Rosa canina - dog rose															1						
25 Prunus sp - sloe/cherry																					
26 Euphorbia helioscopia - sun spurge																					
27 Polygonurn sp - knotgrass																					
28 cf Polygonum sp										1											
29 Polygonum viculare agg - knotgrass								27		1											
30 Polygonum cf aviculare																					
31 Polygonum persicaria - redshank															1						
32 Polygonurn lapathifolium - pale persicaria								1		1											
33 Polygonum convolvulus - black bindweed																					
34 Rumex sp - dock								4	1							1					
35 Rumex acetosella - sheep's sorrel					2			1	1	7		1			1				1		
76 Urtica dioica - nettle											2										
37 Corylus avellana - hazel			1																		
38 Vaccinium sp - bilberry																					
39 Hyoscyamus niger - henbane																					
40 Veronica agrestis type - field speedwell																					
41 Labiatae, Mentha type - mint type																					
42 Prunella vulgaris - selfheal						1				1											
44 Galeopsis angustifolia - narrow-leaved hemp nettle																					
45 Ajuga reptans - bugle					1																
46 Plantago major - great plantain																					
47 Plantago lanceolata - ribwort plantain										1											
48 Galium aparine - cleavers																					
49 Sambucus niger - elder																					
50 Compositae - daisy family								2													
51 Anthemis cotula - stinking mayweed																					

Table 5.1 contd

Period	1	2	2	3	3	3	3	3	3	4	4	4	4	4	5	5	5	5	5	5	5
Sample code number	1	2	4	5	8	7	8	9	10	11	12	13	14	15	16	17	18	19	22	23	
52 Compositae cf Centaurea niger - lesser knapweed											5				1			2	1		
53 cf Luzula sp - woodrush										1											
54 Cyperaceae - sedge family														1							
55 cf Cyperaceae																					
56 Isolepis setacea - bristle scirpus					1						1		1								
57 Eleocharis palustris - common spike rush								3													
58 Carex spp (biconvex nutlet) sedge					18			35			2				1			2	1		
59 Carex spp (trigonus nutlet) sedge			1		2			13			2				3		1		1		
60 cf Carex spp - sedges																					
61 Gramineae - grass family		2			8			12			4		1		2					2	
62 Sielingia decumbans - heath grass								1													
63 Bromus cf secalinus - rye brome																			1		
64 Cerealea indet - cereal		2	1	6	1		4	3	10	5	1	1					5		21	12	
65 Triticumsp - wheat			1		1								1		2						
66 Triticum cf spelta - spelt wheat										4					2		1	1		5	
67 Triticum cf aestivum - bread wheat																				4	
68 Hordeum vulgare - barley						2	1			1	2	2		2				1		3	
69 Avena spp - oat																					
70 Indet				2				1		1											
71 Triticum spikelet base										2											
72 Triticumsp glume base					1					12									1		
73 Triticum cf spelta glume base																					
74 Triticum cf diccocus glume base										10											
75 Cereal embryo																					
76 Bud											1										
77 Spine																					
78 Arrhenatherum elatius (tuber) - oat grass																					
79 burnt bone					X																
80 bone					X X X					X X					X X				X		
81 bird bone																					
82 fish bone																					
83 fish scale																		X			
84 molluscs																		X			
85 winkle																					
86 shell frags																					
87 egg shell frag																					
88 insect																					
Total number of taxa	1	2	3	2	12	5	2	19	4	28	6	5	3	5	9	3	5	5	12	7	

* - Taxonomic order as in Dandy 1958. Nomenclature as in Clapham et al 1962

Table 5.1 contd

Period	5	5	5	5	5	5	5A	5A	5A	5A	5A	5A	5A	5B	5B	5B	6
Sample code number	24	25	26	27	28	29	30	31	32	33	34	35	37	38	39	40	41
54 Cyperaceae - sedge family									1								
55 cf Cyperaceae										1							
56 Isolepis setacea - bristle scirpus							1										
57 Eleocharis palustris - common spike rush			1						1	4	3	2					4
58 Carex spp (biconvex nutlet) sedge		1	2				2	2	1	39	1					2	20
59 Carex spp (trigonous nutlet) sedge			2	1					1	17	1	4				1	5
60 cf Carex spp - sedges																	
61 Gramineae - grass family	1	1					10	1	3	2		3		1			28
62 Sielingia decumbans - heath grass																	
63 Bromus cf secalinus - rye brome							2		1	14							
64 Cerealea indet - cereal	1	3	10	3			259	60	14	50	4	9	2	7		4	11
65 Triticum sp - wheat		1	2				38	8								1	1
66 Triticum cf spelta - spelt wheat				2			57		1	20		1	1	1			
67 Triticum cf aestivum - bread wheat																	
68 Hordeum vulgare - barley	1		2	1		1	1	2	33			1	1	1		1	1
69 Avena spp - oat																	
70 Indet							1				1	2				1	2
71 Triticum spikelet base																	
72 Triticum sp glume base		1							2	5		3			1		3
73 Triticum cf spelta glume base									3	3							
74 Triticum cf diccocum glume base									2								
75 Cereal embryo										1							1
76 Bud																	
77 Spine										1							
78 Arrhenatherum elatius (tuber) - oat grass									1								
79 burnt bone																	
80 bone								X	X	X		X					X
81 bird bone																	
82 fish bone	X																
83 fish scale																	X
84 molluscs																	X
85 winkle																	
86 shell frags																	
87 egg shell frag																	
88 insect																	
Total number of taxa	7	6	10				17	9	19	35	8	19	3	6	2	10	27

* - Taxonomic order as in Dandy 1958. Nomenclature as in Clapham et al 1962

Table 5.1 contd

Period	6	6	6	6A	6A	6A	6A	6A	6A	6A	6A	6A	6A	6A	6A	7	7	7
Sample code number	42	43	44	45	46	47	48	49	50	51	52	53	54	55	57	58	59	
54 Cyperaceae - sedge family					1						1		1					
55 cf Cyperaceae																		
56 Isolepis setacea - bristle scirpus																		
57 Eleocharis palustris - common spike rush	2		2				2				1	1	1	5				
58 Carex spp (biconvex nutlet) sedge	2		13	1	2		1				4	6	3	14		1		
59 Carex spp (trigonous nutlet) sedge			5		1						2		2	4				
60 cf Carex spp - sedges																		
61 Gramineae - grass family	1		2			1							2	2	1			
62 Sielingia decumbans - heath grass			1															
63 Bromus cf secalinus - rye brome				1														
64 Cerealea indet - cereal	1	7	9		2	3	2	3	2	1			18					
65 Triticum sp - wheat	1	1		2		2					1				1	1		
66 Triticum cf spelta - spelt wheat		1	1										9					
67 Triticum cf aestivum - bread wheat																		
68 Hordeum vulgare - barley	4	2	2	3	1			1			2					1	1	
69 Avena spp - oat					1													
70 Indet						1							1	1	2			
71 Triticum spikelet base																		
72 Triticum sp glume base														1				
73 Triticum cf spelta glume base	1																	
74 Triticum cf diccicum glume base			1															
75 Cereal embryo																		
76 Bud																		
77 Spine																		
78 Arrhenatherum elatius (tuber) - oat grass																		
79 burnt bone																		
80 bone	X		X		X	X	X	X	X	X	X	X	X	X				
81 bird bone									X									
82 fish bone																		
83 fish scale						X	X	X										
84 molluscs	X		X		X			X			X							
85 winkle																		
86 shell frags																		
87 egg shell frag																		
88 insect																		
Total number of taxa	13	5	18	5	8	7	5	8	3	3	11	11	16	17	2	4	1	

* - Taxonomic order as in Dandy 1958. Nomenclature as in Clapham et al 1962

Table 5.1 contd

Period	7	7	7	7A	7A	7A	7A	7A	7B	8	8	9	9	9	9	9	10
Sample code number	60	61	62	63	64	65	66	67	69	70	71	72	73	74	75	76	77
1 Ranunculus acris-type - buttercup																	
2 Ranunculus flammula - lesser spearwort																	
3 Thalictrum flavum - common meadow rue																	
4 Cruciferae - cabbage family																	
5 Brassica/Sinapis - wild cabbage/mustard																	
6 cf Viola sp - violet																	
7 Caryophyllaceae - pink family														1	3		
8 cf Caryophyllaceae					1												
9 Stellaria media - chickweed																	
10 Moehringia trinerva - three-veined sandwort																	
11 Spergula arvensis - corn spurrey																	
12 Montia fontana ssp chondrosperma - blinks																	
13 Chenopodium sp - fat hen												3	1			5	6
14 Atriplex sp - orache						1											
15 cf Trifolium sp - clover					1										2		
16 Vicia/Lathyrus - vetch/vetchling						1											
17 Rubus fruticosus - blackberry																	3
18 cf Rubus fruticosus																	1
19 Potentilla sp - tormentil																	
20 Potentilla palustris - marsh cinquefoil																	
21 Potentilla reptans type - creeping cinquefoil																	
22 Fragaria vesca - strawberry																	
23 Aphanes arvensis - parsley piert																	
24 Rosa canina - dog rose																	
25 Prunus sp - sloe/cherry																	
26 Euphorbia helioscopia - sun spurge													1				
27 Polygonum sp - knotgrass																	
28 cf Polygonum sp																	
29 Polygonum aviculare agg - knotgrass																	
30 Polygonum cf aviculare						4											
31 Polygonum persicaria - redshank																	
32 Polygonum lapathifolium - pale persicaria							1			1							
33 Polygonum convolvulus - black bindweed				1		1	1										
34 Rumex sp - dock														1			4
35 Rumex acetosella - sheep's sorrel									1								
36 Urtica dioica - nettle																	
37 Corylus avellana - hazel							3										1
38 Vaccinium sp - bilberry																	
39 Hyoscyamus niger - henbane																	
40 Veronica agrestis type - field speedwell								1									
41 Labiatae, Mentha type - mint type																	
42 Prunella vulgaris - selfheal																	
44 Galeopsis angustifolia - narrow-leafed hemp nettle																	
45 Ajuga reptans - bugle																	
46 Plantago major - great plantain																	
47 Plantago lanceolata - ribwort plantain																	1
48 Galium aparine - cleavers																	
49 Sambucus niger - elder																	
50 Compositae - daisy family																	
51 Anthemis cotula - stinking mayweed																	
52 Compositae cf Centaurea niger - lesser knapweed																	
53 cf Luzula sp - woodrush						3					1		1				

Table 5.1 contd

Period	7	7	7	7A	7A	7A	7A	7A	7B	8	8	9	9	9	9	9	10
Sample code number	60	61	62	63	64	65	66	67	69	70	71	72	73	74	75	76	77
54 Cyperaceae - sedge family						1											
55 cf Cyperaceae																	
56 Isolepis setacea - bristle scirpus																	
57 Eleocharis palustris - common spike rush		1															
58 Carex spp (biconvex nutlet) sedge						2				3	2			1	1		3
59 Carex spp (trigonus nutlet) sedge									1								1
60 cf Carex spp - sedges		2															
61 Gramineae - grass family								1	1								4
62 Sielingia decumbans - heath grass																	1
63 Bromus cf secalinus - rye brome	19							84			2			3			21
64 Cerealea indet - cereal	101			4	6	6	1k+			4	41	1	3	18			673
65 Triticum sp - wheat	84					1	203				3			6	1		12
66 Triticum cf spelta - spelt wheat	200					1	251	1			1			5			38
67 Triticum cf aestivum - bread wheat	4													1			6
68 Hordeum vulgare - barley	3		2			4		11		2	2			4			142
69 Avena spp - oat					1									1			
70 Indet						4											
71 Triticum spikelet base																	
72 Triticum sp glume base										1							
73 Triticum cf spelta glume base						1				2							2
74 Triticum cf diccocus glume base					2									1			
75 Cereal embryo								2							2		
76 Bud		1															7
77 Spine											1						5
78 Arrhenatherum elatius (tuber) - oat grass																	1
79 burnt bone																	
80 bone		X	X			X	X	X		X	X	X	X	X	X	X	X
81 bird bone											X						
82 fish bone						X					X						
83 fish scale																	
84 molluscs											X			X		X	X
85 winkle																	
86 shell frags																	X
87 egg shell frag										1							
88 insect																X	
Total number of taxa	6	4	2	1	4	17	6	10	3	9	13	3	4	12	7	4	25

* - Taxonomic order as in Dandy 1958. Nomenclature as in Clapham et al 1962

Table 5.1 contd

Period	10	10	10	10	10	10	10	10	10	10	10	10_10	10	10A	11	U/S	U/S
Sample code number	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
54 Cyperaceae - sedge family																	
55 cf Cyperaceae																	
56 Isolepis setacea - bristle scirpus																	
57 Eleocharis palustris - common spike rush																	
58 Carex spp (biconvex nutlet) sedge	3		2		1			2				1		1		5	
59 Carex spp (trigonous nutlet) sedge	13			1			1	1									
60 cf Carex spp - sedges																	
61 Gramineae - grass family	2	6			2	1		6								4	
62 Sielingia decumbans - heath grass																	
63 Bromus cf secalinus - rye brome					5			2				1			6	1	2
64 Cerealea indet - cereal	22	35	3	3	43	6	3	24	2	1		2		1	72	1k+	2
65 Triticum sp - wheat	1	5			5			6						2		28	
66 Triticum cf spelta - spelt wheat					7			6								106	
67 Triticum cf aestivum - bread wheat				1	1											1	
68 Hordeum vulgare - barley	5	3	2		4	4	1	12	1	3						4	
69 Avena spp - oat							2	1									
70 Indet			2									1	2				
71 Triticum spikelet base																1	
72 Triticum sp glume base								2								1	
73 Triticum cf spelta glume base		2						1								1	
74 Triticum cf diccocus glume base																	
75 Cereal embryo																	
76 Bud									1							1	
77 Spine																1	
78 Arrhenatherum elatius (tuber) - oat grass																	
79 burnt bone																	
80 bone	X	X	X	X	X	X	X	X	X	X						X	
81 bird bone								X						X			
82 fish bone																	
83 fish scale		X															
84 molluscs		X	X						X							X	
85 winkle		X															
86 shell frags																	
87 egg shell frag																	
88 insect																	
Total number of taxa	16	10	10	6	13	9	9	19	8	3	1	4	2	4	3	24	

* - Taxanomic order as in Dandy 1958. Nomenclature as in Clapham et al 1962

Table 5.2 List of botanical samples

Sample Code number	Context number	Sample Volume in litres	Subsample analysed	Fraction missing
1	2382	15		
2	2129	15		
3	2221	15		
4	2222	15		
5	1147	15		
6	1256	15		
7	1701	30		
8	2248	15		
9	2337	15		
10	2164	10		
11	2054	60		
12	2152	30		
13	2286	15		
14	2294	15		
15	1089	??		
16	1130	15		
17	1252	15		
18	1262	15		
19	1375	75		
20	2202	1		
21	2203	1		
22	2007	60		
23	2128	60		
24	2156	60		
25	2190	15		
26	2192	15		
27	2220	15		
28	2266	15		
29	2309	15		
30	257	60		
31	259	15		
32	274	60		
33	1075	60	X	
34	1102	15		
35	2052	60		
36	2185	15	X	
37	2201	60	X	
38	976	60	X	
39	1002	15		
40	2011	60		
41	2043	60		
42	2057	30		
43	2165	60		
44	2364	15		
45	923	30		
46	959	60		
47	1109B	15		
48	1145	30		
49	1162	30		
50	1367	??		
51	1700	30		
52	2067	60		
53	2085	15		
54	2097	60		
55	2179	60		
56	2285	15	X	

Table 5.2 contd

Sample Code number	Context number	Sample Volume in litres	Subsample analysed	Fraction missing
57	51	15		
58	246	15		
59	1015	15	X	
60	1579	??	Grain only	
61	1614	60		
62	1660	60	X	
63	253	15		
64	256	60		
65	281	60		
66	1021	60	X	
67	1585	60		X
68	1617	1		
69	222	??		
70	2073	60		
71	3010	120		
72	357	30		
73	1033	60		
74	1548	60		X
75	1630	60		
76	3008	60		
77	109	30		X
78	140	45		X
79	149	60		X
80	229	15	X	
81	238	15		
82	442	30		X
83	854	60		X
84	1283	60		
85	1513	??		X
86	1571	15	X	
87	1647	60		
88	1659	60		
89	1665	60	X	
90	2003	60		
91	340	15		
92	1606	60		X
93	1525	??		
94	1549	??		

6 Bones of larger mammals

B Noddle

Bones from Segontium were very well preserved, and not as fragmented as upon many Romano-British sites. About 15% by weight was not identified, and this included all rib. The bone was investigated using the excavators' periods, but amalgamating some of them because there was little material present; the groups employed were 1-4, Flavian; 5-6, Trajanic-early Antonine; 7, Antonine-early 4th century; 8-9, late 3rd to early 4th century; 10, mid 4th century; 10A, late 4th century; and 11, post-Roman. The contexts were in two categories, those with only a few bones in them and those with large numbers, including several thousand in the drain complex 2000. This presents some problems in the use of the controversial statistic, minimum number of individuals. This statistic has been rejected on mathematical grounds by Gilbert *et al* (1981) because if it is accepted that each context contains the bones of different individuals then there are far fewer bones per theoretical individual in small contexts than large ones. This conclusion, however, seems to the writer perfectly reasonable on an excavation where only a small part of the site has been investigated and the bone deposits are certainly secondary in the majority of cases. The concept has therefore been employed, using the definition of Grayson (1973) and the individuals assigned an age category where possible.

Measurements were carried out following the recommendations of Von den Driesch (1976) except that distal metapodials were measured at the epiphyseal junction; measurements were made to the nearest millimetre.

Proportions of Species

These are set out in Table 6.1, using both numbers of identified fragments and minimum number of individuals. The quantity of bone excavated from the later periods was very much greater than that from the earlier, but Segontium is by no means unusual in this respect, since at both Wroxeter (Noddle forthcoming) and Barnsley Park (Noddle 1985) the bulk of the bone came from the 4th century and later. A number of causes for this can be suggested, by no means mutually exclusive; more meat was consumed in the later periods, the population increased, the usual clearance was not carried out as the site was coming to the end of its occupation, or that occupation activities rendered bone unidentifiable following its deposition.

At all periods the bulk of the bone comes from cattle, whichever method of assessment is used,

though there is a considerable increase in the proportion of identified fragments between the 3rd and 4th centuries. This increase is however less marked if MNI is considered. This increase is at the expense of sheep, pig remaining fairly constant. This finding is typical of Romano-British sites, as was demonstrated by Ring (1978) and confirmed by Noddle (1984; Segontium was included in her study).

Goat was identified from all periods except Flavian and has doubtless been underestimated. The highest proportion was found in deposits of the 3rd century. Beside the economic function of this species, the possibility of its ritual usage must be considered following the remarkable findings at the temple at West Hill, Uley, Glos (Levitan 1978). Small numbers of horse bones were found at all periods, tending to increase with the passage of time following the initial high Flavian proportion. Likewise a few dogs were always present, and the occurrence of individual bones rather than partial skeletons is evidence for the secondary nature of the deposits since Roman dogs were normally buried. Cat is less common; none of the cat bones could be measured, but they seem to be of domestic rather than large wild size. The proportion of deer bones, mainly from red deer, is high for a Romano-British site; the proportion of roe deer drops, which may have some ecological significance. This part of Wales was known for its excellent red deer even in the post-medieval period (Whitehead 1964). The size of some of the pig bone suggests that it derived from the wild form, and it seems likely that hunting was carried on throughout the life of the site, making a useful but not essential contribution to the meat supply. It is perhaps worthy of note that the only bone identified from centurions' quarters was the mandible of a roe deer.

Bones of hare, badger, seal, dolphin and whale were also identified, but were of little significance.

Anatomical analysis

An analysis was carried out into the major anatomical regions of the cattle bone (Table 6.2), though this may be of more taphonomic than economic significance. The proportions of the more edible parts of the carcass, vertebrae and upper limb bones were rather low, whereas the proportion of carpals and tarsals and metapodials was high. These are butcher's waste, the metapodial carrying no muscle and the tarsus tending to be left after the carcass has been butchered, if it has been suspended by the achilles tendon as is nor-

mally the case. The proportion of durable loose teeth gives some idea of bone loss by fragmentation; it is not very high in this instance.

Ages of individuals

Both dentition and state of epiphyseal fusion are used to assess age of animal bones, the former being more reliable than the latter (Noddle 1984, 6). Chronological ages are not used as these apply to modern stock; stages of maturity present a more reliable picture. The stages employed are four; neonatal, juvenile, immature and mature, which in modern animals would be under four months, four to eighteen months, eighteen months to about four years and older than this. The criteria separating these stages are as follows: neonatal - no permanent teeth in wear, no post-natal epiphyseal fusions; juvenile - lower third molar not erupted, no epiphyseal fusions other than coracoid process and second phalanx, but bones larger than neonatal; immature - lower third molar present but not fully in wear, latest maturing bones (femur, proximal humerus, tibia etc) unfused; mature - all permanent teeth in full wear, all epiphyses fused except vertebrae and peripheral pelvic bones (which mature at about six years in modern stock).

These data for cattle and pig are set out in Table 6.3; sheep were not included as not enough individuals could be aged. The number of neonates indicates those actually consumed. Segontium is a consumption rather than a production site, and casualty animals were probably consumed where they died. Amongst cattle the proportion of neonates is constant except for Period 10; no explanation is offered for this sudden increase. Likewise there is an increase in the proportion of neonate pigs in Period 7. Juvenile numbers remain more or less constant for both species. There seems to be a real rise in the numbers of immature cattle and a decrease in mature ones, and this has some economic significance. Mature cattle have contributed other economic functions as well as their flesh and hides, whereas immature cattle have not and are thus an extravagant product. Large numbers of them suggest that the local agriculture had been changed to supply a demand for meat which was greater than that which could be met by worn out plough-oxen and breeding stock. This is typical of Roman Britain as a whole. As pigs have no economic function other than meat supply, this change is not to be expected amongst them, neither does it occur.

Type of Animal

The most obvious feature of excavated animal bones is their size, though there are some non-metric differences of some significance. Size however is not determined by genetics alone, sex and level of nutrition also have considerable influence.

Cattle

The large number of measurements which were obtained on the cattle bone are presented in Figures 6.1-4 and Tables 6.4A-C. The latter tables include complete bones (6.4A, mainly metapodials, presented individually), horn cores (6.4B) and measureable ends of broken bones (6.4C). It is unfortunate that so few measurements could be obtained from the earlier periods, but there were sufficient to indicate that larger animals were becoming available from the 3rd century onwards, although smaller beasts were still present.

There are also a number of exceptionally large cattle bones, mainly 4th-century. These include scapula widths of 65 and 68 (Fig 6.1), radius proximal width 93 (Table 6.4C), distal width 81 (Table 6.4C) and tibia distal width 73mm (Table 6.4C). The large wild *Bos primigenius* is not known to have occurred in Britain later than the Bronze Age (Clutton Brock 1986). Could it have survived in Wales? The proximal radius is particularly massive but does not appear to have been in the ground any longer than other material from the same layer. However, Bronze Age aurochs are fairly common, and the bone might have been collected as a curiosity.

The shape of bovine horn cores is genetically determined, although it differs amongst the sexes, including the castrate male. Bulls tend to have more elliptical horns than cows, and the elliptical shape increases with age. This shape is usefully expressed as a ratio derived from the least and greatest basal diameters of the horn core, and can also be determined where the horn has been cut off or broken at the base. This topic has been discussed by Armitage and Clutton-Brock (1976) and Noddle (1983). The Segontium horn cores ratios are set out in Figure 6.2. The typical Iron Age bovine, the Celtic ox, had very elliptical horn cores, but in the Roman varieties the core became more circular. This can be seen to occur in Segontium during the 3rd century, but the earlier form remains.

A third strand of genetic evidence is provided by the position of the nutrient foramen in the femur (Table 6.5). In the majority of modern animals the position is lateral on the posterior distal shaft of the bone, but in the majority of earlier animals the position is more medial. Numbers are few, but there does seem a definite change during the 4th century towards the modern form. This topic is also discussed by Noddle (1983).

If all this evidence is considered together, there can be little doubt that new types of cattle were imported into Segontium during the 3rd-4th centuries, but the older forms remained, perhaps in native hands or mountain areas.

One other factor which might have changed with time is the proportion of lower third molars lacking the posterior pillar, but the proportion at Segontium remains fairly constant throughout (Table 6.6).

SCAPULA: LEAST WIDTH NECK

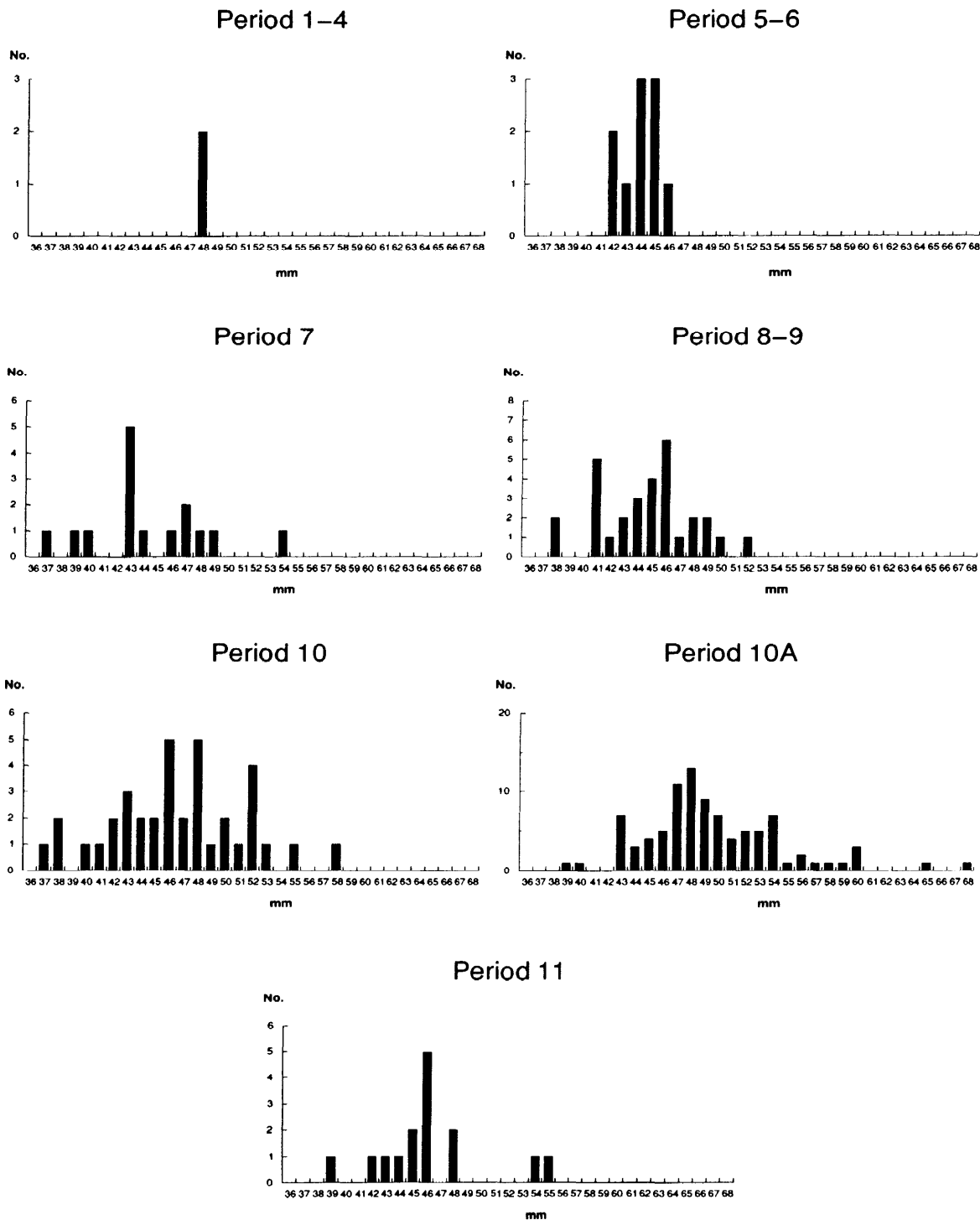


Figure 6.1 Cattle scapula measurements by Period.

CATTLE HORN CORES. BASAL SHAPE (GREATEST DIAMETER/LEAST DIAMETER)

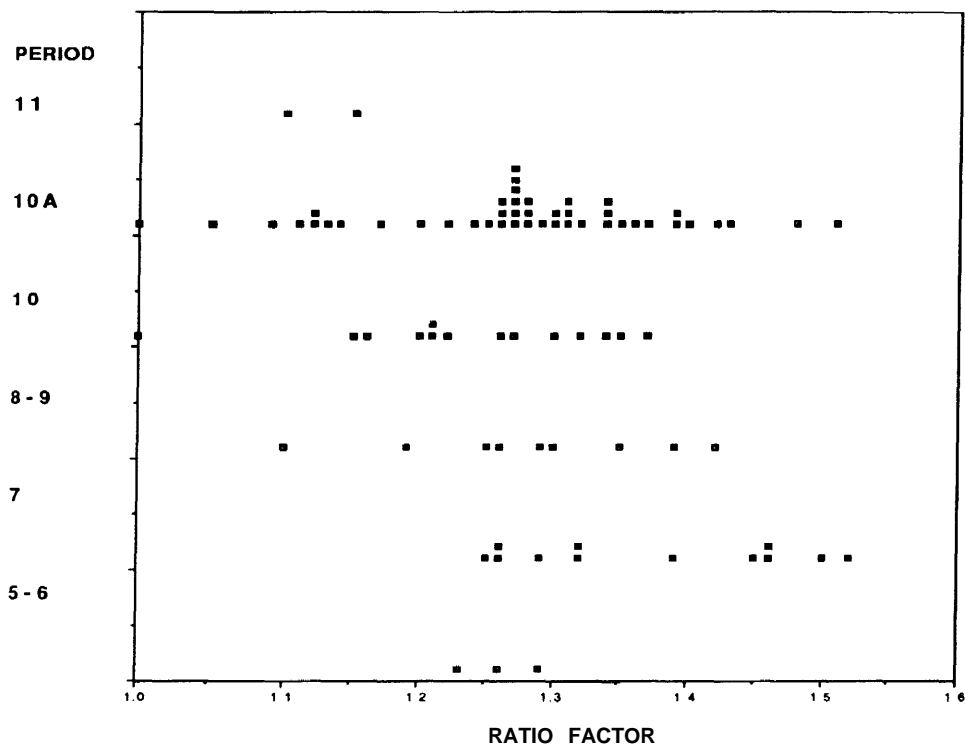


Figure 6.2 Cattle horn core ratios.

Sheep

Evidence for the type of sheep present at Segontium is scanty and conflicting. The measurements set out in Table 6.7 seem to indicate a mixed type, with the odd large specimen present during the earlier periods as well as the 4th century. However, the general trend in size is upwards with the passage of time, as is the case at other Roman sites; but at no time can the animals be described as large, being about the size of present-day Soay sheep. Tables 6.7C, Table 6.7D, and Table 6.7E present other evidence of the type of sheep. The three horn cores measured are decidedly elliptical and fall within the Soay range for male animals (Noddle 1983). The shape of the scapula neck becomes longer and thinner with the passage of time, that is more primitive, an unexpected finding. Despite this, on scapula evidence the sheep are more modern in conformation than the Soay. The evidence derived from the femur indicates little genetic change, but it must be emphasised that the quantity of data is insufficient

for firm conclusions. However, it seems likely that these are native sheep and there are no Roman imports. The sheep of the Roman Cotswolds, for example, were far more robust (Noddle 1985). The bones of goats are of course difficult to distinguish from those of sheep, but the two bones measured (Table 6.8) indicate very small animals, so do not interfere with estimations of size change.

Pigs

The measurements set out in Table 6.9 include some large specimens quite distinct from the rest, and these larger bones probably come from wild animals. These have been underlined in the table. The most reliable measurement in the case of pigs is the length of the lower third molar; this indicates a fairly wide size-range including a number smaller than those usually found at Roman sites. Measurements on the other bones are similar, and it seems that here also native types persisted. Small size may of course result from a low standard of husbandry.

PHALANX: GREATEST LENGTH

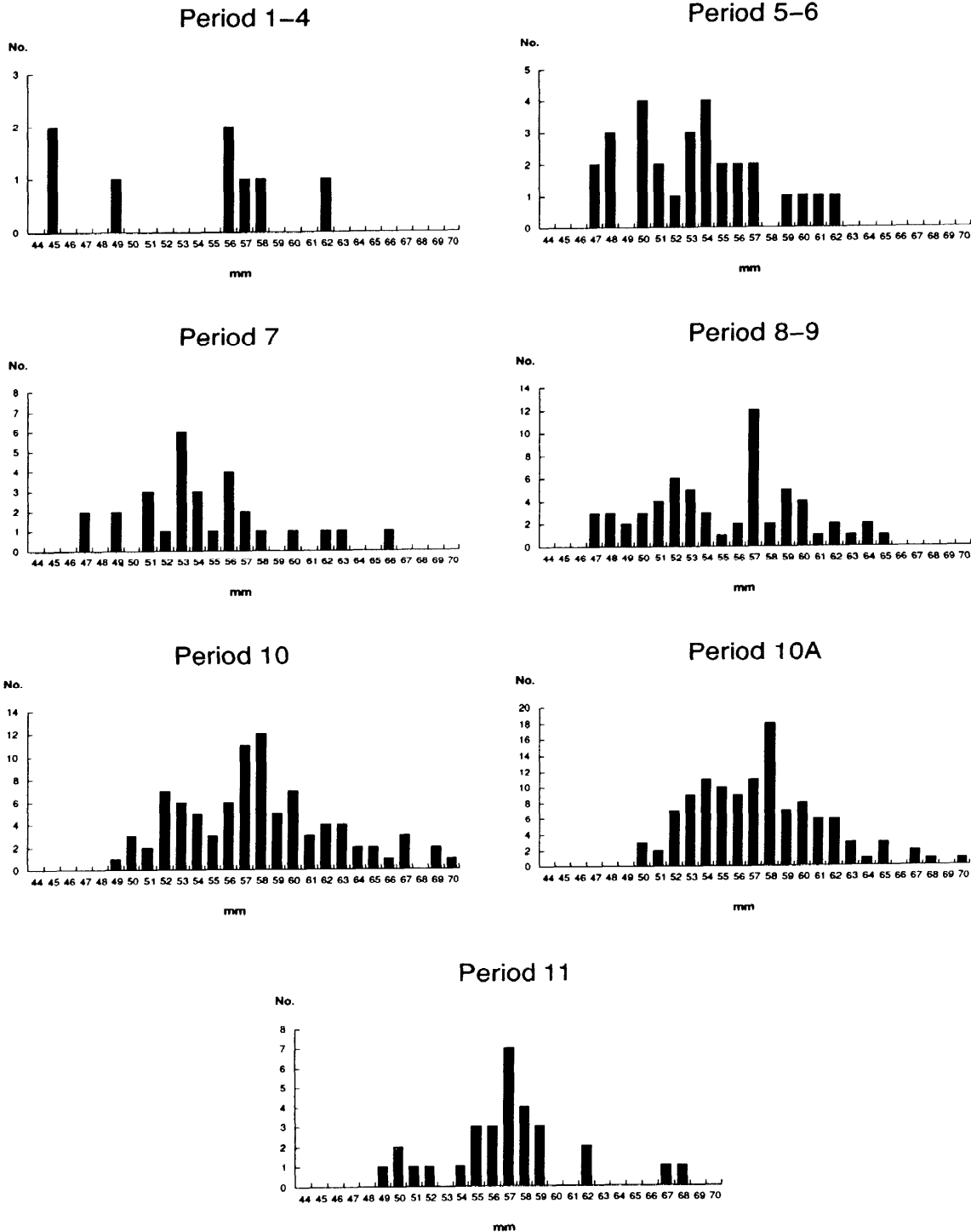


Figure 6.3 Cattle phalanx measurements by Period.

LOWER THIRD MOLAR: LENGTH

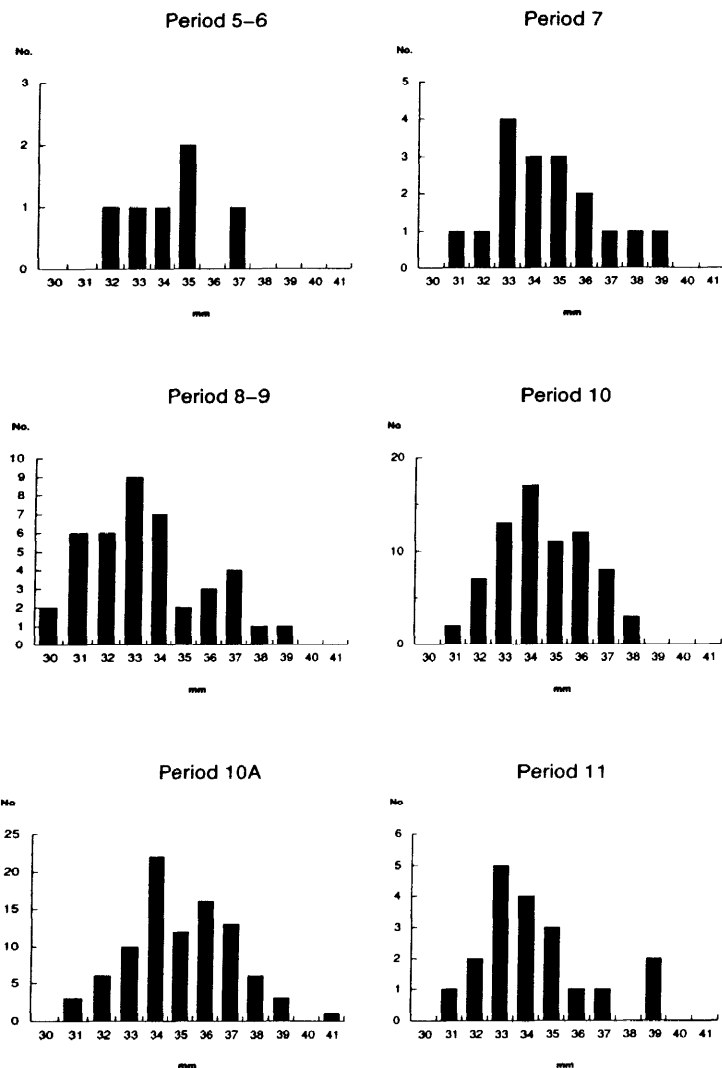


Figure 6.4 Cattle molar measurements by Period.

Horse

The number of horse bones that could be measured was exceedingly small (Table 6.10), and in consequence there is little that can be said about them. This paucity is however unusual; on many sites there is evidence that horse bones were treated differently from cattle and more survive intact. This may be because the horse had some ritual significance for the Celtic native which is not in evidence here.

Dog

The Romans kept a number of types of dog of varying size (Harcourt 1974) and several are in evidence here. A small, presumably pet, animal is in evidence during the 4th century but not before (Table 6.11). However, numbers are small and only isolated bones were found, indicating that if dog burial was practised, much disturbance took place.

Deer

No significant measurements were made on roe deer, and all remarks refer to the red deer *Cervus elephas*. A wide range of measurements is likely in this animal (Table 6.12), since there is a considerable difference in the size of the sexes. North-west Wales was long famed for the quality of its deer, which did not suffer any loss in size during the middle ages such as was evident elsewhere (Whitehead 1964, Noddle 1982). It is therefore unlikely that Roman hunting pressure exerted any effect on size, and none is evident.

Pathology and abnormalities

A number of pathological or otherwise abnormal specimens were observed, but the number was smaller than in many other sites examined by the author. All of them except one are fairly common amongst archaeological bones (Brothwell and Baker 1980). Affected cattle bones were as follows (Periods in which the anomalies are present are represented by the bracketed Period numbers):

- i Abscess of mandible shaft (8-9, 11) and Otic region (10)
- ii Fistulous withers (5-6, 10)
- iii Arthritis Temperomandibular ?joint (8-9), and distal metacarpal (10A)
- iv High ringbone (8-9, 10A)
- v Spavin (8-9, 10A)
- vi Foul in the foot (5-6)
- vii Rickets (5-6)
- viii Erosions of phalangeal joint surfaces (8-9, 10A)
- ix Chondrodystrophia (10)
- x Absence second premolar (7, 10A(2))
- xi Foramina in frontal eminence (10)

Considering the numbers of bones involved, pathological specimens were more common in the 3rd century than the early 4th.

The only abnormal specimens of sheep bone were three cases of slight periodontal disease (8-9 and 10A); the first was in a five-tooth mandible. There was also a sheep femur with an exostosis (10) and a metatarsal with a healed fracture (7).

Amongst pig bones, abnormalities were mostly due to infection and malnutrition. Two ribs, both from a Period group, 10, bore abscess cavities. Also in this group was an infected carpal joint, in which the distal ulna was joined to a metacarpal by fused carpal bones. Evidence of malnutrition included a mandible with the first molar twisted through 90 degrees because the mandible had not grown fast

enough to accommodate it (Period 8-9). A neonatal piglet from Period 10 had very thin bones, indicating slow starvation. There was another new-born animal in the assemblage of this Period suffering from either chondrodystrophy or rickets. On the other hand, some of the contemporary pig bones were very robust, suggesting that the animals might have been reared in confinement. There was a bifurcate thoracic spine in a Period 10A assemblage, a condition which is normal in zebu cattle but has not been observed hitherto in pigs.

Comparison with other sites

Anglesey and the mainland area around the Menai Straits are isolated areas of good agricultural land not easily compared with other areas. Bulky material was probably transported by sea. Though, by the 4th century, the livestock would have been predominantly Roman, native elements may well have remained. There are no local sites for comparison. However, Segontium has been compared in some detail with Wroxeter, which was predominantly military in the 1st century but was mainly civilian by the 4th (Noddle 1984). Segontium is remarkably similar in species composition with 4th-century Wroxeter, but in the 1st century pig and sheep numbers were higher. The average size of the cattle was similar at both sites during the later period, but there was a wider range of size at Segontium which may represent smaller native stock as well as the exceptionally large Segontium cattle. These large cattle are probably the result of good grazing. Animals are more likely to have been exported from the area than imported.

Summary

Over 13000 bone fragments were identified from dated layers. Most of these are from the 4th century. Despite the distance of Segontium from other sites with large bone assemblages, the proportions of species and the changes with time were typical of other Romano-British sites. Cattle bone, always predominating, increased at the expense of sheep. Most of the stock became larger with time. By the 4th century the local agricultural economy has been influenced to breed cattle for meat production. Hunting of red deer was carried out at all times, whilst numbers of roe deer declined. The stock seems to have been generally healthy. Some very large cattle bones may indicate the survival of *Bos primigenius* later than in other parts of the British Isles. Small individual cattle, sheep and pigs occurred throughout, being perhaps native stock.

Table 6.1 Proportions of species (#)

Group		Total	Cattle	Sheep	Pig	Goat	Horse	Dog	Cat Deer	Red Deer	Roe (no of frags)	Other
1-4	i	2178	78 (44)	32 (18)	46 (26)	-	11 (6)	-	1 (1)	6 (3)	4 (2)	-
	ii	78	27 (35)	19 (24)	21 (27)	-	4 (5)	-	1 (1)	3 (4)	3 (4)	-
5-6	i	917	412 (45)	179 (19)	254 (28)	9 (1)	14 (2)	13 (2)	3 (<1)	19 (2)	11 (1)	Hare 2 Badger 1
	ii	343	103 (30)	85 (25)	108 (31)	7 (2)	6 (2)	6 (2)	3 (1)	13 (4)	9 (3)	Seal 1
7-7B	i	1461	790 (54)	129 (9)	388 (27)	14 (1)	10 (1)	18 (1)	6 (1)	69 (5)	31 (2)	Seal 4 Dolphin 1
	ii	396	115 (29)	87 (22)	115 (29)	10 (3)	7 (2)	16 (4)	3 (1)	25 (6)	15 (4)	Mouse 1
8-9	i	1974	1431 (72)	133 (7)	331 (16)	10 (1)	9 (1)	6 (<1)	—	46 (2)	8 (<1)	-
	ii	300	124 (41)	47 (16)	85 (28)	6 (2)	5 (2)	6 (2)	—	22 (7)	5 (2)	-
10	i?	3347	2319 (69)	228 (7)	566 (17)	7 (<1)	36 (1)	46 (1)	3 (<1)	137 (4)	4 (<1)	Seal 1
	ii	435	168 (37)	70 (16)	108 (25)	7 (2)	21 (5)	16 (4)	3 (<1)	40 (9)	3 (1)	
10A	i	4883	3941 (81)	203 (4)	590 (12)	18 (<1)	37 (1)	25 (<1)	—	63 (1)	1 (<1)	Hare 1 Badger 1
	ii	445	199 (45)	58 (13)	110 (25)	9 (2)	18 (4)	14 (3)	—	33 (7)	1 (<1)	Whale 3
11	i	937	729 (78)	43 (5)	113 (12)	1 (<1)	8 (10)	7 (1)	-	36 (4)	-	-
	ii	100	53 (53)	11 (11)	16 (16)	1 (1)	8 (8)	5 (5)	-	11 (11)	-	-

Grand total: 13697

— i. Fragment Count. ii. Minimum Number Individuals.

The figures enclosed in parentheses represent the percentage by each method in each period or block of periods.

Table 6.2 Anatomical analysis of the cattle bones

Period	1 - 4	5 - 6	7	8 - 9	10	10A	11
Total	78	412	790	1431	2319	3941	729
Mandible %	4	4	5	5	4	5	2
Vertebrae %	21	10	13	11	13	13	10
Upper Forelimb %	8	17	15	15	16	18	16
Upper Hindlimb %	10	8	14	11	14	14	10
Carpals and Tarsals %	9	5	8	7	9	7	11
Metapodials %	15	11	10	8	9	11	13
Phalanges %	17	15	13	8	8	6	9
Loose Teeth %	8	24	19	27	25	18	29

Table 6.3 Ages of cattle and pigs**Cattle %**

Period	Total	Neonatal	Juvenile	Immature	Mature
1 - 4	13	8	-	23	69
5 - 6	37	-	3	30	67
7	76	5	7	45	43
8 - 9	76	5	7	38	50
10	122	14	9	47	30
10A	100	5	6	44	45
11	39	5	14	30	51

For definition of age groups see text.

Pig %

Period	Total	Neonatal	Juvenile	Immature	Mature
1 - 4	13	-	8	62	31
5 - 6	71	7	23	61	10
7	81	12	28	49	10
8 - 9	49	4	31	53	12
10	84	7	25	59	8
10A	82	5	15	59	22
11	11	-	9	82	9

Wild pig.

10 4 individuals

10A 7 individuals

Table 6.4A Cattle bone measurements (in millimetres)

Bone	Period	Length	Proximal Width	Distal Width	Mid Shaft Width
Radius	8 - 9	237	66	51	33
		275	74	64	39
		282	76	67	40
	10	252	68	58	34
		260	-	65	37
		263	73	60	37
	10A	247	65	60	37
		253	-	-	-
		270	71	65	38
		285	-	68	-
		292	85	76	44
	11	308	—	50	27
		315	—	50	27
Tibia	10	308	—	50	27
		315	—	50	27
Met carpal	5 - 6	160	—	-	-
		173	—	47	31

Table 6.4A contd

Bone	Period	Length	Proximal Width	Distal Width	Mid Shaft Width
		180	50	48	30
		180	51	44	28
	7	170	—	45	—
		172	48	46	26
		183	52	46	28
	8-9	180	49	50	29
		196	60	59	35
	10	164	—	—	—
		168	52	50	31
		170	51	47	24
		173	48	47	27
		178	48	44	27
		180	53	—	31
		181	48	46	27
		182	57	54	34
		183	62	57	37
		185	53	53	31
		191	47	49	28
		195	58	—	31
		195	60	60	31
		196	56	56	27
		197	67	61	40
		198	65	62	41
	10A	172	55	54	34
		173	54	48	30
		180	47	47	27
		180	52	49	31
		180	56	—	33
		180	58	56	37
		181	50	47	29
		182	48	48	28
		182	48	45	24
		182	50	49	28
		182	50	50	30
		182	57	53	35
		183	48	48	25
		185	48	45	29
		185	52	49	32
		186	60	—	35
		187	60	58	38
		188	49	47	27
		188	54	54	33
		190	—	52	—
		190	50	47	28
		190	63	59	36
		192	53	52	31
		192	62	59	35
		192	52	50	28
		195	62	—	33

Table 6.4A contd

Bone	Period	Length	Proximal Width	Distal Width	Mid Shaft Width
Metatarsal	11	197	53	52	31
		198	63	56	38
		201	61	58	33
		177	54	54	34
		180	57	53	33
	7	182	48	46	27
		190	48	49	28
		197	—	30	28
		200	43	43	24
		208	42	43	22
	8-9	210	47	53	28
		213	44	49	27
		192	—	41	22
		192	35	38	21
		200	47	46	29
	10	202	40	43	29
		208	42	46	24
		223	49	52	29
		200	43	45	25
		201	40	42	23
	10A	202	42	42	20
		213	43	45	23
		220	44	47	25
		199	44	43	24
		200	40	45	23
	11	200	44	49	28
		206	38	44	25
		207	45	51	25
		210	42	46	24
		210	43	45	23
		210	43	46	25
		210	48	49	27
		212	42	47	23
		212	44	46	24
		215	40	45	24
		218	42	45	24
		218	51	59	29
		220	40	47	26
		220	47	49	26
		225	48	—	31
		225	50	55	31
		230	46	49	28
		232	50	54	30
		235	50	55	29
	11	200	40	47	22
		208	—	46	23
		222	43	45	26

Table 6.4B Dimensions of cattle horn cores

Period	Length outer curvature	Basal Circumference	Least Basal Diameter	Greatest Basal Diameter	Greatest /Least Diameter
5 - 6	90	98	25	32	1.28
	95	100	24	34	1.42
	200	180	47	58	1.23
			32	46	1.44
			42	53	1.26
7	105	60	22	29	1.32
	110	60	22	27	1.23
	115	120	31	39	1.25
	130	133	31	47	1.51
	135	140	32	48	1.50
			24	35	1.46
			24	35	1.46
			31	41	1.32
			34	40	1.29
			35	44	1.26
			40	58	1.48
			42	53	1.26
			45	62	1.38
8 - 9	155	160	40	54	1.35
			24	33	1.38
			25	32	1.28
			28	36	1.29
			29	32	1.10
			31	44	1.42
			34	40	1.18
			36	45	1.25
			37	46	1.24
10	105	85	27	37	1.37
	125	130	36	48	1.33
	125	132	33	40	1.21
	155	155	43	50	1.16
			27	35	1.30
			28	34	1.21
			30	36	1.20
			30	38	1.27
			31	41	1.32
			33	38	1.15
			34	43	1.26
			40	57	1.43
			42	55	1.31
			43	58	1.35
		215	59	72	1.22
10A	108	115	32	35	1.09
	120	145	30	42	1.40
	130	148	35	46	1.31
	130	143	35	42	1.20
	127	130	34	43	1.26
	145	150	43	48	1.11

Table 6.4B contd

Period	Length outer curvature	Basal Circumference	Least Basal Diameter	Greatest Basal Diameter	Greatest /Least Diameter
	150	150	41	50	1.22
	150	180	44	62	1.41
	175	190	52	58	1.12
			24	24	1.00
			27	40	1.48
			28	40	1.43
			30	38	1.27
			30	39	1.30
			30	40	1.33
			31	39	1.26
			31	40	1.29
			34	42	1.24
			34	42	1.24
			34	43	1.26
			34	43	1.26
			34	44	1.29
			34	47	1.27
			35	50	1.43
			36	40	1.11
			36	50	1.39
			37	47	1.27
			37	39	1.05
			37	40	1.08
			37	48	1.30
			37	50	1.35
			40	45	1.13
			41	48	1.17
			41	56	1.37
			41	66	1.50
			42	53	1.26
			42	56	1.33
			43	56	1.30
			44	54	1.23
			44	55	1.25
			45	60	1.33
			48	60	1.25
			48	60	1.25
			50	68	1.36
			53	68	1.28
			54	75	1.39
	110	110	29	33	1.14
			29	32	1.10
			30	42	1.40
			31	47	1.52

Table 6.4C Measurements of frequently occurring parts of bones

Bone	Part Measured	Period	Measurements (in millimetres)
Humerus	Width distal condyles	5-6	61; 65; 72;
		7	61; 64; 66; 76
		8-9	52; 54; 59; 60; 62(2); 65(3); 65; 66; 67(4); 68; 70; 73; 76
		10	53; 58; 60; 61; 62(2); 63; 64(3); 65(3); 66; 67(2); 68; 69(2); 70; 73(2); 4(2); 75; 76(2)
		10A	53(2); 61; 62(5); 63(8); 64; 65(7); 66(3); 67(5); 68(4); 69(2); 70(3); 71(3); 72(2); 73(2); 74(4); 77(3); 78(2); 79; 83(2); 84(2)
		11	60; 62; 63; 64; 65; 67; 73; 74(2)
Radius *	Proximal Width	7	66(2); 67; 71(2); 75; 79; 82
		8-9	64; 65(2); 67(2); 68; 69; 71(2); 73; 76; 78; 83; 85(2)
		10	60; 61; 65; 66; 68(3); 69; 70(3); 73(2); 75(2); 76; 77; 79; 80; 81; 82; 83(2); 85; 88; 93
Radius	Distal Width	5-6	56
		7	57; 58; 63; 67
		8-9	51; 58; 64
		10	52; 58(2); 59(2); 62(2); 64(2); 65; 76
		10A	52(2); 60(2); 62(4); 63(4); 64; 65; 67; 68; 70(3); 72(3); 73(2); 75(2); 81
		11	51; 57; 63; 77
Metacarpal*	Proximal Width	1-4	50(2)
		5-6	44; 46; 49; 50; 58
		7	40; 45(2); 46; 48; 49; 50
		8-9	41; 42; 44; 47; 48(3); 49; 53(2); 55
		10	41(2); 42; 45; 46(5); 47; 48(3); 49; 51(2); 52(3); 53; 57(2); 61(2)
		10A	42(2); 44; 45; 46(2); 47(4); 48; 49(6); 50(3); 51(2); 52(4); 53(4); 54(3); 55(5); 56(3); 57; 58; 60; 61(2); 62(2); 63
		11	45; 46; 47(2); 48(2); 49(2); 50(3); 51(2); 52; 55; 56; 57; 58(2); 60; 62
	Distal Width	1-4	43; 44; 45(2); 51
		7	41; 43; 46; 49(2)
		8-9	43(4); 46; 48(2)
		10	42; 44; 45; 46; 47; 48(3); 49(3); 50; 51
		10A	41; 44(3); 45(2); 47; 48(3); 49; 51; 53(2); 54; 56; 59; 60
		11	43; 46; 50; 51; 52(2); 54
Tibia	Distal Width	5-6	50; 53(2); 57
		7	44; 49(2); 50(2); 51; 53; 54; 58; 60
		8-9	47(2); 49; 50(2); 51; 53(4); 54; 56; 58(2); 68
		10	47(2); 49(2); 50(2); 51; 52(5); 53(2); 54(2); 55; 56(2); 57(5); 58; 60(2); 61; 66; 68; 73
		10A	49; 50(3); 52(2); 53(5); 54(4); 55(4); 56(3); 57(4); 58(2); 59(5); 60(3); 61(2); 62(8); 63(5); 64; 65(2)
		11	53; 56; 58; 63; 64
Metatarsal*	Proximal Width	5-6	39; 42(2); 43
		7	40; 42; 46; 47
		8-9	36; 38(6); 39(4); 40(3); 41(2); 46; 49
		10	38(2); 39; 40(4); 41(2); 42; 43(4); 44(4); 45; 47; 48; 49
		10A	34; 37; 38(3); 39(3); 40(2); 41(10); 42(5); 43(7); 44(9); 45; 46(2); 47(5); 48(3); 49; 50; 53
		11	38(3); 41(2); 43(2); 44(3); 47
	Distal Width	1-4	45
		5-6	38(2); 41(2); 44; 45; 46
		7	40; 42(2); 45; 46; 47(3)
		8-9	38; 42; 43; 44; 45(2); 47

Table 6.4C contd

Bone	Part Measured	Period	Measurements (in millimetres)
		10	39; 40; 41; 42; 43(2); 44(2); 45; 47; 48(2); 49; 50; 53
		10A	35; 37; 40; 42(2); 43; 44; 45(4); 46(3); 47(2); 48; 49(2) 52(2); 53(2); 54(2); 55(3); 57(2); 58(3); 62(3)
		11	44; 45; 47; 49; 50; 54

* indicates bone may not be fully grown.

() indicates the frequency of the preceding measurement (if greater than 1).

Table 6.5 The position of the nutrient foramen of femur of the cattle

Period	Medial	Lateral	% Medial
1 - 4	1	—	100
5 - 6			
7	1	2	33
8 - 9	6	1	86
10	10	4	71
10A	11	19	37
11	1	2	33

Table 6.6 The incidence in cattle of lower third molars lacking posterior cusps

Period	Normal teeth	Abnormal	%
5 - 6	6	1	16
7	17	3	15
8 - 9	41	11	21
10	73	13	15
10A	93	15	14
11	17	2	11

Table 6.7 Measurements of sheep bones (in millimetres)

(A) Complete bones

Bone	Period	Length	Proximal Width	Distal Width	Midshaft Width
Matacarpal	5 - 6	128	22	23	12
Metatarsal	5 - 6	140	—	—	—
	10A	120	17	22	10
		136	20	24	13

(B) Parts of bones

Bone	Part Measured	Period	Measurement
Lower 3rd Molar	Length	5 - 6	19(2), 20(2), 21, 22
		7	18
		8 - 9	18, 19(3), 20, 23
		10	18, 20, 21(4), 22, 24
		10A	19, 20, 21(3), 22, 23
		11	20
Humerus	Width distal condyles	1 - 4	22
		7	23, 24(3), 25, 26
		8 - 9	22, 23(3), 24(3)
		10	24, 25, 26(3), 28
		10A	25, 27
Radius	Proximal* Width	1 - 4	23
		5 - 6	26, 27
		7	26
		8 - 9	26, 29
		10	26, 28
		10A	26, 30
	Distal Width	5 - 6	24
		8 - 9	24
		10	24
Metacarpal	Proximal Width*	7	20
		8 - 9	19(2), 21
		10	19
		10A	19, 20(2), 21(2), 22
		11	20
	Distal Width	5 - 6	22
		8 - 9	21
		10	19

Bone	Part Measured	Period	Measurement
Tibia	Distal Width	1 - 4	23
		5 - 6	22(2), 23, 24
		7	23(2), 24, 25(5)
		8 - 9	22(2), 23(3)
		10	20, 22(3), 23
		10A	22, 25(2), 27
		11	26
Astragalus	Greatest length*	5 - 6	26(2), 27
		7	24(3), 25, 26, 29
		8 - 9	24, 26, 27
		10	26, 31, 32
		10A	25, 27
Metatarsal	Proximal Width*	1 - 4	18
		5 - 6	20
		7	17, 18
		10	20(2), 21
		10A	17, 18(2), 19(4), 20(2), 21
First phalanx	Length	5 - 6	29, 31, 33
		7	30, 32, 33(2), 34, 36
		10	31
		10A	33, 33, 34, 37

(C) Horn cores.

Period	Greatest basal diameter	Least basal diameter	Greatest /Least
5 - 6	15	12	1.25
7	24	17	1.41
8 - 9	32	49	1.53

(D) Scapula. Shape of neck.

Period	Least width neck (W) cavity (D)	Distance spine base-glenoid	Distance /Width
5 - 6	20	20	1.0
7	18	18	1.0
8 - 9	17	17	1.0
10	16	16.5	1.03
	15.5	16	1.03
10A	17	18	1.06
	17	19	1.12
	17.5	18.5	1.06
	18	19	1.06

(E) Femur. Position of nutrient foramen on shaft.

Period	Proximal	Distal	Proximal and Distal	Midshaft	Proximal and Midshaft
5-6	2	1			
7	2	2			
8-9	1				
10	1	1	1		
10A	2	1		1	1
11				1	

Table 6.8 Measurements of goat bone

Bone	Period	Length	Proximal width	Distal width	Midshaft width
Metatarsal	7	108	19	21	11
	10	113	19	24	13

Table 6.9 Pig bone measurements

Bone	Part Measured	Period	Measurements
Lower 3rd Molar	Length	1-4	31, 33, 34
		5-6	28
		7	29, 30, 31(2), 34, 35(2)
		8-9	29, 30, 31, 32(2), 33(3), 34(2), 37
		10	27, 30(5), 31, 32, 34(2), 35, 36(2), 40
		10A	30(2), 31(3), 32(3), 33(3), 34(2), 35, 37(2), 38
		11	32, 38
Scapula	Width of neck*	1-4	21
		5-6	20, 21
		7	17, 20, 22, 23(2), 26
		8-9	18, 20(2), 21(2), 22(3), 23, 24, 26, 28-33
		10	17, 19(3), 20, 22(6), 23(3), 25(2), 27(2)
		10A	18, 20(4), 21(4), 22(4), 23, 24(5), 25(2), 26(3), 27(2)
		11	21, 22(3), 26
Humerus	Width distal condyles	1-4	32
		7	26, 34, 37
		8-9	26, 28(2), 30, 31, 32, 33(2), 34, 36
		10	29, 31(4), 32, 33, 34(2)
		10A	27(2), 29(2), 30(4), 31, 32(2), 33(4), 35, 36, 37, 40
Radius	Proximal width*	5-6	23, 27
		7	24, 25, 28, 29
		8-9	26, 27
		10	24, 25(2), 26(2), 27(3), 28(3), 29(2)
		10A	26, 28
		11	27
Tibia	Distal width	1-4	32
		5-6	26
		7	26, 27(2)
		8-9	25, 30, 31, 32, 38

Table 6.9 contd

Bone	Part Measured	Period	Measurements
		10	26, 27, 28, 31(2), 38
		10A	27, 28(2), 29, 30, 33(2), 36(2)
		11	29
Astragalus	Greatest* length	5 - 6	32, 37, 40
		7	36, 37(2), 38
		8 - 9	32, 36, 37, 39, 40
		10	37, 40(3), 42, 43, 50
		10A	34, 40(2), 41, 43, 47
		11	38, 42(2)
Metacarpal III and IV	Greatest length	5 - 6	66, 68, 70
		7	68
		10A	88
Metatarsal III and IV	Greatest length	7	77, 80, 81
		8 - 9	78, 85
		10	75
		10A	69, 78, 87, 96
Metapodials II and V	Greatest length	5 - 6	66, 68, 70
		7	47, 50, 53, 58, 60
		10	50, 60, 63
		10A	51, 55, 56(2)
		11	53
First phalanx	Greatest length	1 - 4	32, 33
		5 - 6	32, 34, 35, 38
		7	31, 32, 33, 34, 35, 37, 38
		8 - 9	31, 39
		10	31, 36, 37, 38, 40
		10A	33, 37, 39, 40, 42
		11	40

Table 6.10 Measurements of horse bone

Table 6.10A Complete bones

Bone	Period	Length	Proximal Width	Distal Width	Midshaft Width
Metacarpal	8 - 9	220	49	48	33
Metatarsal	8 - 9	250	43	—	27
	10A	290	49	47	31

Table 6.10B Parts of bones

Bone	Part Measured	Period	Measurement
Scapula	Minimum shaft width	7	70
Radius	Proximal width	10A	77
Metacarpal	Distal width	10A	42
		11	45
Tibia	Distal width	10A	74
Metatarsal	Proximal width	10A	46
First phalanx	Length	1 - 4	80
		5-6	62
		7	74
		10A	76 78

Table 6.11 Measurements of dog bone

Bone	Part Measured	Period	Measurement
Lower Cannassial tooth.	Length	10	20,21(2)
		10A	14, 15, 22, 25
		11	22
Upper Cannassial tooth.	Length	10A	19
Humerus	Length	10	102, 160
		10A	90
Metacarpal	Length	10	65
		10A	39, 40, 41(2)
Femur	Length	10	108
Tibia	Length	11	200
	Distal width	11	24

Table 6.12 Dimensions of red deer bone

Table 6.12A Whole Bones

Bone	Period	Length	Proximal Width	Distal Width	Midshaft Width
Radius	10A	280	54	-	-
Metacarpal	10	270	41	40	26
	10A	256	41	37	21
		277	44	42	24
Metatarsal	10A	270	34	-	-
		302	37	40	23

Table 6.12B Parts of bones

Bone	Part Measured	Period	Measurement
Lower 3rd Molar	Length	5-6	31, 33
		10	32
		10A	33,37
Scapula	Midshaft width*	7	27, 37(2), 44
		8-9	35, 58
		10	22, 37
		10A	27, 33, 36, 38, 40
		11	34,41
Humerus	Width	1-4	27
	Distal	10	37,40
	Condyles	10A	42, 50, 55(2), 58
Radius	Proximal Width	5-6	51,54
		7	63
		8-9	66
		10	49,56
		10A	54, 59, 62, 66
	Distal Width	10	45, 46, 50, 57
		10A	45, 46, 60
		11	48,50
Metacarpal	Proximal width	10	44
		10A	43
	Distal width	10	36
		11	40
Tibia	Distal width	5-6	48
		7	50
		8-9	48
		10	44, 47, 51
		10A	46, 49(2)
		11	45
Calcaneum	Maximum length	7	104, 123
		10	90, 98

Table 6.12 contd

Bone	Part Measured	Period	Measurement
Astragalus	Maximum length*	5-6	53
		7	47
		8-9	57
		10	43(2), 45
		10A	52,54
		11	55
Metatarsal	Proximal width*	8-9	33
		10A	36
	Distal width	10A	36
First phalanx	Maximum length	5-6	55
		7	50, 57, 59, 62
		8-9	58,62
		10	53, 61, 62, 64
		10A	55, 57, 58, 59, 62, 64
		11	54
Second phalanx	Maximum length	5-6	43
		7	45
		8-9	39
		10A	40, 42(3), 43, 46

7 Bird bones

T P O'Connor

A total of 320 fragments of bird bone from late Roman deposits were submitted for identification and report. A summary of the relative abundance of the fifteen taxa identified is given in Table 7.1.

The predominance of domestic fowl, comprising 75% of the bird bones, is not unusual in Roman assemblages. The fowls were nearly all adult, and were probably kept more for their eggs than for meat, although equal numbers of spurred and unspurred tarsometatarsals were recovered. It would be wrong to take this to represent equal numbers of hens and cocks, as old hens not infrequently develop spurs. However, it may be suggested that the sample includes at least a few cocks, kept, perhaps, for breeding or for sport. Measurement of the maximum length of the humerus of domestic fowl gave a mean of 68.04mm (s d = 5.19; n = 13), with a fairly low Coefficient of Variation (7.63%). This would be consistent with the fowls being of homogeneous type, at least in terms of body size.

The goose bones have been attributed to domestic goose and the mallard bones to wild mallard, although in both cases it is possible that a mixture of wild and domesticated birds were represented in the sample. The remaining wild birds are a mixture of taxa probably hunted for food (ducks, geese, waders, perhaps doves), and taxa likely to have scavenged around the town (gull, crow, raven, eagle). The bones of white-tailed eagle are of note, as this species is extinct as an endemic breeding species in Britain. The bones comprised parts of three tibiotarsals, two coracoids and a scapula. White-tailed eagle bones are recorded fairly regularly from archaeological sites around North-West Europe, and the implication must be that it was formerly much more widespread. The diverse, probably well-wooded, terrain around Segontium would have provided a suitable habitat for this spectacular bird.

Table 7.1 Bird taxa identified from late Roman deposits at Segontium, giving the number of specimens identified to each taxon

cf domestic goose	<i>Anser anser</i> L f domestic	31
barnacle goose	<i>Branta leucopsis</i> Bechstein	2
brent goose	<i>Branta bernicla</i> (L)	1
teal	<i>Anas crece</i> L	1
mallard	<i>Anas platyrhynchos</i> L	7
white-tailed eagle	<i>Haliaeetus albicilla</i> (L)	6
domestic fowl	<i>Gallus gallus</i> L f domestic	240
cf golden plover	<i>Pluvialis cf squatarola</i> (L)	3
woodcock	<i>Scolopax rusticola</i> L	3
herring gull	<i>Larus argentatus</i> Pontoppidan OR	
lesser black-backed gull	<i>Larus fuscus</i> L	2
wood pigeon	<i>Columba palumbus</i> L	3
rock dove	<i>Columba livia</i> Gmelin OR	
stock dove	<i>Columba oenas</i> L	3
raven	<i>Corvus corax</i> L	10
crow	<i>Corvus corone</i> L	2
Total		320

8 Mollusca

J G Evans

The shells came from 102 contexts belonging to 14 periods and an unstratified group. There is a total of 2253 shells distributed among 14 species (Table 8.1). All the species except for the land snail, *Helix aspersa*, are marine littoral. The two commonest species are *Littorina littorea* and *Ostrea edulis*. All others are present in very small numbers except for two concentrations of *Helix aspersa* (Table 8.1). All could have been used for food.

No shells were present in Periods 1 and 2 (or none was submitted for identification), and there were very few in Periods 3, 4, 5, 7B and 11. *Ostrea* was abundant in Periods 6 to 7A and again in 10 and 10A. *Littorina* was abundant in Periods 8, 10 and 10A but was otherwise practically absent.

The inter-period variations probably represent differences of context or local variations in activities rather than fundamental changes through time. The numbers of shells are extremely small against the background of the site time-scale of several centuries, and they probably represent a very small number of human meals. It is for the excavators of the site to assess the significance of the variations.

A few comments on certain species are appropriate.

Patella. The small number of shells could belong to either *P. vulgata* L, or *P. aspera* Lamarck.

Littorina Zittorea. Most of the shells were complete, but between five and ten percent were broken, lacking the spire. In view of the generally good preservation of the shell material of this robust species, this feature was probably caused by human activity. The same feature was seen in the few shells of *Buccinum* and *Neptunea*.

Helix aspersa. The two main collections are of mostly adult shells. They were unusually small. Twenty measureable adults from Period 9 had the following dimensions:

Height: $x = 2.60\text{cm on-1} = 0.14$
Breadth: $x = 2.81\text{cm on-1} = 0.13$.

This is compared with a usual height and breadth of about 3.5cm.

Ostrea edulis. Breadth measurements of the collections from Periods 10 and 10A combined gave the following results:

Table 8.1 Molluscan counts. Bivalve counts are for valves

Archaeological Period	3	4	5	5A	6	6A	7	7A	7B	8	9	10	10A	11	U/S
<i>Patella</i> sp (limpet)	-	-	-	-	-	-	1	-	-	1	1	1	3	-	7
<i>Littorina littorea</i> (L) (edible winkle)	-	-	-	1	4	2	4	1	-	485	-	624	240	-	5
<i>Littorina obtusata</i> (L)	-	-	-	-	1	-	-	2	-	-	-	-	-	-	-
<i>Nucella lapillus</i> (L.) (dog whelk)	-	2	-	-	5	-	1	-	-	2	-	1	2	-	-
<i>Buccinum undatum</i> L (whelk or buckie)	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
<i>Neptunea antiqua</i> (L) (red whelk or buckie)	-	-	-	-	2	-	3	-	-	-	-	1	1	-	1
<i>Helix aspersa</i> Müll (common snail)	-	-	-	1	-	-	-	-	-	-	39	-	28	-	1
<i>Mytilus edulis</i> L (common mussel)	-	-	-	1	4	-	2	2	-	-	-	-	15	-	1
<i>Ostrea edulis</i> L. (oyster) upper valve	-	4	6	21	83	27	39	31	-	3	18	47	41	4	21
lower valve	5	13	6	10	51	25	31	23	4	6	12	69	65	11	23
<i>Pecten maximus</i> (L) (great scallop)	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
<i>Chlamys varia</i> (L)	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
<i>Arctica islandica</i> (L) (Iceland cyprine)	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1
<i>Venerupis decussata</i> (L) (carpet shell)	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
<i>Cerastoderma edule</i> (L) (edible cockle)	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-

Lower valves 66 $x = 7.92\text{cm on-l} = 1.27$
Upper valves 58 $x = 6.88\text{cm on-l} = 1.30$.

This is neither especially large nor especially small. Modern specimens grow to around 10cm. A

few shells were riddled with boreholes of various kinds, probably from predatory worms, gastropods and sponges. Some had encrustations of tube-worms, probably *Pomatoceros*, and barnacles on them.

9 Coins

P J Casey

In producing this discussion of the coins from Segontium a number of different collections of material have been brought together in order to give the widest possible database on which to test hypotheses. In constructing the histogram (Fig 9.1) on which the general discussion is based, both the coins from the current and those from R E M Wheeler's excavations have been brought together. To these collections have been added those from the excavation of the Mithraeum (Boon 1960) and the South Gate as well as the present writer's finds from the North Gate (Casey 1974a). Assembling this disparate material was simplified by the full catalogue of coins associated with the fort published by G C Boon (Boon 1976). This list comprised the Wheeler coins, those from the author's own excavations, those from the North Gate, and all coins in the custody of the National Museum of Wales that had a Segontium provenance as well as items quoted in antiquarian sources. In the custody of the National Museum is a collection of coins which was formerly housed in Caernarfon Public Library; the origin and status of this collection is best summarised in the words of G C Boon:

'(the coins are) ...largely but not wholly the gift of Charles Jones of The Hendre. The Library series was eventually added to the excavation finds by the borough authorities. Most are unquestionably from Segontium, but some cannot possibly be, and others are questionable' (Boon 1976).

The questionable coins can sometimes be easily identified, as they are items which are either genuine coins of a sort never found in excavated material from British sites or are modern casts, retoolings and counterfeits of a type produced to delude tourists in Italy and the Mediterranean. Boon attempted to weed out the Library collection in order to leave a residue of coins which might confidently be ascribed to Segontium but he concluded that, 'opinions may vary as to whether enough weeding has been done.'

The present writer concluded that it would be best to discard the Library collection in its entirety apart from a very few items which are accompanied by a firm Segontium provenance. The reason for this decision is that whilst it is perfectly possible to detect alien items when they are false or of such a nature as to be unknown to the con-

trolled excavation record, it is not possible to detect coins which are not alien to this record but are so common that all collectors would be expected to acquire them cheaply and in large numbers simply because they constitute the largest pool of coins available from vendors or coin dealers. We may instance the coinage of the later 3rd century, of the later years of Constantine and the reign of Valentinian. In any site catalogue these coins dominate all others and collector access is on a scale comparable to their site frequency. In taking the decision to exclude the Library coins the writer is only too aware that the baby may have been thrown away with the bath water. Especially regretted is the exclusion, under this policy, of the coin of Magnus Maximus (Boon L954) which first drew attention to the possibility that the occupation of the fort extended beyond the traditional evacuation date of 383, a point now unequivocally justified by the late coin discoveries discussed in the present paper.

The overall distribution of coin losses at Segontium appears to call into question previous generalisations about economic behaviour on military sites (Casey 1974b), since the distribution is similar to the pattern which is normally associated with well-developed civil sites. In fact this is illusory and the 'civil' appearance of the site histogram is created by the occupation pattern in the first two centuries in relation to the occupation pattern in the 4th century. Military sites with long established garrison histories and with sufficient coins recorded to be statistically significant are surprisingly rare. Only sites on Hadrian's Wall and in the northern frontier area have both long occupation histories and long-term excavations which have produced significant numbers of coins. Even in this area only Housesteads has recorded recovered coins comparable to those from Segontium. But even those with imperfect coin records show a strong pattern of deposits in the 1st and 2nd centuries, a low deposit rate up to the latter part of the 3rd century and a marked relative decline in the 4th century. By contrast, long-lived civil sites, i.e. major and minor towns, show a reverse of this pattern with relatively small deposits in the 1st to mid-3rd centuries and heavy deposits from then on into the 4th century. The individual component parts of the coin patterns, that is the ups and downs of the graphs, have been examined in detail on a number of occasions (Ravetz 1964; Casey 1974b) and they have been shown to be created by a response to imperial economic vicissitudes permeating the imperial coin

supply rather than being created by individual problems of site activity.

Before discussing the Segontium coins in detail it will be necessary to discuss the problems of coin finds from military sites in general. A number of factors will contribute to the coin recovery pattern above and beyond those which are intrinsic to all coin deposits irrespective of the nature of the site (Casey 1980). These common factors are, in summary, the fact that the size and value of individual coins determines the effort put into their recovery when lost by their original owners, that the supply pattern determines availability for loss and that some common coins may represent a depreciated currency, or one which has been abandoned for political reasons. Military sites present a further series of problems which may be considered under the headings of 'Logistics' and 'Pay'. To deal with the first problem - the movements of troops must affect the sort of coinage which is recovered from military sites. It is clear from epigraphic evidence that individual forts may, over their existence, have housed a variety of units.

We may instance a typical example of this from Maryport, in the northern frontier area, where we find inscriptions recording the following units:

Date	Unit	Number of Troops	
		Inf	Cav
Hadrianic	1. <i>Cohors quingenaria equitata</i>	360	128
	2. <i>Cohors milliaria equitata</i>	800	256
Pius	<i>Cohors quingenaria equitata</i>	360	128
Marcus-Sever-us	<i>Cohors quingenaria peditata</i>	480	—
3rd century	<i>Cohors milliaria peditata</i>	800	—

(Units as Breeze and Dobson 1987)

We have a situation in which the unit varies in composition between those with cavalry and those without and in strength between a notional five hundred and a notional thousand men. The length of their stay in the fort is known only within the limits set by the dated inscriptions. The nature of the coinage which they brought with them, or which was issued to them whilst in garrison, a small portion of which has been recovered and recorded, is inextricably mixed up with the complex logistics of movement and transfer. Further, the pool of coinage available to the troops will, at the end of the period for which we have information, have consisted of issues stretching back to Hadrian and beyond, so that a component of the coinage of the 3rd-century garrison would be identical to that paid to their 2nd-century predecessors. In this instance we have attested units; where such evidence is not available the interpretation of the coinage becomes even more problematical.

Our second military problem is that of the pay structure of the various types of units which made up the army. As far as the legions are concerned

the basic, and lowest, pay rates of the soldiers is fairly clear (Watson 1969):

Legionary pay 1st-3rd centuries

Pre-Domitian	225 <i>denarii</i> per annum
Domitian-Severus	300 <i>denarii</i> per annum
Severus	450 <i>denarii</i> per annum
Caracalla	675 <i>denarii</i> per annum

Auxiliary units were paid at a lower rate than the legionaries, with auxiliary cavalry receiving a higher rate than infantry; the cavalry element in *cohortes eqnitatae* received less than their colleagues serving in fully-fledged cavalry *alae*:

Denarii per annum

	Cavalry	Cohort cavalry	Cohort infantry
Pre-Domitian	134	100	67
Domitian-Severus	200	150	100
Severus	300	225	150
Caracalla	450	337	225

There is no certain literary evidence that the army received any further increase in basic pay after the reign of Caracalla, but coin deposits and papyrological evidence indicate a series of rises in terms of *denarii* but a decline in the value of pay in terms of purchasing power; this evidence will be reviewed fully below. Other methods of payment were devised to account for rises in the cost of living and to compensate for the depreciation of the *denarius*.

The scheme outlined above, and the statistical calculations which follow, do not take into account the pay of centurions or of the numbers of non-commissioned holders of posts which attracted extra pay on rates which vary between 50 and 200 percent above the basic scales.

Ignoring the imponderables and concentrating on the basic pay structure, a reasonable figure for the total money pool, which is not the same as the coin pool, can be estimated for a site with a known garrison. If we revert to our previous example, Maryport, we can derive the following money pool figures for the period from Hadrian to the mid-3rd century. The figures in the following represent the total pay per annum of the unit. The final figure is the estimated total cost of the unit during its estimated stay in garrison. It is assumed that the Hadrianic garrison was raised to double strength half way through the reign, that each unit serves until the next is attested and that changes coincide with reigns. The calculation for the period of Marcus to Severus takes into account the Severan pay rise.

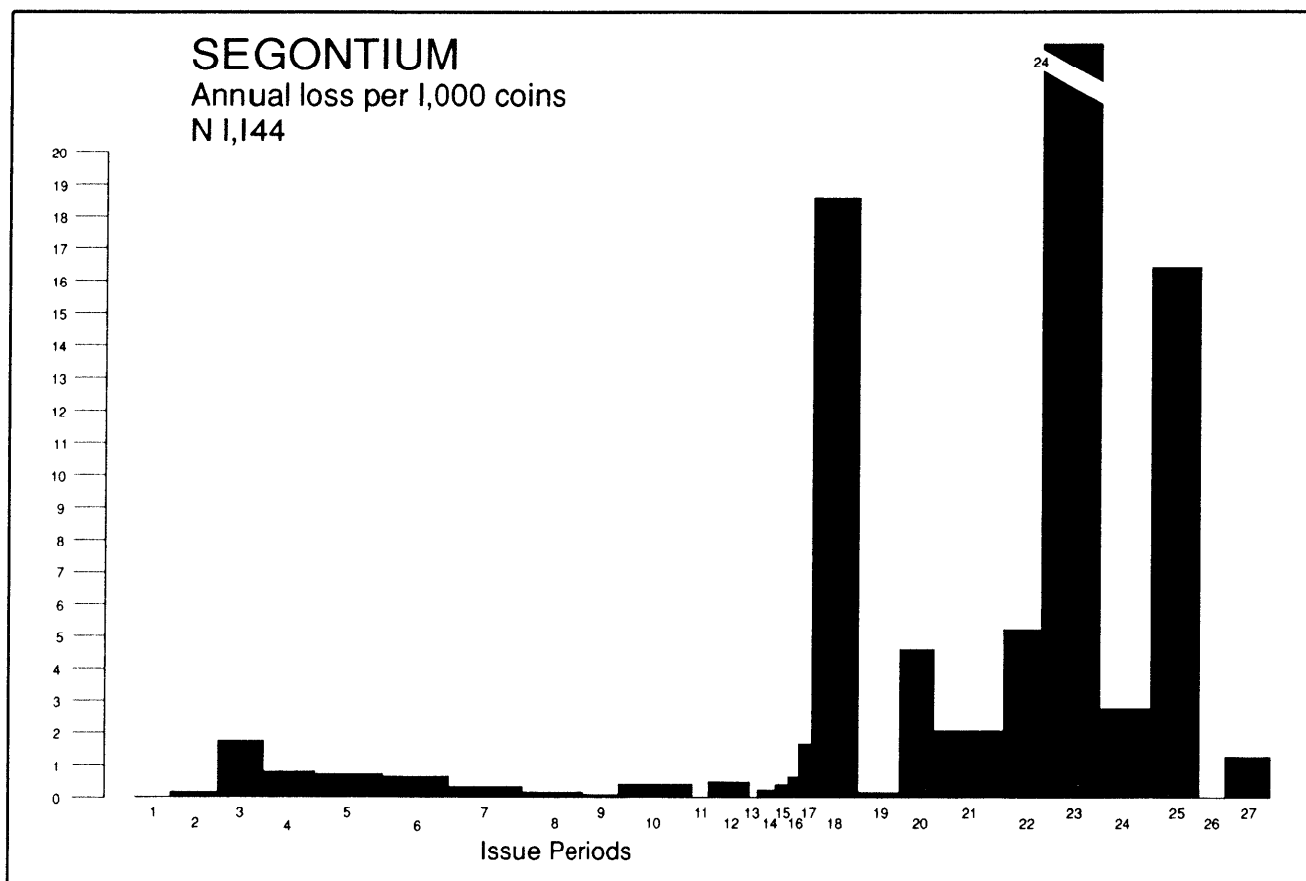


Figure 9.1 Coin histogram.

Date	Unit	Infantry	Cavalry	Total garrison pay
Hadrian	1. <i>Cohors eq quin</i>	19,200	36,000	607,200
	2. <i>Cohors eq mil</i>	38,400	80,000	1,184,000
Pius	<i>Cohors eq quin</i>	19,200	36,000	1,269,600
Marcus				
-Commodus	<i>Cohors ped quin</i>	48,000		1,488,000
Severus	<i>Cohors ped quin</i>	72,000		1,296,000
3rd century	<i>Cohors ped mil</i>	180,000		8,820,000

Total money pool = 14,664,000

About one third of all military pay was deducted at source to cover the cost of the soldier's equipment, clothing and food. If the total is reduced by this factor the Total Money Pool becomes 9,776,000 *denarii*. In reality, even at minimum rates of pay this figure is probably too small since the deduction of one third was interpreted rather liberally and a soldier receiving a hundred *denarii* gross pay probably got seventy *denarii*, rather than the sixty-seven which strict arithmetical reduction would have produced as his nett payment. It is this 'liberal' allowance which is used in calculations in this paper, ie a Total Money Pool of 10,264,000 is assumed.

It is obvious from the calculations made above

that the availability for coin to be lost will have varied from time to time over the period studied; a period, incidently, over which the nature of available coinage was itself changing as a general rise in prices brought higher individual denomination coins into wider circulation and the production of coins with lesser purchasing power declined. Increments in military pay, whilst initially a response to rising prices, became, especially in the Severan period, a political gesture made by insecure rulers. Whilst a sort of response to economic need, the rises in pay were themselves the mechanism which fuelled inflation further. We may add to the financial burden which the pay of the army represented, the payments of accession donatives to reinforce loyalty to newly incumbent rulers. These practices and other political and economic pressures contrived to bring to an end what we may term the 'steady state' period of Roman currency which lasted from Augustus to the middle of the 3rd century. From the collapse of the currency system in the 260s, Period 18 in Fig 9.1, military pay is complicated by changes in the coinage itself as well as by changes in the structure of the army. There is no unambiguous documentary evidence on which to base estimates of military access to coinage and to its use. Nevertheless, the erosion of the purchasing power of the soldiers' pay was recognised, and from the middle of the century the

emperor himself made presents of money to the troops (Casey 1977). Initially these were on the occasion of victories or the induction of members of the imperial family into state offices, but rapidly such donatives became a regular part of military pay. By the end of the 3rd century a soldier was said to receive his pay as *stipendium et donativum*; the *stipendium* being annual salary and the *donativum* being the element comprising the imperial gift. In addition the soldier received his food and equipment out of taxes in kind levied by the state on the civilian population in lieu of cash after the currency ceased to have any real intrinsic value. This element of army pay, which at minimum was valued at five *solidi* a year in the 5th century, comprises the so-called *annona militaris*. If we try to establish actual figures for pay, taking into consideration the various elements which go to make it up in terms of actual cash, a series of factors have to be taken into account. First it seems likely that the donative was paid at higher rates to officers than to other ranks and that the rate that the latter were paid depended on the status of the unit in which they served, whether they were cavalry, infantry or old style legions. It seems very likely that the two types of donative, that is the imperial gift, discussed above, which was coupled with the *stipendium*, as well as the accession and quinquennial donatives, were normally paid in billon coin until about the middle of the 4th century. After this date the abolition of the billon coinage and its replacement by a silver-free copper coinage in the reign of Valentinian ensured that to have any value at all donatives would be paid in precious metals. The rates of payment of these donatives are well established in the literature of the late Empire. An accession donative consisted of five *solidi* and a pound of silver; a quinquennial donative, celebrating a notional five year regnal period, though donatives could be paid early if political pressures so demanded or late if there was no pressure from the army to threaten the tranquility of the emperor, was paid at the rate of five *solidi*. Celebrations of imperial consulships and those of caesars also seem to have attracted a donative. In the early 4th century this amounted to 1,200 *denarii* for an emperor's consulship and half of this rate for the celebration of a Caesar. It is uncertain whether these sums were paid in the second half of the 4th century, but the fact that emperors tended to take consulships in the years when they were paying a quinquennial donative suggests that there was still an expectation of such a bounty and that it was subsumed into the larger donative in these years. How it was paid in non-quinquennial years, or at what rate, is not at all clear. Before discussing the matter of late pay scales further we will deal with the information which can be derived from the period when the evidence is concrete.

Turning to Segontium we can try to establish the nature of the garrison from the expected coin

deposits theoretically characteristic of units of known composition, and see which type of unit best fits the deposits in the fort. In this calculation a deduction of 30% will be made to take account of the 'at source' stoppages levied on the soldiers' pay. It seems reasonable to hypothesize that full occupation of the site would have coincided with its foundation, so we will base calculations on the coinage of the Flavian period. In this calculation all Flavian coinage will be included since Domitian's own coinage is scarce before AD 86, when new supplies were sent to Britain (Walker 1988), and the Agricola army was plentifully supplied with issues of Vespasian. The problem which we need to solve is 'to what extent does the coinage of the site reflect the units which garrisoned the fort?' Can we use the coins to suggest patterns of occupation which can be equated with specific types of unit or can the patterns be used to quantify the degrees of occupation of the site at various periods? A method of attempting this on a numerical basis has been devised by Mark Curteis of Durham University, by whose permission his experimental method is applied to Segontium. We may make the following deductions:

Suppose: p = Number of infantry on site.

q = Number of cavalry on site.

r = Ratio of cavalry pay to infantry pay.

S = Number of years of occupation, or period covered by specific coin types.

t = Annual pay for infantryman less 30%.

u = Total sum in *denarii* corresponding to s found on the site.

V = Rate of annual loss per man.

Then: $u = v \times t \times s \times (p + (q \times r))$

Solving this equation for v will give the formula:

$$v = u / t \times s \times (p + (q \times r))$$

This formula can be adapted to either wholly cavalry or wholly infantry formations by removing p or $(q \times r)$, as required, from the final expression.

To apply the formula to Segontium we need to establish what sort of unit might have occupied the site at some stage of its history in order to offer a value for p or q for that period. There are two periods at which we have such evidence. In the Severan period we have an inscription which mentions the *Cohors I Sunicorum* (RIB 430), a quingenary unit in garrison at a date centering on AD 200. For the earliest garrison we can refer to the morphology of the site in its earliest phase. Excavation has established that the primary fort had a complement of at least six barrack blocks in the *praetentura*. A fort with this density of barrack accommodation repeated in the *retentura* would be capable of housing either a *cohors milliaria peditata* or two individual cohorts.

We will calculate the value of v , for both the original garrison and that in the Severan period (assuming the first garrison to be a milliary infantry unit 800 strong, and the latter 480 strong) and see whether the same range of results is achieved by working down from the first unit initially and then backwards from the Severan. Since there is no significant cavalry element present in either unit the expression ($q \times r$) may be omitted from the formula,

1. 'Flavian' calculation.

$$p = 800, s = 20, t = 70, u = 5.44$$

Therefore:

$$v = \frac{5.44}{70 \times 20 \times 800} = 0.0000049$$

If we assume that v , which represents the annual loss from the salary of a single soldier, remains unchanged over time, we can use it to estimate p (or rather $p + qr$) for a period when the garrison size is unknown:

$$p = \frac{u}{v} \times \frac{1}{t \times s}$$

For Trajan $s = 21, t = 70, u = 6.2$,

$$\text{so: } P = \frac{6.2}{0.0000049 \times 70 \times 21} = 861$$

For Hadrian $s = 21, t = 70, u = 2.06$,

$$\text{so: } P = \frac{2.02}{0.0000049 \times 70 \times 21} = 280$$

For Antoninus Pius $s = 23, t = 70, u = 2.0$,

$$\text{so: } P = \frac{2.0}{0.0000049 \times 70 \times 23} = 254$$

For M Aurelius-Commodus $s = 31, t = 70, u = 1.375$,

$$\text{so: } P = \frac{1.375}{0.0000049 \times 70 \times 31} = 129$$

For Severus-Caracalla $s = 24, t = 118$ (averaging enhanced rates for period), $u = 7$,

$$\text{so: } P = \frac{7}{0.0000049 \times 118 \times 24} = 504$$

For Severus Alexander $s = 13, t = 158, u = 5.25$,

$$\text{so: } P = \frac{5.25}{0.0000049 \times 158 \times 13} = 522$$

It can be seen that the values obtained for p in the Severan period approximate remarkably closely to the expected figure of 480, the notional strength of the quingenary unit stationed at Segontium at that period.

2. 'Severan' calculation

$$p = 480, s = 24, t = 118, u = 7,$$

$$\text{therefore } v = \frac{7}{118 \times 24 \times 480} = 0.0000051$$

$$\text{Flavian garrison } p = \frac{5.44}{0.0000051 \times 70 \times 20} = 762$$

This is in reasonable agreement with the expected value of 800, and because of the very close correlation between the values of v obtained (0.51×10^{-5} and 0.49×10^{-5}), we are justified in regarding with a fair degree of confidence the calculations made for the intervening periods.

From the foregoing calculations we can claim that the coins suggest that after the Trajanic period the garrison at Caernarfon fell very considerably but that it was re-established to a normal cohort size, though still half the complement of its original garrison, in the Severan period. The results achieved in this exercise are entirely consonant with the archaeological evidence discussed in this report but are achieved entirely independently of the archaeological data. Before tabulating the results a word of caution should be expressed about the limits imposed on the exercise by the nature of numismatic evidence. The problem that must be borne in mind when interpreting the results is that of residuality.

Clearly coins are not deposited in neat packages corresponding to the mortal span of their issuers. Hadrian dead still lived in the purses of the Roman empire into the middle of the 3rd century, whilst the subjects of the living Hadrian received coins issued as long ago as the 2nd century BC in their change. Unfortunately, as yet, no method has been devised by which an aggregate of the variety of coin extant in any single period can be established. Failing such a method we must fall back on the claim that by and large the coinage of any single reign tends to be representative of the coin situation at the period of its issue even though it will

continue to circulate for a considerable period, and that, although stratified or deposited at a date much later than its issue it does represent a fossil record of that period. The results achieved with the Segontium coins suggest that this claim has, if not a complete, at least a high degree of validity.

**Table 9.1 Calculated unit strength
Domitian-Severus Alexander**

Domitian	762
Trajan	861
Hadrian	280
Pius	254
Marcus-Commodus	129
Severus-Caracalla	504
Sev Alexander	522

The results tabulated above show that the garrison in the first two centuries of occupation fluctuated very markedly and that these fluctuations determine the volume of coinage available for loss at any time in this period of the history of the site. We have already commented that contrary to the normal pattern Caernarfon shows a greater dominance of coins in the 4th century than might be expected in a military site. The pattern with which the present histogram is contrasted is derived from sites, such as Housesteads on Hadrian's Wall, in which the size of the garrison and the permanence of its occupation give a full picture of coinage available for loss from the 2nd to mid-3rd centuries. This coinage included very large numbers of the issues of Trajan, Hadrian and Pius which continued in use into the 3rd century when they achieved a value sufficiently low for them to be discarded in large numbers. At Caernarfon we have a very diminished garrison at just the period when the bulk coinage of the 2nd century might be expected to join the pool of a site with continued 'level manpower' occupation. Clearly the 3rd century garrison did not derive its coinage from the same fossil pool as the army of north Britain since it does not dispose of 2nd-century coinage in the same manner as the northern army. This observation may indicate that, for instance, the Severan garrison had been drawn from another province. Since the appearance of a site histogram is determined, statistically, by the relationship of each coin period to all other coin periods, it follows that a dearth of coinage in the early periods will be compensated by a high representation of the later periods.

The results so far of this experiment are good in a period in which a reasonably certain pattern of payment can be established from documentary sources. As we have noted, by the middle of the 3rd century the decline in the intrinsic value of the silver coinage, coupled with a spiralling inflation, had undermined the purchasing power of military pay to the extent that it was supplemented by imperial donatives. Figures for the level of army

pay have been calculated for the reign of Diocletian (Duncan-Jones 1978) and we will next try to deploy these figures against the coin deposits at Segontium by extending the formula used above. But these figures are many times the figure for army pay which we think prevailed after Caracalla's raise. The only hint of a further pay rise comes from the reign of Maximinus Thrax (235-8) when it has been suggested that he doubled legionary pay. In fact the sources are much more circum-spect: Herodian (VII.8.9) records that he made 'an enormous cash distribution to his men...' whilst the *Scriptores Historiae Augustae* (SHA XVIII) says that - 'We gave them a bounty - and a huge one too ...'. These references have been universally rejected by scholars of the Roman army who point out that the payment was made after Maximinus had been declared an enemy of the state by the senate, who elected their own candidates to succeed him after the suppression of the revolt of the Gordiani in Africa. Thus, it is claimed, the payment was simply a *douceur* to the army of the Rhine to stiffen their resolve for the coming struggle with the Senatorial forces. Two factors may persuade that the doubling of pay, for whatever the reason, did take place and that with the defeat of Maximinus it had universal application. The first is that the pay rates recorded for the end of the century are, for legionaries, very much higher than they were under Caracalla, and it seems very unlikely that such a large increase would take place in a single step. Indeed several steps might be expected to achieve this rate as the real value of money declined calamitously in the second half of the 3rd century. A second point is the monetary behaviour of Balbinus and Pupienus, the senatorial nominees who overthrew Maximinus.

A key element in the Caracallan monetary strategy which floated the sums needed to enhance army pay was the introduction of the so-called *antoninianus* into the Roman currency system. Tariffed at two *denarii* but having the silver content of only one and a half single *denarii*, the *antoninianus* represented a 25% debasement of the coinage. Payment in this coin by the state would, therefore, go a long way to meet the demands of increased military pay since every four *denarii* paid out to the troops in this new coin cost the state only three. The *antoninianus* was issued by Caracalla's successors Macrinus (217-8) and Elagabalus (218-22). It was immediately dropped from the currency by Severus Alexander (225-35) who, significantly, issued coins with the legend *Restitutor Mon(etae)*. There are no *antoniniani* of Maximinus but the denomination was revived by Balbinus and Pupienus, his senatorial opponents, in 238. This seems to be a significant move and can be seen in terms of a monetary demand which called for the restoration of an institutional debasement in a form previously associated with military pay rises. That Maximinus did not resort to this expedient may be explained by the fact that his

pay rise came at the very end of his reign; its consequences had to be sustained by his successors.

If the events outlined above did take place we can construct a pattern of pay in which legionaries received about 1,350 *denarii*, cavalry auxiliaries 900 *denarii* and infantry auxiliaries 450 *denarii*. The decline in the integrity of the silver coinage after the middle of the 3rd century took place in a number of well-attested steps. The culmination of the decline of the *antoninianus* came in the early 270s when the coin achieved a silver content of a mere 2 percent.

Coins of this last stage of inflation are as prolific on military sites as they are on civil (Period 18) and since it is through the input of coinage into the military economy that much of the coin in use in the civil sphere was generated, we must face a situation in which very large numbers of coins were reaching military sites. Each *antoninianus* was notionally worth two *denarii*, but by Period 18 the *denarius* was no longer produced except, perhaps, for some ceremonial payments. It seems very likely that as the value of the coinage fell, and with it its purchasing power in terms of goods and services, the state might try to enhance the pay of the soldiers in proportion to its intrinsic decline. If we take the situation in the reign of Caracalla and compare it with that prevailing during the Gallic Empire (258-73) we can roughly estimate the amount of coin which would have been needed to retain the intrinsic value of military pay in the latter period.

An *antoninianus* of Caracalla contained c 3.00 grammes of silver. The same denomination in 238 contained c 2.8 grammes of silver, but by 273 the silver content had fallen to a mere 0.4 grammes. Clearly the intrinsic value of the coinage over this period must reflect stresses in the Roman economy, notably inflation. To preserve the real purchasing power of military salaries pay would need to be raised in relation to the silver content of the coinage. We can estimate, in terms of *denarii*, the increases which would have been needed to keep pay at the rate paid by Caracalla and the amount needed if Maximinus doubled that pay scale. Rates are calculated on the basic pay of an auxiliary and two rates are calculated, for the known pay under Caracalla and for the hypothesised raise by Maximinus.

Ruler	Pay	Silver	Increment	Total	Total
	scale	content	required	pay	less 30%
Caracalla	225	337.50g		225	
Maximinus	450	630.00g		450	
Postumus	225	101.25g	236.25g =	525 den	750 525
	450	202.50g	427.50g =	950 den	1400 980
Tetricus	225	45.00g	292.50g =	1463 den	1688 1181
	450	90.00g	540.00g =	2700 den	3150 2205

The only indication that survives in documentary

form for army pay in the later 3rd century is derived from the Beatty Papyrii. These documents include an account of sums paid to troops stationed in Egypt in AD 300 for salaries, donatives and ration allowance (*stipendium*, *donativum* and *annona*). There are points which are unclear in these accounts but it seems likely that auxiliaries were paid 1,200 *denarii* a year as *donativum* and 600 *denarii* as ration allowance. It is not clear whether auxiliaries received donatives, but since the distinction between citizen and non-citizen units had been abolished by Caracalla's universal grant of citizenship, it seems very unlikely that these troops would be excluded from the imperial benefaction, and certainly officers of auxiliary units would suffer inordinately if such an exclusion were to have been practised. Donatives for the celebration of the emperor's birthday and for the annual commemoration of the day of his accession to the throne were paid at the rate of 2,500 *denarii* a year by Diocletian (Duncan-Jones 1978). About half this rate was given to celebrate the consulship of a caesar but would not have constituted an annual payment. Thus in 300 a low-paid auxiliary might be receiving 4,300 *denarii* a year. In terms of contemporary coinage, assuming that payment was made on the 10 gramme billon coin introduced in 294/6, this would represent about 129 grammes of silver, still c 200 grammes of silver less than would have been received under Caracalla. Thus a soldier in AD 300 received very roughly a third of the value of his early 3rd-century predecessor or, if the rise ascribed to Maximinus took place, about one fifth of the intrinsic value of the pay of a soldier in 238, but about nineteen times the early 3rd-century pay in terms of *denarii* of account. This pay was supplemented by the provision of free food and equipment, for which one third of pay had formerly been deducted.

It is clear that given the metallurgy of the coinage in the period under review the state, whilst attempting to compensate for the loss in military pay purchasing power, was unable to compensate fully in terms of precious metal equivalents. Nor is this surprising since the debasement of the coinage was itself a concomitant of the need to meet increased military expenditure. Nevertheless it should not be overlooked that the state could, to a certain extent, maintain the notional value of its coinage despite reductions in the intrinsic value. It did this, in the last analysis, through the power of its military forces, and to maintain its own purchasing power it was in the interests of the army to maintain the fiction of the value of the coinage. This is made clear from a documentary source from the reign of Macrianus and Quietus (260-1) which threatens the bankers of Egypt for refusing to accept the imperial coinage (Lewis and Reinhold 1955,442).

Given the foregoing discussion, devising a method of extending the review of garrison strengths

through the medium of the coinage presents enormous problems. A possible method may be contrived if we use as the basis of calculation the suggested strength of the garrison of the Severan period (a quingenary cohort) and increase the pay factor of that unit to the rate prevailing at the end of the century, i.e. multiply by a factor of nineteen to give

$$v = 0.000097 \text{ (} 0.9 \times 10^{-4} \text{)}$$

If we apply this value for v to the coinage of the later 3rd and 4th centuries the values for p are as follows:

Gallic Empire (258-73)	167
Aurelianic period (273-86).	126
Carausius (286-96)	152
Diocletian (296-318)	116
Early Constantinian (318-30)	195
Middle Constantinian (330-48)	789
Late Constantinian (348-64)	202

These figures derive from assuming that pay in the Gallic Empire is the average of the estimated rate of pay given in the table on p 128, and accepting a pay rise under Maximinus. The same pay rates have been applied in the two succeeding periods (Aurelianic and Carausian).

Calculations are dependent on the following coin values. Units of coinage for the Gallic Empire are rated as 2-denarius pieces; for the Aurelianic and Carausian period coin units are regarded as 5 denarii. The reformed coins of Diocletian are counted as 20-denarius pieces, and Constantinian issues are counted as 12.5-denarii.

There is reasonable literary or metallurgical evidence for these assumptions of denominations. The coins of the Late Constantinian period cannot, on metallurgical grounds, have been tarified as less than 30-denarius pieces, and probably they were valued as rather more; in calculation this minimum value has been accepted for computation. Rates of pay are estimated at 4,300 denarii a year in the Diocletianic and Early Constantinian period. In the Middle and Late Constantinian periods values of p are calculated as 789 and 202 respectively. However, papyrological evidence indicates that Constantine doubled the rate of army pay (P Oxy 247). It has been assumed that this took place in c 320 when the tariff of the billon coinage was halved from 25 denarii to 12.5. The present evidence suggests that this doubling took place in 330 when the weight of the billon coinage was reduced from c 3.0 grammes to c 1.5 grammes and the figures of garrison strength derived by calculation are halved. For the Middle and Later Constantinian periods a value for p on an annual pay rate of 8,600 denarii gives 395 and 101. This figure is very high for a 4th-century unit of the frontier army but would be consonant with the presence of

a 4th-century legionary unit, perhaps derived from *legio XX Valeria Victrix* stationed at Chester. Legionary units, of which the most notable is that of *legio II Augusta* stationed at Richborough (ND Occ XXVIII.19), are well attested at this period. Attention may be drawn to the unit stationed in the Constantinian fortress at Divitia on the Rhine opposite Cologne. This force was a detachment of *legio XXII Primigenia* which under the name of *Divitenses* served in the 4th-century field army. A parallel with the *Segontienses* may be urged at this point. The reduction of the estimated unit to approximately half of its strength in the late Constantinian phase is consonant with the period being one which encompasses the revolt of Magnentius (350-3) when a withdrawal of troops from Britain might be expected. On the other hand, the high value for p in the middle Constantinian period must also reflect the very low value of the individual coin units, many of which are not even official issues. The loss of such coins would cause very little economic pain to the individual and the inducement to retrieve them would be commensurately small.

It should be reiterated that these calculations are entirely experimental and are offered without consideration of the structural history of the site; they rest on a series of unprovable assumptions and should be treated as, at best, a very broad indication of trends rather than exact computations.

With the advent of the Valentinianic period we enter an era in which the calculation of garrison strength through the medium of the coinage is even more difficult. No longer does the petty currency consist of the billon (silver/bronze mixture) which had been the metallic basis of the coinage from the middle of the 3rd century but of copper coins weighing c 3.2 grammes. At the same time large numbers of pure silver coins were circulated, which are hardly represented as site finds. There was also an ample gold coinage, again not detected as site finds. Military pay now consisted of *donativa* and the *annona*, paid in kind. The price of precious metals in terms of denarii had risen to a point at which a single *solidus* was tarified at 576 myriads (1 myriad = 10,000). With the relationship of gold to copper being 1:1,800 we can calculate the 3.2 gramme copper coin as being worth 2,301 denarii in strictly metallurgical terms; but since there was customarily an overtariffing of struck metal we can expect the true circulating value to have been at least 2,500 denarii. Since notionally the value of a single coin was so high and the value of the *stipendium* only 8,600 denarii it seems unlikely that the latter was any longer paid. Nevertheless the value of military pay was high since donatives were paid in gold and silver. The following gives the pay in terms of accession and quinquennial donatives of a soldier during the rule of the Valentinianic dynasty.

Year	Event	Income
364	Accession of Valentinian and Valens	5 <i>solidi</i> + 11b silver
365	Valentinian and Valens consuls	?
366	Gratian consul	?
367	Accession of Gratian	5 <i>solidi</i> + 11b silver
368	Quinquennium Valentinian and Valens. Coss.	5 <i>solidi</i>
369		?
370	Valentinian and Valens consuls	?
371	Gratian consul	?
372	Quinquennium of Gratian	5 <i>solidi</i>
373	Decennalia Valentinian and Valens. Coss	5 <i>solidi</i>
374	Gratian consul	?
376	Valens and Valentinian II consuls	?
377	Decennalia of Gratian. Consul	5 <i>solidi</i>
378	Quindecennalia of Valens. Consul	5 <i>solidi</i>

It is by no means certain that a donative was paid for a consulship at this period. In the 5th century a donative was paid to the imperial guard and it can be argued that this is an innovation or a contraction to the elite corps of a donative more generally paid at an earlier period. It is notable that emperors, as is clear from the above, held consulships when celebrating their quinquennial years which may have been for reasons of economy, to save a donative, as much as for reasons of prestige. Even if we omit any calculation of a consular donative, the value of this pay in *denarii* of account of the period amounts to 24,768 myriads. In this calculation a pound of silver is equated with four *solidi*.

The total number of Valentinianic copper coins from Segontium adds up to a mere 20.3 myriads of *denarii*. The single silver coin, weighing 2.5 grammes, at a gold to silver ratio of 1:14.4, would be valued at 225,000 *denarii*. The total value of recovered Valentinianic coin is, therefore, 42.8 myriads of *denarii*. If we take the average of the donatives listed above and use that figure as representative of the annual cash income of a soldier of the period, we find that he would be receiving 3.0 *solidi* a year or 1728 myriads of *denarii*. The recovered coinage therefore represents only about one thirty-sixth part of a single year's pay for a single soldier. The estimated rate of pay represents 76,800 times the value of the pay of a Severan soldier in terms of accounting *denarii*. At these levels of mathematical difference numerical comparisons begin to achieve the status of fantasy. However, let us make the attempt.

If we base our calculation on the Severan period, enhancing the figures by the higher rates of pay in terms of accounting *denarii* we find the following:

s = 25 (= Perios 25, 26)
t = 17280000
u = 4280000
v = 0.000097

Deploying the value for v to the Valentinianic coinage gives:

$$P = \frac{428 \times 100^4}{0.97 \times 10^{-4} \times 1728 \times 10^4 \times 25} = 102$$

This is, in fact, a not impossible figure for the garrison.

Pursuing such speculations further to the very end of the 4th century is impossible with the very small number of late coins available to form a data base. What is of paramount importance is that such coins exist on the site at all. The abandonment of Segontium by Magnus Maximus has been a key-stone of Welsh archaeology and site chronology, but the coin evidence shows that this needs reconsideration. Three coins from the present excavations and at least two earlier discoveries push the numismatic record beyond the reign of Maximus. The full implications of these discoveries for the archaeology of Segontium specifically and for Wales in general will be dealt with at length elsewhere in this excavation report (p 131). At this point only the technical details of the coins and their relationship to currency problems of the last years of the 4th century will be discussed.

The coins under review consist of two copper issues (Cat Nos 400-1) and a clipped silver *siliqua* (Cat No 399); we will deal with the latter coin first.

There have been a number of considerations of clipped *siliquae*, none of which have advanced entirely convincing explanations of the phenomenon. Clipped late Roman silver coins are found exclusively in Britain, occurring in two modules. One was created by clipping the circumference of the coin down to the outer edge of the obverse legend, leaving the lettering more or less intact. The second module was created by clipping so as to remove the legend completely but leaving the imperial features intact. Whatever the reason for the clipping, intrusion on the imperial features seems to have been carefully avoided, apparently in recognition that tampering with the imperial image amounted to the capital crime of blasphemy. To reinforce the point that reduction was intended to retain the prestige of the coin enshrined in the imperial image, we may note that coins are never halved or quartered, a practice which would have simplified the production of a fractional currency if the intention were merely to reduce the weight of the coin without any other consideration being involved. In any event clipped coins are found hoarded with unclipped so as to emphasise that their unit value bore some recognisable relationship to the unclipped coinage.

The date at which the practice of clipping started is the problem which we must now face. The archaeological evidence from Segontium and from the Holyhead Mountain signal tower hoard suggests that this may have been earlier than the date advanced hitherto. This date has been fixed in the

early years of the 5th century on the argument that clipping is the product of a shortage of coin in the first quarter of the 5th century, especially after the reign of Constantine III (407-11). This line of reasoning is defective within economic terms since the clipping of the coins does nothing to increase the number of units of currency in circulation. Clipping to increase coin volume would only be effective if new coins were produced from the clippings. But this is not the case; no extensive series of silver coins imitative of official issues exists in this period.

The most recent, and numismatically authoritative, treatment of clipped coins is that of Andrew Burnett (Burnett 1984), who concludes that clipping begins in a period of political disruption when authority could not control the treatment of the coinage and tampering with the currency could take place without the risk of retribution. Burnett concluded that these conditions were met in the reign of Constantine III, but no archaeological evidence is advanced in support of this claim. An examination of clipped coins in hoards clearly shows that they are most frequently found in deposits made after the end of the 4th century, though the evidence of the St. Pancras and the Coleraine hoards must now be discounted since the very late coins in these hoards, which pushed their deposit dates to 423, have now been redated to the end of the 4th century (Kent pers comm). When we turn to the occurrence of clipped coins in other hoards it is noticeable that they are almost exclusively associated with deposits made in the reign of Honorius, though the bulk of Honorian hoards do not contain clipped coins. An exception to this may be found in the hoard reported from the Bath-Bristol region in 1839 which, as reported, contained no coin later than Magnus Maximus but did include more than a hundred clipped *siliquae* (Archer 1979). In the light of the cumulative evidence from other hoards and given the date of the report of the hoard, this evidence may be regarded with caution, but Burnett draws attention to the occurrence of clipped coins in the Shapwick Hoard deposited in 389 and in the Newton Mills (Bath) Hoard deposited in 388. Thus, despite the evidence pointing to clipped coins being largely associated with an Honorian date, there is evidence for their occurrence at an earlier period. There is no reason to think that the hoards and the clipping have a causative relationship. In other words clipping may have been in practice for a considerable period, and here we should remember that the coins clipped are largely not those of Honorius but stretch back to issues of Constantius II, but that they were only worth including in hoards on a regular basis at a specific point in the monetary history of late Roman Britain. The point to be made in this consideration of clipped *siliquae* is that the occurrence of such a coin at Segontium does not constitute proof of the occupation of the site into the 5th century.

The post-Maximus copper coins offer a better

indication of the terminal date of coin supply to Segontium. They will be considered in conjunction with similar coins which have recently come to light in north Wales. Three sites in north Wales have produced copper coins of the Theodosian dynasty of a type which are usually placed in the date bracket 388-402. These sites are Segontium, the Holyhead Signal Tower (Crew 1982) and Llys Awel, Abergele (Boon 1986). The Theodosian coin in each of these assemblages is similar. Within the fourteen-year period bracketed above a number of internal changes took place in the coinage. These changes did not affect the module or value of the coins but, rather, the design types of the coins themselves and the rulers participating in the various issues.

Theodosius I shared in the coinage of his technically senior colleague Valentinian II on an equal basis from 379. Theodosius brought his eldest son Arcadius into the college of rulers, with the right to participate in the coinage, in 383. His second son, Honorius, did not join the imperial college until 393 and does not appear on the coinage before this date. Thus Arcadius' coins have a numerical advantage over those of his brother. The coins themselves resolve into two issues which reflect changes in the supply-pattern of currency to Britain in the last decade of the 4th century. With the suppression of the revolt of Eugenius (392-4) the mints of Gaul virtually ceased production and the bulk supplies of coin to Britain came from the mints of Rome and Aquileia. Up to the time of this change the basic copper circulating in Britain, a coin of 1.3 grammes weight, was the VICTORIA AVGG issue depicting a figure of Victory, holding a wreath and palm, advancing to the left. With the change in supply the basic Italian type of SALVS REIPUBLICAE with Victory advancing to the left dragging a captive by the hair, became dominant, though some of these coins, in the name of Theodosius and Arcadius did reach Britain between 388 and 392. Nevertheless, and conveniently, the change in supply coincides with the accession of Honorius. But the accession of Honorius was a consequence of the mysterious death of Valentinian II and the elevation, in Gaul, of the usurper Eugenius. Clearly the political situation in the western provinces dictated that the coinage in the name of Honorius cannot have reached Britain before the defeat of Eugenius and the re-annexation of his territories. In short, Honorian coinage will not have reached Britain before the end of 394 or early 395.

In the finds from north Wales the two-period distinction drawn here is very clearly marked since there is no record of any coins in the name of Honorius. All of the Theodosian coins so far recorded consist of issues in the name of Theodosius himself and Arcadius, or where the name of issuer is unreadable the reverse type is of the VICTORIA AVGG issue. On this evidence it would appear that coin did not reach north Wales

military sites after 394. We may include in this categorical statement the site of Caerhun (Kanovium) where an investigation of the published coin list shows that the site records are contaminated with a collection of Theodosian coins unknown elsewhere in British site-finds and certainly constituting a private collection acquired abroad or from dealers (Casey 1969).

The pattern of Theodosian coinage outlined above extends beyond military sites. Of the late coins recorded from Chester, both from inside and outside the fortress, there is no record of any issue in the name of Honorius, though issues of Theodosius and Arcadius are known (Lloyd-Morgan pers comm). There is no second-period Theodosian coinage among the thousands of coins from Wroxeter nor are there any from Kenchester, so that it appears that a zone of non-supply extended from north Wales into the west Midlands. This situation contrasts with south-east England and south Wales where the SALVS REIPUBLICAE type is very well represented. On the northern frontier, although the records of very late coins are poor, due to poor excavation techniques used during the nineteenth century when so many of the forts of the Wall were cleared for display, SALVS coins are found at Piercebridge, South Shields, Vindolanda and Housesteads. It is difficult to imagine a situation in which a supply problem would arise which prevented the distribution of new coin for economic or transport reasons; rather we appear to be faced by a definite numismatic *terminus ad quem* of some significance.

If the coinage of Honorius, as represented by the aes coinage which can be seen as forming a visible record of the supply of an archaeologically invisible gold coinage (Kent 1956), does not reach north Wales military sites, or for that matter urban sites peripheral to the region, we may conjecture that the non-appearance coincides with the withdrawal of forces from the area. The reason why Honorian coin could not be supplied to Britain on his elevation in 393 has already been stated; Britain formed part of the possessions of the usurper Eugenius. It is to Eugenius, or rather to his Magister Militum Arbogastes, that we should ascribe the withdrawal of the garrison of Segontium and other Welsh military sites. The fact that Segontium does not appear in the Notitia Dignitatum, a document which few would deny was compiled initially in 395

when the empire was divided between Arcadius and Honorius, clearly supports the numismatic evidence for an abandonment in 393 or 394.

Cataloguing conventions

Coins are listed by issuer and present stratigraphical details including the small finds and feature numbers. The condition of wear has been noted, the conventions used being:

- UW = Unworn. No sign of circulation wear.
- SW = Slightly Worn. Some abrasion of the highest elements of the coin.
- W = Worn. Considerable abrasion of the highest parts of the coin.
- VW = Very Worn. Detail flattened and the legends abraded.
- EW = Extremely Worn. Details of design and legends reduced to shadows or removed entirely.
- C = Corroded.
- NSU = Not Struck Up.

1. Single quotation marks around the name of an issuer indicate that the coin is a counterfeit or copy issued in this name.
2. In dating copies a plus sign (+) indicates an uncertain date of issue after the prototype was issued. In terms of current numismatic opinion radiate copies (273+) can be assigned to the years 273-86. Constantinian copies (330+) were produced in the period 341-6 during an hiatus in the regular coin supply, and Constantius II copies during a similar hiatus between 354 and c 364.
3. Mints. Coins issued after 286 normally bear a mintmark. The mints represented in this catalogue are abbreviated as follows: AN - Antioch, AQ - Aquileia, AR - Arles, CN - Constantinople, LG - Lugdunum, LN - London, RM - Rome, SS - Siscia, TR - Trier. The *officina* is indicated after the mint abbreviation thus: AR P - Arles, first *officina*; or AR II - Arles, second *officina*.

All coins down to the issues of 330 are catalogued by reference to Mattingly and Sydenham (1923-67). Post-330 issues are catalogued by reference to Carson *et al* (1960). The two parts of this work are further designated HK (part 1) and CK (part 2).

Table 9.2 Segontium: coin list by ruler

No Ruler					
1	C ALLI BALA date: 92 BC	mint:	cat: CR336/la denom:	wear: W/W	Obv BALA Rev CALLI
2	MANTONIUS date: 43-31BC	mint:	cat: - denom: DEN	wear: EW/EW	Obv ANT A VG III VIR RPG Rev LEX XIII
3	VESPASIAN date: 68-78	mint:	cat: - denom: AS	wear: C/C	Obv - R e v -
4	VESPASIAN date: 71+	mint:	cat: as 502 denom: AS	wear: W/W	Obv [IMP CAES] VESPASIAN AVG [COS...] Rev [VICTORIA A VG VSTI SC]
5	VESPASIAN date: 75	mint:	cat: 91 denom: DEN	wear: UW/UW	Obv IMP CAESAR VESPASIANVS AVG Rev PON MAX TRP COS VI
6	DOMITIAN date: 85+	mint:	cat: 305a etc denom: AS	wear: UW/UW	Obv [IMP CAES DOMIT AVG GERM COS...CENS...] Rev VIRTVTI A VGVSTI SC
7	DOMITIAN date: 86	mint:	cat: 333 denom: AS	wear: SW/SW	Obv IMP CAES DOMIT A VG GERM COS XII CENS PER PP Rev FORTVNAE AVGVSTI- SC
8	DOMITIAN date: 86	mint:	cat: 337 denom: AS	wear: UW/UW	Obv IMP CAES DOMIT A VG GERM COS XII CENS PER PP Rev SC Mars
9	DOMITIAN date: 87	mint:	cat: 353 denom: AS	wear: C/C	Obv [IMP CAES DOMIT A VG GERM] COS XIII [CENS PER P] Rev [FORTVNAE A VGVSTI- SC]
10	DOMITIAN date: 87	mint:	cat: 353b denom: AS	wear: UW/SW	Obv IMP CAES DOMIT A VG GERM COS XIII CENS PER PP Rev FORTVNA E A VG VSTI SC
11	NERVA date: 96-98	mint:	cat: denom: AS	wear: SW/W	Obv - Rev -
12	TRAJAN date: 98-117	mint:	cat: denom: AS	wear: EW/EW	Obv - Rev -
13	TRAJAN date: 103-11	mint:	cat: 171 denom: DEN	wear: W/W	Obv IMP TRAIANO AVG GER DAC PM TRP COS V PP Rev SPQR OPTIMO PRINCIPI
14	HADRIAN date: 120-38	mint:	cat: - denom: AS	wear: W/SW	Obv [HA DRIAN VS] A VG VSTVS Rev -

No	Year	Sfno	Period	Feature
1	1979	1145	5	2106
2	1977	827	U/S	U/S
3	1979	1194	2	1377
4	1979	1189	4	1071
5	1978	1050	10A	ZOOOA
6	1979	1134	5	1080
7	1976	407	U/S	U/S
8	1979	1070	7A	2155
9	1979	1138	5	1129
10	1978	1051	6A	1023
11	1975	12	U/S	U/S
12	1976	324	U/S	U/S
13	1976	546	10	96
14	1977	844	7A	119

Table 9.2 contd

No Ruler				
15	HADRIAN date: 134-38 mint:	cat: 237 denom: DEN	wear: SW/SW	Obv <i>HADRIAN VS AVG COS III PP</i> Rev <i>FELICITAS AVG</i>
16	HADRIAN date: 134-38? mint:	cat: 975b denom: AS	wear: UW/UW	Obv <i>HADRIANVS AVGVSTVS PP</i> Rev <i>COS III SC</i>
17	ANTONINUS PIUS date: 154-57 mint:	cat: 933 etc denom: DP	wear: VW/VW	Obv <i>ANTONINVS AVG PIVS PP TRP XL...</i> Rev <i>[LIBERTAS] COS III</i>
18	MARCUS AURELIUS date: 161-81 mint:	cat: - denom: DEN	wear: C/VW	Obv - Rev -
19	CARACALLA date: 201-06 mint:	cat: 130a denom: DEN	wear: UWAJW	Obv <i>ANTONINVS PIVS AVG</i> Rev <i>INDVLGENTIA AVGG/IN CARTA</i>
20	CARACALLA date: 215 mint:	cat: 262d denom: ANT	wear: W/I-W	Obv <i>[ANTONINVS PIVS] A VG GERM</i> Rev <i>[PM TRP X] VIII COS IIII P[P]</i>
21	CARACALLA/GETA date: c 200 mint:	cat: - denom: AS	wear: W/W	Obv - R W -
22	OTACILIA SEVERA date: 246-48 mint:	cat: 126 [Philip II] denom: ANT	wear: SW/SW	Obv <i>M OTACIL SEVERA AVG</i> Rev <i>CONCORDIA A VG</i>
23	VALERIAN date: 252-58 mint:	cat: 270 denom:	wear: SW/SW	Obv <i>[IMP VALERIIANVS PFAVG</i> Rev <i>VIRTVS AVGG</i>
24	VALERIAN II, POSTH date: 255-58 mint:	cat: 24 denom: ANT	wear: UWIUW	Obv <i>DIVO CAES VALERIANO</i> Rev <i>CONSECRATIO</i>
25	GALLIENUS date: 258-68 mint:	cat: - denom: ANT	wear: C/C	Obv <i>[GALL]IE[NVS AVG]</i> Rev -
26	GALLIENUS date: 258-68 mint:	cat: - denom: ANT	wear: SW/C	Obv - Rev -
27	GALLIENUS date: 258-68 mint:	cat: - denom: ANT	wear: SW/C	Obv <i>[GALLIEN VS] A VG</i> R W -
28	GALLIENUS date: 258-68 mint:	cat: 177 denom: ANT	wear: C/SW	Obv <i>[GALLIENVS AVG]</i> Rev <i>[DIANAE CONS] A VG</i>

No	Year	Sfno	Period	Feature
15	1977	845	6	161
16	1979	1071	U/S	U/S
17	1977	775	10	109
18	1977	829	U/S	U/S
19	1975	204	7A	34
20	1975	64	U/S	U/S
21	1977	858	8	84
22	1976	370	U/S	U/S
23	1977	925	10A	2000A
24	1975	176	8	333
25	1977	806	10	109
26	1975	254	11	315
27	1978	977	U/S	U/S
28	1976	444	9	76

Table 9.2 contd

No Ruler				
29	GALLIENUS date: 258-68	mint:	cat: 193 denom: ANT	wear: UW/SW Obv <i>[GALLIENVS AVG]</i> Rev <i>FORTVNA REDVX</i>
30	GALLIENUS date: 258-68	mint:	cat: 242 denom: ANT	wear: SW/SW Obv <i>GALLIEN VS A VG</i> Rev <i>MERC VRIO CONS A VG</i>
31	GALLIENUS date: 258-68	mint:	cat: 256 denom: ANT	wear: SW/SW Obv <i>GALLIENVS AVG</i> Rev <i>PAX AVG</i>
32	GALLIENUS date: 258-68	mint:	cat: 280 denom: ANT	wear: UW/SW Obv <i>GALLIENVS AVG</i> Rev <i>SECVRIT PERPET</i>
33	CLAUDIUS II date: 268-70	mint:	cat: denom: ANT	wear: C/C Obv - Rev -
34	CLAUDIUS II date: 268-70	mint:	cat: 106 denom: ANT	wear: W/SW Obv <i>[IMP CLA VDIVS A VG]</i> Rev <i>VICTORIA A VG</i>
35	CLAUDIUS II date: 268-70	mint:	cat: 14/15 denom: ANT	wear: SW/SW Obv <i>[IMP.. . CLA VDI VS A VG]</i> Rev <i>[AEQVITAS AVG]</i>
36	CLAUDIUS II date: 268-70	mint:	cat: 54/5 denom: ANT	wear: C/C Obv - Rev <i>[IOVI VIC]TORI</i>
37	CLAUDIUS II date: 268-70	mint:	cat: 66 denom: ANT	wear: SW/SW Obv <i>IMP C CLAVDIVS AVG</i> Rev <i>[MARS V]L[TOR]</i>
38	CLAUDIUS II date: 268-70	mint:	cat: 87 denom: ANT	wear: SW/SW Obv <i>IMP CLAVDIVS AVG</i> Rev <i>PROVID AVG</i>
39	'CLAUDIUS II' date: 270+	mint:	cat: 111 denom: ANT	wear: W/W Obv <i>CL[AVD]IVS A[VG]</i> Rev <i>C[IO...N... [VIRTVS AVG]</i>
40	'CLAUDIUS II' date: 270+	mint:	cat: c of 87 denom: ANT	wear: UW/UW Obv <i>[IMP CLA VDIVS A VG]</i> Rev <i>[PROVID AVG]</i>
41	'CLAUDIUS II' date: 273+	mint:	cat: denom: ANT	wear: UW/SW Obv <i>IMPC CLAVDIV2 HVG</i> Rev <i>HER PACIFERO = Postumus RIC 67</i>
42	CLAUDIUS II, POSTH date: 270	mint:	cat: 261 denom: ANT	wear: C/C Obv <i>DIVO CLAVDIO</i> Rev <i>CONSECRATIO Altar</i>

No	Year	Sfno	Period	Feature
29	1976	408	9	348
30	1975	190	10A	336
31	1977	683	9	1547
32	1976	456	8	392
33	1976	490	7B	71
34	1975	162	U/S	U/S
35	1975	126	U/S	U/S
36	1975	39	U/S	U/S
37	1975	187	8	337
38	1976	468	11	1523
39	1977	863	7A	1585
40	1975	189	10A	336
41	1978	987	10	1643
42	1978	946	9	454

Table 9.2 contd

No Ruler				
43	POSTUMUS date: 258-68	mint:	cat: 317 denom: ANT	Obv <i>IMP C POSTVMVS PFAVG</i> wear: UW/UW Rev <i>PACATOR ORBIS</i>
44	POSTUMUS date: 258-68	mint:	cat: 318 denom: ANT	Obv <i>[IMPC POSTVMVS PFAVG]</i> wear: C/C Rev <i>[PAX AVG]</i>
45	VICTORINUS date: 268-70	mint:	cat: 114 denom: ANT	Obv <i>IMP C VICTORINVS PFAVG</i> wear: W/w Rev <i>INVICTVS</i>
46	VICTORINUS date: 268-70	mint:	cat: 116 etc denom: ANT	Obv - wear: C/C Rev <i>[PAX AVG]</i>
47	VICTORINUS date: 268-70	mint:	cat: 118 denom: ANT	Obv <i>IMP C VICTORINVS PFAVG</i> wear: UWNW Rev <i>PAX A VG</i>
48	VICTORINUS date: 268-70	mint:	cat: 118 denom: ANT	Obv <i>[IMPC VICTORI]NVS PFAVG</i> wear: C/C Rev <i>[PAX] AVG</i>
49	VICTORINUS date: 268-70	mint:	cat: 78 denom: ANT	Obv <i>[IMP C VICTORINVS PFAVG]</i> wear: SW/SW Rev <i>VIRTVS AVG</i>
50	VICTORINUS date: 268-70	mint:	cat: 78 denom:	Obv <i>[IMP C Vl]C[TORINVS PFAVG]</i> wear: C/C Rev <i>[VIRTVS AVG]</i>
51	VICTORINUS date: 268-70	mint:	cat: 78 denom: ANT	Obv <i>IMP C VICTORINVS PFAVG</i> wear: SW/SW Rev <i>VIRTVS AVG</i>
52	'VICTORINUS' date: '270+'	mint:	cat: c of 114 denom:	Obv - wear: UW/Uw Rev <i>IV[INVICTVS]</i>
53	VICTORINUSEETRICUS I date: 268-73	mint:	cat: denom:	Obv - wear: UW/C Rev-
54	VICTORINUSfIETRICUS I date: 268-73	mint:	cat: - denom: ANT	Obv - wear: C/C Rev <i>[PAX A VG]</i>
55	TETRICUS I date: 270-73	mint:	cat: - denom: ANT	Obv <i>[IMP C] TETRICVS PFAVG</i> wear: C/C R W -
56	TETRICUS I date: 270-73	mint:	cat: - denom: ANT	Obv - wear: C/C Rev-

No	Year	Sfno	Period	Feature
43	1976	591	10A	1506
44	1977	902	10	1513
45	1975	98	U/S	U/S
46	1975	244	10A	334A
47	1976	457	7B	71
48	1977	957	U/S	U/S
49	1975	210	9	19
50	1976	282	11	304
51	1975	109	11	315
52	1976	412	9	348
53	1975	239	10A	334
54	1976	351	U/S	U/S
55	1975	32	U/S	U/S
56	1977	770	10	109

Table 9.2 contd

No Ruler				
57 TETRICUS I date: 270-73	mint:	cat: - denom: ANT	wear: C/C	Obv [. . .] TETRICVS PF[A VG] Rev-
58 TETRICUS I date: 270-73	mint:	cat: 100 etc denom: ANT	wear: SW/C	Obv - Rev [PAX A VG]
59 TETRICUS I date: 270-73	mint:	cat: 102 denom: ANT	wear: SW/SW	Obv IMP TETRICUS AVG Rev [PAX AVG]
60 TETRICUS I date: 270-73	mint:	cat: 110 denom:	wear: SW/SW	Obv [IMP C TETRICVS PFAVG] Rev [PIETAS AV]G
61 TETRICUS I date: 270-73	mint:	cat: 123 denom: ANT	wear: SW/UW	Obv [IMP TETRICVS PFAVG] Rev [SALVS AVG]
62 TETRICUS I date: 270-73	mint:	cat: 140/2 denom: ANT	wear: C/C	Obv - Rev [VICTORIA AVG]
63 TETRICUS I date: 270-73	mint:	cat: 90 denom: ANT	wear: W/SW	Obv IMP [TETRICVS PFAVG] Rev LAETITIA AVGN
64 TETRICUS I date: 270-73	mint:	cat: as 130 etc denom:	wear: VW/VW	Obv - Rev SPES [. . .]
65 TETRICUS I' date: 273+	mint:	cat: c of - denom:	wear: C/C	Obv - Rev-
66 TETRICUS I' date: 273+	mint:	cat: c of - denom:	wear: UW/UW	Obv - Rev -
67 TETRICUS I' date: 273+	mint:	cat: c of - denom:	wear: UW/UW	Obv - Rev -
68 TETRICUS I' date: 273+	mint:	cat: c of - denom:	wear: UW/C	Obv - Rev -
69 TETRICUS I' date: 273+	mint:	cat: c of - denom:	wear: UW/UW	Obv - Rev -
70 TETRICUS I' date: 273+	mint:	cat: c of - denom:	wear: C/C	Obv - Rev-

No	Year	Sfno	Period	Feature
57	1976	452	u/s	U/S
58	1977	672	U/S	U/S
59	1977	903	10	1513
60	1976	570	10	93
61	1976	630	11	1523
62	1976	537	9	1516
63	1977	694	11	304
64	1976	390	10	1510
65	1976	339	U/S	U/S
66	1976	465	10A	53
67	1976	439a	7B	82
68	1975	246	10A	334
69	1976	380	10A	375
70	1976	482	9	397

Table 9.2 contd

No Ruler				
71	'TETRICUS I' date: 273+	mint:	cat: c of 100 denom:	wear: UW/UW Obv - Rev [PAX A VG]
72	'TETRICUS I' date: 273+	mint:	cat: c of 100 denom:	wear: SW/SW Obv - Rev PAX [AVG]
73	'TETRICUS I' date: 273+	mint:	cat: c of 106 denom: ANT	wear: SW/UW Obv - Rev [PAX] A VGG
74	'TETRICUS I' date: 273+	mint:	cat: c of 147 denom:	wear: SW/SW Obv - Rev [VIRTVS AVG]
75	'TETRICUS I' date: 273+	mint:	cat: c of 147 denom:	wear: UW/UW Obv - Rev [VIRTVS] AVG
76	TETRICUS I' date: 273+	mint:	cat: c of 47 denom: ANT	wear: UWIUW Obv [IMP C] TETRICVS PFAVG Rev [ABVNDANTIA AVG]
77	TETRICUS I' date: 273+	mint:	cat: c of 8214 denom:	wear: UW/UW Obv - Rev [INVICTVS]
78	TETRICUS II date: 270-73	mint:	cat: - denom: ANT	wear: SW/C Obv CPESV TETRICVS CAES Rev ,..... AVGG
79	TETRICUS II date: 270-73	mint:	cat: 254/5 denom: ANT	wear: SW/SW Obv [CP..ESV TETRli]CVS CAES Rev [PIETAS A]VGG
80	TETRICUS II date: 270-73	mint:	cat: 254/5 denom: ANT	wear: SW/SW Obv [...] TETRICVS CAES Rev PIETAS AVGG
81	TETRICUS II date: 270-73	mint:	cat: 254/5 denom: ANT	wear: SW/SW Obv C P...E...TETRICVS CAES Rev PIETAS AVGG
82	TETRICUS II date: 270-73	mint:	cat: 270 etc denom: ANT	wear: SW/SW Obv [...] TETRICVS CAES Rev [SPIES...
83	TETRICUS II date: 270-73	mint:	cat: 272 denom: ANT	wear: C/SW Obv [C PIV ESV TETRli]CVS CAES Rev [SPES PVJ]LICA
84	'TETRICUS II' date: 273+	mint:	cat: c of - denom: ANT	wear: C/C Obv - ReV-
No	Year	Sfno	Period	Feature
71	1977	823	10	109
72	1976	298	U/S	U/S
73	1977	907	10	86
74	1975	135	U/S	U/S
75	1975	183	8	331
76	1976	551	10A	75
77	1976	536	7B	71
78	1977	824	10	109
79	1980	980	U/S	U/S
80	1975	174	11	315
81	1975	175	8	331
82	1976	560	U/S	U/S
83	1975	73	U/S	U/S
84	1975	151	U/S	U/S

Table 9.2 contd

No Ruler				
85	TETRICUS II'	cat: c of - date: 273+ mint: denom:	wear: C/C	Obv - Rev-
86	TETRICUS II'	cat: c of - date: 273+ mint: denom: ANT	wear: W/C	Obv [C P]V ESV TETRIC]VS CAES Rev-
87	TETRICUS II'	cat: c of 248 date: 273+ mint: denom: ANT	wear: UW/UW	Obv - Rev [PAX A VG]
88	TETRICUS II'	cat: c of 248 date: 273+ mint: denom: ANT	wear: UW/UW	Obv C PIV ESV TETRICVS CAES Rev PAX AVG
89	TETRICUS II'	cat: c of 272 date: 273+ mint: denom:	wear: UW/UW	Obv [C PIV] ESV FETRIC]VS C[AES] Rev [SPES PVB]L[ICA]
90	RADIATE COPY	cat: date: 273+ mint: denom:	wear: C/C	Obv - Rev-
91	RADIATE COPY	cat: date: 273+ mint: denom:	wear: C/SW	Obv - Rev-
92	RADIATE COPY	cat: date: 273+ mint: denom:	wear: UW/UW	Obv - Rev -
93	RADIATE COPY	cat: date: 273+ mint: denom:	wear: SW/SW	Obv - Rev -
94	RADIATE COPY	cat: date: 273+ mint: denom:	wear: UW/UW	Obv - Rev -
95	RADIATE COPY	cat: date: 273+ mint: denom:	wear: C/C	Obv - Rev-
96	RADIATE COPY	cat: date: 273+ mint: denom:	wear: FRAG.	Obv - Rev -
97	RADIATE COPY	cat: date: 273+ mint: denom:	wear: SW/SW	Obv - Rev -
98	RADIATE COPY	cat: date: 273+ mint: denom:	wear: C/C	Obv - Rev-

No	Year	Sfno	Period	Feature
85	1975	238	10A	334
86	1977	897	10	1513
87	1976	510	9	397
88	1976	387	U/S	u/s
89	1975	70	U/S	U/S
90	1976	345	U/S	U/S
91	1976	439b	7B	82
92	1976	571	10	100
93	1975	252	11	315
94	1975	195	11	317
95	1976	343	10A	336
96	1975	225	10A	342
97	1976	427	10A	346
98	1975	259	9	356

Table 9.2 contd

No Ruler				
99	RADIATE COPY	cat:		Obv -
	date: 273+ mint I	denom:	wear: C/C	Rev -
100	RADIATE COPY	cat:		Obv -
	date: 273+ mint:	denom:	wear: C/C	Rev -
101	RADIATE COPY	cat:		Obv -
	date: 273+ mint I	denom:	wear: C/C	Rev -
102	RADIATE COPY	cat: -		Obv -
	date: 273+ mint:	denom: ANT	wear: UW/UW	Rev -
103	RADIATE COPY	cat: -		Obv -
	date: 273+ mint:	denom: ANT	wear: C/C	Rev -
104	RADIATE COPY	cat: -		Obv -
	date: 273+ mint:	denom: ANT	wear: SW/SW	Rev -
105	RADIATE COPY	cat: -		Obv -
	date: 273+ mint:	denom: ANT	wear: C/C	Rev -
106	TETRICUS II'	cat: -		Obv -
	date: 273+ mint:	denom: ANT	wear: C/C	Rev -
107	RADIATE COPY	cat: -		Obv -
	date: 273+ mint:	denom:	wear: C/C	Rev -
108	AURELIAN	cat: -		Obv [IMP] AVRELIANVS [AVG]
	date: 273-75 mint:	denom: ANT	wear: EW/EW	Rev -
109	CARAUSIUS	cat: -		Obv IMP CARAVSIVS AVG
	date: 286-90 mint:	denom: ANT	wear: W/EW	Rev -
110	CARAUSIUS	cat: 101		Obv IMP CARAVSIVS PFAVG
	date: 286-90 mint: LN	denom: AUREL	wear: W/W	Rev PAX AVG
111	CARAUSIUS	cat: 1012		Obv IMP CARAVSIVS PFAVG
	date: 286-90 mint:	denom: AUREL	wear: UW/UW	Rev TEMP FELICI
112	CARAUSIUS	cat: 807		Obv [IMP] CARAVSIVS PFAVG]
	date: 286-90 mint:	denom:	wear: SW/SW	Rev IN[VICTVS AVG]

No	Year	Sfno	Period	Feature
99	1976	304	10A	375
100	1976	557	U/S	U/S
101	1976	432	8	1511
102	1978	1044	10	91
103	1977	804	10	109
104	1977	849	U/S	U/S
105	1977	912	7B	175
106	1977	663	U/S	U/S
107	1976	586	10	1513
108	1977	787	10A	2000A
109	1976	410	9	350
110	1977	890	10	442
111	1975	127	11	315
112	1975	146	U/S	U/S

Table 9.2 contd**No Ruler**

113	CARAUSIUS date: 286-90	mint:	cat: 880 denom: AUREL	wear: UW/UW	Obv <i>IMP CARAVSIVS PFAVG</i> Rev <i>PAX AVG</i>
114	CARAUSIUS date: 286-90	mint:	cat: 880 denom: AUREL	wear: SW/SW	Obv <i>IMP CARAVSIVS PFAVG</i> Rev <i>PAX AVG</i>
115	CARAUSIUS date: 286-90	mint:	cat: 880 denom: AUREL	wear: SW/SW	Obv <i>IMP CARAVSIVS PFAVG</i> Rev <i>[PAX AVG]</i>
116	CARAUSIUS date: 286-90	mint:	cat: 895 denom:	wear: C/C	Obv <i>IMP CARAV[SIVS PFAVG]</i> Rev <i>PAXAVG</i>
117	CARAUSIUS date: 286-90	mint:	cat: 970 denom: AUREL	wear: UW/UW	Obv <i>[IMP] CARAVSIVS PFA VG</i> Rev <i>REST[IT ORB]</i>
118	CARAUSIUS date: 286-90	mint:	cat: 988 denom: ANT	wear: UW/UW	Obv <i>[IMP C]ARAVSIVS [PFAVG]</i> Rev <i>[SAL VS] AVG</i>
119	CARAUSIUS date: 286-90	mint:	cat: 994 denom: AUREL	wear: W/W	Obv <i>IMP [CARAVSIVS PFAVG]</i> Rev <i>SA[LVS] AVG</i>
120	CARAUSIUS date: 286-90	mint:	cat: 994 denom: AUREL	wear: W/SW	Obv <i>IMP CARAVSIVS PFAVG</i> Rev <i>SALVSAVG</i>
121	CARAUSIUS date: 286-90	mint: LN	cat: as 58 denom: AUREL	wear: W/C	Obv <i>[IMP..CARAVSIVS PFAVG]</i> Rev <i>LEG...</i>
122	CARAUSIUS date: 286-93	mint:	cat: - denom: ANT	wear: C/C	Obv - Rev -
123	CARAUSIUS date: 286-93	mint:	cat: - denom: AUREL	wear: C/C	Obv - Rev -
124	CARAUSIUS date: 286-93	mint:	cat: - denom:	wear: C/C	Obv - Rev -
125	CARAUSIUS date: 286-93	mint:	cat: - denom: AUREL	wear: C/C	Obv - Rev -
126	CARAUSIUS date: 286-93	mint:	cat: - denom: ANT	wear: C/C	Obv - Rev -

No	Year	Sfno	Period	Feature
113	1975	29	11	304
114	197s	148	11	317
115	1975	240	10A	336
116	1976	486	11	1523
117	1975	97	U/S	U/S
118	1976	406	9	350
119	1977	825	U/S	U/S
120	1977	716	10A	2000
121	1978	1062	8	3010A
122	1976	476	7B	71
123	1977	891	U/S	U/S
124	1975	258	9	356
125	1976	385	U/S	U/S
126	1976	479	U/S	U/S

Table 9.2 contd

No Ruler				
127	CARAUSIUS date: 290-93	mint: CO	cat: 303 denom: AUREL	wear: UW/UW Obv <i>IMP C CARA VSIVS [PFAVG]</i> Rev <i>PAX A VG</i>
128	CARAUSIUS date: 290-93	mint: CO	cat: 347 denom: AUREL	wear: UW/UW Obv <i>IMPC CA RA VSIVS A VG</i> Rev <i>[PRO VJID A VG]</i>
129	CARAUSIUS date: 290-93	mint:	cat: 658 denom: ANT	wear: SW/SW Obv <i>IMP CARA VSIVS PFA VG</i> Rev <i>TVTELA</i>
130	CARAUSIUS date: 290-93	mint:	cat: 951 denom: AUREL	wear: SW/SW Obv <i>IMP C CARA VSIVS A VG</i> Rev <i>PROVID A[VG]</i>
131	DIOCLETIAN date: 294-95	mint: TC	cat: 6TC23a denom: FOLL	wear: SW/SW Obv <i>IMP DIOCLETIANVS PFAVG</i> Rev <i>GENIO POPV-LI ROMANI</i>
132	MAXIMIAN date: 303	mint: LN	cat: 6LN23b denom: FOLL	wear: SW/SW Obv <i>IMP C MAXIMIA NVS PFA VG</i> Rev <i>GENIO POPV-LI ROMANI</i>
133	LICINIUS date: 316	mint: TR A	cat: 7TR121 denom:	wear: UW/UW Obv <i>IMP LICINIVS PFAVG</i> Rev <i>GENIO-POP ROM</i>
134	LICINIUS II date: 320-21	mint: TR S	cat: 7TR288 denom:	wear: UW/UW Obv <i>[LICINIVS IV]N NOB C</i> Rev <i>VIRTVS EXERCIT</i>
135	CONSTANTINE I date: 310	mint: LN	cat: 6LN121a denom:	wear: SW/SW Obv <i>IMP CONSTANTINVS PFAVG</i> Rev <i>SOLI INVIC-TO COMITI</i>
136	CONSTANTINE I date: 310	mint: LN P	cat: 6LN121a denom:	wear: SW/SW Obv <i>IMP CONSTANTINVS PFAVG</i> Rev <i>SOLI INVI-CTO COMITI</i>
137	CONSTANTINE I date: 310-13	mint: TR P	cat: 6TR871 denom:	wear: W/W Obv <i>IMP CONSTANTINVS AVG</i> Rev <i>SOLI INVIC-TO COMITI</i>
138	CONSTANTINE I date: 312-13	mint: LN P	cat: 6LN279 denom:	wear: UW/UW Obv <i>IMP CONSTANTINVS P AVG</i> Rev <i>SOLI INVI-C-TO COMITI</i>
139	CONSTANTINE I date: 315	mint: LN S	cat: 7LN32 denom:	wear: C/C Obv <i>IMP CONSTAN[TIN VS A VG]</i> Rev <i>SOLI INVIC-TO COMITI</i>
140	CONSTANTINE I date: 317	mint: TR B	cat: 7TR135 denom:	wear: SW/SW Obv <i>CONSTANTINVS PFAVG</i> Rev <i>SOLI INVIC-TO COMITI</i>

No	Year	Sfno	Period	Feature
127	1976	295	U/S	U/S
128	1977	733	8	1551
129	1976	627	8	425
130	1975	185	11	306
131	1976	360	U/S	U/S
132	1976	392	10A	1534
133	1976	492	7B	71
134	1976	642	10	91
135	1977	729	U/S	U/S
136	1975	155	U/S	U/S
137	1975	43	U/S	U/S
138	1975	1	U/S	U/S
139	1975	164	10A	310
140	1975	140	11	315

Table 9.2 contd

No	Ruler			
141	CONSTANTINE I	cat: 7TR135	Obv <i>CONSTANTINVS PFAVG</i>	
	date: 317	mint: TR B	denom: wear: UW/UW	Rev <i>SOLI INVIC-TO COMITI</i>
142	CONSTANTINE I	cat: 7TR213var	Obv <i>IMP CONSTANTINVS MAX AVG</i>	
	date: 319	mint: TR S	denom: wear: UW/UW	Rev <i>VICTORIAE LAETAE PRINC PERP</i> var: legend unbroken
143	CONSTANTINE I	cat: 7TR224	Obv <i>CONSTANTI-NVS MAXAVG</i>	
	date: 319-	mint:	denom: wear: SW/SW	Rev <i>VICTORIAE LAETAE PRINC PERP VOT/PR</i>
144	CONSTANTINE I	cat: 7LN157	Obv <i>IMP CONSTANTINVS MAX AVG</i>	
	date: 319-20	mint: LN P	denom: wear: UW/UW	Rev <i>VICTORIAE LAETAE PRINC PERP VOT/PR</i>
145	CONSTANTINE I	cat: 7TR303	Obv <i>CONSTAN-TINVS AVG</i>	
	date: 321	mint: TR P	denom: wear: UW/UW	Rev <i>BEATA TRAN-QVILLITAS VOT/IS/XX</i>
146	CONSTANTINE I	cat: 7TR3 18	Obv <i>CONSTAN-TINVS AVG</i>	
	date: 321	mint: TR	denom: wear: SW/SW	Rev <i>BEATA TRAN-QVILLITAS VO/TIS/XX</i>
147	CONSTANTINE I	cat: 7LN227	Obv <i>CONSTAN-TINVS AVG</i>	
	date: 321-22	mint: LN P	denom: wear: UW/UW	Rev <i>BEATA TRAN-QVILLITAS VOT/IS/XX</i>
148	CONSTANTINE I	cat: 7TR368	Obv <i>CONSTAN-TINVS AVG</i>	
	date: 322-23	mint: TR P	denom: wear: UW/UW	Rev <i>BEATA TRAN-QVILLITAS VO/TIS/XX</i>
149	CONSTANTINE I	cat: 7TR368	Obv <i>CONSTAN-TINVS A VG</i>	
	date: 322-23	mint: TR S	denom: wear: UW/UW	Rev <i>BEATA TRAN-QVILLITAS VO/TIS/XX</i>
150	CONSTANTINE I [MISSING]	cat: HK185	Obv <i>CONSTANTINOPOLIS</i>	
	date: 330-3 1	mint: LG P	denom: wear:	Rev Victory on prow
151	CONSTANTINE I	cat: HK-	Obv <i>CONSTA-NTINVS AVG</i>	
	date: 330-35	mint:	denom: wear: UW/-	Rev brockage
152	CONSTANTINE I	cat: HK52	Obv <i>CONSTAN-TINOPOLIS</i>	
	date: 330-35	mint: TR P	denom: wear: UW/UW	Rev Victory on prow
153	CONSTANTINE I	cat: HK52	Obv <i>CONSTAN-TINOPOLIS</i>	
	date: 330-35	mint: TR S	denom: wear: UW/UW	Rev Victory on prow
154	CONSTANTINE I	cat: HK52	Obv <i>CONSTAN-TINOPOLIS</i>	
	date: 330-35	mint: TR S	denom: wear: UW/UW	Rev Victory on prow

No	Year	Sfno	Period	Feature
141	1975	222	10A	334
142	1976	621	10	54
143	1977	731	U/S	U/S
144	1975	55	11	313
145	1977	809	U/S	U/S
146	1975	202	11	315
147	1977	851	10A	2000A
148	1977	777	10A	2000A
149	1976	397	7B	70
150	1978	931	U/S	U/S
151	1976	607	10	54
152	1976	471	9	1516
153	1977	772	10	109
154	1976	569	10A	1506

Table 9.2 contd

No	Ruler			
155	CONSTANTINE I	cat: HK52		Obv <i>CONSTAN-TINOPOLIS</i>
	date: 330-35	mint: TR S	denom:	Rev Victory on prow
			wear: UW/UW	
156	CONSTANTINE I	cat: HK59		Obv <i>CONSTAN-TINOPOLIS</i>
	date: 330-35	mint: TR P	denom:	Rev Victory on prow
			wear: UW/UW	
157	CONSTANTINE I	cat: HK59		Obv <i>CONSTAN-TINOPOLIS</i>
	date: 330-35	mint: TR P	denom:	Rev Victory on prow
			wear: UW/UW	
158	CONSTANTINE I	cat: HK66		Obv <i>CONSTAN-TINOPOLIS</i>
	date: 330-35	mint: TR P	denom:	Rev Victory on prow
			wear: SW/SW	
159	CONSTANTINE I	cat: HK66		Obv <i>CONSTAN-TINOPOLIS</i>
	date: 330-35	mint: TR S	denom:	Rev Victory on prow
			wear: SW/SW	
160	CONSTANTINE I	cat: HK66		Obv <i>CONSTAN-TINOPOLIS</i>
	date: 330-35	mint: TR S	denom:	Rev Victory on prow
			wear: UW/UW	
161	CONSTANTINE I	cat: HK66		Obv <i>CONSTAN-TINOPOL IS</i>
	date: 330-35	mint: TR S	denom:	Rev Victory on prow
			wear: C/UW	
162	CONSTANTINE I	cat: as HK52		Obv <i>CONSTAN-TINOPOLIS</i>
	date: 330-35	mint:	denom:	Rev Victory on prow
			wear: UW/UW	
163	CONSTANTINE I	cat: HK190		Obv <i>VRBS ROMA</i>
	date: 330-35	mint: LG	denom:	Rev Wolf and Twins
			wear: UW/UW	
164	CONSTANTINE I	cat: HK51		Obv [<i>VRBS ROMA</i>]
	date: 330-35	mint:	denom:	Rev Wolf and Twins
			wear: C/C	
165	CONSTANTINE I	cat: HK51		Obv <i>VRBS ROMA</i>
	date: 330-35	mint:	denom:	Rev Wolf and Twins
			wear: C/C	
166	CONSTANTINE I	cat: HK51		Obv <i>VRBS ROMA</i>
	date: 330-35	mint: TR	denom:	Rev Wolf and Twins
			wear: W/SW	
167	CONSTANTINE I	cat: HK51		Obv [<i>VRBS ROMA</i>]
	date: 330-35	mint: TR	denom:	Rev Wolf and Twins [cut down to AE4 size]
			wear: SW/SW	
168	CONSTANTINE I	cat: HK51		Obv <i>VRBS ROMA</i>
	date: 330-35	mint: TR P	denom:	Rev Wolf and Twins
			wear: UW/UW	

No	Year	Sfno	Period	Feature
155	1976	513	9	1516
156	1975	160	11	317
157	1977	774	10A	2000
158	1976	289	U/S	U/S
159	1977	803	10	109
160	1976	534	10	1513
161	1976	600	10	1513
162	1976	316	U/S	U/S
163	1975	224	U/S	U/S
164	1976	583	10	93
165	1977	742	10	897
166	1976	327	U/S	U/S
167	1977	800	10A	2000A
168	1976	641	10	1513

Table 9.2 contd**No Ruler**

169	CONSTANTINE I	cat: HK51		Obv <i>VRBS ROMA</i>
	date: 330-35	mint: TR S	denom:	Rev Wolf and Twins
			wear: UW/UW	
170	CONSTANTINE I	cat: HK51		Obv <i>VRBS ROMA</i>
	date: 330-35	mint: TR S	denom:	Rev Wolf and Twins
			wear: UW/SW	
171	CONSTANTINE I	cat: HK51		Obv <i>[VRBS ROMA]</i>
	date: 330-35	mint: TR S	denom:	Rev Wolf and Twins
			wear: W/SW	
172	CONSTANTINE I	cat: HK51		Obv <i>VRBS ROMA</i>
	date: 330-35	mint: TR S	denom:	Rev Wolf and Twins
			wear: W/SW	
173	CONSTANTINE I	cat: HK546		Obv <i>VRBS ROMA</i>
	date: 330-35	mint: RM P	denom:	Rev Wolf and Twins
			wear: UW/UW	
174	CONSTANTINE I	cat: HK58		Obv <i>VRBS ROMA</i>
	date: 330-35	mint: TR	denom:	Rev Wolf and Twins
			wear: SW/SW	
175	CONSTANTINE I	cat: HK58		Obv <i>VRBS ROMA</i>
	date: 330-35	mint: TR P	denom:	Rev Wolf and Twins
			wear: UW/UW	
176	CONSTANTINE I	cat: HK65		Obv <i>VRBS ROMA</i>
	date: 330-35	mint: TR P	denom:	Rev Wolf and Twins
			wear: SW/SW	
177	CONSTANTINE I	cat: HK70		Obv <i>VRBS ROMA</i>
	date: 330-35	mint: TR S	denom:	Rev Wolf and Twins
			wear: UW/UW	
178	CONSTANTINE I	cat: HK76		Obv <i>VRBS ROMA</i>
	date: 330-35	mint: TR P	denom:	Rev Wolf and Twins
			wear: UW/UW	
179	CONSTANTINE I	cat: HK76		Obv <i>VRBS ROMA</i>
	date: 330-35	mint: TR S	denom:	Rev Wolf and Twins
			wear: SW/SW	
180	CONSTANTINE I	cat: as HK51		Obv <i>VRBS ROMA</i>
	date: 330-35	mint:	denom:	Rev Wolf and Twins
			wear: C/C	
181	CONSTANTINE I	cat: as HK51		Obv <i>VRBS ROMA</i>
	date: 330-35	mint:	denom:	Rev Wolf and Twins
			wear: UW/UW	
182	CONSTANTINE I	cat: as HK51		Obv <i>[VRBS ROMA]</i>
	date: 330-35	mint:	denom:	Rev Wolf and Twins
			wear: C/C	

No	Year	Sfno	Period	Feature
169	1976	402	U/S	U/S
170	1977	701	9	1547
171	1977	696	10A	1805
172	1977	795	10A	2000A
173	1976	416	11	1515
174	1976	285	11	304
175	1976	595	10A	75
176	1977	738	10	1513
177	1976	342	U/S	U/S
178	1976	556	10A	75
179	1976	502	U/S	U/S
180	1976	615	10A	75
181	1976	516	10	91
182	1975	80	U/S	U/S

Table 9.2 contd

No Ruler				
183	CONSTANTINE I date: 330-35 mint:	cat: as HK51 denom:	wear: C/C	Obv <i>[VRBS ROMA]</i> Rev Wolf and Twins
184	CONSTANTINE I date: 330-35 mint:	cat: as HK51 denom:	wear: SW/SW	Obv <i>[VRBS ROMA]</i> Rev Wolf and Twins
185	CONSTANTINE I date: 330-35 mint: TR P	cat: HK48a denom:	wear: UW/UW	Obv <i>CONSTANTI-NVS MAX AVG</i> Rev <i>GLOR-IAEXERC-ITVS 2 stds</i>
186	CONSTANTINE I date: 330-35 mint: TR P	cat: HK48a denom:	wear: UW/UW	Obv <i>CONSTANTI-NVS MAX AVG</i> Rev <i>GLOR-IA EXERC-ITVS 2 stds</i>
187	CONSTANTINE I date: 330-35 mint: TR S	cat: HK53 denom:	wear: UW/UW	Obv <i>CONSTANTI-NVS MAX AVG</i> Rev <i>GLOR-IA EXERC-ITVS 2 stds</i>
188	CONSTANTINE I date: 330-35 mint: RM P	cat: HK531 denom:	wear: UW/UW	Obv <i>CONSTANTI-NVS M[AX AVG]</i> Rev <i>GLOR-IA EXERC-ITVS 2 stds</i>
189	CONSTANTINE I date: 330-35 mint: TR S	cat: HK61 denom:	wear: SW/UW	Obv <i>CONSTANTI-NVS MAX AVG</i> Rev <i>GLOR-IA EXERC-ITVS 2 stds</i>
190	CONSTANTINE I date: 335-37 mint: TR S	cat: HKS7 denom:	wear: UW/SW	Obv <i>CONSTANTI-NVS MAX AVG</i> Rev <i>GLOR-IA EXERC-ITVS 1 std</i>
191	CONSTANTINE I date: 335-37 mint:	cat: as HK180a denom:	wear: C/C	Obv <i>CONSTANTI-NVS MAX AVG</i> Rev <i>GLOR-IA EXERC-ITVS 1 std</i>
192	'CONSTANTINE I' date: 341-46 mint:	cat: c as HK52 denom:	wear: W/SW	Obv <i>CONSTAN-[TINOPOLIS]</i> Rev Victory on prow
193	'CONSTANTINE I' date: 341-46 mint:	cat: c as HK52 denom:	wear: UW/UW	Obv <i>CONSTAN-TINOPOLIS</i> Rev Victory on prow
194	'CONSTANTINE I' date: 341-46 mint:	cat: c as HK52 denom:	wear: UW/UW	Obv <i>[CONSTAN-TINOPOLIS]</i> Rev Victory on prow
195	'CONSTANTINE I' date: 341-46 mint:	cat: c as HK52 denom:	wear: SW/SW	Obv <i>[CONSTA-TINOPOLIS]</i> Rev Victory on prow
196	'CONSTANTINE I' date: 341-46 mint:	cat: c as HK52 denom:	wear: UW/UW	Obv <i>[CONSTAN-TINOPOLIS]</i> Rev Victory on prow

No	Year	Sfno	Period	Feature
183	1975	171	U/S	U/S
184	1976	331	11	1517
185	1976	522	10	93
186	1978	1048	9-11	3006A
187	1977	689	10A	1805
188	1976	602	10A	75
189	1975	212	U/S	U/S
190	1975	261	9	348
191	1975	59	U/S	U/S
192	1976	464	10A	53
193	1976	555	10	93
194	1976	273	U/S	U/S
195	1975	182	11	306
196	1975	215	10A	336

Table 9.2 contd

No Ruler				
197	'CONSTANTINE I' date: 341-46 mint:	cat: c as HK52 denom:	wear: UW/SW	Obv <i>[CONSTAN-TINOPOLIS]</i> Rev Victory on prow
198	'CONSTANTINE I' date: 341-46 mint:	cat: c as HK52 denom:	wear: C/C	Obv <i>[CONSTAN-TINOPOLIS]</i> Rev Victory on prow
199	'CONSTANTINE I' date: 341-46 mint:	cat: c of HK185 denom:	wear: UW/UW	Obv <i>CONSTAN-TINOPOLIS</i> Rev Victory on prow SLG
200	'CONSTANTINE I' date: 341-46 mint:	cat: c of HK185 denom:	wear: C/UW	Obv <i>CONSTAN-TINOPOLIS</i> Rev Victory on prow
201	'CONSTANTINE I' date: 341-46 mint:	cat: c of HK185 denom:	wear: UW/UW	Obv <i>CONSTAN-TINOPOLIS</i> Rev Victory on prow PLG
202	'CONSTANTINE I' date: 341-46 mint:	cat: c of HK225 denom:	wear: SW/SW	Obv <i>[CONSTAN-TINOPOLIS]</i> Rev Victory on prow PLG
203	'CONSTANTINE I' date: 341-46 mint:	cat: c of HK52 denom:	wear: UW/UW	Obv <i>[CONSTAN-TINPOLIS]</i> Rev Victory on prow
204	'CONSTANTINE I' date: 341-46 mint:	cat: c of HK52 denom:	wear: C/C	Obv <i>[CONSTAN-TINOPOLIS]</i> Rev Victory on prow TRS
205	'CONSTANTINE I' date: 341-46 mint:	cat: c of HK52 denom:	wear: UW/UW	Obv <i>[CONSTAN-TIN]OPOLIS</i> Rev Victory on prow TRS
206	'CONSTANTINE I' date: 341-46 mint:	cat: c of HK52 denom:	wear: UW/UW	Obv <i>[CONSTAN-TINOPOLIS]</i> Rev Victory on prow
207	'CONSTANTINE I' date: 341-46 mint:	cat: c of HK52 denom:	wear: SW/SW	Obv <i>CONSTAN-TINOPOLIS</i> Rev Victory on prow TRS
208	'CONSTANTINE I' date: 341-46 mint:	cat: c as HK51 denom:	wear: C/C	Obv <i>[VRBS ROMA]</i> Rev Wolf and Twins
209	'CONSTANTINE I' date: 341-46 mint:	cat: c as HK51 denom:	wear: C/C	Obv <i>[VRBS ROMA]</i> Rev Wolf and Twins
210	'CONSTANTINE I' date: 341-46 mint:	cat: c as HK51 denom:	wear: UW/UW	Obv <i>VRBS ROMA</i> Rev Wolf and Twins

No	Year	Sfno	Period	Feature
197	1977	743	10	897
198	1976	420	10A	1506
199	1975	9	11	303
200	1975	203	10A	336
201	1978	1023	10A	2000A
202	1977	736	U/S	U/S
203	1976	478	10	386
204	1976	616	10A	1506
205	1976	340	11	1517
206	1977	707b	10A	2000
207	1977	723	U/S	U/S
208	1976	567	10A	75
209	1976	582	10A	75
210	1976	429	10A	1506

Table 9.2 contd

No Ruler				
211	'CONSTANTINE I'	cat: c as HK51		Obv <i>[VRBS ROMA]</i>
	date: 341-46 mint:	denom:	wear: UW/UW	Rev Wolf and Twins
212	'CONSTANTINE I'	cat: c of HK184		Obv <i>VRBS ROMA</i>
	date: 341-46 mint:	denom:	wear: UW/UW	Rev Wolf and Twins PLG
213	'CONSTANTINE I'	cat: c of HK184		Obv <i>[VRBS ROMA]</i>
	date: 341-46 mint:	denom:	wear: SW/SW	Rev Wolf and Twins
214	'CONSTANTINE I'	cat: c of HK51		Obv <i>VRBS ROMA</i>
	date: 341-46 mint:	denom:	wear: UW/UW	Rev Wolf and Twins
215	'CONSTANTINE I'	cat: c of HK51		Obv <i>VRBS ROMA</i>
	date: 341-46 mint:	denom:	wear: UW/C	Rev Wolf and Twins <i>TRS</i>
216	'CONSTANTINE I'	cat: c of HK180		Obv <i>CONSTANTI-NVS MAX AVG</i>
	date: 341-46 mint:	denom:	wear: UW/UW	Rev <i>GLORIA EXERC-ITVS 2 stds PLG</i>
217	CRISPUS	cat: 7TR262		Obv <i>CRISPVS NOB CAES</i>
	date: 320 mint: TR P	denom:	wear: UW/UW	Rev <i>VIRTVS EXERCIT</i>
218	CRISPUS	cat: 7LN230		Obv <i>CRISPVS NOBIL C</i>
	date: 321-22 mint: LN P	denom:	wear: UW/UW	Rev <i>BEATA TRAN-QVILLITAS VOT/IS/XX</i>
219	'CRISPUS' [or genuine?]	cat: 6TR231var		Obv <i>CRISPVS NOBC PNSA</i>
	date: 318-19 mint: TR S	denom:	wear: SW/UW	Rev <i>[VICTORIAE LA]ET PPI</i>
220	CONSTANTINE II, CAES	cat: 7LN216		Obv <i>CONSTANTI-NVS IVN NC</i>
	date: 321 mint: LN P	denom:	wear: SW/SW	Rev <i>BEATA TRA-NQVILLITAS VOT/IS/XX</i>
221	CONSTANTINE II, CAES	cat: as 7TR353 var		Obv <i>CONSTANTINVS IVN NOBC</i>
	date: 321-22 mint:	denom:	wear: UW/UW	Rev <i>BEATA TRAN-QVILLITAS VO/TIS/XX</i>
222	CONSTANTINE II, CAES	cat: 6TR433		Obv <i>CONSTANTINVS IVN NOBC</i>
	date: 323-24 mint: TR S	denom:	wear: UW/UW	Rev <i>CAESARVM NOSTRORVM</i>
223	CONSTANTINE II, CAES	cat: 7LN296		Obv <i>CONSTANTINVS IVN NOB C</i>
	date: 324-25 mint: LN P	denom:	wear: SW/SW	Rev <i>PROVIDEN-TIAE CAESS</i>
224	CONSTANTINE II, CAES	cat: -		Obv Bust laur cuir left
	date: 324-30 mint: LG P	denom:	wear: UW/UW	Rev <i>CONSTAN/TINVS N/CAESAR</i> ?unrecorded type

No	Year	Sfno	Period	Feature
211	1977	708	10A	2000
212	1975	253	9	348
213	1976	292	U/S	U/S
214	1977	670	10	110
215	1975	156	U/S	U/S
216	1975	66	U/S	U/S
217	1976	453	9	348
218	1975	229	10A	342
219	1977	760	U/S	U/S
220	1975	96	U/S	U/S
221	1977	846	U/S	U/S
222	1978	956	U/S	U/S
223	1975	84	U/S	U/S
224	1978	932	U/S	U/S

Table 9.2 contd

No Ruler				
225	CONSTANTINE II, CAES	cat: HK186		
	date: 330-35	mint: LG P	denom:	
		wear: UW/UW		Obv <i>CONSTANTINVS IVN NOBC</i> Rev <i>GLOR-IA EXERC-ITVS 2 stds</i>
226	CONSTANTINE II, CAES	cat: HK193		
	date: 330-35	mint: LG P	denom:	
		wear: SW/SWW		Obv <i>CONSTANTINVS IVN NOBC</i> Rev <i>GLOR-IA EXERC-ITVS 2 stds</i>
227	CONSTANTINE II, CAES	cat: HK198		
	date: 330-35	mint: LG P	denom:	
		wear: UW/UW		Obv <i>CONSTANTINVS IVN NOB C</i> Rev <i>GLOR-IA EXERC-ITVS 2 stds</i>
228	CONSTANTINE II, CAES	cat: HK49		
	date: 330-35	mint: TR S	denom:	
		wear: SW/SW		Obv <i>CONSTANTINVS IVN NOBC</i> Rev <i>GLOR-IA EXERC-ITVS 2 stds</i>
229	CONSTANTINE II, CAES	cat: HK56		
	date: 330-35	mint: TR S	denom:	
		wear: W/W		Obv <i>CONSTANTINVS IVN NOB C</i> Rev <i>GLOR-IA EXERC-ITVS 2 stds</i>
230	CONSTANTINE II, CAES	cat: HK56		
	date: 330-35	mint: TR S	denom:	
		wear: UW/UW		Obv <i>CONSTANTINVS IVN NOB C</i> Rev <i>GLOR-IA EXERC-ITVS 2 stds</i>
231	CONSTANTINE II, CAES	cat: HK63		
	date: 330-35	mint: TR P	denom:	
		wear: UW/UW		Obv <i>CONSTANTINVS IVN NOB C</i> Rev <i>GLOR-IA EXERC-ITVS 2 stds</i>
232	CONSTANTINE II, CAES	cat: HK68		
	date: 330-35	mint: TR S	denom:	
		wear: UW/UW		Obv <i>CONSTANTINVS IVN NOB C</i> Rev <i>GLOR-IA EXERC-ITVS 2 stds</i>
233	CONSTANTINE II, CAES	cat: as HK49		
	date: 330-35	mint:	denom:	
		wear: UW/UW		Obv <i>CONSTANTINVS IVN NOB C</i> Rev <i>GLOR-IA EXERC-ITVS 2 stds</i>
234	CONSTANTINE II, CAES	cat: as HK49		
	date: 330-35	mint:	denom:	
		wear: UW/C		Obv <i>CONSTANTINVS IVN NOB C</i> Rev <i>GLOR-IA EXERC-ITVS 2 stds</i>
235	CONSTANTINE II, CAES	cat: as HK49		
	date: 330-35	mint:	denom:	
		wear: SW/SW		Obv <i>CONSTANTINVS IVN NOB C</i> Rev <i>GLOR-IA EXERC-ITVS 2 stds</i>
236	CONSTANTINE II, CAES	cat: HK88		
	date: 335-37	mint: TR P	denom:	
		wear: UW/UW		Obv <i>CONSTANTI-NVS IVN NC</i> Rev <i>GLOR-IA EXERC-ITVS 1 std</i>
237	CONSTANTINE II, CAES	cat: HK93		
	date: 335-37	mint: TR P	denom:	
		wear: UW/UW		Obv <i>CONSTANTI-NVS IVN NC</i> Rev <i>GLOR-IA EXERC-ITVS 1 std</i>
238	CONSTANTINE II, CAES	cat: HK88		
	date: 335-41	mint: TR P	denom:	
		wear: UW/UW		Obv <i>CONSTANTI-NVS MAX AVG</i> Rev <i>GLOR-IA EXERC-ITVS 1 std</i>

No	Year	Sfno	Period	Feature
225	1976	520	10A	75
226	1977	926	U/S	U/S
227	1976	417	10	1510
228	1977	695	10A	1805
229	1975	23	11	304
230	1976	430	10A	1506
231	1976	418	11	1515
232	1975	227	11	304
233	1975	17	U/S	U/S
234	1975	69	U/S	U/S
235	1976	320	U/S	U/S
236	1976	337	10A	53
237	1977	784	10A	2000A
238	1976	524	10	93

Table 9.2 contd

No Ruler				
239	CONSTANTINE II, CAES	cat: c of HK187		Obv <i>CONSTANTINVS IVN NOBC</i>
	date: 341-46	mint:	denom:	Rev <i>GLOR-IA EXERC-ITVS</i> 2 stds
			wear: UW/UW	
240	'CONSTANTINE II, CAES'	cat: c as HK181		Obv <i>CONSTANTINVS IVN NOB C</i>
	date: 341-46	mint:	denom:	Rev <i>GLOR-IA EXERC-ITVS</i> 2 stds <i>PLG</i>
			wear: W/W	
241	'CONSTANTINE II, CAES'	cat: c as HK49		Obv <i>CONSTANTINVS IVN [NOB C]</i>
	date: 341-46	mint:	denom:	Rev <i>[GLOR-IA EXERC-ITVS]</i> 2 stds
			wear: C/C	
242	'CONSTANTINE II, CAES'	cat: c as HK49		Obv <i>CONSTANTI-[NVS IVNNOBC]</i>
	date: 341-46	mint:	denom:	Rev <i>[GLOR-IAEXERC-ITVS]</i> 2 stds
			wear: SW/SW	
243	'CONSTANTINE II, CAES'	cat: c as HK49		Obv <i>CONSTANTINVS IVN NOB C</i>
	date: 341-46	mint:	denom:	Rev <i>GLOR-IA EXERC-ITVS</i> 2 stds
			wear: UW/UW	
244	'CONSTANTINE II, CAES'	cat: c of HK49		Obv <i>[CONSTANTINVS IVN NOB C]</i>
	date: 341-46	mint:	denom:	Rev <i>GLOR-IA EXERC-ITVS</i> 2 stds <i>TRP</i>
			wear: C/SW	
245	'CONSTANTINE II, CAES'	cat: c of HK49		Obv <i>CONSTANTINVS IVN NOB C</i>
	date: 341-46	mint:	denom:	Rev <i>GLOR-IA EXERC-ITVS</i> 2 stds <i>TRS</i>
			wear: UW/UW	
246	'CONSTANTINE II, CAES'	cat: c of HK49		Obv <i>CONSTANTINVS IVN NOB C</i>
	date: 341-46	mint:	denom:	Rev <i>GLOR-IA EXERC-ITVS</i> 2 stds
			wear: UW/UW	
247	'CONSTANTINE II, CAES'	cat: c of HK49		Obv <i>CONSTANTINVS IVN NOB C</i>
	date: 341-46	mint:	denom:	Rev <i>GLOR-IA EXERC-ITVS</i> 2 stds <i>TRS</i>
			wear: SW/SW	
248	'CONSTANTINE II, CAES'	cat: c of HK49		Obv <i>CONSTANTINVS IVN NOBC</i>
	date: 341-46	mint:	denom:	Rev <i>GLOR-IA EXERC-ITVS</i> 2 stds
			wear: C/C	
249	'CONSTANTINE II, CAES'	cat: c of HK63		Obv <i>[CONSTANTI-NVS IVN] NOBC</i>
	date: 341-46	mint:	denom:	Rev <i>GLORI-A EXERC-ITVS</i> 2 stds <i>TR.S</i>
			wear: SW/SW	
250	CONSTANTIUS II, CAES	cat: HK182		Obv <i>FL IVL CONSTANTIVS NOB C</i>
	date: 330-35	mint: LG	denom:	Rev <i>GLOR-IA EXERC-ITVS</i> 2 stds
			wear: SW/SW	
251	CONSTANTIUS II, CAES	cat: HK199		Obv <i>FL IVL CONSTANTIVS NOB C</i>
	date: 330-35	mint: LG P	denom:	Rev <i>GLOR-IA EXERC-ITVS</i> 2 stds
			wear: UW/UW	
252	CONSTANTIUS II, CAES	cat: HK539		Obv <i>FL IVL CONSTANTIVS NOBC</i>
	date: 330-35	mint: RM P	denom:	Rev <i>GLOR-IA EXERC-ITVS</i> 2 stds
			wear: SW/UW	

No	Year	Sfno	Period	Feature
239	1977	841	U/S	U/S
240	1975	52	11	304
241	1975	114	U/S	U/S
242	1977	756	U/S	U/S
243	1976	398	10A	1512
244	1976	470	10A	53
245	1976	288	11	304
246	1975	293	11	304
247	1976	301	U/S	U/S
248	1977	707a	10A	2000
249	1977	655	U/S	U/S
250	1976	358	10A	379
251	1975	207	11	315
252	1977	906	10A	2000A

Table 9.2 contd

No Ruler				
253	CONSTANTIUS II, CAES	cat: HK57 date: 330-35 mint: TR P denom:	wear: SW/UW	Obv <i>FL IVL CONSTANTIVS NOB C</i> Rev <i>GLOR-IA EXERT-ITVS</i> 2 stds
254	CONSTANTIUS II, CAES	cat: HK57 date: 330-35 mint: TR S denom:	wear: SW/UW	Obv <i>FL IVL CONSTANTIVS NOB C</i> Rev <i>GLOR-IA EXERC-ITVS</i> 2 stds
255	CONSTANTIUS II, CAES	cat: HK64 date: 330-35 mint: TR S denom:	wear: UW/UW	Obv <i>FL IVL CONSTANTIVS NOB C</i> Rev <i>GLORI-A EXERC-ITVS</i> 2 stds
256	CONSTANTIUS II, CAES	cat: HK749 date: 330-35 mint: SS denom:	wear: SW/UW	Obv <i>FL IVL CONSTANTIVS NOBC</i> Rev <i>GLOR-IA EXERC-ITVS</i> 2 stds
257	CONSTANTIUS II, CAES	cat: HK94 date: 330-35 mint: TR P denom:	wear: SW/UW	Obv <i>FL IVL CONSTANTIVS NOBC</i> Rev <i>GLOR-IA EXERC-ITVS</i> 2 stds
258	CONSTANTIUS II, CAES	cat: HK1365 date: 335-37 mint: AN A denom:	wear: UW/SW	Obv <i>FL IVL CONSTANTIVS NOBC</i> Rev <i>GLOR-IA EXERC-ITVS</i> 1 std
259	CONSTANTIUS II, CAES	cat: HK234 date: 335-37 mint: LG P denom:	wear: UW/UW	Obv <i>FL IVL CONSTANTIVS NOB C</i> Rev <i>GLOR-IA EXERC-ITVS</i> 1 std
260	CONSTANTIUS II, CAES	cat: HK89 date: 335-37 mint: TR denom:	wear: SW/SW	Obv <i>[FL IVL CONSTANT]IVS NOBC</i> Rev <i>GLOR-IA EXERC-ITVS</i> 1 std
261	CONSTANTIUS II, CAES	cat: HK89 date: 335-37 mint: TR S denom:	wear: UW/UW	Obv <i>[FL IVL CONSTANT]IVS NOB C</i> Rev <i>GLOR-IA EXERC-ITVS</i> 1 std
262	CONSTANTIUS II, CAES	cat: HK92 date: 335-37 mint: TR S denom:	wear: UW/UW	Obv <i>FL IVL CONSTANTIVS NOBC</i> Rev <i>GLOR-IA EXERC-ITVS</i> 1 std
263	CONSTANTIUS II, CAES	cat: HK94 date: 335-37 mint: TR P denom:	wear: UW/UW	Obv <i>FL IVL CONSTANTIVS NOB C</i> Rev <i>GLOR-IA EXERC-ITVS</i> 1 std
264	CONSTANTIUS II, CAES	cat: as HK89 date: 335-37 mint: denom:	wear: UW/UW	Obv <i>FL IVL CONSTANTIVS NOB C</i> Rev <i>[GLOR]-IA EXERC-ITVS</i> 1 std
265	'CONSTANTIUS II, CAES'	cat: c of HK50 date: 341-46 mint: denom:	wear: UW/UW	Obv <i>FL IVL CONSTANTIVS NOB C</i> Rev <i>GLOR-IA EXERC-ITVS</i> 2 stds <i>TRS</i>
266	HELENA Intrusive	cat: HK112 date: 337-41 mint: TR P denom:	wear: UW/UW	Obv <i>FL IVL HE-LENAE AVG</i> Rev <i>PA-XPV-BLICA</i>

No	Year	Sfno	Period	Feature
253	1975	104	10A	310
254	1976	277	U/S	U/S
255	1975	91	u/s	U/S
256	1977	685	10A	1805
257	1977	681	10A	1805
258	1977	727	U/S	U/S
259	1975	173	U/S	U/S
260	1977	870	U/S	U/S
261	1976	321	U/S	U/S
262	1977	722	10A	1805
263	1976	631	U/S	U/S
264	1975	129	U/S	U/S
265	1976	394	11	1515
266	1977	674	2	1804

Table 9.2 contd

No Ruler				
267	HELENA date: 337-41	cat: HK112 mint: TR S denom:	Obv <i>FL IVL HE-LENÆ AVG</i> Rev <i>PA-X PV-BLICA</i> wear: UW/UW	
268	HELENA date: 337-41	cat: HK119 mint: TR denom:	Obv <i>FL IVL HE-LENÆ AVG</i> Rev <i>PA-X PV-BLICA</i> wear: SW/SW	
269	HELENA Intrusive date: 337-41	cat: HK119 mint: TR P denom:	Obv <i>FL IVL HE-LENÆ AVG</i> Rev <i>PA-X PV-BLICA</i> wear: UW/SW	
270	HELENA date: 337-41	cat: HK119 mint: TR S denom:	Obv <i>FL IVL HE-LENÆ AVG</i> Rev <i>PA-X PV-BLICA</i> wear: SW/C	
271	HELENA date: 337-41	cat: HK128 mint: TR denom:	Obv <i>FL IVL HE-LENÆ AVG</i> Rev <i>PA-X PV-BLICA</i> wear: UW/UW	
272	HELENA date: 337-41	cat: as HK112 mint: denom:	Obv <i>FL IVL HE-LENÆ AVG</i> Rev <i>PA-X PV-BLICA</i> wear: C/C	
273	HELENA date: 337-41	cat: as HK112 mint: denom:	Obv [<i>FL IVL HE-LENÆ AVG</i>] Rev <i>PA-X PV-BLICA</i> wear: C/C	
274	HELENA date: 337-41	cat: as HK119 mint: denom:	Obv <i>FL IVL HE-LENÆ AVG</i> Rev <i>PA-X PV-BLICA</i> wear: C/C	
275	HELENA date: 337-41	cat: as HK119 mint: denom:	Obv <i>FL IVL HE-LENÆ AVG</i> Rev <i>PA-X PV-BLICA</i> wear: UW/UW	
276	THEODORA date: 337-41	cat: HK113 mint: denom:	Obv <i>FL MAX THEO-DORÆ AVG</i> Rev <i>PIETAS ROMANA</i> wear: SW/SW	
277	THEODORA date: 337-41	cat: HK113 mint: TR P denom:	Obv <i>FL MAX THEO-DORÆ AVG</i> Rev <i>PIETAS ROMANA</i> wear: UW/UW	
278	THEODORA Intrusive date: 337-41	cat: HK120 mint: TR P denom:	Obv <i>FL MAX THEO-DORÆ AVG</i> Rev <i>PIETAS ROMANA</i> wear: UWIUW	
279	THEODORA date: 337-41	cat: HK120 mint: TR P denom:	Obv <i>FL MAX THEO-DORÆ AVG</i> Rev <i>PIETAS ROMANA</i> wear: SW/SW	
280	THEODORA date: 337-41	cat: HK120 mint: TR S denom:	Obv <i>FL MAX THEO-DORÆ AVG</i> Rev <i>PIETAS ROMANA</i> wear: C/C	

No	Year	Sfno	Period	Feature
267	1975	53	U/S	U/S
268	1976	363	10A	1534
269	1976	637	6A	912
270	1977	909	7B	175
271	1975	46	11	304
272	1976	589	10A	75
273	1975	184	U/S	U/S
274	1976	388	9	384
275	1976	269	U/S	U/S
276	1978	933	U/S	U/S
277	1977	915	U/S	U/S
278	1977	686	7	803
279	1976	399	10A	1512
280	1977	699	U/S	U/S

Table 9.2 contd

No Ruler				
281	THEODORA date: 337-41	cat: HK120(A) mint: TR S denom:	Obv <i>FL MAX THEO-DORAE AVG</i> wear: UW/UW Rev <i>PIETAS ROMANA</i>	
282	THEODORA date: 337-41	cat: HK129 mint: TR S denom:	Obv <i>FL MAX THEO-DORAE AVG</i> wear: UW/UW Rev <i>PIETAS ROMANA</i>	
283	THEODORA date: 337-41	cat: as HK105 mint: denom:	Obv <i>FL MAX THEO-DORAE</i> wear: W/UW Rev <i>PIETAS ROMANA</i>	
284	THEODORA date: 337-41	cat: as HK113 mint: denom:	Obv <i>FL MAX THEO-DORAE AVG</i> wear: C/C Rev <i>PIETAS ROMANA</i>	
285	THEODORA date: 337-41	cat: as HK113 mint: denom:	Obv <i>FL MAX THEO-DORAE AVG</i> wear: SW/SW Rev <i>PIETAS ROMANA</i>	
286	THEODORA date: 337-41	cat: as HK113 mint: denom:	Obv <i>[FL MAX THEO-DORAE AVG]</i> wear: C/C Rev <i>[PIETAS ROMANA]</i>	
287	THEODORA date: 337-41	cat: as HK113 mint: denom:	Obv <i>[FL MAX THEO-DORAE AVG]</i> wear: C/C Rev <i>PIETAS ROMANA</i>	
288	THEODORA date: 337-41	cat: as HK120 mint: denom:	Obv <i>[FL MAX THEO]-DORAE AVG</i> wear: W/SW Rev <i>PIETAS ROMANA</i>	
289	CONSTANTINE II date: 337-41	cat: HK107 mint: TR P denom:	Obv <i>CONSTAN-TINVS AVG</i> wear: SW/SW Rev <i>GLOR-IAEXERC-ITVS</i> 1 std	
290	CONSTANTINE II date: 337-41	cat: HK240 mint: LG P denom:	Obv <i>CONSTANTI-NVS MV AVG</i> wear: SW/SW Rev <i>GLOR-IA EXERC-ITVS</i> 1 std	
291	'CONSTANTINE II' date: 341-46	cat: c as HK124 mint: denom:	Obv <i>[CONSTAN-T]INVS AVG</i> wear: UW/UW Rev <i>[GLORI-A EXERC-ITVS]</i> 1 std	
292	'CONSTANTINE II' date: 341-46	cat: c as HK99var mint: denom:	Obv <i>CONSTAN-TINVS AVG</i> wear: SW/UW Rev <i>GLOR-IA EXERC-ITVS</i> var 2 stds, not 1 std	
293	CONST II/CONSTANTIUS II date: 337-41	cat: as HK100/102 mint: denom:	Obv <i>FL IVL [CONST...] AVG</i> wear: SW/C Rev <i>GLOR-IA EXERC-ITVS</i> 1 std	
294	CONSTANS date: 337-41	cat: HK118 mint: TR S denom:	Obv <i>FL IVL CONSTANS A VG</i> wear: UW/UW Rev <i>VIRTVS AVGG NN</i>	

No	Year	Sfno	Period	Feature
281	1975	194	10A	336
282	1976	359	11	1517
283	1976	425	9	348
284	1975	213	U/S	U/S
285	1975	218	10A	336
286	1976	400	10A	1512
287	1976	487	9	1516
288	1976	346	10A	53
289	1976	530	10	91
290	1975	251	9	348
291	1977	790	10A	2000A
292	1976	391	10A	1534
293	1979	1182	10	897
294	1976	378	10A	1509

Table 9.2 contd

No Ruler				
295	CONSTANS date: 337-41	cat: HK1044 mint: CN A denom:	Obv <i>DN CONSTA-NS PFAVG</i> wear: UW/UW Rev <i>GLOR-IA EXERC-ITVS 1 std</i>	
296	CONSTANS date: 337-41	cat: HK110 mint: TR S denom:	Obv <i>FL IVL CONSTANS AVG</i> wear: UW/UW Rev <i>GLOR-IA EXERC-ITVS 1 std</i>	
297	CONSTANS date: 337-41	cat: as HK131 mint: denom:	Obv <i>CONSTANS-PFAVG</i> wear: UW/UW Rev <i>GLORI-A EXER-CITVS 1 std</i>	
298	CONSTANS date: 346-48	cat: HK140 mint: TR P denom:	Obv <i>CONSTAN-S PFAVG</i> wear: UW/UW Rev <i>VICTORIAE DD AVGG QNN</i>	
299	CONSTANS date: 346-48	cat: HK143 mint: TR denom:	Obv <i>CONSTA-S PFAVG</i> wear: UW/UW Rev <i>VICTORIAE DD AVGG QNN</i>	
300	CONSTANS date: 346-48	cat: HK145 mint: TR denom:	Obv <i>CONSTAN-S PFAVG</i> wear: SW/SW Rev <i>VICTORIAE DD AVGG QNN</i>	
301	CONSTANS date: 346-48	cat: HK145 mint: TR [P] denom:	Obv <i>CONSTAN-S PFAVG</i> wear: UW/UW Rev <i>VICTORIAE DD AVGG QNN</i>	
302	CONSTANS date: 346-48	cat: HK147 mint: TR P denom:	Obv <i>CONSTAN-S PFAVG</i> wear: UW/UW Rev <i>VICTORIAE DD AVGG QNN</i>	
303	CONSTANS date: 346-48	cat: HK150 mint: TR S denom:	Obv <i>CONSTAN-S PFAVG</i> wear: UW/UW Rev <i>VICTORIAE DD AVGG QNN</i>	
304	CONSTANS date: 346-48	cat: HK158 mint: TR P denom:	Obv <i>CONSTAN-S PFAVG</i> wear: SW/UW Rev <i>VICTORIAE DD AVGG QNN</i>	
305	CONSTANS date: 346-48	cat: HK160 mint: TR S denom:	Obv <i>[CONSTAN]-S PFAVG</i> wear: C/C Rev <i>VICTORIAE DD AVGG QNN</i>	
306	CONSTANS date: 346-48	cat: HK166 mint: TR P denom:	Obv <i>CONSTAN-S PFAVG</i> wear: UW/UW Rev <i>VICTORIAE DD AVGG QNN</i>	
307	CONSTANS date: 346-48	cat: HK638 mint: RM T denom:	Obv <i>CONSTAN-S PFAVG</i> wear: W/SW Rev <i>VICTORIAE DD AVGG QNN</i>	
308	CONSTANS date: 346-48	cat: as HK142a mint: denom:	Obv <i>CONSTAN-S PFAVG</i> wear: UW/UW Rev <i>VICTORIAE DD AVGG QNN</i>	
No	Year	Sfno	Period	Feature
295	1975	166	11	317
296	1975	16	u/s	u/s
297	1976	371	10A	1534
298	1975	144	u/s	u/s
299	1977	811	10	897
300	1976	372	10A	1534
301	1976	646	u/s	u/s
302	1977	744	10	897
303	1976	318	u/s	u/s
304	1976	623a	10A	75
305	1976	328	10A	376
306	1976	623b	10A	75
307	1975	263	9	348
308	1975	145	11	317

Table 9.2 contd

No Ruler				
309	CONSTANS date: 346-48	mint:	cat: as HK159 denom:	wear: SW/SW Obv <i>CONSTAN-S PFAVG</i> Rev <i>VICTORIAE DD A VGG QNN</i>
310	CONSTANS date: 348	mint: LG P	cat: CK178 denom:	wear: UW/UW Obv <i>DN CONSTA-NS PAVG</i> Rev <i>FEL TEMP REPAR-A TIO</i> Hut
311	CONSTANS date: 348-50	mint:	cat: as CK30a denom:	wear: C/C Obv <i>DN CONSTA-NS PFAVG</i> Rev <i>FEL-TEMP-REPAR-ATIO</i> Hut
312	CONSTANTIUS II date: 337-41	mint:	cat: HK108 denom:	wear: UW/UW Obv <i>FL IVL CONSTANTIVS AVG</i> Rev <i>GLORI-A EXERC-ITVS</i> 1 std
313	CONSTANTIUS II date: 337-41	mint: TR P	cat: HK126 denom:	wear: UW/UW Obv <i>FL IVL CONSTANTIVS AVG</i> Rev <i>GLORI-A EXER-CITVS</i> 1 std
314	CONSTANTIUS II date: 337-41	mint: TR P	cat: HK126 denom:	wear: SW/UW Obv <i>FL IVL CONSTANTIVS AVG</i> Rev <i>GLORI-AEXERGITVS</i> 1 std
315	CONSTANTIUS II date: 337-41	mint: TR S	cat: HK126 denom:	wear: UW/UW Obv <i>FL IVL CONSTANTIVS AVG</i> Rev <i>GLORI-A EXER-CITVS</i> 1 std
316	CONSTANTIUS II date: 337-41	mint: TR S	cat: HK126 denom:	wear: UW/UW Obv <i>FL IVL CONSTANTIVS A VG</i> Rev <i>GLORI-AEXERC-ITVS</i> 1 std
317	CONSTANTIUS II date: 337-41	mint: TR	cat: HK126 etc denom:	wear: SW/SW Obv <i>FL IVL CONSTANTIVS A VG</i> Rev <i>GLORI-A EXER-CITVS</i> 1 std
318	CONSTANTIUS II date: 337-41	mint: TR P	cat: HK130 denom:	wear: UW/UW Obv <i>CONSTANTI-VS PFAVG</i> Rev <i>GLORI-A EXER-CITVS</i> 1 std
319	CONSTANTIUS II date: 337-41	mint: TR S	cat: HK135 denom:	wear: UW/U Obv <i>CONSTANTI-VS PFAVG</i> Rev <i>GLORI-A EXER-CITVS</i> 1 std
320	CONSTANTIUS II date: 337-41	mint: LG S	cat: HK248 denom:	wear: UW/UW Obv <i>CONSTA[NTIVS A VG]</i> Rev <i>GLORI-A EXERCITVS</i> 1 std
321	CONSTANTIUS II date: 346-48	mint: TR P	cat: HK143 denom:	wear: UW/UW Obv <i>CONSTANTI-VS PFAVG</i> Rev <i>VICTORIAE DD AVGG QNN</i>
322	CONSTANTIUS II date: 346-48	mint: TR S	cat: HK146 denom:	wear: SW/SW Obv <i>[CONSTANTI]-VS PFAVG</i> Rev <i>VICTORIAE DD AVGG QNN</i>

No	Year	Sfno	Period	Feature
309	1977	815	10	897
310	1975	368	U/S	U/S
311	1975	121	11	317
312	1976	317	U/S	U/S
313	1976	639	10A	1506
314	1977	666	10A	1512
315	1975	38	11	304
316	1977	720	10A	2000
317	1976	348	11	1517
318	1976	300	U/S	U/S
319	1975	165	11	317
320	1975	2	U/S	U/S
321	1976	517	U/S	U/S
322	1975	256	9	348

Table 9.2 contd

No Ruler				
323	CONSTANTIUS II	cat: CK455		Obv <i>DN WNSTAN-TIVS PFAVG</i>
	date: 353-54	mint: AR P	denom:	wear: UW/UW Rev <i>FEL TEMP-REPARATIO FH3</i>
324	'CONSTANTIUS II'	cat: c as HK49var		Obv <i>[CONSTAN]-TIVS AVG</i>
	date: 341-46	mint:	denom:	wear: UW/UW Rev <i>GLOR-IAEXERGITVS 2 stds</i>
325	'CONSTANTIUS II'	cat: c of HK249		Obv –
	date: 341-46	mint:	denom:	wear: UW/UW Rev <i>[GLORI-A EXER-CITVS] 1 std</i>
326	'CONSTANTIUS II'	cat: c as CK76		Obv <i>[DN CONSTAN-TIVS PFAVG]</i>
	date: 353+	mint:	denom:	wear: UW/UW Rev <i>[FEL TEMP RE-PARATIO] FH3</i>
327	'CONSTANTIUS II'	cat: c of CK25		Obv <i>DN CONSTAN-TIVS PFAVG</i>
	date: 353+	mint:	denom:	wear: UW/UW Rev <i>FEL TEMP RE-PARATIO FH3 AMB</i>
328	'CONSTANTIUS II'	cat: c of CK253		Obv <i>[DN CONSTAN-TIVS PFAVG]</i>
	date: 353+	mint:	denom:	wear: C/UW Rev <i>FEL TEMP-[REPARATIO] FH3 CPLG</i>
329	'CONSTANTIUS II'	cat: c of CK76		Obv <i>DN CON TAN-TVS P AVG (sic)</i>
	date: 353+	mint:	denom:	wear: SW/SW Rev <i>[FEL TEMP RE-PARATIO] FH3</i>
330	CONSTANTIUS II/CONSTANS	cat: HK132/3		Obv –
	date: 337-41	mint: TR S	denom:	wear: C/C Rev <i>[GLORI-A EXER-CITVS] 1 std</i>
331	HOUSE OF CONSTANTINE	cat: as 7TR504		Obv –
	date: 327-28	mint:	denom:	wear: C/C Rev <i>PROVIDENTIAE</i>
332	HOUSE OF CONSTANTINE	cat: as HK49		Obv –
	date: 330-35	mint:	denom:	wear: C/SW Rev <i>GLOR-IAEXERC-ITVS 2 stds</i>
333	HOUSE OF CONSTANTINE	cat: as HK49		Obv –
	date: 330-35	mint:	denom:	wear: UW/SW Rev <i>GLOR-IA EXERC-ITVS 2 stds</i>
334	HOUSE OF CONSTANTINE	cat: HK-		Obv –
	date: 330-46	mint:	denom:	wear: C/C Rev –
335	HOUSE OF CONSTANTINE	cat: as HK226		Obv –
	date: 335-37	mint:	denom:	wear: C/SW Rev <i>[GLOR]-IA EXERC-[ITVS] 1 std</i>
336	HOUSE OF CONSTANTINE	cat: as HK87		Obv –
	date: 335-37	mint:	denom:	wear: C/C Rev <i>GLOR-IA EXERC-ITVS 1 std</i>

No	Year	Sfno	Period	Feature
323	1975	15	U/S	U/S
324	1976	511	9	398
325	1975	139	11	317
326	1975	216	U/S	U/S
327	1975	149	11	317
328	1976	532	10	93
329	1976	477	U/S	U/S
330	1975	90	10A	312
331	1977	856	9	1547
332	1977	688	U/S	U/S
333	1976	496	U/S	U/S
334	1975	132	11	317
335	1976	356	U/S	U/S
336	1975	128	11	315

Table 9.2 contd**No Ruler**

337	HOUSE OF CONSTANTINE	cat: HK-			Obv -
	date: 335-41	mint:	denom:	wear: C/C	Rev <i>GLORIA EXERCITVS</i> 1 std
338	HOUSE OF CONSTANTINE	cat: HK88			Obv -
	date: 335-41	mint:	denom:	wear: C/C	Rev <i>GLOR-IA EXERC-ITVS</i> 1 std
339	HOUSE OF CONSTANTINE	cat: as HK398			Obv -
	date: 335-41	mint:	denom:	wear: UW/SW	Rev <i>GLOR-IA EXERC-ITVS</i> 1 std
340	HOUSE OF CONSTANTINE	cat: as HK87			Obv -
	date: 335-41	mint:	denom:	wear: C/C	Rev <i>GLOR-IA EXERC-ITVS</i> 1 std
341	HOUSE OF CONSTANTINE	cat: as HK87			Obv -
	date: 335-41	mint:	denom:	wear: C/C	Rev <i>GLOR-IA EXERC-ITVS</i> 1 std
342	HOUSE OF CONSTANTINE	cat: as HK88			Obv -
	date: 335-41	mint:	denom:	wear: C/C	Rev <i>GLOR-IA EXERC-ITVS</i> 1 std
343	HOUSE OF CONSTANTINE	cat: as HK88			Obv -
	date: 335-41	mint:	denom:	wear: C/C	Rev <i>GLOR-IA EXERC-ITVS</i> 1 std
344	HOUSE OF CONSTANTINE	cat:			Obv -
	date: 335-48	mint:	denom:	wear: C/C	Rev -
345	HOUSE OF CONSTANTINE	cat: -			Obv -
	date: 335-48	mint:	denom:	wear: C/C	Rev -
346	Constantinian copy?	cat: [now lost]			Obv -
	date: 330-61?	mint:	denom:	wear:	Rev -
347	'HOUSE OF CONSTANTINE'	cat: c as HK48			Obv -
	date: 341-46	mint:	denom:	wear: C/UW	Rev [<i>GLOR-IA EXERC-ITVS</i>] 2 stds
348	'HOUSE OF CONSTANTINE'	cat: c as HK88			Obv -
	date: 341-46	mint:	denom:	wear: SW/SW	Rev <i>GLOR-IA EXERC-ITVS</i> 1 std
349	'HOUSE OF CONSTANTINE'	cat: c as HK89			Obv -
	date: 341-46	mint:	denom:	wear: C/C	Rev [<i>GLOR-IA EXERC-ITVS</i>] 1 std
350	MAGNENTIUS	cat: CK209			Obv <i>DN MAGNEN-TIVS PFAVG</i>
	date: 350-51	mint: LG P	denom:	wear: UW/UW	Rev <i>FELICITAS-REIPVBLICE</i>

No	Year	SfNo	Period	Feature
337	1976	469	9	1516
338	1978	1047	10	2111
339	1976	498	U/S	U/S
340	1976	512	10	54
341	1976	415	11	1515
342	1975	178	11	315
343	1977	816	10	897
344	1975	152	U/S	U/S
345	1977	919	7B	175
346	1975	103	11	315
347	1975	220	10A	336
348	1976	521	10A	75
349	1975	209	10A	336
350	1975	36	U/S	U/S

Table 9.2 contd

No Ruler				
351	MAGNENTIUS date: 350-51	cat: CK50 mint: TR P denom:	Obv <i>IM CAE MAGN-ENTIVS AVG</i> Rev <i>FELICITAS REIPVBLICE</i> wear: UW/UW	
352	VALENTINIAN I date: 364-67	cat: 9LG6c mint: LG S denom: SILIQ	Obv <i>DN VALENTINI-ANVS PFAVG</i> Rev <i>RESTITV-TOR REIPVB</i> wear: SW/SW	
353	VALENTINIAN I date: 364-67	cat: CK279 mint: LG II denom:	Obv <i>[DN VALENTINI-ANVS PFAVG]</i> Rev <i>[GLORIA RO-MANORVM]</i> wear: C/C	
354	VALENTINIAN I date: 364-67	cat: CK479 mint: AR I denom:	Obv <i>DN VALENTINI-ANVS PFAVG</i> Rev <i>GLORIA RO-MANORVM</i> wear: UWIUW	
355	VALENTINIAN I date: 364-67	cat: CK484 mint: AR II denom:	Obv <i>DN VALENTINI-ANVS PFAVG</i> Rev <i>GLORIA RO-MANRV</i> wear: VW/W	
356	VALENTINIAN I date: 364-67	cat: CK497 mint: AR denom:	Obv <i>DN VALENTINI-ANVS PFAVG</i> Rev <i>GLORIA RO-MANORVM</i> wear: UW/UW	
357	VALENTINIAN I date: 364-67	cat: CK986 mint: AQ P denom:	Obv <i>DN VALENTINI-ANVS PFAVG</i> Rev <i>SECVRITAS REIPVBLICAE</i> wear: SW/SW	
358	VALENTINIAN I date: 364-75	cat: as CK275 mint: denom	Obv <i>DN VALENTINI-ANVS PFAVG</i> Rev <i>GLORIA RO-MANORVM</i> wear: C/C	
359	VALENTINIAN I date: 364-75	cat: as CK279 mint: II denom:	Obv <i>DN VALENTINI-ANVS PFAVG</i> Rev <i>GLORIA RO-MANORVM</i> wear: UWIUW	
360	VALENTINIAN I date: 364-75	cat: as CK479 mint: II denom:	Obv <i>DN VALENTINI-ANVS PFAVG</i> Rev <i>GLORIA RO-MANORVM</i> wear: UW/UW	
361	VALENTINIAN I date: 367-75	cat: CK1390/96 mint: SS B denom:	Obv <i>DN VALENTINI-[ANVS PFAVG]</i> Rev <i>GLORIA RO-[MANORVM]</i> wear: W/W	
362	VALENTINIAN I date: 367-75	cat: CK311 mint: LG S denom:	Obv <i>DN VALENTINI-ANVS PFAVG</i> Rev <i>GLORIA RO-MANORVM</i> wear: VW/VW	
363	VALENTINIAN I date: 367-75	cat: CK321 mint: LG II denom:	Obv <i>DN VALENTINI-ANVS PFAVG</i> Rev <i>GLORIA RO-MANORVM</i> wear: UW/SW	
364	VALENTINIAN I date: 367-75	cat: CK321 mint: LG II denom:	Obv <i>DN VALENTINI-ANVS PFAVG</i> Rev <i>GLORIA RO-MANORVM</i> wear: UW/UW	

No	Year	Sfno	Period	Feature
351	1975	13	U/S	U/S
352	1975	169	U/S	U/S
353	1975	24	U/S	U/S
354	1975	21	11	304
355	1975	20	U/S	U/S
356	1975	48	11	304
357	1976	501	10A	75
358	1977	859	U/S	U/S
359	1975	167	U/S	U/S
360	1977	797	10A	2000A
361	1976	519	10A	75
362	1975	65	U/S	U/S
363	1975	35	U/S	U/S
364	1977	654	u/s	U/S

Table 9.2 contd

No Ruler				
365	VALENTINIAN I	cat: as CK92	Obv DN VALENTINI-ANVS PFAVG	
	date: 367-75	mint: denom:	wear: UW/UW	Rev GLORIA RO-MANORVM
366	VALENTINIAN I	cat: CK1030	Obv DN VALENTINI-ANVS PFAVG	
	date: 367-75	mint: AQ denom:	wear: UW/UW	Rev SECVRITAS REIPVBLICAE
367	VALENTINIAN I	cat: CK525	Obv DN VALENTINI-ANVS PFAVG	
	date: 375	mint: AR P denom:	wear: UWIUW	Rev GLORIA RO-MANORVM
368	VALENTINIAN I	cat: CK527	Obv DN VALENTINI-ANVS PFAVG	
	date: 375	mint: AR S denom:	wear: UWIUW	Rev SECVRITAS REIPVBLICAE
369	VALENS	cat: CK294	Obv DN VALEN-S PFAVG	
	date: 364-67	mint: LG I denom:	wear: UW/UW	Rev GLORIA RO-MANORVM
370	VALENS	cat: CK277	Obv DN VALEN-S PFAVG	
	date: 364-67	mint: LG P denom:	wear: UW/UW	Rev SECVRITAS REIPVBLICAE
371	VALENS	cat: CK278	Obv DN VALEN-S PFAVG	
	date: 364-67	mint: LG S denom:	wear: UWIUW	Rev SECVRITAS REIPVBLICAE
372	VALENS	cat: CK315	Obv DN VALEN-S PFAVG	
	date: 364-67	mint: LG I denom:	wear: UW/UW	Rev SECVRITAS REIPVBLICAE
373	VALENS	cat: CK483	Obv DN VALEN-S PFAVG	
	date: 364-67	mint: AR I denom:	wear: SW/SW	Rev SECVRITAS REIPVBLICAE
374	VALENS	cat: CK490	Obv DN VALEN-S PFAVG	
	date: 364-67	mint: AR I denom:	wear: UW/UW	Rev SECVRITAS REIPVBLICAE
375	VALENS	cat: as CK276	Obv DN VALEN-S PFAVG	
	date: 364-67	mint: denom:	wear: SW/SW	Rev SECVRITAS REIPVBLICAE
376	VALENS	cat: CK301	Obv DN VALEN-S PFAVG	
	date: 364-75	mint: LG I denom:	wear: UW/UW	Rev GLORIA RO-MANORVM
377	VALENS	cat: as CK282	Obv DN VALEN-S PFAVG	
	date: 364-75	mint: II denom:	wear: VWIVW	Rev GLORIA RO-MANORVM
378	VALENS	cat: as CK82	Obv DN VALEN-S PFAVG	
	date: 364-75	mint: denom:	wear: UW/JW	Rev SECVRITAS REIPVBLICAE

No	Year	Sfno	Period	Feature
365	1977	671	U/S	U/S
366	1975	133	11	315
367	1975	191	11	317
368	1977	828	10	154
369	1977	759	U/S	U/S
370	1976	177	U/S	U/S
371	1976	353	11	1517
372	1976	291	U/S	U/S
373	1975	27	U/S	U/S
374	1975	50	11	304
375	1977	712	10	109
376	1978	964	U/S	U/S
377	1975	11	u/s	u/s
378	1976	393	10A	1534

Table 9.2 contd

No Ruler				
379	VALENS date: 364-75	mint:	cat: as HK280 denom:	Obv <i>[DN VALEN]-S PFAVG</i> Rev <i>SECVRITAS REIPVBLICAE</i> wear: SW/SW
380	VALENS date: 364-78	mint:	cat: as CK282 denom:	Obv <i>DN VALEN-S PFAVG</i> Rev <i>GLORIA RO-MANORVM</i> wear: C/C
381	VALENS date: 364-78	mint:	cat: as CK513 denom:	Obv <i>[DN VALEN]-S PFAVG</i> Rev <i>GLORIA RO-MANORVM</i> wear: W/W
382	VALENS date: 364-78	mint: AQ	cat: CK968var denom:	Obv <i>DN VALEN-S PFAVG</i> Rev <i>SECVRITAS REIPVBLICAE</i> var A./ for A/ wear: W/W
383	VALENS date: 364-78	mint:	cat: - denom:	Obv <i>[DN VAL]EN-[S PFA VG]</i> Rev - wear: C/C
384	VALENS date: 367-75	mint: AR	cat: CK499 denom:	Obv <i>DN VALEN-S PFAVG</i> Rev <i>GLORIA RO-MANORVM</i> wear: UW/UW
385	VALENS date: 367-75	mint: AR P	cat: CK507 denom:	Obv <i>DN VALEN-S PFAVG</i> Rev <i>GLORIA RO-MANORVM</i> wear: SW/SW
386	VALENS date: 367-75	mint: AR II	cat: CK512 denom:	Obv <i>DN VALEN-S PFAVG</i> Rev <i>GLORIA RO-MANORVM</i> wear: UW/UW
387	VALENS date: 367-75	mint: AR III	cat: 523 denom:	Obv <i>DN VALEN-S PFAVG</i> Rev <i>SECVRITAS REIPVBLICAE</i> wear: UW/UW
388	VALENS date: 367-75	mint: AQ P	cat: CK1031 denom:	Obv <i>DN VALEN-S PFAVG</i> Rev <i>SECVRITAS REIPVBLICAE</i> wear: UW/UW
389	VALENS date: 367-75	mint: LG I	cat: CK309 denom:	Obv <i>DN VALEN-S PFAVG</i> Rev <i>SECVRITAS REIPVBLICAE</i> wear: UW/UW
390	VALENS date: 367-75	mint: AR II	cat: CK516 denom:	Obv <i>DN VALEN-S PFAVG</i> Rev <i>SECVRITAS REIPVBLICAE</i> wear: UW/UW
391	VALENS date: 367-75	mint: AR II	cat: CK516 denom:	Obv <i>DN VALEN-S PFAVG</i> Rev <i>SECVRITAS REIPVBLICAE</i> wear: UW/UW
392	VALENS date: 367-78	mint:	cat: as CK530 denom:	Obv <i>DN VALEN-S PFAVG</i> Rev <i>GLORIA RO-MANORVM</i> wear: UW/UW

No	Year	Sfno	Period	Feature
379	1975	30	11	304
380	1976	271	U/S	U/S
381	1978	972	10A	460
382	1976	344	10A	53
383	1978	979	U/S	U/S
384	1977	758	U/S	U/S
385	1976	466	10A	53
386	1975	22	U/S	U/S
387	1977	848	U/S	U/S
388	1976	460	U/S	U/S
389	1975	14	U/S	U/S
390	1977	677	10A	1805
391	1975	219	11	304
392	1975	87	U/S	U/S

Table 9.2 contd

No Ruler				
393	VALENS date: 375	cat: CK528 mint: AR denom:	Obv <i>DN VALEN-S PFAVG</i> wear: UW/UW Rev <i>SECVRITAS REI-PVBLICAE</i>	
394	GRATIAN date: 367-75	cat: CK517 mint: AR I denom:	Obv <i>DN GRATIANVS AVGG AVG</i> wear: W/W Rev <i>GLORIA NO-VI SAECVLI</i>	
395	GRATIAN date: 367-75	cat: CK517 mint: AR III denom:	Obv <i>DN GRATIANVS AVGG AVG</i> wear: SW/SW Rev <i>GLORIA NO-VI SAECVLI</i>	
396	GRATIAN date: 367-75	cat: CK517/523a mint: AR II denom:	Obv <i>DN GRATIANVS AVGG AVG</i> wear: UW/UW Rev <i>GLORIA NO-VI SAECVLI</i>	
397	GRATIAN date: 367-75	cat: as CK323 mint: LG S denom:	Obv <i>DN GRATIAN-VS AVGG AVG</i> wear: SW/SW Rev <i>GLORIA RO-MANORVM</i>	
398	GRATIAN date: 375-78	cat: CK538 mint: AR P denom:	Obv <i>DN GRATIA-NVS PFAVG</i> wear: W/W Rev <i>SECVRITAS REIPVBLICAE</i>	
399	THEODOSIUS I date: 388-92	cat: 95b mint: TR denom: SILIQ	Obv <i>[DN THEODO-SIVS PFAVG]</i> wear: UW/UW Rev <i>[VRBS ROMA] TRPS</i>	
400	ARCADIUS date: 395-402	cat: CK571 mint: AR T denom:	Obv <i>[DN A RCA]DI-[VS PFAVG]</i> wear: SW/SW Rev <i>[VICTORIA] AVGGG</i>	
401	HOUSE OF THEODOSIUS date: 388-402	cat: as CK562 mint: denom:	Obv – wear: UW/UW Rev <i>VICTORIA [AVGG . . .]</i>	
402	ILLEGIBLE date:	cat: mint: denom:	Obv – wear: Rev –	
403	MISSING COIN date:	cat: mint: denom: AE	Obv wear: Rev	
404	ILLEGIBLE date: C3/4th	cat: mint: denom:	Obv – wear: Rev –	
405	ILLEGIBLE date: C3/4th	cat: mint: denom:	Obv – wear: Rev –	
406	ILLEGIBLE date: C3/4th	cat: mint: denom:	Obv – wear: Rev –	

No	Year	Sfno	Period	Feature
393	1978	973	10A	460
394	1975	25	U/S	U/S
395	1976	374	U/S	U/S
396	1975	28	U/S	U/S
397	1975	78	U/S	U/S
398	1976	367	10A	1534
399	1975	45	10A	312
400	1976	341	10A	53
401	1976	270	U/S	U/S
402	1975	157	U/S	U/S
403		431	8	1511
404	1975	44	U/S	U/S
405	1975	58	U/S	U/S
406	1976	424	7B	71

Table 9.2 contd

No Ruler					
407	ILLEGIBLE date: C3/4th	mint:	cat: denom:	wear:	Obv - Rev-
408	ILLEGIBLE date: C3/4th	mint:	cat: denom:	wear:	Obv - Rev-
409	ILLEGIBLE date: C3/4th	mint:	cat: - denom:	wear: C/C	Obv - Rev-
410	ILLEGIBLE date: C3/4th	mint:	cat: - denom:	wear: C/C	Obv - Rev-
411	ILLEGIBLE date: C3/4th	mint:	cat: - denom:	wear: C/C	Obv - Rev-
412	ILLEGIBLE date: C3/4th	mint:	cat: - denom:	wear:	Obv - Rev-
413	ILLEGIBLE date: C3/4th	mint:	cat: - denom:	wear:	Obv - Rev-
414	ILLEGIBLE date: C3rd	mint:	cat: denom:	wear:	Obv - RW -
415	AES TOKEN date:	mint:	cat: denom:	wear:	Obv Rev
416	CHARLES II date: 1660-	mint:	cat: Peck denom: 1/2d.	wear: EW/EW	Obv - RW -
417	17th CENTURY JETON date: C17th	mint:	cat: - denom:	wear: -	Obv - Rev-
418	18th CENTURY date: C18th	mint:	cat: denom:	wear:	Obv - Rev-
419	18th CENTURY date: C18h	mint:	cat: denom:	wear:	Obv - Rev-
420	COIN DISINTEGRATED date:	mint:	cat: denom:	wear:	Obv - Rev-

No	Year	Sfno	Period	Feature
407	1975	217	10A	336
408	1976	573	U/S	U/S
409	1976	507	10	54
410	1976	518	10	54
411	1976	504	7B	71
412	1977	656	10	110
413	1978	963	U/S	U/S
414	1976	306	U/S	U/S
415		857	U/S	U/S
416	1976	276	U/S	U/S
417	1977	839	U/S	U/S
418	1975	294	U/S	U/S
419	1976	274	U/S	U/S
420	1976	489	7B	71

Table 9.2 contd**No Ruler**

421	COIN DISINTEGRATED	cat: -			Obv -
	date: C3rd?	mint:	denom:	wear:	Rev-

No	Year	Sfno	Period	Feature
421	1978	978	U/S	U/S

Table 9.3 Segontium coins; Index 1, by feature

Feature: 19 Cat Nos: 49
 Feature: 34 Cat Nos: 19
 Feature: 53 Cat Nos: 66 192 236 244 288 382 385 400
 Feature: 54 Cat Nos: 142 151 340 409 410
 Feature: 70 Cat Nos: 149
 Feature: 71 Cat Nos: 33 47 77 122 133 406 411420
 Feature: 75 Cat Nos: 76 175 178 180 188 208 209 225 272 304 306 348 357 361
 Feature: 76 Cat Nos: 28
 Feature: 82 Cat Nos: 67 91
 Feature: 84 Cat Nos: 21
 Feature: 86 Cat Nos: 73
 Feature: 91 Cat Nos: 102 134 181 289
 Feature: 93 Cat Nos: 60 164 185 193 238 328
 Feature: 96 Cat Nos: 13
 Feature: 100 Cat Nos: 92
 Feature: 109 Cat Nos: 17 25 56 71 78 103 153 159 375
 Feature: 110 Cat Nos: 214 412
 Feature: 119 Cat Nos: 14
 Feature: 154 Cat Nos: 368
 Feature: 161 Cat Nos: 15
 Feature: 175 Cat Nos: 105 270 345
 Feature: 303 Cat Nos: 199
 Feature: 304 Cat Nos: 50 63 113 174 229 232 240 245 246 271 315 354 356 374 379 391
 Feature: 306 Cat Nos: 130 195
 Feature: 310 Cat Nos: 139 253
 Feature: 312 Cat Nos: 330 399
 Feature: 313 Cat Nos: 144
 Feature: 315 Cat Nos: 26 51 80 93 111 140 146 251 336 342 346 366
 Feature: 317 Cat Nos: 94 114 156 295 308 311 319 325 327 334 367
 Feature: 331 Cat Nos: 75 81
 Feature: 333 Cat Nos: 24
 Feature: 334 Cat Nos: 53 68 85 141
 Feature: 334A Cat Nos: 46
 Feature: 336 Cat Nos: 30 40 95 115 196 200 281 285 347 349 407
 Feature: 337 Cat Nos: 37
 Feature: 342 Cat Nos: 96 218
 Feature: 346 Cat Nos: 97
 Feature: 348 Cat Nos: 29 52 190 212 217 283 290 307 322
 Feature: 350 Cat Nos: 109 118
 Feature: 356 Cat Nos: 98 124
 Feature: 375 Cat Nos: 69 99
 Feature: 376 Cat Nos: 305
 Feature: 379 Cat Nos: 250
 Feature: 384 Cat Nos: 274
 Feature: 386 Cat Nos: 203
 Feature: 392 Cat Nos: 32
 Feature: 397 Cat Nos: 70 87
 Feature: 398 Cat Nos: 324
 Feature: 425 Cat Nos: 129
 Feature: 442 Cat Nos: 110
 Feature: 454 Cat Nos: 42
 Feature: 460 Cat Nos: 381 393
 Feature: 803 Cat Nos: 278

Table 9.3 contd

Feature: 897 Cat Nos: 165 197 293 299 302 309 343
 Feature: 912 Cat Nos: 269
 Feature: 1023 Cat Nos: 10
 Feature: 1071 Cat Nos: 4
 Feature: 1080 Cat Nos: 6
 Feature: 1129 Cat Nos: 9
 Feature: 1377 Cat Nos: 3
 Feature: 1506 Cat Nos: 43 154 198 204 210 230 313
 Feature: 1509 Cat Nos: 294
 Feature: 1510 Cat Nos: 64 227
 Feature: 1511 Cat Nos: 101 403
 Feature: 1512 Cat Nos: 243 279 286 314
 Feature: 1513 Cat Nos: 44 59 86 107 160 161 168 176
 Feature: 1515 Cat Nos: 173 231 265 341
 Feature: 1516 Cat Nos: 62 152 155 287 337
 Feature: 1517 Cat Nos: 184 205 282 317 371
 Feature: 1523 Cat Nos: 38 61 116
 Feature: 1534 Cat Nos: 132 268 292 297 300 378 398
 Feature: 1547 Cat Nos: 31 170 331
 Feature: 1551 Cat Nos: 128
 Feature: 1585 Cat Nos: 39
 Feature: 1643 Cat Nos: 41
 Feature: 1804 Cat Nos: 266
 Feature: 1805 Cat Nos: 171 187 228 256 257 262 390
 Feature: 2000 Cat Nos: 120 157 206 211 248 316
 Feature: 2000A Cat Nos: 5 23 108 147 148 167 172 201 237 252 291 360
 Feature: 2106 Cat Nos: 1
 Feature: 2111 Cat Nos: 338
 Feature: 2155 Cat Nos: 8
 Feature: 3006a Cat Nos: 186
 Feature: 3010a Cat Nos: 121
 Feature: U/S Cat Nos: 2 7 11 12 16 18 20 22 27 34 35 36 45 48 54 55 57 58 65 72 74 79 82 83 84 88 89 90 100 104 106 112 117 119 123
 125 126 127 131 135 136 137 138 143 145 150 158 162 163 166 169 177 179 182 183 189 191 194 202 207 213
 215 216 219 220 221 222 223 224 226 233 234 235 239 241 242 247 249 254 255 258 259 260 261 263 264 267
 273 275 276 277 280 284 296 298 301 303 310 312 318 320 321 323 326 329 332 333 335 339 344 350 351 352
 353 355 358 359 362 363 364 365 369 370 372 373 376 377 380 383 384 386 387 388 389 392 394 395 396 397
 401 402 404 405 408 413 414 415 416 417 418 419 421

Table 9.4 Segontium coins; Index 2, by Period

Period: 2 Cat Nos: 3 266
 Period: 4 Cat Nos: 4
 Period: 5 Cat Nos: 1 6 9
 Period: 6 Cat Nos: 15
 Period: 6A Cat Nos: 10 269
 Period: 7 Cat Nos: 278
 Period: 7A Cat Nos: 8 14 19 39
 Period: 7B Cat Nos: 33 47 67 77 91 105 122 133 149 270 345 406 411 420
 Period: 8 Cat Nos: 21 24 32 37 75 81 101 121 128 129 403
 Period: 9 Cat Nos: 28 29 31 42 49 52 62 70 87 98 109 118 124 152 155 170 190 212 217 274 283 287 290 307 322 324 331 337
 Period: 9-11 Cat Nos: 186
 Period: 10 Cat Nos: 13 17 25 41 44 56 59 60 64 71 73 78 86 92 102 103 107 110 134 142 151 153 159 160 161 164 165 168 176 181 185
 193 197 203 214 227 238 289 293 299 302 309 328 338 340 343 368 375 409 410 412
 Period: 10A Cat Nos: 5 23 30 40 43 46 53 66 68 69 76 85 95 96 97 99 108 115 120 132 139 141 147 148 154 157 167 171 172 175 178 180
 187 188 192 196 198 200 201 204 206 208 209 210 211 218 225 228 230 236 237 243 244 248 250 252 253 256
 257 262 268 272 279 281 285 286 288 291 292 294 297 300 304 305 306 313 314 316 330 347 348 349 357 360
 361 378 381 382 385 390 393 398 399 400 407
 Period: 11 Cat Nos: 26 38 50 51 61 63 80 93 94 111 113 114 116 130 140 144 146 156 173 174 184 195 199 205 229 231 232 240 245 246
 251 265 271 282 295 308 311 315 317 319 325 327 334 336 341 342 346 354 356 366 367 371 374 379 391
 Period: U/S Cat Nos: 2 7 11 12 16 18 20 22 27 34 35 36 45 48 54 55 57 58 65 72 74 79 82 83 84 88 89 90 100 104 106 112 117 119 123
 125 126 127 131 135 136 137 138 143 145 150 158 162 163 166 169 177 179 182 183 189 191 194 202 207 213
 215 216 219 220 221 222 223 224 226 233 234 235 239 241 242 247 249 254 255 258 259 260 261 263 264 267
 273 275 276 277 280 284 296 298 301 303 310 312 318 320 321 323 326 329 332 333 335 339 344 350 351 352
 353 355 358 359 362 363 364 365 369 370 372 373 376 377 380 383 384 386 387 388 389 392 394 395 396 397
 401 402 404 405 408 413 414 415 416 417 418 419 421

10 Small finds

L. Allason-Jones

Discussion (Figs 10.1-23, P110.1)

In comparison with other fort sites, the material from Segontium shows little deviation to the norm. The general spread of copper alloy objects is less than normal but the quantity is made up by the large numbers of studs and stud heads. Except for the millifiori box side No 64 and the Celtic tankard handle No 103 there is no enamel-work; even the objects which commonly are enamelled, such as trumpet brooches, are not so at Segontium. This may reflect the general trend of the dating of the objects. Much of the material, and in particular the military pieces, is of 1st century date with a second peak in the 4th century; there is little which is obviously 2nd or 3rd century when enamelled work was at its most popular. This is at variance with the fort sites on Hadrian's Wall and its hinterland, where the bulk of the small finds can be attributed to the 2nd and 3rd centuries. An exception to this is the fort at Corbridge, and strong parallels can be drawn between the two sites, not only in date but in the marked similarities between some of the finds, eg the disc brooches No 14 and No 15 have close parallels with No 24 at Corbridge (Allason-Jones in Bishop and Dore 1989, Fig 77, 24).

The ironwork is largely domestic consisting of keys, tweezers, styli, etc, and includes a few tools connected with building or carpentry. A cow scapula with cut-outs shows that bone was being worked on site although comparatively few bone or antler objects were found. Bone pins are particularly limited in number and reflect the paucity of feminine items from the site.

Jet and shale objects are rarely found on Roman sites in Wales and it is interesting to speculate on the origins of the eight from Segontium. The largest groups of shale objects known in Britain come from Silchester (Lawson 1975), where there are both jet objects and objects of Kimmeridge shale, and South Shields (Allason-Jones and Miket 1984) where the jet objects clearly come from the workshop at York (RCHM 1962, 141-4) whilst the shale objects were manufactured on site. The recent excavations at Wroxeter have produced a quantity of shale objects as well as shale-working waste but this is of the quality of Kimmeridge shale being grey/brown in colour and lacking polish. The Segontium pieces are closest in appearance to the South Shields products being black in colour and taking a high polish. The objects themselves can be paralleled in both types of shale and are probably copying the jet products from York. It is likely that the South Shields 'factory' supplied the forts along

Hadrian's Wall and it would not be surprising if some of its products ventured further afield down the west coast route or through the movement of troops.

Acknowledgements

I should like to thank Mr J N Dore, Mr J Rackham, Mr A MacGregor and the National Museum of Wales Laboratory for their help and co-operation.

Catalogue Abbreviations

L: length; W: width; D: diameter; T: thickness; H: height.

Silver

1. Short silver pin with a tapering circular-sectioned shank and a faceted cube head. This is a common type in bone (Crummy 1979, Type 4, c 250 - late 4th/early 5th century) but less common in metal. Examples from Colchester were all found in contexts dated post-250 (Crummy 1983, 29), a single bronze specimen from Piercebridge came from a 4th century context (Scott forthcoming, HS 77.175.947), whilst those from Verulamium were from a wide date range (Goodburn 1984).

L: 64mm, W of head: 5mm. Context 1506, SF533, Period 10A.

2. Tiny silver terminal with a disc neck and a cupped head with a central dimpled boss. Head of a fine pin or the centre stud from a disc brooch, cf Ettlinger 1973, Type 45, Taf 14, No 16; and Riha 1979, Group 7, Taf 60, Nos 1588-91 and Taf 61, Nos 1608-9.

L: 8mm, D of head: 5mm. Context 868b, SF910, Period 7.

Copper alloy

3. Simple bow brooch made from circular-sectioned wire. The bow takes a D-shape and the end is coiled twice on either side of the bow to form the spring. The other end is tapered but the footplate is missing as is the pin. Cf Riha 1979, Taf 3, Nos 92-127, Group 1, Type 1.6, end of 1st century AD. This type is also designated Almgren (1923) No 15; Böhme (1972) Type 14; Jobst (1975) Type 9; and Ettlinger (1973) Type 4.

L: 50mm, T of wire: 2.5mm, H from back of spring to top of bow: 25mm. Context 314, SF172, Period U/S.

4. Trumpet brooch with a marginal groove around the head. From the top of the head projects a rectangular plate decorated with incised transverse lines to suggest a headloop clip with a headloop projecting from it, all cast in one. The curve of the bow is angular and the waist has a plain band of ridge-and-groove decoration which does not continue around the back. The waist and the lower part of the bow are convex on the front and flat down the back, with marginal grooves running down the edge to end in a disc foot. The catchplate is plain with part of the turnover missing. One hinged lug projects from behind the head. A circular hole pierced through the head may suggest that the second lug was missing in antiquity, the hole providing a grip for the hinge pin which appears to have been of iron. Collingwood and Richmond 1969, Type Riv: late 1st - mid-2nd century. This is not a type which appears regularly on the

Continent and in Britain tends to proliferate in the northern military zone.

L: 68mm, W of head: 26mm, L of catchplate: 23mm. Context 347, SF433, Period 10A.

5. Trumpet brooch with a raised Celtic design on the head of an ambiguous type which may be intended to suggest a human or animal face or may simply be a swirled abstract motif. The D-sectioned waist has a series of raised bars each decorated with an incised line, the motifs simplified at the back. The lower bow has a central rib which divides at the top and runs down on either side as a zig-zag line. The resulting voids may have held enamel but it is possible that this is a forerunner of the basic enamelled triangles motif. The foot is circular in section with a series of ridge-and-groove motifs above it, and at the very end a short globular-headed spike projects. The catchplate is short with an angular turnover decorated with two incised lines at the top. At the back of the head is a projecting circular hinge and a short lug to act as a pin-stop. The pin is missing.

A remarkably similar brooch, differing only in having globular rather than incised decoration on the head, was found at Segontium in 1922 (Wheeler 1922, Fig 18) and dated tentatively to the early 2nd century. Parallels can also be drawn to a parcel-gilt silver brooch from Carmarthen which has been dated not later than AD 50 and perhaps as early as AD 25 (Boon and Savory 1975, 41-61), and to bronze examples from Forden, Caernarfon and Wroxeter (Boon and Savory 1975, Pl XIVa, Pl XVa and b respectively). It may therefore be suggested that these brooches are all to be dated to the early part of the 1st century AD and that the design on the lower bow may suggest a specifically Welsh fashion.

L: 53mm, W of head: 18mm, D of foot: 8.5mm. Context 897, SF814, Period 10.

6. Complete head-stud brooch with short straight arms each decorated with three vertical ribs. The shank is D-sectioned with a central rib which has chevroned edges with a marginal groove on either side. A boss-and-ring headstud is cast in one with the bow. No trace of enamel survives. The foot is splayed with a series of ribs across the ankle. The catchplate is solid with only part of the turnover surviving. The pin is hinged with the top expanded to act as a stop. The hinge pin is of copper alloy. A headloop projects from the top cast in one with the head. Cf Caerleon: Wheeler and Wheeler 1928, Fig 13, No 12, differs only in the motif on the headstud but unfortunately was unstratified. This type of brooch was in production in the 70s at least and continued into the 2nd century. The enamelled examples are rare in the north but more common in the south (Crummy 1983, 13). The solid cast headstud on this example implies that it is to be dated well into the production series.

Total L: 47mm, L of pin: 33mm, L of turnover: 11mm, W across head: 15.5mm, W across headstud: 8mm, W of foot: 7mm, H from back of pin to top of bow: 19mm. Context 342, SF228, Period 10A.

7. Headstud brooch with a D-sectioned bow divided into three ribs by two incised lines. The ribs are each decorated along their length by a series of transverse nicks. The splayed foot projects forward and is rib-decorated as is the base of the bow. At the waist there is a raised dot-and-ring motif which appears to be a residual headstud. The short rectangular arms are both decorated by two vertical ribs at the ends. The headloop is incomplete. The catchplate tapers up the back of the bow and has a very small, and one would suspect, very inefficient turnover. The hinged pin is missing, the hinge being protected by a tubular springcase. This is of the same type as above and the vestigial nature of the headstud suggests that it is to be dated very much at the end of the series.

L: 45mm, W across head: 18mm, W across foot: 6mm. Context 1506, SF587, Period 10A.

8. Large crossbow brooch with onion-headed terminals cast in one with the arms. The deep hollow bow has chamfered sides and a short rib around the base. The foot is long and rectangular with chipcarved wedges cut down both sides with a median groove. The catchplate is nearly as long as the foot and is

tubular with a side opening. The pin is hinged. Complete. This type of brooch in Britain is fully discussed by Clarke 1979, 257-263. See also Keller 1974, Type 4, AD 350-80; Riha 1979, Type 6.5; Almgren 1923, Nos 190-191; van Buchem 1973, Types III-IV; Ettlinger 1944, Type 57 and Jobst 1975, Type 26.

L: 82mm, W across arms: 57mm, W across foot: 9mm. Context 1516, SF472, Period 9.

9. Cross-piece of a large crossbow brooch of hollow five-sided section ending in globular terminals set on disc necks. The central globe has been set on a rivet and is now missing. Possibly Keller's (1974) Type 1, dated AD 290-320.

L: 53mm, T: 10mm. Context 330, SF159, Period 8.

10. Onion-headed terminal with a disc neck from the hexagonal-sectioned cross-piece of a large crossbow brooch. Keller 1974, Type 4, AD 350-80.

L: 18mm, T: 9mm. Context 356, SF267, Period 9.

11. Cross-piece arm from a large crossbow brooch with a globular terminal set on a ridge-and-groove neck. The rectangular-sectioned arm expands from the end and has a bronze hinge pin set close enough to one side to have worn through. Possibly Keller 1974, Type 4, AD 350-80.

L: 24mm, T: 8mm. Context 111, SF810, Period U/S.

12. Rectangular tubular catchplate with a side opening from a large crossbow brooch. The front is plain and flat with chamfered edges and two transverse grooves across the end. Part of the chamfered bow survives projecting from a flange.

L: 38mm, W: 9mm. Context 2000, SF768, Period 10A.

13. Very small oval disc brooch with a conical black glass inset. The surrounding groove is decorated with stamped S shapes and the whole has been gilded. The catchplate, turnover and spring survive but neither the pin nor the iron hinge pin. Riha 1979, Type 3.17 and Böhme 1972, Type 45. This form of brooch, both oval and circular, although the oval appears to have been more popular than the circular, came into production c AD 250 and continued beyond the Roman period, apparently being most fashionable in the 4th century.

L: 23mm, W: 18mm, Total H: 13mm. Context 76, SF877, Period 9.

14. Disc brooch with central cone, hollow at the back, with a boss-and-ring stud in the centre. The edge is raised with nodules set at regular intervals. The catchplate lacks its turnover and the hinge pin is missing although the pin survives corroded into position. Riha (1979, Type 7.11) dates the form to the late 1st - early 2nd century AD whilst Ettlinger (1973, Taf 15, No 10, Type 50) suggests that production began in the first half of the 2nd century. A simplified example is known from the amphitheatre at Caerleon Wheeler and Wheeler 1928, Fig 14, No 20) and one of the same type but with stylistic differences is known from a Flavian grave at Winchester (Biddle 1967, 229, Fig 4, No 14).

D: 32mm, Total H: 15mm. Context 356, SF266, Period 9.

15. Disc brooch with central cone, similar to above. Six nodules or lugs project from the raised edge and a double concentric groove runs around the central cone. The catchplate and hinge survive but the pin and hinge pin are both missing.

D: 32mm, Total H: 14mm. Context 132, SF821, Period 7A.

16. Large penannular brooch with an oval-sectioned shank which has incised transverse lines across the upper face, very tightly spaced to give the impression that the shank has been wrapped around with wire. The back is plain. The terminals have pseudo-humanoid motifs with protruding eyes and lips and incised lines suggesting hair. The oval-sectioned pin is still in position. The hinge was hammered into a mould to produce raised edges (later decorated with nicks) and two central ribs. The wrapped-over plate was then soldered into position to ensure that the pin did not fall off. Fowler 1960, Type E.

D: 43mm, W: 2.5mm, T: 2.75mm, L of pin: 46mm. Context 3008, SF1052, Period 8.

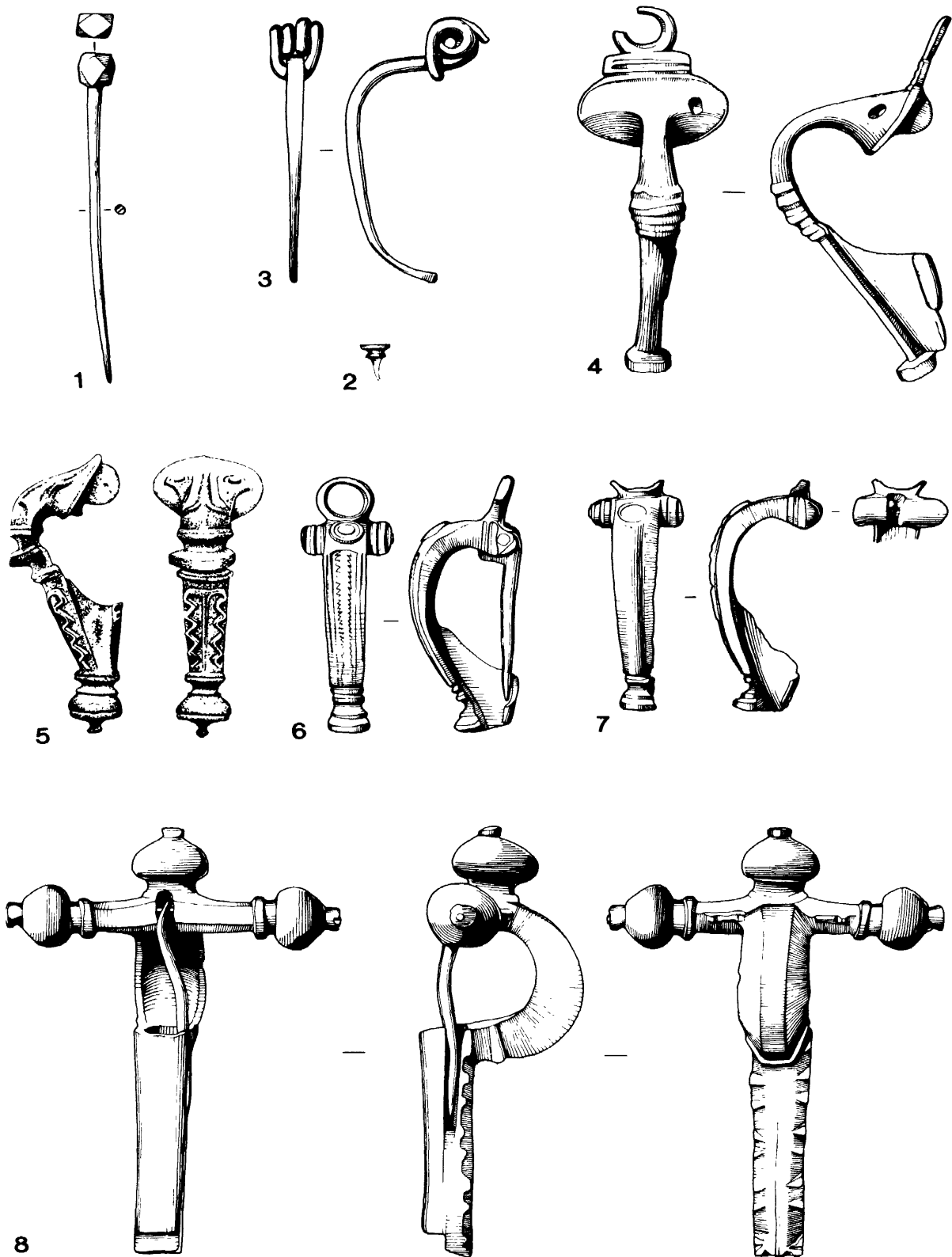


Figure 10.1 Small finds: objects of silver and copper alloy.

17. Penannular brooch with a D-sectioned shank with incised transverse lines along upper face. The terminals are moulded to suggest zoomorphic heads in a stylistic way. The pin is oval-sectioned with the end flattened and decorated with incised vertical and horizontal lines and nicks before being wrapped around the shank to form a hinge. Fowler 1960, Type EI. A fragment of a similar brooch but much larger, was found in the 1922 excavations at Segontium: Wheeler 1924, Fig 7, No 6.

D: 31.5mm, W: 2.5mm, T: 2mm, L of pin: 35mm. Context 348, SF260, Period 9.

18. Penannular brooch of D-section with lightly scratched transverse lines around the shank. The pseudo-zoomorphic terminals are moulded with a groove around the necks. The pin is loosely wrapped around the shanks and is decorated with five transverse lines across the bar and two oblique lines on the hinge. Fowler 1960, Type EI.

D: 40mm, W: 3.5mm, T: 2mm. Context 828, SF384, Period U/S

19. Fragment of a penannular brooch of oval section, with moulded zoomorphic terminals. Fowler 1960, Type EI.

D: 27mm, W: 2.5mm. Context 1506, SF539, Period 10A.

20. Incomplete penannular brooch of rectangular section. The upper face has a series of oblique ribs set in a groove. The surviving terminal has been turned back to form a pseudo-zoomorphic head. Fowler 1960, Type EI. Cf Hod Hill: Brailsford 1962, Fig 11, E15.

D: 30mm, W: 3mm, T: 1.75mm. Context 304, SF692, Period 11.

21. Small penannular brooch with an oval-sectioned shank and milled knobbed terminals. The milling is confined to the front of the brooch which is unusual. An iron ring around the shank, opposite the terminals, may be the remains of a replacement pin. Fowler 1960, Type A2. 1st-4th centuries AD.

D: 25mm, W: 2.5mm, T: 2mm. Context 74, SF588, Period 8.

22. Penannular brooch with a circular-sectioned shank tapering to the terminals where it narrows to form wire which is coiled three times before passing back to wrap around the shank nine times at one end and eleven times at the other. The pin is also of wire and reflects the terminals by being double looped around the shank. Fowler 1960, Type CI: 1st century AD. Cf Hod Hill: Brailsford 1962, Fig 11, E9; Wroxeter: Bushe-Fox 1914, Pl X, No 9.

D: 33mm, W: 3mm, L of pin: 35mm. Context 1091, SF1146, Period 7A.

23. Small penannular brooch with an oval-sectioned shank and plain globular terminals on disc necks. Part of the pin survives wrapped around the shank. Fowler 1960, Type A3: 1st century AD.

Context 1139, SF1152, Period 3.

24. Copper alloy wire coiled into a double loop at both ends and twisted tightly around a central bar.

L: 30mm, D of loops: 11mm. Context 109, SF928, Period 10.

25. Incomplete ring with a shallow D-sectioned shank expanding sharply to wide oval shoulders. The large circular bezel is filled with a copper alloy strip wound tightly around a central dimpled cup which may have held enamel. The edge of the bezel is decorated with wide vertical grooves. A ring from the Franks Bequest has a blue glass centre surrounded by concentric rings but differs in the shape of the shoulders (Marshall 1969, No 1451).

Int diam: 15mm, D of bezel: 12mm. Context 302, SF77, Period U/S.

26. Finger ring with a D-sectioned shank expanding to a wide central panel decorated with two oblique rows of three white glass faceted insets, each row confined by an incised line on either side. In the centre there is a red glass inset in an incised

lozenge. Post-Medieval peasant ring?

Int diam: 19mm, Max W of shank: 3mm, Max T of panel: 9mm. Context 301, SF401, Period U/S.

27. Penannular finger ring with a circular-sectioned shank. Both terminals are shaped like stylized snakes' heads. Two similar rings are illustrated by Oman 1930, Nos 83 and 84. 1st century BC-2nd century AD.

Int diam: 20mm, W: 2mm. Context 379, SF354, Period 10A.

28. Strip finger ring with the outer face decorated with wide rib-and-groove motifs, each rib decorated with three dots.

Int diam: 16mm, W: 1mm, T: 3.5mm. Context 125, SF755, Period 9.

29. Length of copper alloy of rectangular section with a chevron design carved along the narrow outer edge. Both terminals are broken. The strip is coiled to the size of a finger ring but appears to have been cut down from a bracelet.

L: 80mm, W: 1.5mm, T: 1mm. Context 336, SF214, Period 10A.

30. (Not illustrated) Length of copper alloy similar to No 29. Cf Colchester: Crummy 1983, No 1766, in a grave deposit dated AD 320-450.

L: 23mm, W: 2mm, T: 1mm. Context 336, SF214, Period 10A.

31. Penannular bronze strip ring with nicks filed along each edge to give a chevron effect similar to No 29. The surviving end is rounded.

Int diam: 16mm, W: 0.75mm, T: 2mm. Context 852, SF725, Period U/S.

32. Incomplete finger ring of rectangular section with deeply scored lines at varying angles across the outer face.

Int diam: 15.5mm, W: 2mm, T: 2.5mm. Context 2, SF379, Period U/S.

33. (Not illustrated) Incomplete small finger ring with a flat oval centre panel. The shank is convex on the outer face and concave on the inner.

Int diam: 16.5mm. Context 1512, SF441, Period 10A.

34. (Not illustrated) Small penannular finger ring with one end expanded but broken. The section is rectangular with a convex outer face.

Int diam: 12.5mm, W: 1mm, T: 3-6mm. Context 2199, SF1122, Period 4.

35. (Not illustrated) Fragment of a finger ring with an oval-sectioned shank and expanded triangular shoulder.

L: 17mm. Context 2172, SF1102, Period 6A.

36. (Not illustrated) Fragment of a strip finger ring with three incised longitudinal lines. Plated on all faces with tin.

L: 12mm, W: 2mm, T: 5mm. Context 76, SF447, Period 9.

37. Fragment of a strip bracelet of rectangular section with the outer edge decorated with bands of grooves separated by crenellations. Cf Lydney: Wheeler and Wheeler 1932, Type Q; South Shields: Allason-Jones and Miket 1984, 3.238; Colchester: Crummy 1983, No 1659, c AD 320-450; Lankhills: Clarke 1979, Type D1e, AD 360-410.

Int diam: 54mm, W: 2.5mm, T: 1.75mm. Context 302, SF31, Period U/S.

38. Very corroded bracelet of D-section with one hooked terminal - the other is missing. The outer face appears to have been decorated by incised transverse grooves. Cf South Shields: Allason-Jones and Miket 1984, Type 2.

Int diam: 52mm, Max W: 2mm, T: 3mm. Context 304, SF47, Period 11.

39. Distorted fragment of a D-sectioned bracelet decorated on the outer face by groups of incised transverse lines. Cf Lydney:

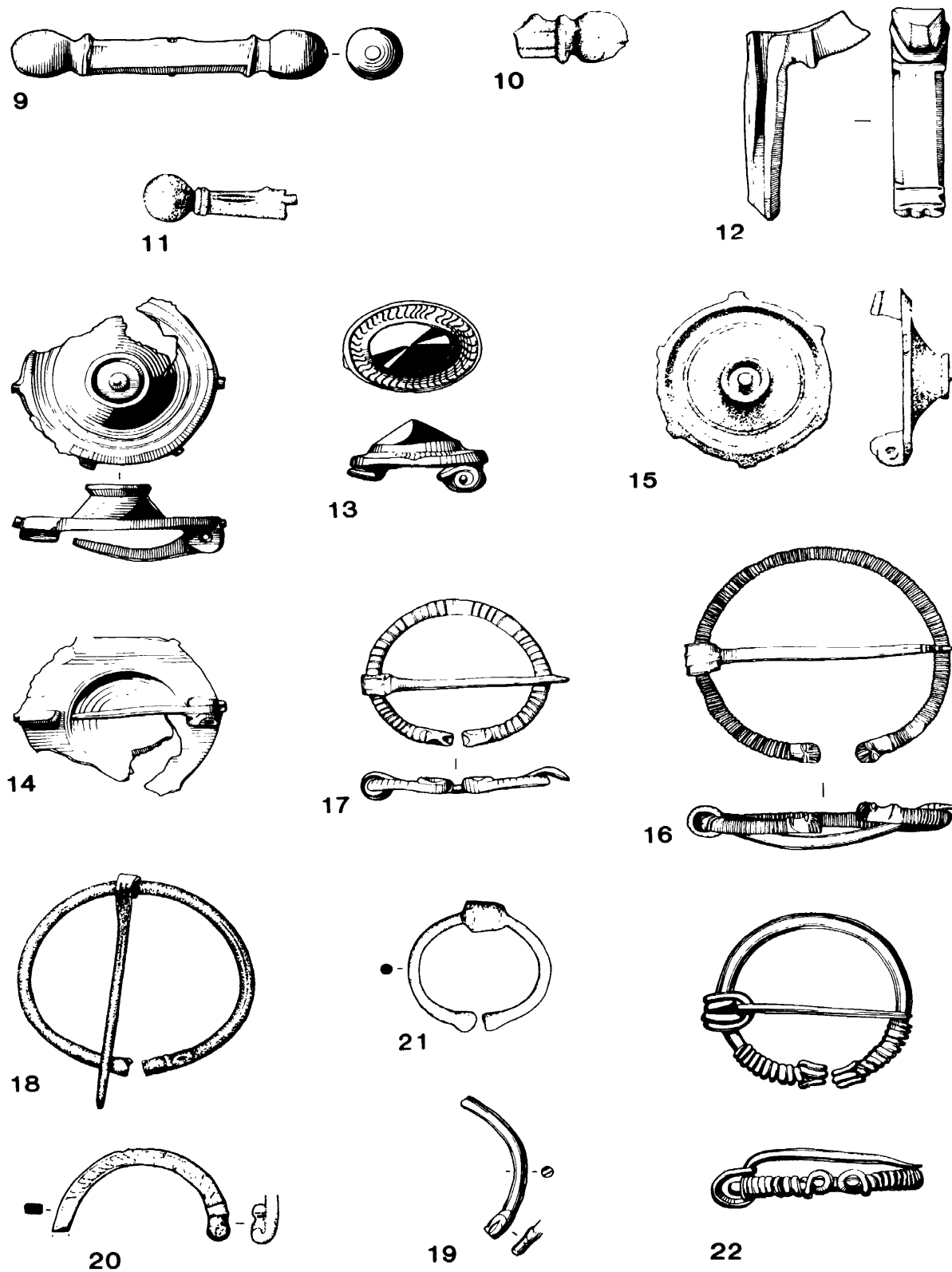


Figure 10.2 Small finds: objects of copper alloy.

Wheeler and Wheeler 1932, Type S; South Shields: Allason-Jones and Miket 1984, 3.242; Lankhills: Clarke 1979, Type D2c, AD 350-410.

L: 58mm, W: 1.25mm, T: 2.25mm. Context 312, SF51, Period 10A.

40. Fragment of a strip bracelet with raised edges framing a band of incised transverse lines. The faces have been silvered or tinned. Cf Colchester: Crummy 1983, No 1679, c AD 320-450.

L: 16mm, W: 5mm, T: 1mm. Context 315, SF125, Period 11.

41. Length of thin wire bracelet with the outer edge chip-carved with nicks along each side to give a chevron effect. Cf South Shields: Allason-Jones and Miket 1984, 3.235; Lankhills: Clarke 1979, Type D1h, AD 310-370.

L: 78mm, W: 2mm, T: 1mm. Context 325, SF150, Period U/S.

42. Fragment of a strip bracelet with nicks filed along the outer edge to give a chevron effect similar to No 41.

Int diam: 59mm, W: 3mm, T: 1mm. Context 1502, SF325, Period U/S.

43. Fragment of a strip bracelet with nicks on both faces tapering from the edge, giving a chevron effect similar to No 41. No fastening survives.

Int diam: 55mm, W: 1.5mm, T: 1mm. Context 1512, SF463, Period 9.

44. (Not illustrated) Fragments of a strip bracelet with nicks filed on both faces giving a chevron effect similar to No 41.

L: 18mm, 20mm, W: 2.5mm, T: 1mm. Context 1523, SF503, Period 11.

45. Strip bracelet with incised marginal lines enclosing a row of stamped dot-and-ring motifs. The surviving terminal has a band of incised transverse and edge lines and is pierced by a 2.5mm diameter hole. Cf Lydney: Wheeler and Wheeler 1932, Type E; Colchester: Crummy 1983, No 1708, c AD 320-450; Lankhills: Clarke 1979, Type Elc, AD 350-70.

L: 107mm, W: 1mm, T: 4mm. Context 2, SF405, Period U/S.

46. Fragment of a strip bracelet with a highly decorated outer face consisting of panels containing rows of stamped dot-and-ring motifs and marginal nicks interspersed with oblique grooves. Cf Lankhills: Clarke 1979, Type Elc, AD 350-70.

L: 77mm, W: 1.5mm, T: 4.5mm. Context 1584, SF866, Period 7A.

47. Strip bracelet with one hooked terminal. The outer face is decorated with stamped dot-and-ring motifs set close together in a wavy line.

Int diam: 60mm, W: 1mm, T: 3.5mm. Context 2000A, SF794, Period 10A.

48. Strip bracelet with one long tapering hook terminal. The outer face is decorated with shallow facets producing lozenge shapes separated by vertical grooves.

D: 57mm, W: 1mm, T: 4mm. Context 90, SF614, Period 10.

49. Incomplete wire bracelet with intertwined ends making a sliding knot. Cf South Shields: Allason-Jones and Miket 1984, Type 9; Lankhills: Clarke 1979, Type B1, AD 310-70.

D: 60mm, T: 1.25mm. Context 397, SF475, Period 10A.

50. Very small wire bracelet with intertwined ends making a sliding knot. The ends are wrapped around each other five times on each side. Cf Lankhills: Clarke 1979, Type B1, AD 310-70.

Int D: 38mm, T: 1.5mm. Context 1549, SF735, Period U/S.

51. (Not illustrated) Two lengths of rectangular-sectioned wire with a fragment wrapped around the shank. Part of the knot of an expanding bracelet similar to No 50.

L: 100mm, 84mm, T: 1.25mm, W: 2mm. Context 1080, SF1163, Period 5.

52. (Not illustrated) Length of rectangular-sectioned wire with a

second length of two pieces twisted loosely around. The knot of an expanding bracelet similar to No 50?

L: 55mm, W: 1.5mm, T: 1mm. Context 1091, SF1149, Period 7A.

53. Fragment of a bracelet made by twisting two strands of wire around each other. Cf South Shields: Allason-Jones and Miket 1984, Type 13; Lankhills: Clarke 1979, Type A1, AD 350-410.

L: 30mm, W: 4mm. Context 2000, SF761, Period 10A.

54. Fragment of a bracelet made by twisting three lengths of wire around each other. One end is set into a cylinder. Cf Allason-Jones and Miket 1984, Type 12; Lankhills: Clarke 1979, Type A2, AD 310-70.

Int diam: 44mm, T: 3.5mm, W: 3mm. Context 304, SF41, Period 11.

55. Incomplete bracelet made from three strands of wire twisted together.

D: 37mm (approx), T: 2mm. Context 1506, SF558, Period 10A.

56. Fragment of a bracelet made by twisting four lengths of wire around each other resulting in a D-section. This is not a common variation on the twisted wire type. An example from Colchester has been dated to the medieval period (Crummy 1983, No 1633) whilst an example from Lankhills was unstratified (Clarke 1979, Type A3).

Int diam: 50mm, W: 4mm, T: 5mm. W. of each strand: 2mm. Context 54, SF494, Period 10.

57. Fragment of a bracelet made by twisting four strands of oval-sectioned wire around each other. The twisting has been confined to give a D-section and appears to have been wound around a core of material which has now perished. See No 56 above.

Int diam: 45mm, W: 5mm, T: 9mm, W. of each strip: 3mm. Context 2000A, SF924, Period 10A.

58. Strip bracelet fragment of D-section with one rounded undecorated tapering end. Cf South Shields: Allason-Jones and Miket 1984, Type 18.

Int diam: 65mm. Context 3A, SF137, Period U/S.

59. Oval pendant of elliptical section with a broken triangular loop. Both convex faces have incised herringbone motifs and are silvered or tinned. A blob of copper alloy on one side appears to be corrosion from another object. Although the object bears some resemblance to a military apron pendant (see Oldenstein 1976, Nos 293-5, 414-8) there is a more marked similarity to an earring pendant such as can be seen on an example from Brougham (Allason-Jones forthcoming a) and an earring from a tomb at Tortosa in Syria dated to 2nd-3rd century AD (Marshall 1969, No 2406, single pendant hanging from a boxed sardonyx), both of gold.

L: 33mm, Max W: 12mm, T: 5mm. Context 1513, SF601, Period 10.

60. Thin, rectangular-sectioned, penannular earring with tapered ends. There is a rib or crenellation at each terminal with a band of incised lines at the necks. Distortion of the shank suggests that the ring originally had a bead threaded on to it. Allason-Jones 1984, Type 2c. Examples of this type are known from Piercebridge (Allason-Jones in Scott forthcoming), Water Newton (BM 82.6-21.63) and Lydney (Lydney Park Museum (16))- all of 4th century date.

D: 27mm, T: 1mm. Context 315, SF124, Period 11.

61. Distorted wire of varying thickness ending in sharp tapered hooks. This would appear to be an earring of Allason-Jones 1984, Type 3 with the terminals unwound. The usual method of wearing such earrings, either as decorative items on their own or with pendants attached, was to thread the wire through the pierced ear and then wind the ends around each other to secure it. Obviously to remove them the ends had to be unwound.

D: 41mm, T: 2mm. Context 1080, SF1137, Period 5.

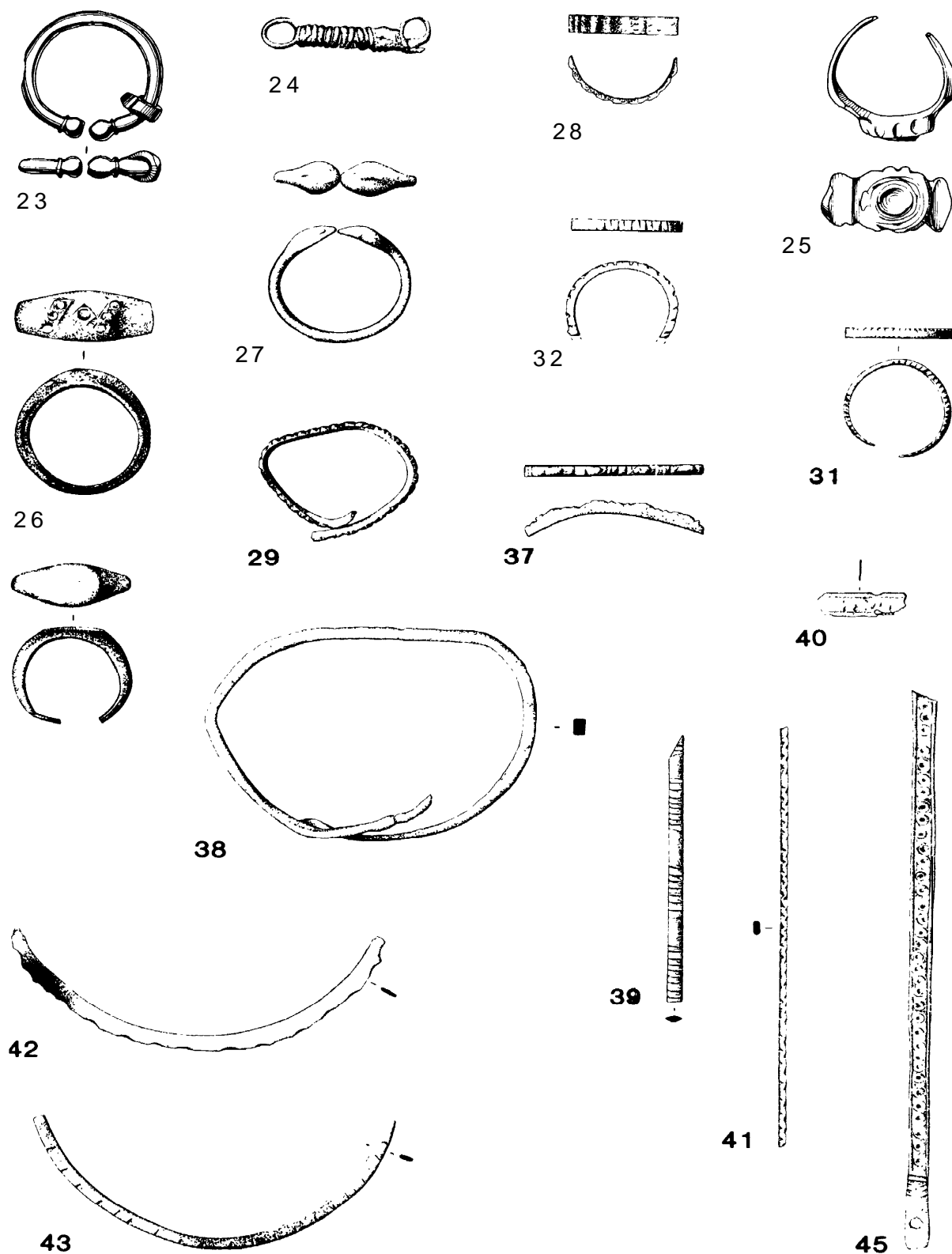


Figure 10.3 Small finds: objects of copper alloy.

62. Penannular ring of circular section with tapered terminals. Earring of Allason-Jones 1984, Type 1. Earrings of this type are impossible to date as they occur at all periods.
D: 16mm, Max T: 15mm. Context 302, SF92, Period U/S.
63. Penannular ring of circular section with tapered terminals. Distorted earring of Allason-Jones 1984, Type 1, as above.
L: 40mm, T: 1.25mm. Context 1515, SF493, Period 11.
64. Rectangular plate with the face divided into four rectangular cells, with two grooves across each end. The grooves and cells have been filled with blue and white chequerboard millifiori enamel. No shanks project from the back but there are traces of tinning. One side of an hexagonal box of the type known from Pas-de-Calais and Cologne Museum dated to the early 3rd century (Henry 1933, Fig 41.3 and 42.4 respectively).
L: 50mm, W: 25mm, T: 1mm. Context 453, SF975, Period 9.
65. Rectangular blade with slightly converging edges. Both ends are decoratively shaped into a deep complex pattern. One edge is plain, the other is thick and turned over at 90 degrees with a chip carved and shaped edge leading to a curved handle. The handle has raised edges, one of which has a series of chip-carved semicircular ribs, the other two rows of oblique nicks. The object is complete bar a fragment at one corner of the blade and the end of the handle. Razors are known in Roman contexts with similarly-shaped blades and curved handles but none so lavishly decorated. If this object is a razor then the deeply-cut decoration may be intended to stop the hand slipping when wet. Against this identification is the fact that the plain edge never appears to have been sharpened to a cutting edge, on the contrary it is very rounded and blunt.
L: 115mm, Max W: 37mm, Max T of blade: 0.25mm, T of handle: 2.5mm. Context 111, SF837, Period U/S.
66. Pair of tweezers with straight rectangular-sectioned arms which curve only at the tips. Probably domestic in function as medical forceps were usually much longer than the tweezers used for hair removal and other cosmetic purposes. See Milne 1907.
L: 50mm, W of arms: 5mm. Context 2, SF366, Period U/S.
67. Long strip of copper alloy folded in half with one terminal bent inwards. Possibly incomplete and distorted tweezers.
L: 80mm, W: 55mm, T: 1mm. Context 110, SF666, Period 7A.
68. Pair of tweezers with straight arms which curve only at the tips. Three incised transverse lines decorate the neck on both arms. Cf Fishbourne: Cunliffe 1971, Fig 42, No 62 - a similar type with incised decoration on the neck: AD 43-75.
L: 57mm, W: 6mm. Context 1568, SF913, Period 7.
69. Medical instrument with a plain circular-sectioned shank. One end has a short bulbous probe whilst the other has a long spoon bowl of V-section with a baluster moulded neck. This is a variety of spatulomele usually referred to as a cyathiscomele or Loffelsoonde. Cf Trier: Cüppers 1981, Abb 18, Nos 5-9; Milne 1907, Pl XIV, Nos 1-5.
L: 135mm, W of spoon: 7mm. Context 110, SF687, Period 10.
70. Bulbous probe from a medical instrument similar to No 69.
L: 21mm, T: 4.5mm. Context 803, SF740, Period 7.
71. Nail-cleaner or strap-end made from a thin sheet with a triangular blade cleft at the end. Above the blade double crescents project from the sides before a rectangular head pierced by a small circular hole. One face is decorated with stamped dot-and-ring motifs of varying size. Cf Richborough: Bushe-Fox 1949, Pl XXXV, No 125, similar head and projecting crescents although the dot-and-ring motifs make up a different pattern: 4th century AD.
L: 52mm, Max W: 12mm, T: 1mm. Context 1513, SF599, Period 10.
72. D-sectioned nail-cleaner with a loop at one end. The other end is cleft with an incised line leading from the cleft to an incised dot halfway up the shank. The neck has a series of three groups of baluster and disc mouldings. The lower part of the shank has incised oblique lines along both edges. The back is roughly finished in comparison to the decorated front. Cf Gadebridge: Neal 1974, Fig 62, No 190, 141, lacking moulding: late 4th century AD.
L: 55mm, W: 3mm. Context 1541, SF682, Period 11.
73. Complete harness junction loop with a hollow hook and a lentoid backplate pierced by four tiny holes arranged in a lozenge pattern. The front plate has flat splayed shoulders, chip-carved edges and four circular holes countersunk in circular depressions. The front and back plates are of equal length. A set from Lincoln demonstrates how junction loops were used in groups of four or three hooking onto a central ring (Webster 1949, *JRS* XXXIX, Pl Xa). Examples are also known from Wroxeter (Webster 1960, Nos 247 and 262), Walbrook (*ibid* No 153), Sea Mills (*ibid* No 180) and Verulamium (*ibid* No 202 and Waugh and Goodburn 1972, Nos 124 and 125, AD 105-15).
L: 50mm, W: 16mm. Context 2361, SF1168, Period 4.
74. (Not illustrated) Junction loop similar to No 73.
L: 45mm. Max W: 14mm. Context 2279, SF1158, Period 4.
75. Hook from a junction loop similar to No 73.
L: 19 mm, W: 6mm. Context 1603, SF1017, Period 7A.
76. (Not illustrated) Hook and fragment of the plate of a junction loop similar to No 73 with the first hole just visible surrounded by two deep concentric grooves.
L: 30mm, W: 14mm. Context 227, SF1025, Period 7B.
77. (Not illustrated) Lowest section of a junction loop similar to No 73.
L: 15mm. Context U/S, SF1073, Period U/S.
78. Curved tapering sheath with a straight moulded fold. The front is pierced by a small circular hole, 2mm in diameter, and is decorated by groups of incised transverse lines. The short back is also decorated by sets of incised lines. Dagger chape?
L: 46mm, W: 24mm. Context 97, SF542, Period 10.
79. V-shaped plate with a flat circular terminal pierced by a rivet made by rolling a copper alloy strip into a tube and hammering one end to form a head. Chape plate?
L: 26mm, T: 0.5mm, Rivet: 9mm. Context 1511, SF613, Period 8.
80. Knife or razor handle with a peltate terminal. The shaft of the handle is rectangular in section with chamfered edges and two open rectangles in the centre. The openings have traces of lead-tin alloy suggesting insets now missing. The end of the handle is cleft with an iron blade slotted into position and held by two iron rivets set through a groove on both faces. See Colchester: Crummy 1983, Nos 2938-9, from contexts dating AD 75-250; and Verulamium: Waugh and Goodburn 1972, Fig 35, No 75, an elaborately decorated example dated to AD 85-105.
Total L with blade: 75mm, W: 20mm, T: 10mm. Context 1271, SF1175, Period 5A.
81. Oval dagger or knife plate with a square-sectioned hole to take the tang. Cf Lankhills: Clarke 1979, G81.69, G443.602.
L: 18mm, W: 13mm, T: 0.25mm. Context 802, SF284, Period U/S.
82. (Fig 10.6) Large bun-shaped counterweight covered in copper alloy with a thick loop at the top which leads to a steelyard. Both ends of the wire are wrapped around the shank - the lower three times, the upper four. A deep groove runs around the belly of the weight. The steelyard has three suspension hooks to provide the different fulcra required to weigh objects of varying weights. For heavy objects the hook nearest the end would be used whilst lighter objects would be weighed on the central hook on the other edge, and objects lighter still would be attached to the hook nearest the shank. All three hooks are made from

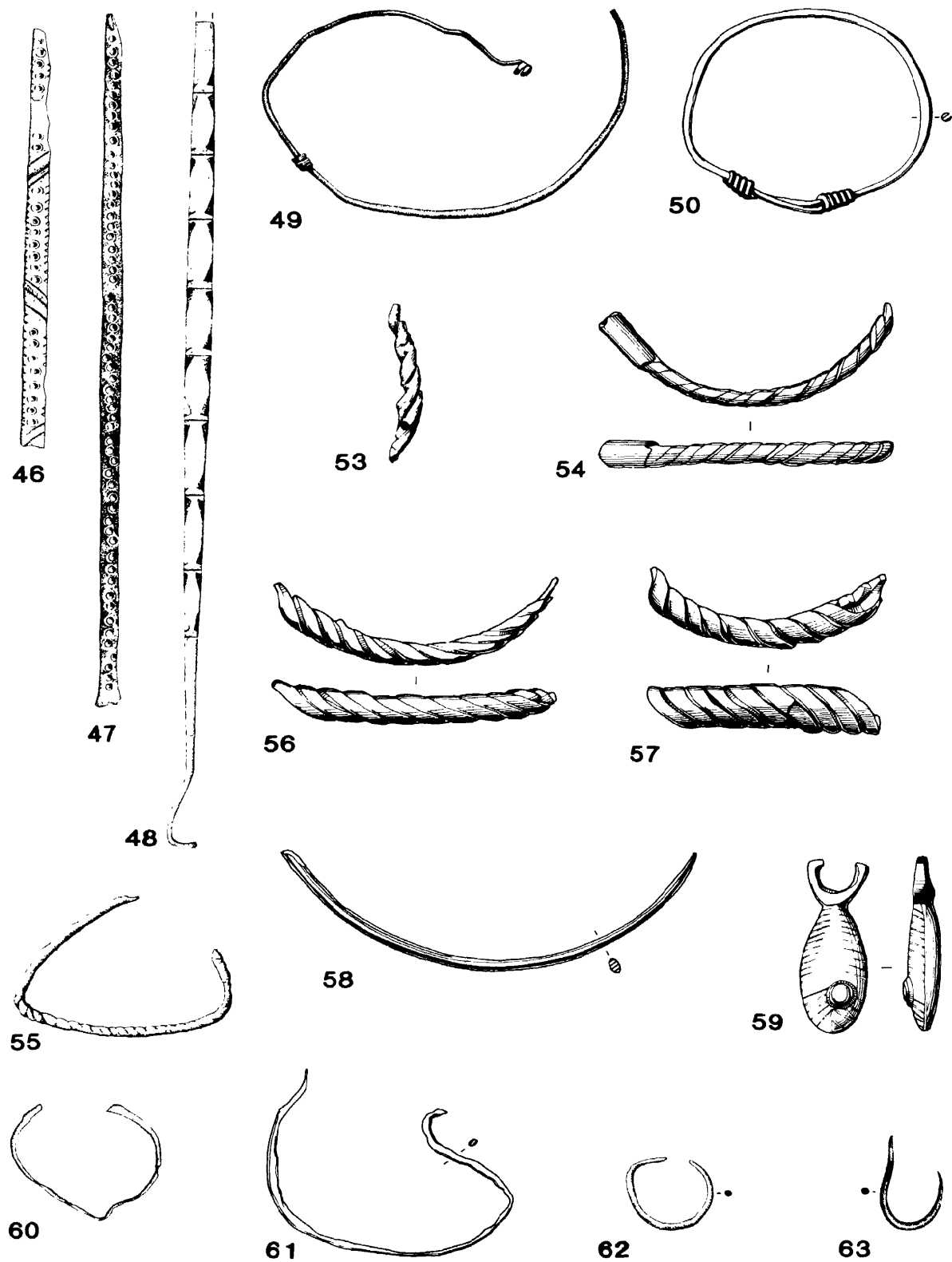


Figure 10.4 Small finds: objects of copper alloy.

copper alloy strips which splay to the hooked ends but narrow to oval-sectioned wire at the other ends; this passes through the loops on the steelyard and the ends twisted to secure. From the looped terminal of the steelyard hangs a W of wire which secures a semi-oval of wire through its pierced ends. A fragment of an iron ring is attached to this fitting.

The faceted shank has the weight indicated by incised dots and transverse grooves and not by Roman numerals as is more common. Unfortunately the steelyard is incomplete and it is impossible to tell whether each groove represents a pound (327.45g) and each dot an ounce (27.29g) as on the Colchester example (Crummy 1983, No 2508). However one face has groups of six dots divided by transverse lines, so it is likely that each group represented six ounces or a semis. The dots are not carefully placed suggesting that the resultant measurements would not be scientifically accurate. One other face has more-widely-spaced dots but no complete group survives to indicate the weights involved. A third face of the faceted shank has two dots 21mm apart and a fourth has a single dot only surviving. See Crummy 1983, No 2508 and Goodburn 1984, 57, No 210 for a discussion of the way such a steelyard could work.

L of steelyard: 200mm, L of hooks: 91mm. Max W of hooks: 7mm, D of weight: 45mm, H of weight: 41mm, Weight: 395g. Context 837, SF505 + 868, SF830, Period U/S.

83. Flat leaf-shaped apron mount with a bulbous end. The face has been tinned and decorated with a complex but delicate pounced design. A similar pendant is known from Colchester (Crummy 1983, No 4619 and 4647). Two examples from Stockstadt and Pfünz are shaped like vine leaves with the pounced lines following the veins of the leaves (Oldenstein 1976, Taf 30, Nos 207 and 208). The Segontium and Colchester pendants are probably debased copies of the vine-leaf motif.

L: 45mm, W: 19mm, T: 0.33mm. Context 1022, SF1061, Period 6A.

84. Heart-shaped pendant with a forward-facing hook and a bulbous end. The hook passes through a flat plate with two extra loops projecting from the sides. Harness rather than armour pendant? Cf Canterbury: Hassall 1980, 342-4.

L of pendant: 47mm, W: 25mm, W of plate: 33mm. Context 2000A, SF1043, Period 10A.

85. Incomplete girdle plate tie hook cut from a sheet with a strip hook. The sides of the plate taper slightly away from the hook and the plate is pierced by two holes, one punched from the front, the other, which still holds a disc-headed rivet, punched from the back. See Robinson 1975, Fig 183.

L: 32mm, W: 12mm. Context 2172, SF1100, Period 6A.

86. Incomplete buckle plate: rectangular strip with two shanks projecting from the end. Decorated with two transverse grooves.

L: 45mm, W: 12mm. Context 2054, SF1015, Period 4.

87. Oval-sectioned rod ending in a flat rectangular plate set to one side and pierced by two holes - one a small rectangle 2.5 x 2mm, the other oval and pulled out of shape, 6 x 3mm. Possibly a much corroded steelyard.

L: 112mm, W of rod: 5mm, T of rod: 3.5mm, W of plate: 13mm. Context 302, SF93, Period U/S.

88. (Not illustrated) D-shaped loop of oval section which expands to flat oval terminals pierced by circular holes which contain traces of iron. Possibly a buckle or the end loop from a steelyard: see No 82 above.

Total W: 18mm, T: 2mm. Context 256, SF952, Period 7A.

89. Copper alloy strip with one end curled and the other rounded. Buckle pin.

L: 19mm, W: 3.5mm. Context 1502, SF330, Period U/S.

90. Square buckle with very thin bars. Pin is missing.

L: 25mm, W: 24mm, T: 1.5mm. Context 475, SF1000, Period 8.

91. Small square buckle. The pin is made from a rod with one

end hammered and curled round the bar.

L: 13mm, W: 13mm, T: 1mm. Context 76, SF862, Period 9.

92. Fragment of a rectangular plate with repoussé decoration. A rib runs round the edge and in the surviving corner there is a boss within a concentric rib. In the centre there is a much larger boss and ring. Other small fragments survive, some with parts of bosses and one with a square rivet hole, suggesting that there was more than one plate. Such plates could have been used in several ways. At Intercisa a number have been found used as box plates (Alföldi *et al* 1957, Abb 56-7, 72, 74-7, 79, 81-2, 84, 87). See Allason-Jones and Miket 1984, 3.652-6 where their various uses as box plates and girth covers are discussed.

L: 39mm, T: 0.5mm. Context 453, SF953, Period 9.

93. Small foot in the shape of a four-toed paw broken off at the ankle. The surface is tinned and there are traces of lead-tin solder in the hollowed base. Possibly a furniture mount although a similar object from Intercisa is described as a candlestick foot (Alföldi *et al* 1957, Pl XLV, No 7) whilst a candlestick from Böckingen has similar feet at each angle (*Der Obergermanisch-Raetische Limes* 56, Taf III, No 11).

L: 24mm. Context 229, SF923, Period 10.

94. Curved tapering tube ending in a rectangular-sectioned bar with a short rod projecting at right angles from the base. This may be a crest-holder or feather-tube from a helmet but if so it is a very unusual type (Robinson 1975, Fig 146).

L: 115mm, D of tube: 9mm. Context 1587, SF874, Period 8.

95. Solid stand with a splayed base decorated with two incised grooves. The shank flares out to a sharp rib which is also decorated with incised lines although these appear to be the result of lathe-turning rather than a deliberate attempt at decoration. The shank then bifurcates and is pierced by a circular hole 2.5mm in diameter. Helmet crest from either Coolus Type E (Robinson 1975, Pls 60, 66-8) or Coolus Type G (Robinson 1975, Pls 81-7. See also Figs 141-3).

H: 36mm, D: 30.5mm. Context 2019, SF1116, Period 5A.

96. (Not illustrated) Length of U-sectioned sheathing with circular holes set alternately along the edges. Several dents along the curve suggest that the piece has been hit six times with a straight-edged blade.

L: 82mm. Context 301, SF7, Period U/S.

97. Long U-sectioned tube narrowing to one end. The wider end is distorted with three roughly drilled holes one of which contains a rivet holding a rectangular strip. The strip has a second rivet through it suggesting that it went across the open end.

L: 110mm, W: 19mm, T of strip: 0.5mm. Context 1, SF404, Period U/S.

98. 'Amphora' strap-end with the split top pierced by a single rivet. The face is decorated with a series of stamped dot-and-ring motifs and the top by a series of nicks. Simpson (1976, 192-224) has suggested that such strap-ends were manufactured in Pannonia or Illyricum in the second half of the 4th century.

L: 50mm, W: 19mm. Context 1547, SF734, Period 9.

99. Strap end consisting of two plates both with bulbous bases which end in a point. Three small circular holes, one in each corner and one in the centre, hold the plates together over a fragment of leather.

L: 14mm, W: 15mm. Context 1502, SF314, Period U/S.

100. Incomplete domed bell lacking its clapper. Two shallow lines are incised around the belly. Traces of iron corrosion at the top suggests that the clapper was attached with iron.

D: 60mm, H: 35mm. Context 2156, SF1106, Period 5.

101. Distorted tube ending in a splayed end. Trumpet mouth-piece? Cf Verulamium: Waugh and Goodburn 1972, Fig 40, No 129, AD 150; Great Chesterford: Webster 1960, No 104.

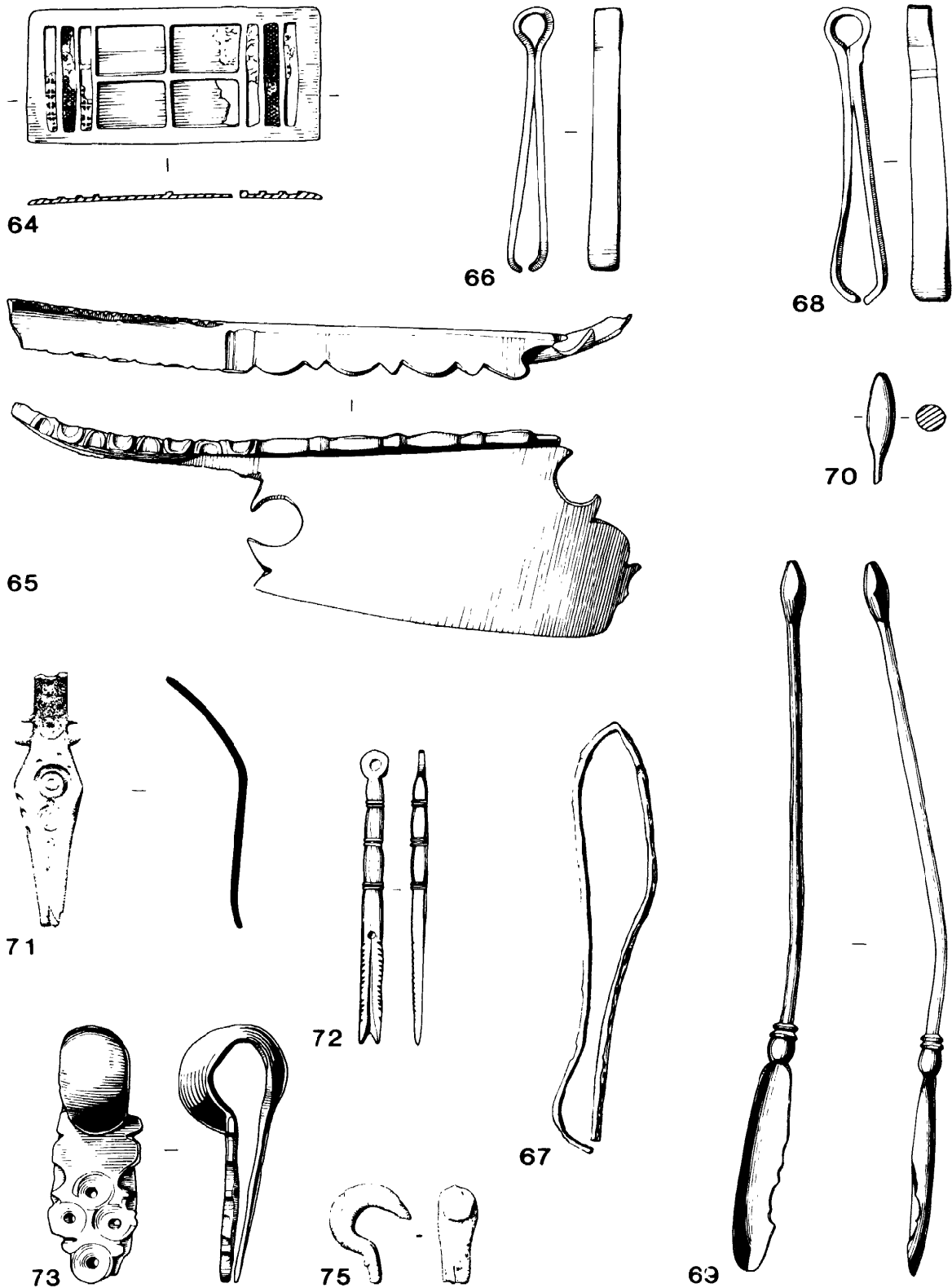


Figure 10.5 Small finds: objects of copper alloy.

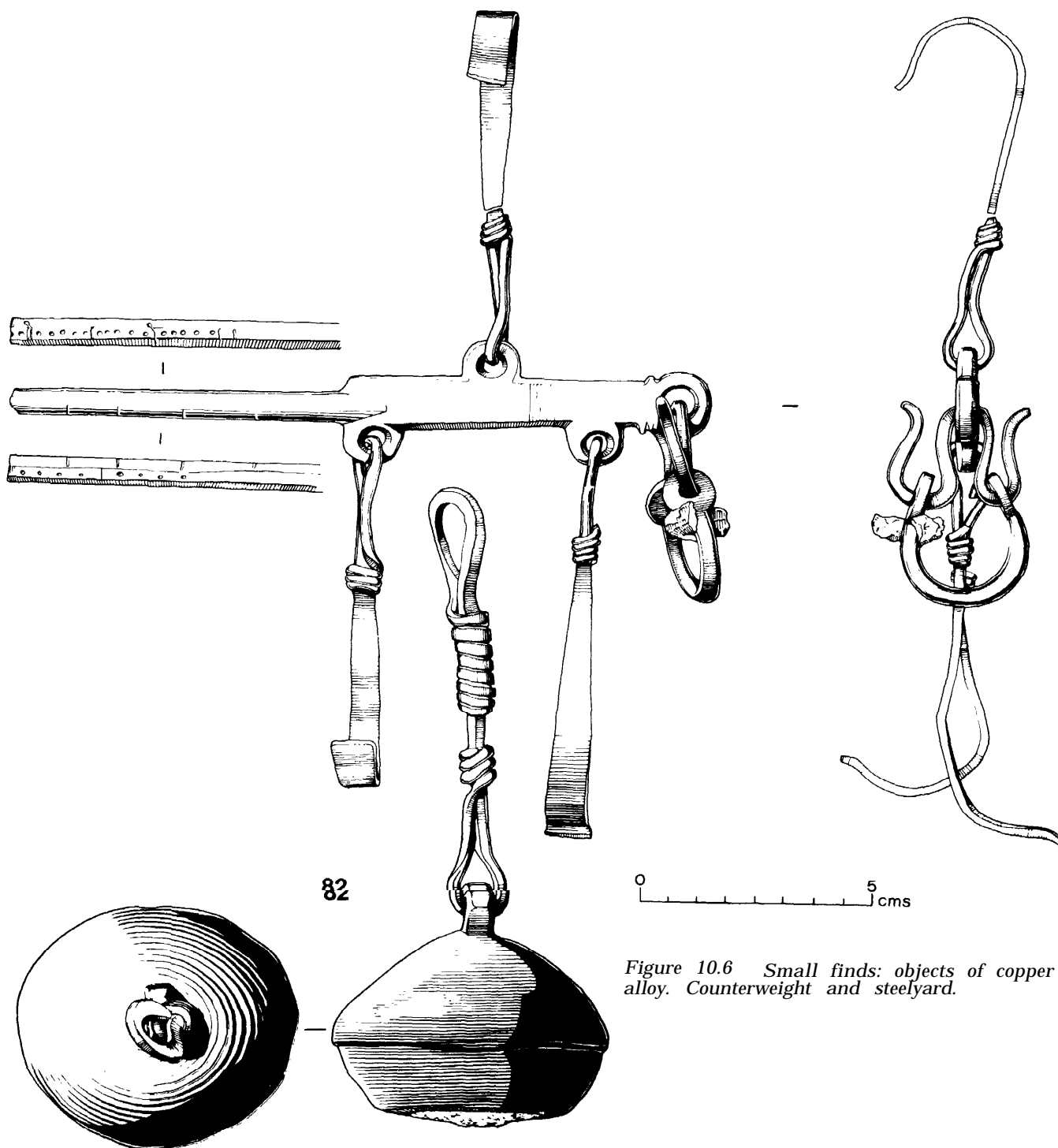


Figure 10.6 Small finds: objects of copper alloy. Counterweight and steelyard.

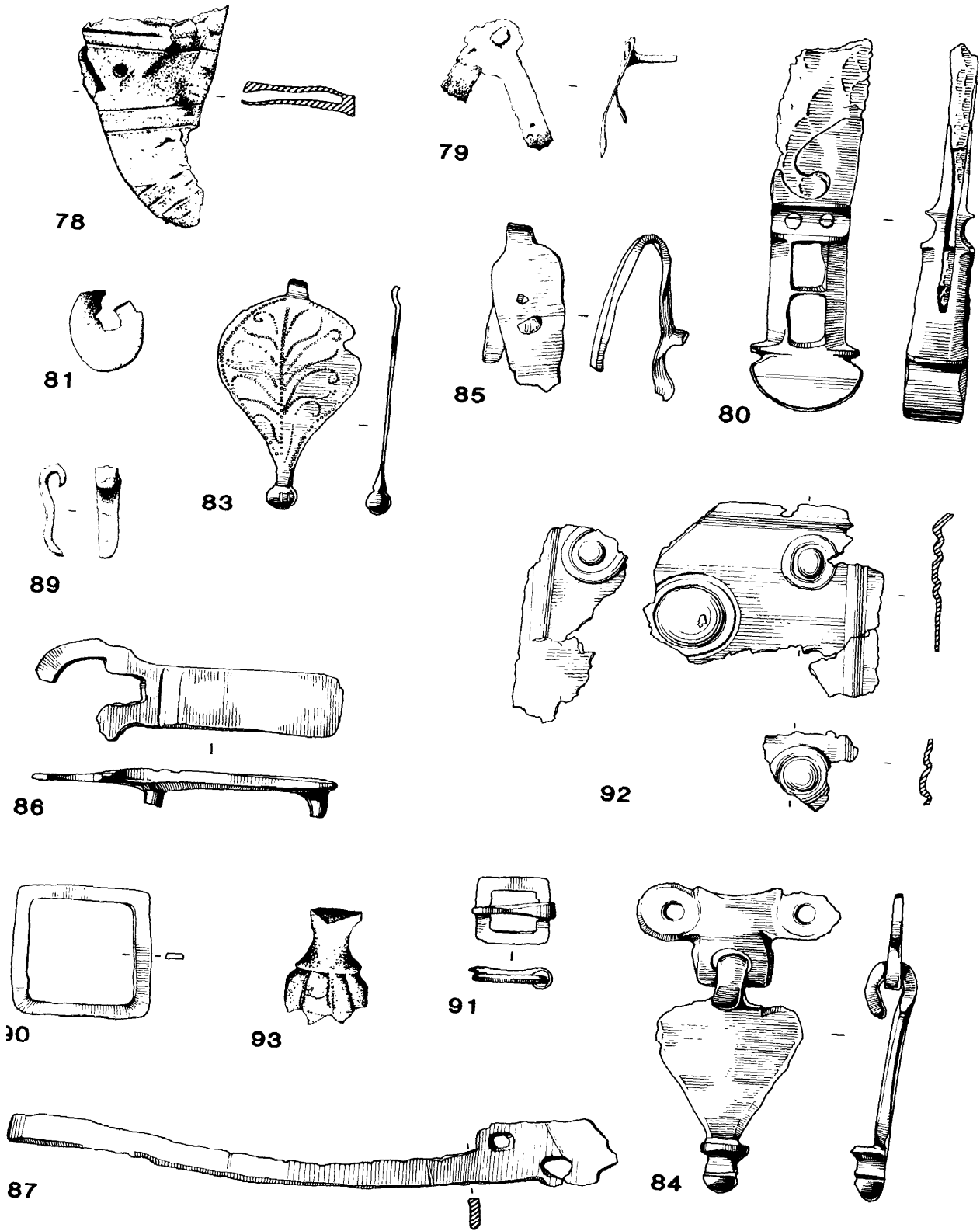


Figure 10.7 Small finds: objects of copper alloy.

L: 59mm, D of mouthpiece: 28mm, D of tube: 13mm. Context 155, SF836, Period U/S.

102. Small handle of oval section. Very corroded and lacking both ends. Helmet handle?

L: 75mm, W: 4mm. Context 1568, SF920, Period 7A.

103. Tankard handle with a flat oval plate and a convex back. At both ends oval-sectioned shanks project, narrowing to strips. The surviving shank is pierced by a circular hole which retains traces of an iron rivet. The face of the handle is inlaid with dark blue champlevé enamel. The design is no longer clear but appears to consist of a border following the line of the plate with a leaf shape at both ends and a swirling Celtic motif in the centre. Cf Catterick: MacGregor, M, 1976, No 288, elliptical enamelled plate with differently shaped attachment shanks; Okstrow Broth: MacGregor, M, 1976, No 291, no enamel but similar in shape and attachment shanks; Trawsfynydd (Merioneth): Fox 1958, Pl 64, tankard with an openwork handle of similar design.

L: 60mm, W: 24mm, Total H: 28mm, T of shanks: 6mm. Context 1502, SF958, Period U/S.

104. Thick disc with broken edges. A grooved rib runs around the edge and there is a central dimpled boss. The piece is very heavy and would appear to be part of the base of a patera. See Mutz 1972.

D: 37mm, T: 5mm. Context 337, SF247, Period 8.

105. Circular cap or lid with a convex top. In the centre there is a roughly pierced hole which may have held a knob or handle. A circular rib runs around the top whilst the wall has incised parallel lines. All faces are tinned.

D: 32mm, H: 12mm, T: 0.25mm. Context 1515, SF484, Period 11.

106. Small circular cap similar to above with a convex upper face. The wall has a single incised groove and there is a circular depression in the centre.

D: 15mm, H: 6mm, D of depression: 6mm. Context 11, SF5, Period U/S.

107. Hollow dome with traces of lead-tin alloy inside. Stud head or cap.

D: 20mm, H: 11mm. Context 76, SF436, Period 9.

108. (Not illustrated) Disc with a back-turned edge. Cover for a button or cap.

D: 16mm. Context 2000A. SF789, Period 10A.

109. Rectangular lock-bolt. The thickness tapers only along one edge. The three cut-outs are arranged in a row. Cf Leicester: Kenyon 1948, Fig 86, No 13.

L: 64mm, W: 13.5mm, T: 8mm. Context 826, SF480, Period u/s.

110. Copper alloy strip with a trilobate head pierced by three globular-headed rivets holding a sheet of iron to a square copper alloy plate.

L: 30mm, Plate: 12 x 12mm, Total T: 10mm. Context 1562, SF853. Period U/S.

111. Sheet rolled to form a tube but without the edges meeting. The face is covered in a series of incised transverse and oblique lines. The whole tube tapers slightly towards one end.

L: 19.5mm, D: 4.5mm. Context 311, SF134, Period U/S.

112. Tapered rod of circular section. One end is convex. An oval hole, 4 x 3mm, has been drilled through to form a toggle.

L: 19mm, T: 7mm. Context 2148, SF1086, Period 6A.

113. Short, circular-sectioned collar with ribbed ends and a median rib-and-groove motif.

L: 12.5mm, D: 10mm, T: 1mm. Context 956, SF1112, Period 5.

114. Large pear-shaped spoon bowl with tinned surfaces. No shank survives.

L: 47mm, W: 34mm. Context 75, SF625, Period 10A.

115. Length of oval-sectioned wire curved to an S with both ends coiled.

L: 25mm, W: 17mm. Context 315, SF119, Period 11.

116. (Not illustrated) Fragment of the border and part of the fretwork of an openwork plate.

L: 12mm, T: 0.5mm. Context 1805, SF693, Period 10A.

117. Short rod ending in a deep cup which may have contained an inset.

D: 12mm, Total H: 9mm. Context 84, SF483, Period 8.

118. Curved plate with a curled edge.

L: 48mm, W: 13mm T: 0.5mm. Context 301, SF10, Period U/S.

119. Incomplete sheet with one curved edge and one straight. Pierced by at least five square holes, each about 4 x 4mm.

L: 58mm, W: 36mm, T: 0.5mm. Context 336, SF201, Period 10A.

120. Incomplete hollow tube tapering to one end and rounded at the other.

L: 37mm, W: 7mm. Context 315, SF199, Period 11.

121. Rectangular plate with an incised marginal groove and pierced by two circular holes 2.5mm diameter.

L: 16mm, W: 10mm, T: 0.5mm. Context U/S, SF264.

122. Rectangular plate with the surviving end pierced by a rivet made from rolled copper alloy sheeting.

L: 20mm, W: 6mm, Rivet: 8mm. Context 1510, SF598, Period 10.

123. Two thin rectangular sheets riveted together around the edge by twelve rolled sheet rivets. One end is curled over.

L: 46.5mm, W: 30mm, Total T: 0.5mm. Context 315, SF188, Period 11.

124. Bell-shaped stud with a short oval-sectioned shank cut to a point. The skirt has a single line incised around the waist. The face has a central dimpled cone with a concentric groove and a second groove around the edge. See Allason-Jones 1985 for a discussion of the use to which such objects could be put. This particular example is unusual in that the shank is made in one with the head but is of the shape usually associated with an added iron shank. The shaping, however, is rough and it is possible that this is a normal Type 2 which has been filed down for re-use.

D: 28mm, H: 45mm. Context U/S, SF1013, Period U/S.

125. Thin disc with repoussé decoration consisting of a pelleted border around a concentric valley which in turn encircles a rosette with a depressed ringed centre. There is no shank but traces of lead-tin alloy survive on the back. Cf Saalburg: Oldenstein 1976, Taf 57, No 710.

D: 31mm, T: 0.25mm. Context 192, SF917, Period 6A.

126. Stud with a disc head which has turned-back edges, concentric ribs on the face and a central dimple. A short tapering shank projects from the back. Cf Saalburg: Oldenstein 1976, Taf 48, Nos 528-30, 532-3, late 2nd-early 3rd century AD.

D: 12mm, H: 4mm. Context 1058, SF1136, Period 7.

127. (Not illustrated) Bronze disc with a series of nicks around the edge. The disc is soldered to an iron disc-headed stud whose shank is now missing. See Allason-Jones and Miket 1984, 3.885 for list of parallels.

D: 29mm, Total T: 4mm. Context 229, SF922, Period 6A.

128. (Not illustrated) Hollow domed stud with a scored line around the edge giving the impression of a flange. Traces of iron

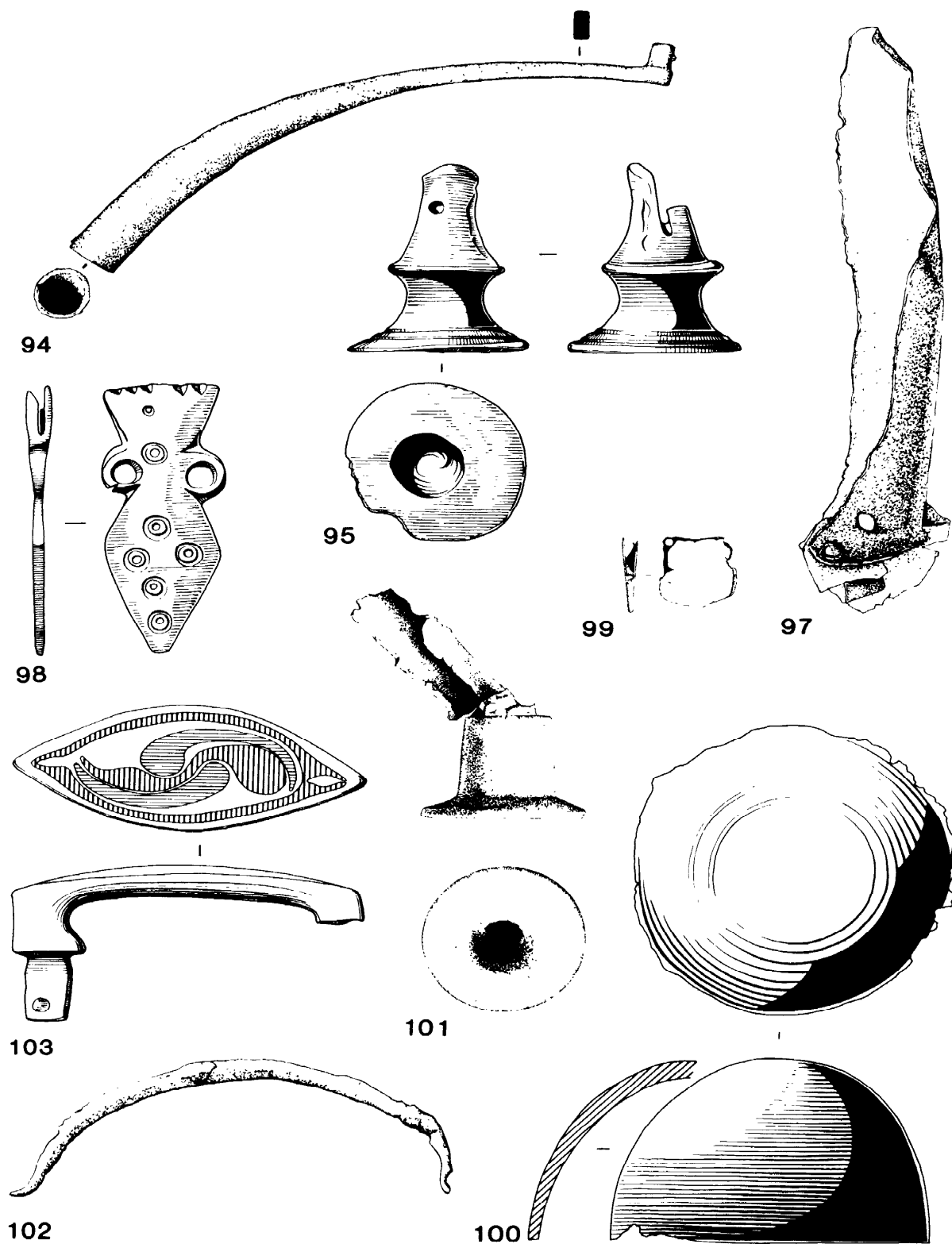


Figure 10.8 Small finds: objects of copper alloy.

corrosion inside. Cf Robinson 1975, Fig 83, from 1st century '*lorica segmentata*'.

D: 16mm. H: 4mm. Context 2000A, SF785, Period 10A.

129. Incomplete boss with a very shallow central dome surrounded by a beaded border with an outer border of repoussé ovals. Traces of lead-tin alloy on the back. Cf Robinson 1975, Fig 83 - used on helmets and '*lorica segmentata*' in 1st century. Also Webster 1985, Fig 78, No 17, on '*lorica segmentata*' fragment from a feature dated to AD54-60.

D: 27mm. T: 0.5mm. Context 1643, SF981, Period 10.

130. (Not illustrated) Flanged dome with turned back edge. The very short shank with a hammered end projects from inside the dome.

D: 25mm, H: 6mm. Context 2027, SF992, Period 6.

131. Hollow flanged domed stud with a rectangular shank with hammered end.

D: 21 mm, H: 9mm. Context 2018, SF1012, Period 6A.

132. (Not illustrated) Flanged domed stud with a long shank.

D: 20mm, H: 10mm. Context 274, SF1014, Period 5A.

133. (Not illustrated) Square boss with a high hollow domed centre.

W: 31mm, L: 30mm, H: 10mm. Context 2199, SF1123, Period 4.

134. (Not illustrated) Group of 33 studs found together. Although they are all similar no two are exactly identical. Several have a small raised cross on the face and a six-spoked rib on the back radiating from the shank.

1) Central boss and hollow ribbed edge. Tinned face. Square-sectioned shank. D: 27mm, H: 8mm.

2) Distorted and shank torn out. D: 25mm.

3) Central boss and hollow ribbed edge. D: 27mm.

4) Disc head with slightly convex face. Six-spoked rib on back. D: 6.5mm, H: 3.5mm.

5) Hollow dome with shank torn out. D: 5mm, H: 1.5mm.

6) Flanged dome, cross on face, short pointed shank. D: 11mm, H: 4mm.

7) Flanged dome with short pointed shank and six-spoked rib on back. D: 12mm, H: 4mm.

8) Flanged dome with short Pointed shank, cross on top and six-spoked rib on back. D: 11mm, H: 3.5mm.

9) Flanged dome with short pointed shank and six-spoked rib on back. D: 12mm, H: 3mm.

10) Flanged dome with short pointed shank and six-spoked rib on back. D: 12mm, H: 5mm.

11) Hollow flanged dome with shank torn out, tinned face. D: 15mm, H: 3mm.

12) Domed with short shank and six-spoked rib on back. D: 8mm, H: 4mm.

13) Flanged dome with short shank and six-spoked rib on back. D: 12mm, H: 3mm.

14) Flanged dome with short shank and six-spoked rib on back. D: 12mm, H: 3mm.

15) Flanged dome with short pointed shank and six-spoked rib on back. D: 11mm, H: 4mm.

16) Ditto D: 11mm, H: 4mm.

17) Flanged dome with turned back edge, cross on top. D: 12mm, H: 4mm.

18) Ditto, D: 11mm, H: 5mm.

19) Ditto D: 12mm, H: 2mm.

20) Ditto D: 9mm, H: 4mm.

21) Ditto D: 10mm, H: 4mm.

22) Ditto, incomplete. D: 13mm, H: 3mm.

23) Ditto, incomplete. D: 10mm, H: 5mm.

24) Ditto, incomplete. D: 10mm, H: 4mm.

25) Ditto, incomplete. D: 10mm, H: 5mm.

26) Domed D: 7mm, H: 5mm.

27) Domed D: 9mm, H: 3.5mm.

28) Flanged dome, incomplete. D: 10mm, H: 3mm.

29) Domed with cross on top. D: 7.5mm, H: 3mm.

30) Domed with disc rove. D: 3.5mm, H: 8mm.

31) Disc head. D: 5mm, H: 8mm.

32) Tiny domed stud with dimpled centre. Shank torn out. D: 5mm.

33) Tiny domed stud. D: 4mm.

Context ?2027, SF500, Period ?6.

135. (Not illustrated) Shallow domed stud with short shank.

D: 10mm. H: 4.5mm. Context 1, SF4, Period U/S.

136. (Not illustrated) Shallow domed stud with a tapering rectangular-sectioned shank.

D: 12mm, H: 13mm. Context 86, SF908, Period 10.

137. (Not illustrated) Flanged domed stud with a short pointed shank and a six-spoked rib on the back.

D: 12mm, H: 3mm. Context 2027, SF992, Period 6.

138. (Not illustrated) Flanged domed stud with short pointed shank and a six-spoked rib on the back.

D: 10mm, H: 4mm. Context 2027, SF992, Period 6.

139. (Not illustrated) Small domed stud with short pointed shank.

D: 8.5mm, H: 4mm. Context 2027, SF992, Period 6.

140. Copper alloy disc heavily tinned on both faces with a short roved shank piercing a bronze sheet. The underface of the stud head has two concentric ribs.

D: 17mm. Context 2044, SF1041, Period 5A.

141. (Not illustrated) Disc stud with an offset oval-sectioned shank.

D: 9mm. H: 6mm. Context 2148, SF1079, Period 6A.

142. (Not illustrated) Disc stud with a curved back edge and an incised marginal groove. A fragment of the shank survives.

D: 19mm, T: 0.25mm. Context 2174, SF1141, Period 5A.

Unidentified copper alloy was found in the following contexts:

78/2038	SF1037
76/54	SF612.

143. (Not illustrated) Hollow copper alloy dome filled with lead-tin alloy. Twenty-two such domes were found in a 4th century context at Piercebridge (Scott forthcoming). The majority had a square-sectioned iron shank held in position by the lead-tin alloy filling.

D: 13mm, H: 4mm. Context 1805, SF679, Period 10A.

144. (Not illustrated) Hollow flanged dome of copper alloy filled with lead-tin alloy, but with no trace of an iron shank. This stud and the following four appear to be a variant on the above plain domed stud or boss and may have been used on doors or furniture.

D: 23mm, H: 11mm. Context 2033, SF1074, Period 5A.

145. (Not illustrated) Hollow flanged dome similar to No 143 with a rectangular-sectioned iron shank held in position with lead-tin alloy.

D: 19mm, H: 20mm. Context 2151, SF1094, Period 5A.

146. (Not illustrated) Hollow dome with traces of lead-tin alloy inside.

D: 21mm, H: 4mm. Context 3A, SF138, Period U/S.

147. (Not illustrated) Hollow dome with slight flange and traces of lead-tin alloy.

D: 13.5mm, H: 35mm. Context 1502, SF467, Period U/S.

148. (Not illustrated) Hollow dome with slight flange. Traces of lead-tin alloy.

D: 18mm, H: 6mm. Context 2000A, SF791, Period 10A.

149. (Not illustrated) Dimpled boss with a slight flange. Traces of lead-tin alloy inside.

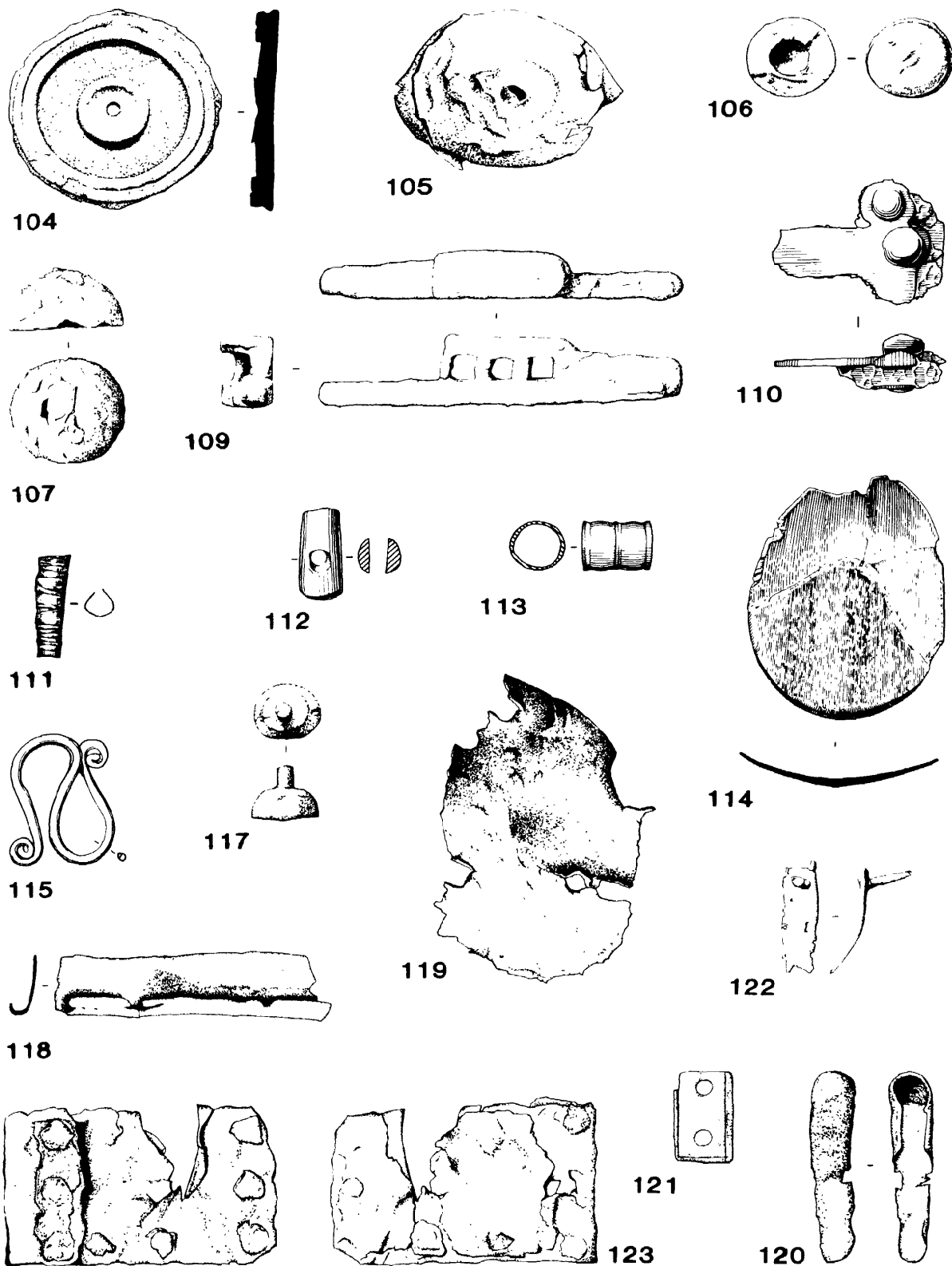


Figure 10.9 Small finds: objects of copper alloy.

- D: 16mm, H: 6mm. Context 2000A, SF791, Period 10A.
150. (Not illustrated) Hollow flanged dome with traces of lead-tin alloy.
D: 15mm, H: 5mm. Context 1513, SF898, Period 10.
151. (Not illustrated) Hollow flanged dome.
D: 13mm, H: 4mm. Context 1513, SF899, Period 10.
152. (Not illustrated) Hollow dome with traces of lead-tin alloy.
D: 11mm, H: 4mm. Context 448, SF944, Period U/S.
153. (Not illustrated) Hollow flanged dome with lead-tin alloy infill.
D: 22mm, H: 9mm. Context 2019, SF1114, Period 5A.
154. (Not illustrated) High flanged dome filled with lead-tin alloy. A square hole through the centre indicates a missing iron shank.
D: 16mm, H: 7mm. Context 1220, SF1188, Period 6A.
155. (Not illustrated) Hollow flanged dome similar to above with traces of lead-tin alloy infilling.
D: 16.5mm, H: 6mm. Context 2179, SF1098, Period 6A.
156. (Not illustrated) Hollow flanged dome similar to above with a square-sectioned iron shank held in position with lead-tin alloy.
D: 19mm, Total H: 17mm. Context 2019, SF1115, Period 5A.
157. (Not illustrated) Hollow flanged dome filled with lead-tin alloy. No trace of a shank survives.
D: 20mm. Context 1130, SF1142, Period 5.
158. (Not illustrated) Hollow flanged dome similar to above but with a copper alloy shank cast in one with the head.
D: 22mm, H: 7mm. Context 2179, SF1110, Period 6A.
159. Hollow domed stud with a short circular-sectioned shank.
D: 11mm, H: 13mm. Context 199, SF914, Period 7.
160. Hollow domed stud with a circular-sectioned tapering shank.
D: 11mm, H: 10mm. Context 1622, SF954, Period 7.
161. Tack with a hollow domed head and a rectangular-sectioned tapering shank.
D: 12mm, H: 18mm. Context 457, SF976, Period 9.
162. (Not illustrated) Hollow domed stud with a tapering oval-sectioned shank.
D: 18mm, Total H: 16mm. Context 2349, SF1186, Period 3.
163. Short tack with a globular head and a rectangular-sectioned shank.
L: 15mm, W of head: 4mm. Context 91, SF645, Period 10.
164. Small tack with a disc head and a short rectangular-sectioned shank.
D: 7.5mm, L: 11.5mm. Context 2094, SF1066, Period 5A.
165. Small rivet with a hammered disc head and a rectangular-sectioned shank.
L: 10mm, T of head: 3mm. Context 376, SF309, Period 10A.
166. Rectangular-sectioned shank of a rivet.
L: 9mm. Context 1502, SF326, Period U/S.
167. (Not illustrated) Small rivet with a hammered disc head and a blunt-ended shank.
L: 8mm. Context 984, SF1034, Period 10.
168. (Not illustrated) Short rivet with a domed head and a thick circular-sectioned shank.
L: 9mm, D of head: 8mm. Context 2172, SF1087, Period 6A.
169. (Not illustrated) Disc washer with a large circular-sectioned rod through the centre. Lead-tin alloy adheres to the back of the washer.
D: 13mm. Context 1502, SF467, Period U/S.
- Rings
170. Convex face. Tinned.
D: 23mm, W: 4mm, T: 2mm. Context 2, SF88, Period U/S.
171. (Not illustrated) Elliptical section.
D: 16mm, W: 1.5mm, T: 1.5mm. Context 325, SF158, Period U/S.
172. (Not illustrated) Rectangular section.
L: 31mm, W: 9mm, T: 2.5mm. Context 334, SF235, Period 10A.
173. (Not illustrated) Irregular section.
D: 19mm. Context U/S, Period U/S.
174. Strip section. Roman?
D: 18mm, W: 0.5mm, T: 3mm. Context 1502, SF280, Period U/S.
175. Irregular section.
D: 28mm, W: 4mm, T: 2.75mm. Context 816, SF375, Period U/S.
176. Oval section.
D: 22mm, W: 2.5mm, T: 2mm. Context 1515, SF413, Period 11.
177. D-shaped section.
D: 25mm, W: 4.5mm, T: 3mm. Context 1502, SF435, Period U/S.
178. Hollow circular section.
D: 20mm, W: 2mm, T: 2mm. Context 53, SF497, Period 10A.
179. Hexagonal section although not all faces are equal.
D: 26mm, W: 4mm, T: 2.5mm. Context U/S, SF653, Period U/S.
180. Trapezoidal section. Worn in one area suggesting that it was hung.
D: 29mm, W: 2.5mm, T: 2mm. Context 155, SF873, Period U/S.
181. Diamond section.
D: 25mm, W: 4mm, T: 5mm. Context 2052, SF1046, Period 5A.
182. (Not illustrated) D-shaped section.
D: 19mm, W: 2mm, T: 2.5mm. Context 1671B, SF1069, Period 7A.
183. (Not illustrated) Sub-oval section.
D: 22mm, W: 3mm, T: 4mm. Context 2024, SF1125, Period 5A.
184. (Not illustrated) Oval section.
D: 34mm, W: 8mm, T: 6mm. Context 1081, SF1135, Period 5B.
185. (Not illustrated) D-shaped section.
D: 50mm, W: 7.5mm, T: 3mm. Context 1132, SF1148, Period 4.
186. Oval-sectioned rod with a globular terminal.
L: 15mm, W of head: 6mm. Context 315, SF196, Period 11.
187. (Not illustrated) Tiny globular head of a copper alloy pin. Such pins, made by winding wire around one end to form a tight head, are common in mediaeval and post-mediaeval times. See Allason-Jones in Scott forthcoming for a discussion.
D: 2mm. Context 830, SF566, Period 7A.

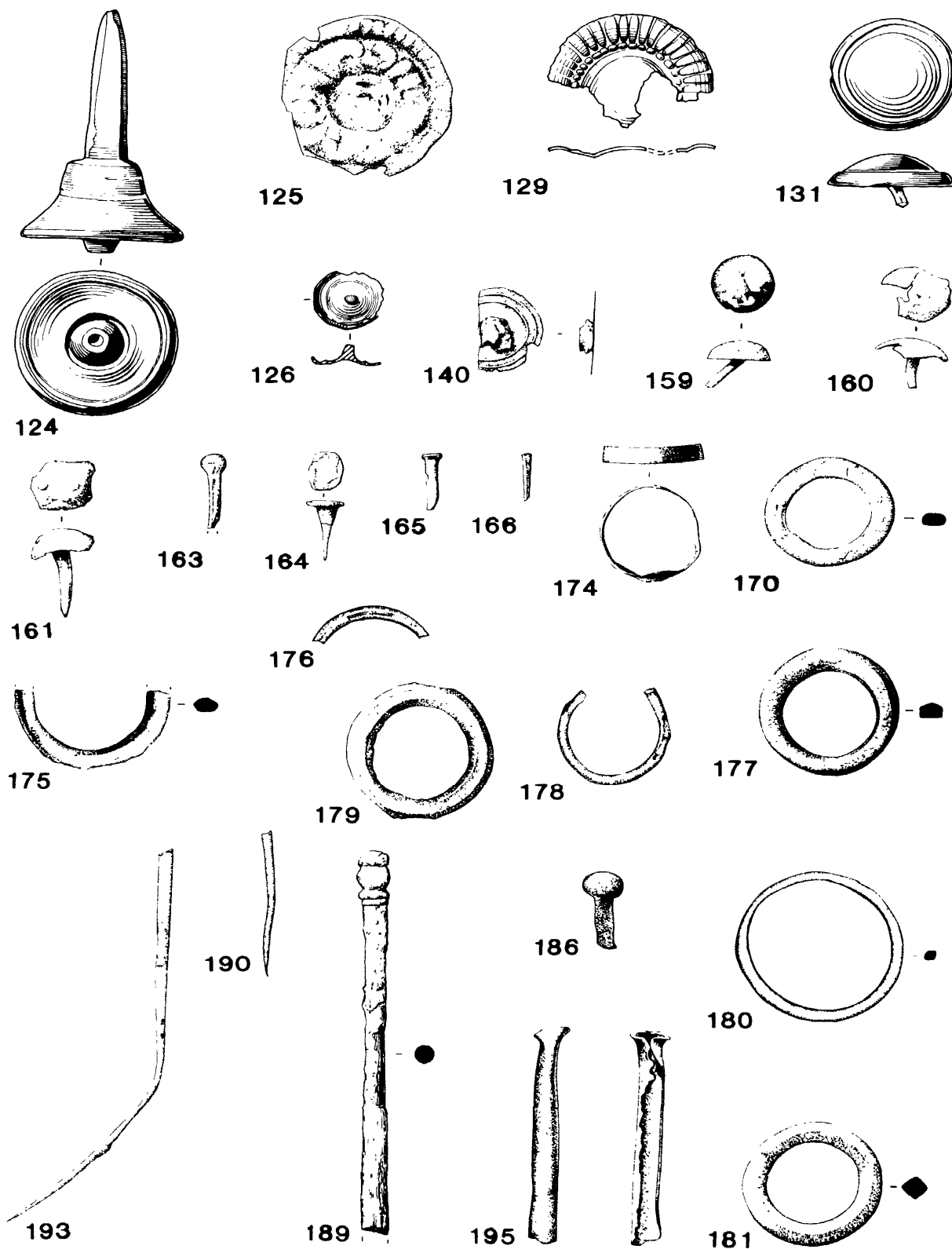


Figure 10.10 Small finds: objects of copper alloy.

188. (Not illustrated) Globular head of a pin with an oval-sectioned shank of which little survives.
T of head: 85mm. Context 2204, SF1132, Period 6.
189. Thick copper alloy pin with a baluster moulded head set on a ridged neck. Much corroded.
L: 75mm, T: 6mm. Context 109, SF703, Period 10.
190. Pointed end of a pin or needle.
L: 28mm. Context 352, SF249, Period U/S.
191. (Not illustrated) Pointed end of a circular-sectioned pin or needle.
L: 38mm, T: 2mm. Context 1080, SF1156, Period 5.
192. (Not illustrated) Hollow domed head of a copper alloy stud filled with lead-tin alloy. No trace of a shank.
D: 9.5mm. Context 897, SF749, Period 10.
193. Distorted tapering rod of oval section lacking a head. Pin or needle.
L: 85mm, T: 2.5mm. Context 109, SF822, Period 10.
194. (Not illustrated) Fragment of circular-sectioned rod. Possibly pin or needle.
L: 34mm. Context 2100, SF1053, Period 5A.
195. Length of U-sectioned binding with one end pinched together.
L: 41mm, Total W: 5mm. Context 897, SF746, Period 10.
196. (Not illustrated) Length of binding curved at one end. Probably U-sectioned originally.
L: 62mm. Context 1021, SF1056, Period 6A.
197. (Not illustrated) Length of wide U-sectioned binding.
L: 70 mm, W: 15mm, T of metal: 0.5mm. Context 956, SF1183, Period 5.
198. Loop with one end bent in at a right angle, the other end broken. The oval section expands in the centre.
D: 29mm, T: 3mm. Context 868, SF865, Period 7A.
199. Hook of diamond section.
Total L: 60mm, W: 3mm. Context 1, SF409, Period U/S.
200. Curled strip with an expanded end. Fragment of bucket or bowl escutcheon of the type discussed in Birley and Charlton 1934, Pl XXIXe. 3rd century AD.
L: 25mm, W: 5mm. Context 248, SF940, Period 7.
201. Bar with raised edges nipped into a hook at one end which has also split along the fold. The bar is curved in section.
L: 66mm, W: 13mm, T: 2.5mm. Context 1502, SF960, Period U/S.
202. (Not illustrated) Copper alloy sheet which narrows to a hooked shank. Fragment of harness pendant?
L: 41mm, W: 13.5mm. Context 2148, SF1088 Period 6A.
203. (Not illustrated) Flat copper alloy hook.
L: 20mm, W: 4mm, T: 1mm. Context 1051, SF1120, Period 5B.
204. Wire forming a loop with the ends twisted around each other at right angles to the ring.
D: 10mm. Context 3, SF18, Period U/S.
205. (Not illustrated) Small disc with a copper alloy disc-headed rivet pierced through the centre.
D: 12mm. Context 304, SF82, Period 11.
206. Oval washer with a central oval hole: 5 x 3.5mm.
L: 12mm, W: 9mm. Context 84, SF971, Period 8.
207. (Not illustrated) Disc washer with a large circular central hole: D: 5mm.
D: 18mm, T: 1mm. Context 978, SF1003, Period 5A.
208. Tube formed by rolling a copper alloy sheet. The edges do not meet.
L: 16mm, D: 6mm. Context 71, SF451, Period 7B.
209. Thick disc with one dished face.
D: 14mm, T: 3mm. Context 315, SF131, Period 11.
210. Rectangular sheet with a hole roughly pierced in the centre.
L: 28mm, W: 26mm, T: 1mm, Hole: 1mm. Context 311, SF60, Period U/S.
211. (Not illustrated) Irregular sheet.
L: 24mm, W: 18mm, T: 0.5mm. Context 2, SF85, Period U/S.
212. (Not illustrated) Irregular sheet pierced by a rough hole.
L: 15mm, W: 12mm, T: 0.5mm. Context 3a, SF141, Period U/S.
213. Distorted and incomplete sheet.
L: 30mm, T: 0.25mm. Context 315, SF118. Period 11.
214. (Not illustrated) Offcuts from a thin copper alloy sheet.
L: 45mm, T: 0.5mm. Context 315, SF120, Period 11.
215. (Not illustrated) Large sheet folded in half. Much distorted but possibly the binding from a large box or chest.
L: 110mm, T: 1.5mm. Context 304?, SF232, Period 11?
216. Thin rectangular sheet folded in half.
L: 51mm, W: 32mm, Total T: 2mm. Context 2A, SF279, Period u/s.
217. Undulating copper alloy sheet with lead-tin alloy on the back. A small rectangular plate projects from one edge. Part of a large hollow statuette?
T: 1.25mm. Context 1503, SF299, Period U/S.
218. (Not illustrated) Two triangular plates riveted together at the apex.
L: 22mm, W: 11mm, Total T: 2mm. Context 811, SF319, Period U/S.
219. (Not illustrated) Rough piece of copper alloy sheet with one straight edge.
L: 36mm. Context 75, SF581, Period 10A.
220. (Not illustrated) Sheet coiled to a tube. Distorted.
L: 22mm. Context 1513, SF596, Period 10.
221. (Not illustrated) Square sheet pierced by a rivet.
L: 40mm. T: 0.25mm. Context 74, SF597, Period 8.
222. (Not illustrated) Copper alloy sheet folded in three and riveted together.
L: 20mm. Context 92, SF628 Period 10A.
223. (Not illustrated) Three fragments of very corroded sheet, each pierced by a tiny circular hole. One piece is decorated with rows of punched dots.
T: 0.5mm. Context 109, SF713, Period 10.
224. (Not illustrated) Long sheet with straight edges folded in half. One edge has a marginal groove on one face.
L (as folded): 49mm, W: 20.5mm, T of sheet: 0.5mm. Context 125. SF752, Period 9.
225. (Not illustrated) Fragment of sheet with two straight edges pierced by a rough hole near one corner.
L: 16mm. W: 14mm, T: 0.5mm. Context 125, SF754, Period 9.
226. Two sheets of copper alloy. One plain with a circular hole (D: 2mm) near one edge. The other has a straight edge with a plain border and the main part covered in repoussé ovals.

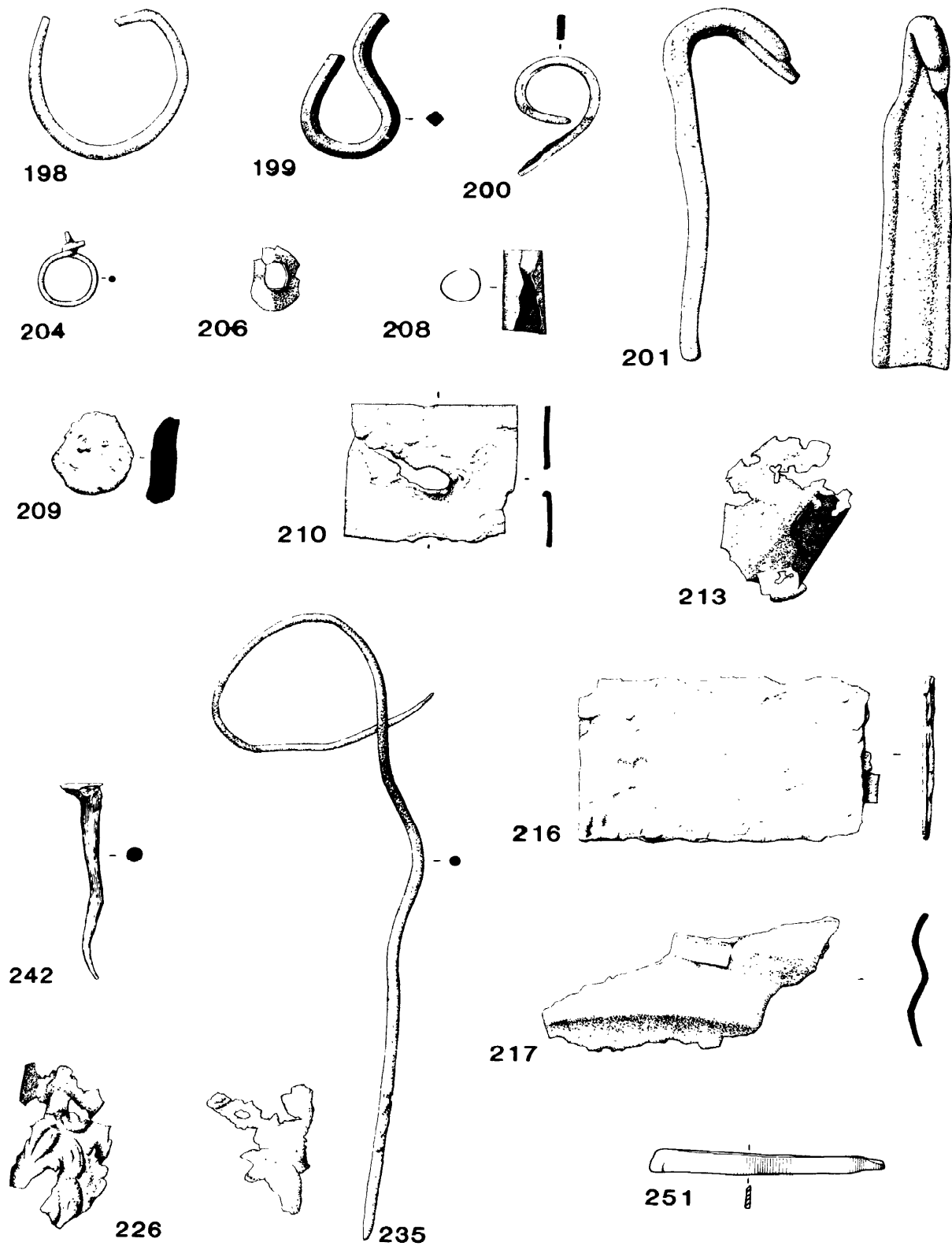


Figure 10.11 Small finds: objects of copper alloy.

- L: 32mm, 28mm, T: 0.25mm. Context 109, SF807, Period 10.
227. (Not illustrated) Triangular copper alloysheet.
L: 20mm. H: 9mm, T: 0.5mm. Context 897, SF813, Period 10.
228. (Not illustrated) Undulating sheet with no original edge surviving.
L: 24mm. Context 1585, SF861, Period 7A.
229. (Not illustrated) Irregularly shaped sheet with one curled straight edge. A shallow oblique rib leads from this edge.
L: 33mm, T: 1mm. Context 2172, SF1097, Period 6A.
230. (Not illustrated) Fragment of copper alloy sheet with two straight edges, pierced by four torn rectangular holes.
L: 25mm, W: 22mm, T: 0.5mm. Context 2172, SF1103, Period 6A.
231. (Not illustrated) Two fragments of curved sheet with one straight edge. Traces of tinning on one face.
T: 0.25mm. Context 1080, SF1127, Period 5.
232. (Not illustrated) Flat plate with curved edge.
L: 55mm, W: 19mm, T: 1mm. Context 1164, SF1185, Period 5B.
233. (Not illustrated) Copper alloy wire of circular section.
L: 48mm. T: 1mm. Context 315, SF110. Period 11.
234. (Not illustrated) Roughly finished rod of rectangular section tapered to both ends.
L: 69mm, T: 3mm. Context 315, SF113, Period 11.
235. Length of wire of circular section tapering to one end.
L: 234mm. T: 2mm. Context 315. SF192. Period 11.
236. (Not illustrated) Square-sectioned rod broken across a pierced end.
L: 34mm, W: 2mm. Context 348, SF255, Period 9.
237. (Not illustrated) Short thick tapering rod.
L: 16mm, T: 6mm. Context 807, SF361, Period U/S.
238. (Not illustrated) Curved rod of oval section.
L: 20mm, W: 3.5mm, T: 3mm. Context 375, SF362, Period 10A.
239. (Not illustrated) Rod of irregular section.
L: 67mm, T: 4mm. Context 1520, SF528, Period 10.
240. (Not illustrated) Rectangular-sectioned rod with a groove down one face. Waste?
L: 53mm, W: 3.5mm. Context 1516, SF541, Period 9.
241. (Not illustrated) Oval-sectioned rod broken at both ends.
L: 20mm, W: 3.5mm. T: 1.5mm. Context 2, SF660, Period U/S.
242. Tapered rod of circular section with a corroded broken head and a slightly curved end. Brooch pin?
L: 37mm. T: 4mm. Context 304, SF675. Period 11.
243. (Not illustrated) Tapering rod of circular section.
L: 34mm. Context 849, SF739, Period 7A.
244. (Not illustrated) Rod of circular section.
L: 17mm, T: 2.5mm. Context 304, SF751, Period 11.
245. (Not illustrated) Two lengths of oval-sectioned rod.
L: 37mm, 22mm, T: 3.5mm. Context 1585, SF882, Period 7A.
246. (Not illustrated) Square-sectioned tapering rod.
L: 35mm, T: 4mm. Context 175, SF911, Period 7B.
247. (Not illustrated) Oval-sectioned rod curled at one end: buckle or brooch pin.
L: 24mm, T: 2mm, W: 2.5mm. Context 245, SF1011 Period 5A.
248. (Not illustrated) Curved rod of circular section. Distorted pin shank or bracelet fragment?
L: 22mm, T: 2mm. Context 2161, SF1080, Period 7.
249. (Not illustrated) Circular-sectioned thick bronze rod.
L: 69mm, T: 4mm. Context 2179, SF1110, Period 6A.
250. (Not illustrated) Pointed tip from a circular-sectioned pin or needle.
L: 39mm, T: 1.75mm. Context 1080?, SF1156, Period 5?
251. Strip, broken at one end and nipped to a rod at the other.
L: 39mm, W: 45mm, T: 1mm. Context 315, SF106, Period 11.
252. Length of copper alloy ribbon folded in half.
L: 97mm, W: 19mm, T: 9.25mm. Context 3, SF108, Period U/S.
253. Thin tapering strip with one rounded end.
L: 41mm, W: 4mm, T: 1mm. Context 306, SF223, Period 11.
254. (Not illustrated) Thin strip.
L: 25mm. W: 3mm, T: 0.25mm. Context 1534, SF364, Period 10A.
255. Curved strip with one rounded end. No decoration. Bracelet fragment?
L: 60mm, W: 8mm, T: 3mm. Context 71, SF422, Period 7B.
256. (Not illustrated) Strip with rounded ends.
L: 41mm, W: 5mm, T: 1mm. Context 1502, SF446, Period U/S.
257. (Not illustrated) Thin strip folded in three.
L: 15mm, W: 5.5mm. Context 1515, SF485, Period 11.
258. (Not illustrated) Thin strip.
L: 32.5mm. Context 75, SF526, Period 10A.
259. (Not illustrated) Strip with straight edges, tinned on both faces.
L: 15mm, W: 11.5mm, T: 1mm. Context 1805, SF702, Period 10A.
260. (Not illustrated) Small strip with scalloped edges. Very heavily tinned on both faces.
L: 25mm, W: 13mm. Context 111, SF705, Period U/S.
261. (Not illustrated) Strip with converging edges.
L: 32mm, W: 5-6mm, T: 0.5mm. Context 2000, SF762, Period 10A.
262. (Not illustrated) Strip with straight edges.
L: 37mm, W: 4mm, T: 0.5mm. Context 76, SF875, Period 9.
263. (Not illustrated) Several curved strips with straight edges.
L: 61mm, 70mm, 45mm, 47mm, W: 15mm, T: 0.5mm. Context 454, SF947. Period 9.
264. (Not illustrated) Strip with parallel sides, pierced by at least one tiny square hole. Slightly curved in section.
L: 41mm, W: 19mm, T: 0.25mm. Context 455, SF968, Period 9.
265. (Not illustrated) Curled strip. Waste?
L: 100mm. Context 2033, SF1075, Period 5A.
266. (Not illustrated) Strip with one nipped end.
L: 25mm, W: 7mm. Context 2148, SF1082, Period 6A.
267. (Not illustrated) Two strips.
L: 106mm, 58mm, W: 9mm. Context 2148, SF1091 Period 6A.
268. (Not illustrated) Strip with slightly curved edges, pierced

by a rough hole, 6mm diam.

L: 52mm, W: 25mm, T: 0.25mm. Context 2174, SF1140, Period 5A.

269. Offcuts from a sheet.

L: 68mm. Context 315, SF117, Period 11.

270. Lump of bronze casting waste with a projecting rod which reflects the blow hole from a casting.

Context 379, SF357, Period 10A.

271. Cone of bronze casting waste.

D: 30mm, H: 19mm. Context 1513, SF632, Period 10.

272. Sprue cap.

Context 868, SF81 9, Period 7A.

273. (Not illustrated) Waste rod.

L: 45mm. Context 2172, SF1095, Period 6A.

274. (Fig 10.13) Copper alloy mount with two projecting lugs at the top pierced by circular holes. A third hole pierces the long bottom strip which expands to a point. The mount has oblique notching all round the edge. The central oval boss is in the form of a human face with large round eyes. The incised pupils are set obliquely and are lentoid in shape. The nose is wedge-shaped and the lips thin and straight. The head appears to be wearing a close-fitting cap. A small loop projects from under the chin.

This piece was missing when the small find report was compiled and has been described from a drawing. It comes from an unstratified context and has so far defied dating. Two possible parallels are the handle attachment on an early Saxon bucket from Souldern, Oxfordshire (*Oxoniensia* XL, 1975, 201-10), or the chafing dish handle supports of 16th or 17th century date (Lewis 1973, Type F, 67-8, Fig 1.F2 and Pl XIIIId: reference and information kindly supplied by Mrs A R Goodall). Continental Celtic parallels also come to mind (see Jacobsthal 1969) but also lack conviction.

Bronze and copper alloy waste:

Context 321, SF101, Period U/S.

Context 315, SF143, Period 11.

Context 315, SF147, Period 11.

Context 1502, SF322, Period U/S.

Context 76, SF438, Period 9.

Context 71, SF442, Period 7B.

Context 348, SF515, Period 9.

Context 1534, SF544, Period 10A.

Context 1516, SF554, Period 9.

Context 100, SF579, Period 10.

Context 54, SF611, Period 10.

Context 54, SF617, Period 10.

Context 91, SF626, Period 10.

Context 1805, SF690, Period 10A.

Context 2000A, SF780, Period 10A.

Context 229, SF1040, Period 10.

Unidentified copper alloy fragments:

Context 302 SF86 Period U/S.

Context 315 SF105 Period 11.

Context 315 SF122 Period 11.

Context 315 SF123 Period 11.

Context 315 SF116 Period 11.

Context 309 SF186 Period U/S.

Context 334 SF208 Period 10A.

Context 304 SF233 Period 11.

Context 304 SF234 Period 11.

Context 1503 SF297 Period U/S.

Context 1534 SF355 Period 10A.

Context 1515 SF411 Period 11.

Context 74 SF423 Period 8.

Context 76 SF437 Period 9.

Context 1513 SF445 Period 10.

Context 348 SF448 Period 9.

Context 1516 SF455 Period 11.

Context 1523 SF473 Period 11.

Context 71 SF481 Period 7B.

Context A U/S SF491 Period ?

Context 54 SF500 Period U/S.

Context 54 SF506 Period 10.

Context 54 SF514 Period 10.

Context 1516 SF545 Period 9.

Context 1516 SF549 Period 9.

Context 1506 SF565 Period 10A.

Context 1506 SF574 Period 10A.

Context 1506 SF578 Period 10A.

Context 1506 SF585 Period 10A.

Context 54 SF609 Period 10.

Context 99 SF629 Period 10.

Context 1506 SF634 Period 10A.

Context 75 SF635 Period 10A.

Context 1506 SF636 Period 10A.

Context 2 SF659 Period U/S.

Context 2 SF662 Period U/S.

Context 304 SF684 Period 11.

Context 304 SF691 Period 11.

Context 109 SF704 Period 10.

Context ? SF724. Period ?

Context 897 SF745 Period 10.

Context 2000A SF778 Period 10A.

Context 2000A SF781 Period 10A.

Context 2000A SF796 Period 10A.

Context 109 SF806 Period 10.

Context 84 SF885 Period 8.

Context 248 SF935 Period 7.

Context 248 SF936 Period 7.

Context 109 SF937 Period 10.

Context 449 SF943 Period 9.

Context 452 SF959 Period 9.

Context 240 SF1060 Period 6.

Context 2179 SF1096 Period 6A.

Context 1071 SF1133 Period 4.

Ironwork

275. (Fig 10.12) Iron javelin head with a long barbed point and an oval-sectioned shank which expands towards the end and passes through a barrel-shaped lead weight which is faceted leaving a scalloped effect.

Weight: 74.8g, L of lead weight: 34mm, Total L: 113mm, W across barbs: 17mm, L of head: 41mm. Context 2000, SF710, Period 10A.

276. Iron javelin head with a long barbed point similar to No 275. The oval-sectioned shank is solid and expands to the end. The lead weight is missing.

Weight: 19.6g, Total L: 104mm. W across barbs: 20mm, L of head: 39mm, Max T of shank: 11mm. Context 1512, SF434, Period 10A.

277. Iron javelin head with a long barbed point similar to No 275. The oval-sectioned shank on this example has a split socket. The lead weight is missing.

Weight: 22.6g, Total L: 109mm, L of head: 44mm, W of barbs: 20mm, Max T of shank: 13mm. Context 304, SF54, Period 11.

278. Leaf-shaped spearhead with a shallow groove to one side of the median line on both faces. This groove is not in the nature of a Blutrinnen but is the result of manufacturing the blade by folding the metal and not finishing the hammering. The circular socket is incomplete but appears to have had two rivet holes. The blade is offset from the line of the socket on one face. The tip is missing.

Total L: 198mm, Blade L: c 130mm, Max blade W: 37mm, Socket D: 19mm.

Context 2279, SF1162, Period 4.

279. Very small spearhead with a long leaf-shaped blade which is slightly curved to one side. The circular-sectioned socket is pierced by a single rivet hole. The tip is missing.

Total L: 156mm. Blade L: 104mm, Max blade W: 26mm, Socket D: 14mm.

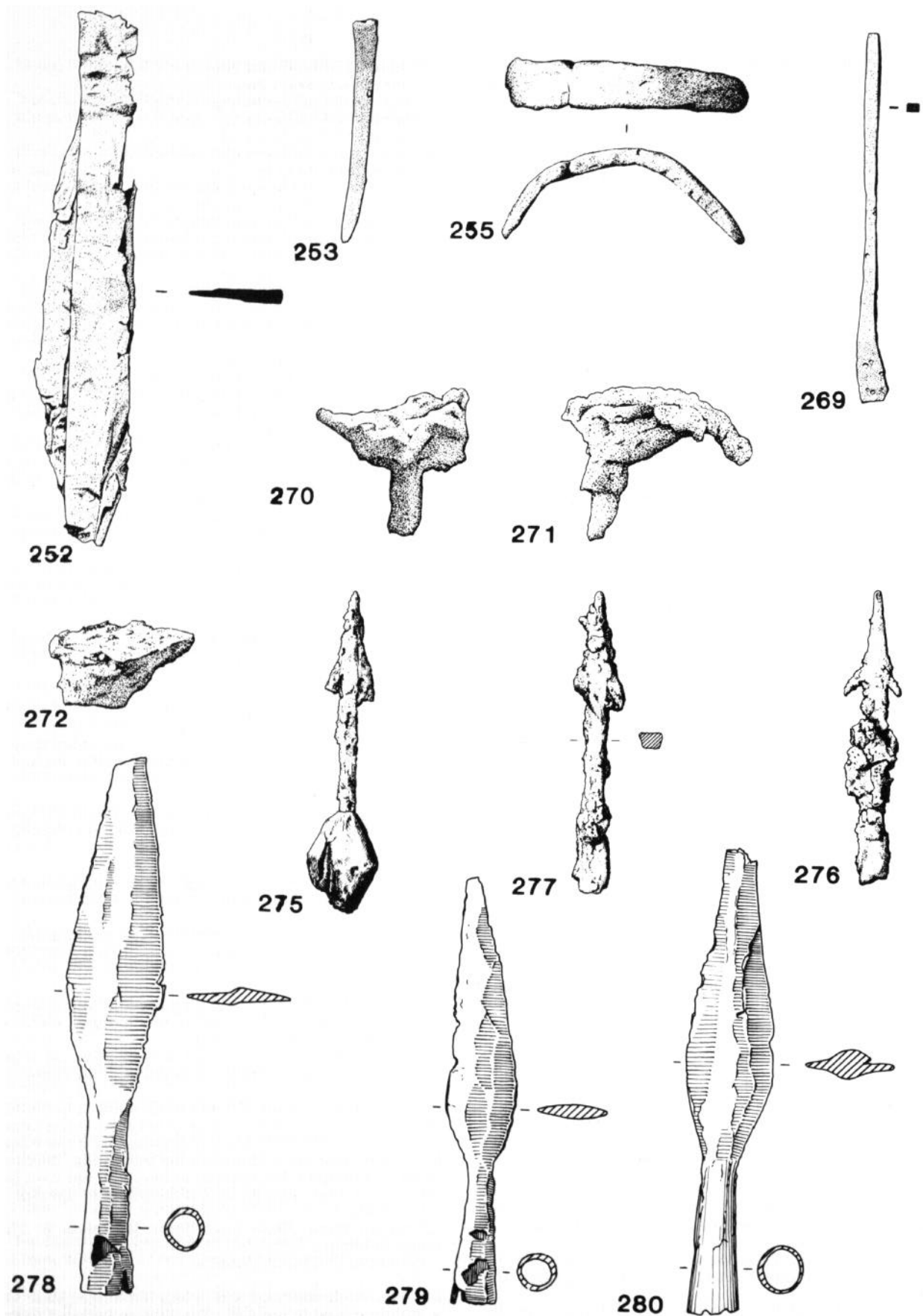


Figure 10.12 Small finds: objects of copper alloy and iron.

Context 2279, SF1155, Period 4.

280. Leaf-shaped spearhead with a wide median rib on both faces. The circular socket is pierced by a single rivet hole. Tip missing.

L: 170mm, Blade L: 108mm, Blade W: 32mm, Socket D: 18mm. Context 1320, SF1196, Period 3.

David Marchant, of Durham University, contributes the following comment on the spearheads from Segontium:

The quantity of weaponry from the 1975-79 excavations at Segontium - just three spearheads and three lead-weighted darts - is very small considering the extent and duration of the excavations. This situation is typical of most Roman military sites in Britain; weapons were evidently seldom lost or discarded. There must have been extensive re-use of scrap material (Bishop 1985, 220ff) and most of the finds that we have were probably thrown away or buried only when they were no longer of any use.

The three lead-weighted darts (Fig 10.12, Nos 275-7) are examples of the type of weapon known as the *plumbata* or *martio-barbulus*. The literary references to *plumbatae* belong to the last quarter of the 3rd century AD and later. The Segontium *plumbatae* were found in a late 4th-century context and are therefore in agreement with the literary evidence. Lead-weighted darts are discussed in the work of Vegetius (*Epitoma rei militaris* I,17; II,15; IV,291 and in the *De rebus bellicis* (X-XI), where they are also illustrated. Another reference occurs in the little-known military handbook by Modestus apparently addressed to the emperor Tacitus in AD 275 (Baudement 1851). It was probably from this source that Vegetius derived his information. These sources make it clear that *plumbatae* were fairly short weapons; Vegetius says that five darts were carried in the hollow of the shield. They had weights to aid penetration and were equipped with flights. Modern replicas of *plumbatae* of 2 to 3 feet length have been thrown distances of 70-80 yards, by untrained experimenters. These replicas were equipped with throwing thongs to increase propulsive power (Musty and Barker 1974, 275-7; Eagle 1989, 247-53).

Examples of javelins with barbed heads and lead weights have been found at several sites, both in Britain and on the Continent. These can readily be identified as the *plumbatae* of the classical texts. Lead-weighted spears have been found at Burgh Castle (Sherlock 1979, 101), Catterick (Wacher 1971, Fig 26, Nos 4-5), Doncaster (Buckland and Magilton 1972, 275), Richborough (Bushe-Fox 1949, 152, Plate LIX, Nos 295-6) and Wroxeter (Barker 1979, 97ff). Abroad, they have been discovered at Furfooz (letter from G Boon in *Current Archaeology* 26, May 1971, 85), Lauriacum (von Grollier 1908, Fig 42, No 3) and Weissenburg (Sherlock 1979, 101). An unpublished example is known from Lentia in Noricum (Linz in modern Austria), and there is a further example in Wiesbaden museum (pers comm J C Coulston). Few of these finds can be closely dated, but none seem earlier than the 3rd and some could date as late as the 5th century.

Vegetius states that *plumbatae* were in use in the reign of Diocletian and Maximian by two crack legions, I Iovia and I Hercules. However, it is clear from the contexts of many of the finds - including those from Segontium - that other types of troops also used these weapons.

The three spearheads (Fig 10.12, Nos 278-80) belong to the category commonly referred to as 'leaf-shaped', a rather general term which covers most Roman spearheads. Number 278 has an unusual feature, a shallow groove down the middle of both sides of the blade. There is a spearhead from Annetwell Street, Carlisle (Tullie House Museum Acc No OM 146) which has a similarly grooved blade (total length: 191mm). In both cases this could be an accidental feature, but it might be a deliberate design, eg as a blood channel. The spearhead from Carlisle is unfortunately undated.

Number 279 is a typically small, 'leaf-shaped' spear, with a drawn-out point. The slender blade would make it suitable for thrusting.

Number 280 has a prominent mid-rib on both sides of the blade. Such a feature is not common on Roman spearheads. The closest parallels are from Cirencester (Webster 1958, Fig 4, No

39 - 1st century?) and Portchester (Cunliffe 1975, Fig 124, No 171, dating not earlier than the late 3rd century). One should bear in mind however that resemblances between two spearheads (especially if from different sites) are largely coincidental; because of the random nature of the forging process, true standardisation was not possible. It is very tempting, but dangerous, to date spearheads by their shape alone. The Segontium spearhead came from a Trajanic-Antonine deposit.

More importantly for dating purposes, a stone slab from Segontium showing a figure thought to be the god Mars (see below, p 216) has a representation of a spearhead with a mid-rib. This is just like the example under discussion. The relief is dated to the 2nd or 3rd century and so does not conflict with the proposed date for the spearhead.

281. (Not illustrated) Thickened rim of a large vessel. Cf Cleere 1958, Fig 11, b and c.

T: 3mm. Context 1025, SF1054, Period 7A.

282. Rectangular-sectioned arm of a pair of dividers (?) tapering from the rounded hinge with square hole. Cf Wroxeter: Bushe-Fox 1913, Fig 10, No 14. See Manning 1985, 11-12 for other parallels.

L: 137mm, W of hinge: 16.5mm. Context 302, SF61, Period U/S.

283. Tongs or tweezers made from a circular-sectioned rod beaten flat in the middle and bent over at the flattened area to form a hinge. Tips are missing.

L: 166mm, W across hinge: 22mm. Context 2000, SF718, Period 10A.

284. Strip with one end curved. Arm of a pair of tweezers? Cf Housesteads: Manning 1976, No 120.

L: 66mm, W: 6.5mm, T: 2mm. Context 111, SF826, Period U/S.

285. Circular 'cup' with a flat base which projects slightly from the sides. The base has a central circular hole with four dome-headed rivets arranged around it. Cylinder lock cf Silchester: Reading Museum Acc Nos 08590 and 08591 (information from R Jackson).

Int diam: 50mm, H: 33mm. Context 74, SF593, Period 8.

286. Complete latchlifter with a square-sectioned shank which tapers to circular section. The end is looped in the opposite plane to the T-shaped bit. Cf Manning 1985, 023 (Lincoln).

L: 130mm, W across bit: 30mm, W across loop: 17mm. Context 110, SF658, Period 10.

287. L-shaped latchlifter with two teeth. Rectangular-sectioned shank. See Manning 1985, 026-33.

L: 96mm, W of shank: 10mm. Context 437, SF747, Period 9.

288. Crescentic blade with a rectangular-sectioned shank. The curved edge is deeply serrated. Possibly a craft tool. See below.

L: 82mm, W of blade: 60mm. Context 304, SF37, Period 11

289. Rectangular-sectioned shank which expands to an incomplete crescentic head similar to No 288.

L: 81mm, W across head: 26mm. Context 1802, SF669, Period U/S.

290. Crescentic blade with a rectangular-sectioned shank. The curved edge is deeply serrated as No 288 above.

L: 54mm, W of blade: 34mm. Context 148, SF818, Period 8.

291. L-shaped latchlifter.

L: 65mm. Context 1547, SF817, Period 9.

292. Key with rectangular shank and three teeth to the bit. Cf Manning 1985, 032 (Sandy).

L: 46mm, Max W: 18mm, T: 4mm. Context 302, SF889, Period U/S.

293. Hexagonal-sectioned rod narrowing to a broken splayed

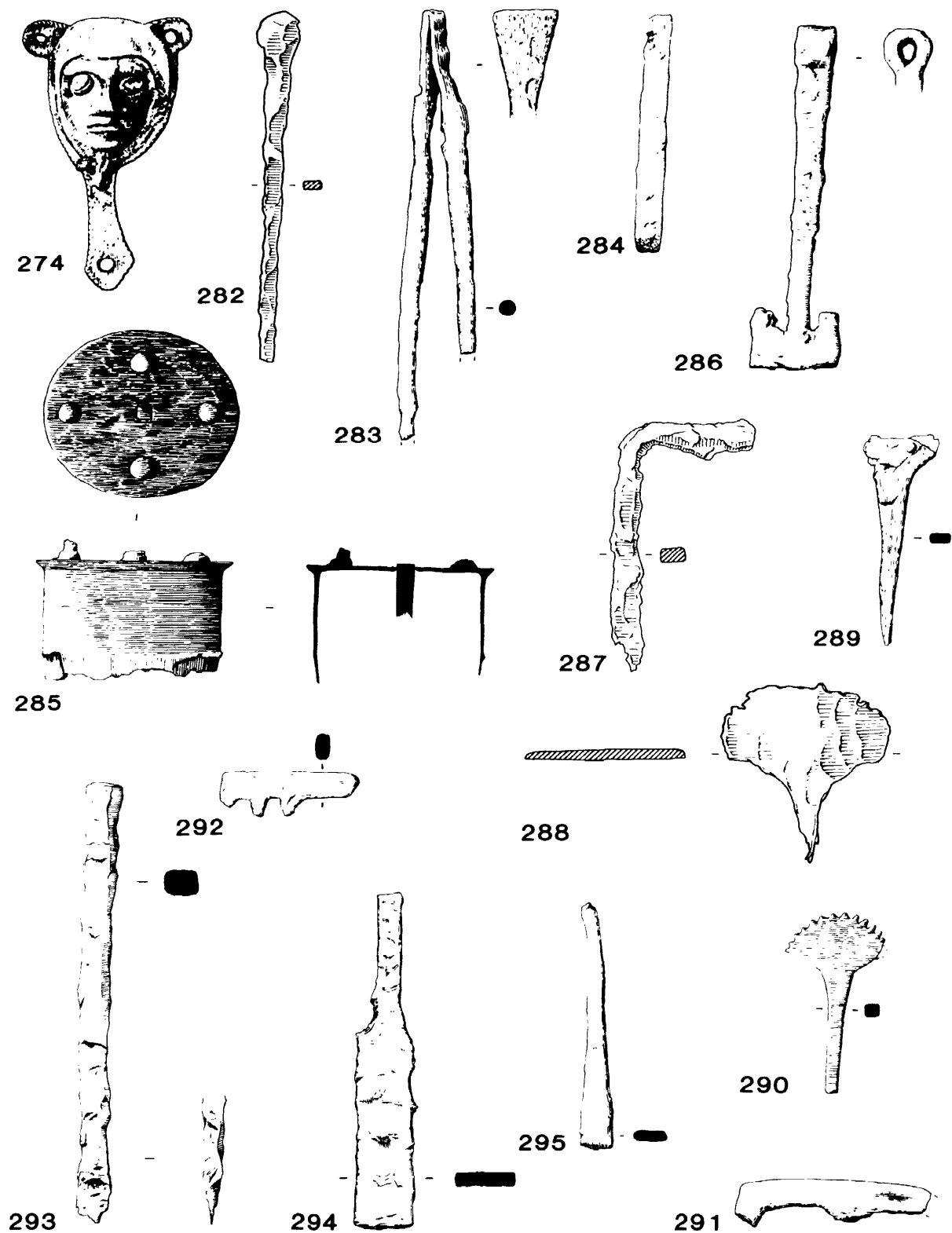


Figure 10.13 Small finds: objects of copper alloy and iron.

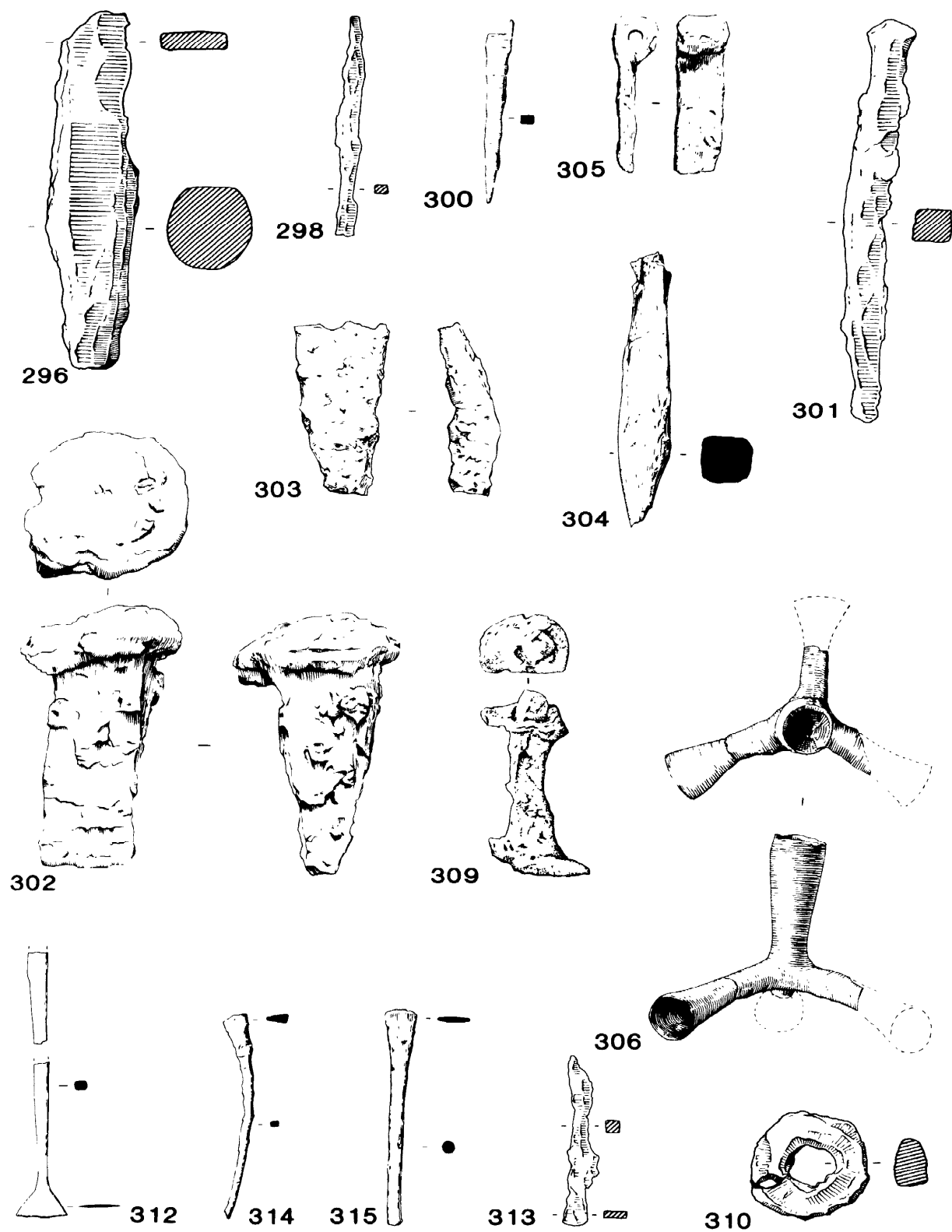


Figure 10.14 Small finds: objects of iron.

flat head. Chisel?

L: 169mm, W: 11mm, T: 12mm. Context 347, SF559, Period 10A.

294. Long rectangular iron strip with a blunt end. It tapers sharply to a narrower blade with a chisel end. Cf Colchester: Crummy 1983, No 2977.

L: 129mm, W: 19mm, T: 6mm. Context 897, SF750, Period 10.

295. Incomplete chisel with a long straight-sided blade and a circular-sectioned shank.

L: 94mm, W: 15mm. Context 1502, SF440, Period U/S.

296. Rectangular-sectioned block tapering to a blade set to one side. Mortice chisel? Cf Manning 1985, B38.

L: 135mm, W: 29mm. Context 1225, SF1170, Period 5B.

297. (Not illustrated) Rectangular-sectioned rod thickening in the centre. Punch?

L: 70mm, W: 18mm. Context 1225, SF1170, Period 5B.

298. Square-sectioned awl or punch which expands at one end and in the centre. Cf Brading: Cleere 1958, Fig 9a.

L: 85mm, W: 7mm. Context 1513, SF894, Period 10.

299. (Not illustrated) Incomplete square-sectioned rod tapering to a point. Awl or punch?

L: 96mm, T: 10mm. Context 110, SF664, Period 10.

300. Square-sectioned spike broken at the head.

L: 71mm, W: 9mm. Context 75, SF604, Period 10A.

301. Crowbar of square section tapering to one end. The head narrows before curving to a splayed wedge. Crowbars are rare finds from Roman Britain and this example is considerably shorter than the example from London (Manning 1985, C19) although similar in size and appearance to that from the Corbridge Hoard (Allason-Jones and Bishop 1988, Fig 74, No 87).

L: 156mm, W: 18mm. Context 2000A, SF798 Period 10A.

302. Short thick rock wedge showing much hammering on the head. Roman wedges are usually much longer and narrower than this example but squatter examples are known: see Manning 1976, No 63.

L: 95mm, D of head: 55mm, W of wedge: 32mm, Context 1513, SF428, Period 10.

303. Wedge-shaped block which curves and narrows in section as it splays.

L: 65mm, W: 32mm, T: 13mm. Context 223, SF1067, Period 7B.

304. Rod of rectangular section which expands in the middle. Incomplete bit-head? See Manning 1985, 27.

L: 104mm, W: 17.5mm, T: 15mm. Context 1568, SF893, Period 7A.

305. Strap hinge made from a rectangular bar. The strip narrows before curling to form the hinge and is pierced by a square hole (3.5 x 3.5mm) 30mm from the end. See Manning 1985, 127. Cf Portchester: Cunliffe 1975, Fig 130, No 235.

L: 59mm, W: 15mm. Context 109, SF763, Period 10.

306. Tubular candlestick with three splayed tubular legs. A more complete version with drip pan comes from Carrawburgh Mithraeum (Manning 1976, No 148). See also Portchester: Cunliffe 1975, Fig 131, No 249.

H: 63mm, Diam of socket: 18mm, W across legs: 45mm. Context 76, SF871, Period 9.

307. (Not illustrated) Part of a rectangular buckle with rounded corners. Cf Piggott 1955, C36.

L: 67mm, W of bar: 16mm. Context 315, SF136, Period 11.

308. (Not illustrated) Rectangular buckle with shanks project-

ing behind the hinge bar. Very thin in section. Roman?

L: 18mm, W: 19mm, T: 1.5mm. Context 1544, SF564, Period 9.

309. Shank of door handle? Rectangular in section expanding to a disc end. A second disc surrounds the shank 11mm from the opposite end.

L: 70mm, W of shank: 11mm, T of shank: 9mm, Diam of disc: 31mm. Context 1649, SF985, Period 7A.

310. Thick circular collar with convex outer wall and large rectangular hole in the centre.

D: 37mm, W: 7mm, T: 14mm. Context 331, SF168, Period 8.

311. (Not illustrated) Distorted and incomplete stylus with a circular-sectioned shank which expands to a shouldered spatulate eraser. Manning 1985, Type 3.

L: 89mm, W of eraser: 12mm, L of eraser: 27mm. Context 331, SF180, Period 8.

312. Stylus with rectangular-sectioned shank tapering to the wide spatulate eraser. Part of the clearly defined point survives. Manning 1985, Type 3a, 1st-early 2nd century AD. Cf Portchester: Cunliffe 1975, Fig 130, No 246.

L: 58mm, W across eraser: 18mm, T of point: 3mm. Context U/S, SF421, Period ?

313. Stylus of circular section with narrow splayed eraser. Manning 1985, Type 1/2. Cf Portchester: Cunliffe 1975, No 244.

L: 65mm, W of eraser: 8mm. Context 75, SF547, Period 10A.

314. Small curved stylus of rectangular section tapering to the point. The eraser is narrow with almost straight sides. Manning 1985, Type 1. Cf Portchester: Cunliffe 1975, Fig 130, No 248.

L: 82mm, W of eraser: 8.5mm. Context 1511, SF605, Period 8.

315. Oval-sectioned tapering shank with a narrow splayed head. Possibly stylus of Manning's 1985, Type 1a.

L: 84mm, W across eraser/head: 11mm. Context 2000, SF714, Period 10A.

316. Stylus with thick oval shank and spatulate eraser. Point is missing.

L: 87mm, W across eraser: 10mm. Context 2000, SF715, Period 10A.

317. Rod of rectangular section with an expanded end. Stylus?

L: 71mm, W across end: 11mm. Context 2000E, SF782, Period 10A.

318. (Not illustrated) Oval-sectioned rod in two fragments with spatulate end. Stylus?

L: 87mm, W across end: 9mm. Context 2279, SF1159, Period 4.

319. (Not illustrated) Strip with one straight edge, one curved. Three circular holes are pierced through the straight edge.

L: 50mm, W: 15mm. Context 334, SF257, Period 10A.

320. Iron knife or dagger with convex edges. The tang is set halfway up the blade and separated from it by an oval stop. The closest parallels to this knife and No 321 following were found in male graves at Lankhills cemetery, Winchester (Clarke 1979, 250), and dated to the 4th century AD. Unfortunately neither of the Segontium examples has a complete tang so it is impossible to assign them to Clarke's Type A or B.

L: 111mm, Depth of blade: 28mm. Context 2000A, SF1028, Period 10A.

321. Iron knife or dagger similar to above.

L: 123mm, Depth of blade: 38mm. Context 306, SF179, Period 11.

322. Iron knife. The blade has a convex back and rounded point. The edge is also convex with a lip just before the strip tang which runs to the end of the two-piece antler handle. The

handle, which is waisted and undecorated, is held in position by two iron rivets. Manning 1985, Type 5, 111.

Total L: 209mm, L of handle: 101mm, Depth of blade: 29mm, Max W of handle: 26mm, Total Max T: 20mm. Context 304, SF230, Period 11.

323. Triangular knife blade which curves up at the tip. The narrow tang follows the line of the back. Manning 1985, Type 11, 114.

L of blade: 86mm, Depth: 23mm. Context 810, SF347, Period 11.

324. Incomplete knife blade, triangular with rectangular-sectioned tang following the line of the back. Manning 1985, Type 11a, 114.

L: 118mm, Depth: 30mm. Context 2011, SF998, Period 6.

325. Knife with a curved back following the line of the tang and a straight edge. Manning 1985, Type 13, 114-5.

L: 110mm (inc tang); Depth of blade: 25mm. Context 7, SF62, Period U/S.

326. Cleaver with a straight back and curved edge. The rectangular-sectioned tapering tang is set slightly lower than the back line. Manning 1985, Type 15, 115-6.

Total L: 185mm, Depth: 62mm. Context 1547, SF854, Period 9.

327. (Not illustrated) Incomplete knife blade with a straight back and a convex edge. The tang is oval in section and continues the line of the back. Manning 1985, Type 15, 115-6.

L: 64mm, Depth: 24mm, T of tang: 9mm. Context 7, SF63, Period U/S.

328. Incomplete blade from knife with a straight back and convex edge. The lower back of the blade is curved. Tang is rectangular-sectioned. Manning 1985, Type 15, 115-6.

L: 99mm, Depth of blade: 31mm. Context 336, SF200, Period 10A.

329. (Not illustrated) Tip of knife blade with convex edge and back. Manning 1985, Type 16, 116.

L: 60mm, Depth of blade: 24mm. Context 302, SF94, Period U/S.

330. Knife with straight sides and a rounded point. The strip tang is set on the midline of the blade. Manning 1985, Type 16, 116.

L: 65mm, Depth: 16mm, W of tang: 6mm. Context 802, SF283, Period U/S.

331. Incomplete blade with a convex back and an undulating edge. The rectangular-sectioned tang continues the back line. Manning 1985, Type 21, 117: 'not an early form'.

L: 66mm, Depth: 20mm. Context 75, SF552, Period 10A.

332. (Not illustrated) Knife blade with convex edge and concave back. The rectangular-sectioned tang tapers and continues the back line. Manning 1985, Type 23, 118.

L: 130mm, Depth of blade: 32mm. Context 460, SF974, Period 10A.

333. Cleaver or knife blade with a concave back and straight edge which is upturned at the point. The tang is tapering and rectangular-sectioned and follows the back line. Manning 1985, Type 24, 118-9.

L: 226mm, Depth of blade: 37mm. Context 304, SF231, Period 11.

334. Knife with concave back and convex edge. The tang continues the back line. Manning 1985, Type 24, 118-9.

L: 104mm, Depth: 35mm. Context 334, SF243, Period 10A.

335. Fragment of a knife blade with straight edge and back.

L: 90mm, W: 23mm. Context 819, SF901, Period U/S.

336. Incomplete knife blade with straight edge and back.

L: 76mm, W: 13mm. Context 2011, SF998, Period 6.

337. Knife blade(?) in several fragments.

L: 89mm. Context 2011, SF1001, Period 6.

338. (Not illustrated) Iron strip with rounded end. Tang from a knife?

L: 83mm, W: 23mm. Context 1106, SF1187, Period 5A.

339. Fragment of a knife or tool with a circular-sectioned socket.

L: 41mm, Diam of socket: 12mm, Depth of blade: 24mm. Context 76, SF867, Period 9.

340. Large flanged iron bar of rectangular section. The sides have been hammered to form wings and then curved inwards. Cf Manning 1985, F17: spud or hoe; Manning 1966, No 1, 8: plough share.

L: 125mm, W: 32mm. Context 178, SF948, Period 7.

341. Conical ferrule.

L: 90mm, Diam: 20mm. Context 2094, SF1063, Period 5A.

342. Iron spike with pointed end. The other end is bent to an S ending in a narrower spike. Wall hook?

L: 186mm. Context 2174, SF1143, Period 5A.

343. (Not illustrated) U-shaped iron bracket or wall hook which narrows at the ends.

W: 70mm, H: 80mm, T: 15mm. Context 2279, SF1157, Period 4.

344. (Not illustrated) Right-angled bracket.

L: 57mm, W: 18mm. Context 2003, Period 10.

345. Length of twisted rod of oval section. One end is tightly curled and the other loosely hooked and slightly splayed. The whole rod curves to an S. Fragment of a cauldron hanger: cf Manning 1985, P9 from Water Newton. See also Piggott 1955, E8 and E9.

L: 89mm, W: 6.5mm. Context 1506, SF395, Period 10A.

346. Circular-sectioned rod tapering slightly to a rectangular-sectioned neck with a tight double-hooked head. The upper shank is decorated with a series of transverse ribs. Part of a cauldron hanger? See Manning 1985, Fig 27.

L: 90mm. Context 1513?, SF644, Period 10.

347. S-shaped hook of rectangular section. One end thickens as it curves and has a fragment of leather attached to it.

L: 128mm, W of rod: 9mm, T of rod: 10mm. Context 340, SF305, Period 10A.

348. Rectangular-sectioned rod bent to a C.

L: 196mm, W: 10mm, T: 7mm. Context 71, SF495, Period 7B.

349. Flat bar with expanded rounded end. Both ends bent to a right angle. Handle?

L: 80mm, T: 2mm. Context 1502, SF577, Period U/S.

350. Small hook of square section.

L: 30mm, T: 2mm. Context 1654, SF991, Period 10.

351. Y-shaped piece of iron with circular-sectioned arms and stem, all tapering. Apparently complete.

L: 31mm, W across arms: 15mm. Context 92, SF568, Period 10A.

352. Rectangular plate

L: 28mm, W: 20mm. Context 831, SF396, Period 7.

353. Strip with an expanded rounded head pierced by a square hole: 2 x 2mm.

L: 30mm, W: 21mm, T: 1mm. Context 1513, SF531, Period 10.

354. Strip with a lozenge head pierced by a circular shank or

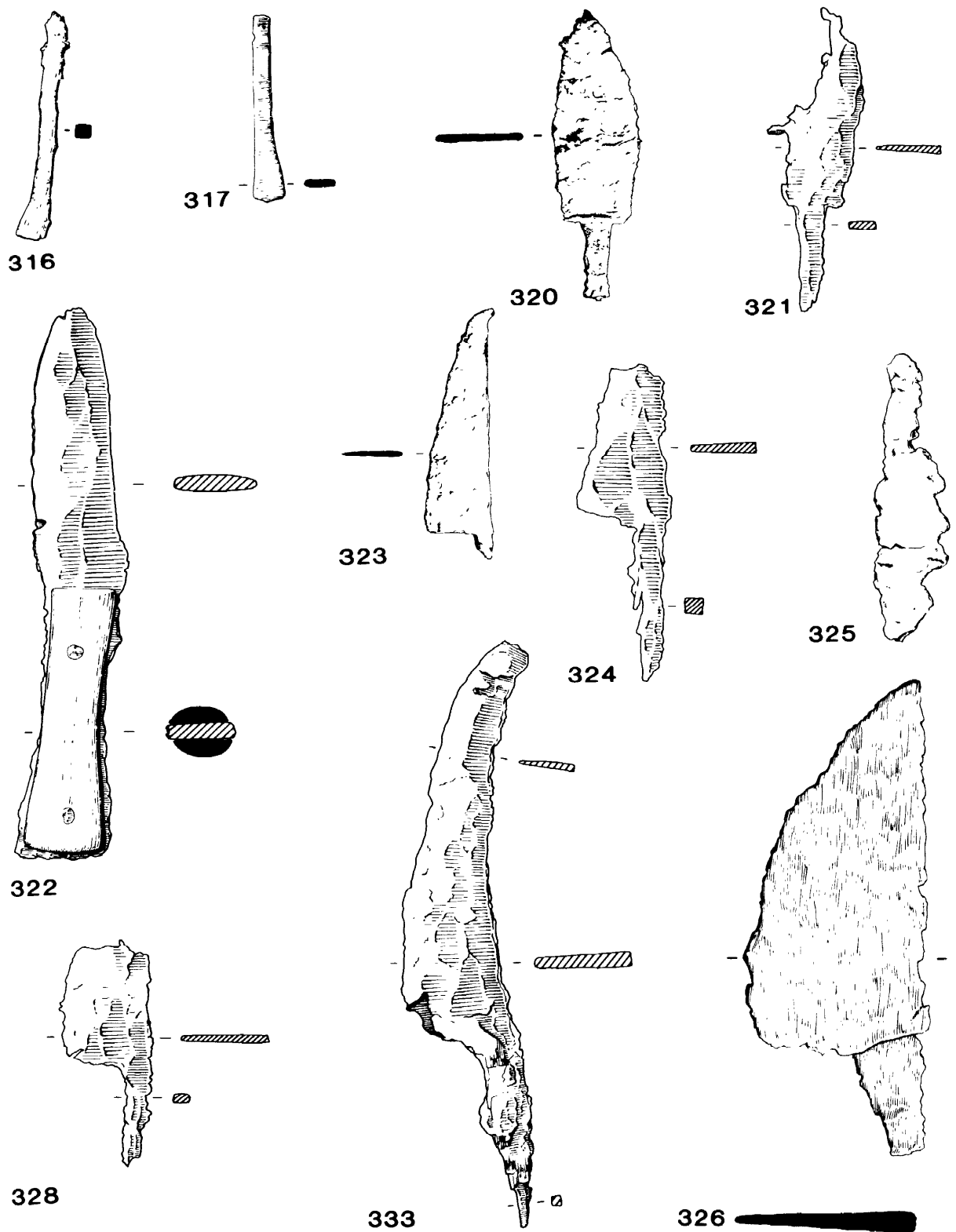


Figure 10.15 Small finds: objects of iron.

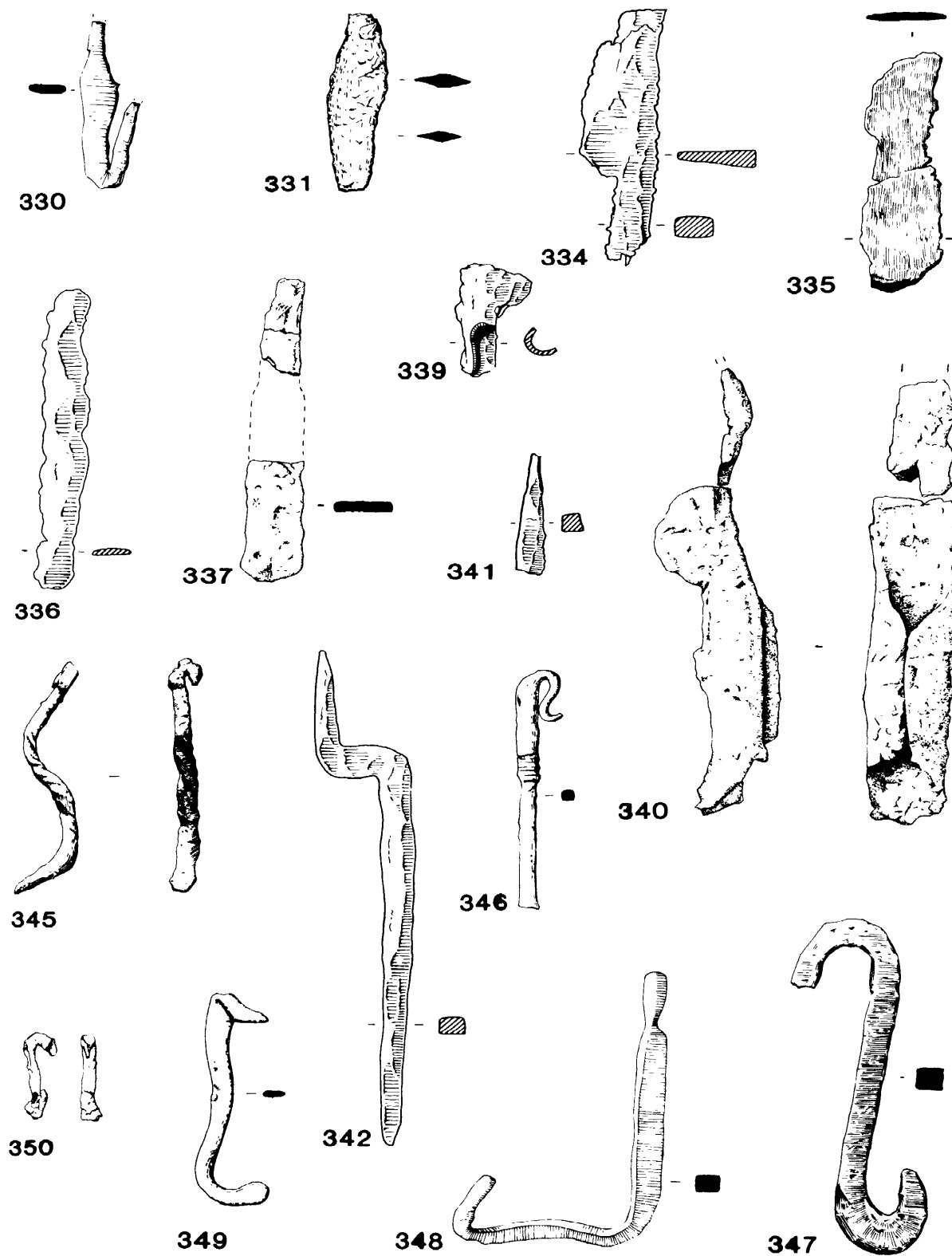


Figure 10.16 Small finds: objects of iron.

- rivet. A second piece curves to end in a ring head. Part of a drop hinge.
a) L: 72mm. W: 41mm, b) L: 40mm, W: 23mm. Context 75, SF624, Period 10A.
355. (Not illustrated) Single spiked loop with pear-shaped head. Manning 1985, 130.
L: 33mm. Context 2, SF75, Period U/S.
356. (Not illustrated) Single spiked loop.
L: 41mm, W: 19mm, T: 5mm. Context 75, SF499, Period 10A.
357. Double spiked loop. Manning 1985, 130.
L: 70mm. Context 1805, SF678, Period 10A.
358. Double spiked loop.
L: 77mm. Context 140, SF840, Period 10.
359. (Not illustrated) Incomplete double spiked loop.
L: 50mm, W: 15mm, T: 4mm. Context 140, SF868, Period 10.
360. (Not illustrated) Double spiked loop
L: 39mm. Context 76, SF872, Period 9.
361. (Not illustrated) Double spiked loop.
L: 85mm, W: 38mm. Context 1516, SF934, Period 9.
362. (Not illustrated) Strip which thickens and curves into a loop with one end wrapped around the shank.
L: 59mm. Context 464, SF994, Period 9.
363. (Not illustrated) Loop of iron rod, very corroded but possibly oval in section.
L: 68mm. Context 1502, SF449, Period U/S.
364. Disc head of stud or nail.
D: 35mm, H: 13mm. Context 350, SF414, Period 9.
365. Iron disc with convex face covered by copper alloy sheet with the edges folded under. Roman?
D: 54mm. Context U/S, SF651, Period U/S.
366. (Not illustrated) Incomplete hollow domed oval plate.
D: 40 x 35mm. Context 2081, SF1035, Period 5A.
367. (Not illustrated) Several fragments of a ring.
No measurements possible. Context 336, SF197, Period 10A.
368. Annular ring of circular section.
D: 51mm, W: 8mm. Context 1502, SF474, Period U/S.
369. Small annular ring of circular section.
D: 18.5mm, W: 2mm, T: 2.5mm. Context 1513, SF608, Period 10.
370. Coil of oval-sectioned rod. Manning identifies these as ferrules: Manning 1985, S95-102b, 141-2.
H: 25mm, Ext diam: 32mm. Context 2148, SF1083, Period 6A.
371. (Not illustrated) Straight split socket flattening to a bar. Part of a chisel?
L: 44mm, D across socket: 14mm. Context 1516, SF680, Period 9.
372. Fragment of circular-sectioned wire.
L: 11mm, W: 2mm. Context 99, SF572, Period 10.
373. Square-sectioned rod tapering to a pointed end.
L: 131mm, W: 6mm. Context 111, SF667, Period U/S.
374. Incomplete pin of circular section with a globular clear glass head. Cf South Shields: Allason-Jones and Milet 1984, 5.94.
L: 47mm, W of head: 14mm, W of shank: 7mm. Context 1805, SF721, Period 10A.
375. Square-sectioned pin with a bifurcated head.
L: 53mm. Context 1585, SF883, Period 7A.
376. Pin of circular section with an expanded head.
L: 147mm, T: 6mm. Context 442, SF905, Period 10.
377. Curved square-sectioned bar.
L: 140mm, W: 8mm. Context 93, SF647, Period 10.
378. (Not illustrated) Circular-sectioned rod thickening to a rounded terminal. Spindle?
L: 87mm, W: 9mm. Context 2, SF79, Period U/S.
379. Very corroded rod of oval section.
L: 59mm. Context 331, SF180, Period 8.
380. (Not illustrated) Rectangular-sectioned rod.
L: 156mm, W: 6mm, T: 5mm. Context 306, SF181, Period 11.
381. (Not illustrated) Thin rod of circular section. Needle or pin?
L: 45mm, T: 2.25mm. Context 356, SF262, Period 9.
382. Fine tapering rod.
L: 112mm. Context 897, SF741, Period 10.
383. Distorted strip with splayed ends.
L: 84mm, W: 7mm, T: 2.5mm. Context 155, SF820, Period U/S.
384. (Not illustrated) Long rectangular strip.
L: 150mm, W: 29mm. Context 1630, SF945, Period 9.
385. (Not illustrated) Bar of oval section tapering to one end.
L: 112mm, T: 8mm. Context 243, SF1010, Period U/S.
386. (Not illustrated) Rod of rectangular section.
L: 182mm. Context 1132, SF1144, Period 4.
387. (Not illustrated) L-shaped lift-key for a tumbler lock with a rectangular-sectioned shank curled at the end. The two teeth are incomplete. See Manning 1985, Fig 25, No 2.
L: 85mm, W of bit: 19mm. Context 2000A, Period 10A.
388. (Not illustrated) Rectangular-sectioned bar bent at one end and broken across a hole. Possibly a barb-spring padlock key. See Manning 1985, Fig 25, No 12.
L: 72mm, W: 12mm. Context 1513, Period 10.
389. (Not illustrated) S-shaped hook of rectangular section.
L: 66mm. Context 1513, Period 10.
390. (Not illustrated) Bar with a distorted hook at one end. The bar is pierced by a circular hole. End of a knife tang? See Manning 1985, Pl 54, Q22.
L: 46mm, W: 23.5mm, Hole: 3mm. Context 432, Period 8.
391. (Not illustrated) Thick bar tapering slightly to the end. The other end curves through 90 degrees but is broken. Drop-hinge staple. See Manning 1985, 127.
L: 37mm, T: 14mm, W: 16mm. Context 1568, Period 7A.
392. (Not illustrated) Rectangular-sectioned bar with an off-set, tapered end. Cranked tang of a tool. Cf Manning 1976, No 195.
L: 119mm, W: 11mm, T: 7mm. Context B304, Period 11.
393. (Not illustrated) L-shaped rod tapering markedly towards the long end.
L: 77mm, W: 8mm. Context 432, Period 8.
394. (Not illustrated) Curved fragment of a rectangular buckle?
L: 36mm. Context 1562, Period U/S.
395. (Not illustrated) Rectangular iron bar with two rectangular arms attached at right angles through countersunk circular holes. This appears to be part of a balance used to weigh coins or

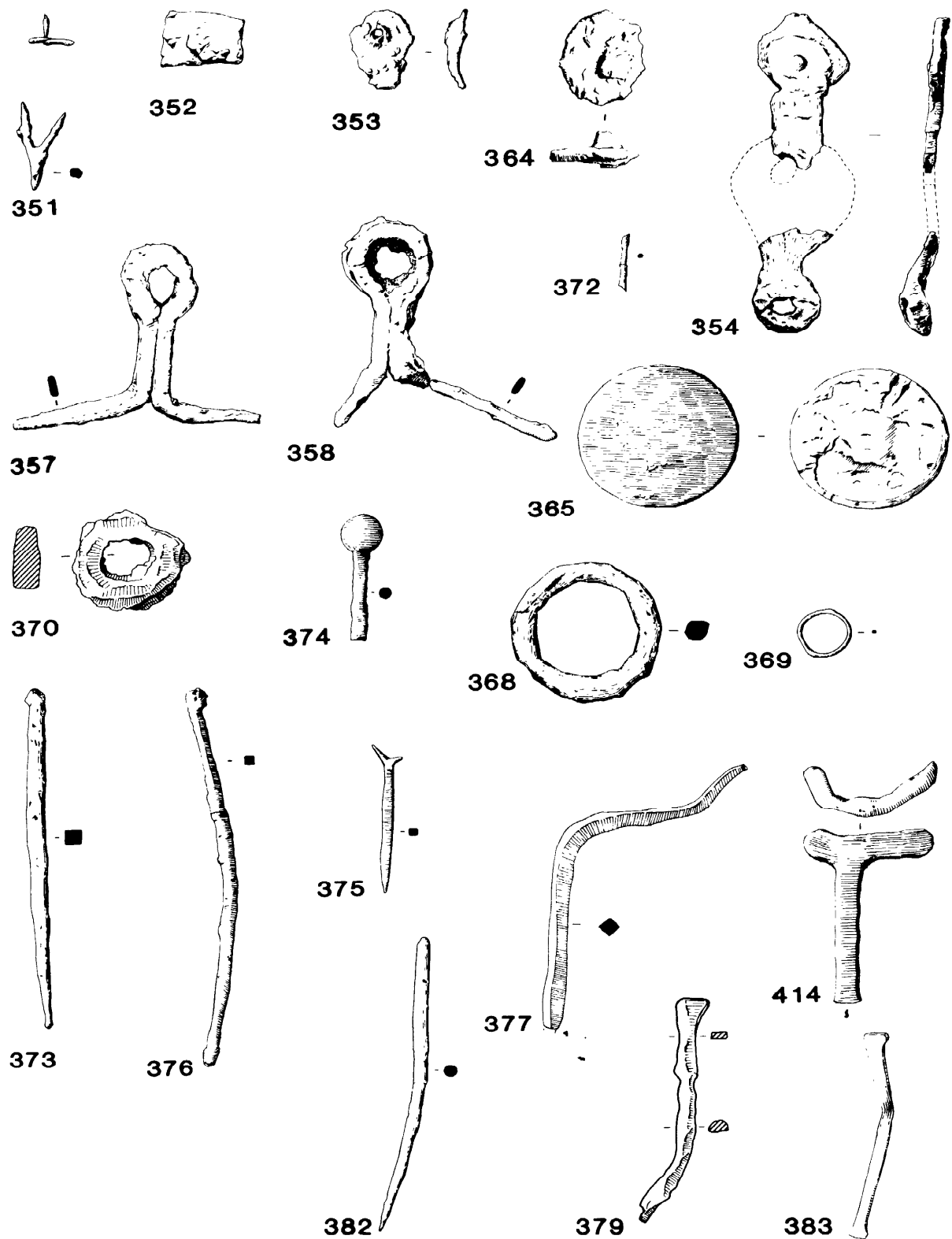


Figure 10.17 Small finds: objects of iron.

precious metals. See Crossley 1981, 64 for references to medieval examples.

W: 53mm. L of arms: 87mm. Context 304, Period 11.

396. (Not illustrated) Thin iron wedge.

L: 103mm, Max W: 35mm. Context 192, Period 6A.

397. (Not illustrated) Several strips of iron bar and sheet with two rectangular strips of copper alloy with disc-headed rivets through. All apparently from the same object although no shape survives and the fragments are covered in a concretion which contains plant fibres.

Bars: W: 13mm, T: 5.5mm; Sheets: T: 1.5mm, Copper alloy: 32 x 15, 16 x 15mm. Context 2172, Period 6A.

398. (Not illustrated) Bar of indeterminate shape with a countersunk rectangular hole.

Hole: 4 x 2.5mm. Context 819, Period U/S.

399. (Not illustrated) Bar bent through 90 degrees and broken at both ends. Buckle fragment or clamp?

L: 45mm, T: 6mm. Context 1516, Period 9.

400. (Not illustrated) Bar of rectangular section twisted through 90° in both directions and tapering towards both ends.

L: 54mm. Context 119, Period 7A.

401. (Not illustrated) Rectangular bar broken across a square hole.

L: 74mm, W: 12mm. Hole: 3 x 3mm. Context 75, Period 10A.

402. (Not illustrated) L-shaped bar.

L: 88mm. Context 1534, Period 10A.

403. (Not illustrated) L-shaped bar.

L: 64mm. Context 811) Period U/S.

404. (Not illustrated) L-shaped bar.

L: 30mm. Context 2000A, Period 10A.

405. (Not illustrated) L-shaped bar.

L: 43mm, T: 8mm. Context 396, Period 8.

406. (Not illustrated) Incomplete oval-sectioned rod.

L: 101mm, W: 6mm, T: 5mm. Context 1587, Period 8.

407. (Not illustrated) Oval-sectioned rod tapering towards one end.

L: 201mm. Context 342, Period 10A.

408. (Not illustrated) Circular-sectioned rod lacking both ends.

L: 86mm, T: 4mm. Context 75, Period 10A.

409. (Not illustrated) Paz-t of a hexagonal washer?

W: 32mm. Context 110, Period 10.

410. (Not illustrated) Rectangular plate pierced by a circular hole at the end.

L: 47mm, W: 19mm, Hole: 6mm. Context 334A, Period 10A.

411. (Not illustrated) Wire staple tapering to both ends.

W across loop: 21mm. Context 334A, Period 10A.

412. (Not illustrated) Curved sheet followed in concretion.

L: 88mm. Context 110, Period 10.

413. (Not illustrated) Incomplete iron bracket formed from a strip bent to a 90° angle.

Total L: 104mm, W: 20mm. Context 2003, SF986, Period 10.

414. T-shaped bar with both arms curving and rounded at the ends.

L: 64mm, W across arms: 61mm. Context 2000, SF767, Period 10A.

Iron Nails (Not illustrated)

Rectangular section, square head. L: 165.5mm. W: 11mm. Context 79, SF529, Period U/S.

Square section. Fragment. L: 51mm, W: 7mm. Context 91, SF548, Period 10.

Rectangular section. Incomplete. L: 48mm. Context 1805, SF676, Period 10A.

Rectangular section. Incomplete. L: 69mm. Context 1805, SF676, Period 10A.

Oval section with shallow conical head. L: 120mm, W: 9mm. Context 2000A, SF786, Period 10A.

Rectangular section. Disc head. L: 162mm, D: 25mm. Context 848, SF878, Period 9.

Rectangular section. Disc head. Incomplete. L: 47mm, D: 27mm. Context 848, SF881, Period 9.

Square section. Disc head. L: 104mm, D: 24mm. Context 948, SF892, Period 5A.

Rectangular section. L: 154mm, D: 29mm. Context 1630, SF945, Period 9.

Rectangular section. Disc head. L: 104mm, D: 22mm. Context 1630, SF949, Period 9.

Rectangular section. Disc head. L: 50mm. D: 11mm. Context 1070, SF1078, Period 4.

Rectangular section. Disc head. L: 49mm, D: 10mm. Context 1070, SF1078, Period 4.

Rectangular section. Disc head. L: 162mm, D: 25mm. Context 2139, SF1105, Period 6.

Rectangular section. L: 130mm. Context 1269, SF1195, Period 3. Rectangular section. Disc head. L: 125mm, D: 23mm. Context 2049, SF1026, Period 3.

Hobnails

62 hobnails. Context 1506, SF610, Period 10A.

41 hobnails. Context 1506, SF620, Period 10A.

23 hobnails. Context 1071, SF1118, Period 4.

27 hobnails. Context 84, Period 8.

Unidentified iron

Context 84, SF970, Period 8.

Context 973, SF1002, Period 6A.

Context 2040, SF1020, Period 6.

Context 2094, SF1058, Period 5B.

Context 2199, SF1117, Period 4.

Context 392, SF454, Period 8.

Context 386, Period 10.

Context 1805. Period 10A.

Context 75, Period 10A.

Context 304, Period 11.

Cuirass Fragments

415. The fragments listed below were excavated in 1979 (Context 2172) and transported to the National Museum of Wales in the lump of earth in which they had been lifted in the hope that some plates would be intact. Unfortunately X-rays disclosed that the soil contained fragments of totally mineralised iron which had become broken whilst buried. The iron plates survived best where they were in contact with studs and buckles of copper alloy. This phenomenon was also noted in the Corbridge Hoard (see Allason-Jones and Bishop 1988). The recognizable fragments suggest that originally there was a breast plate, mid-collar plate and elements of three back plates from the left side of a cuirass belonging to the form first designated as Corbridge A by Robinson (1975). Close examination shows a remarkable resemblance between the Segontium fragments and the armour from the Corbridge Hoard the deposition of which has been dated to the first quarter of the 2nd century AD (Allason-Jones and Bishop 1988, 109). Scraps of copper alloy with tinned or silvered faces were found with the lorica fragments suggesting that the deposit was intended for scrap.

a. Two pieces of iron cuirass plates joined by a copper alloy lobate hinge. The plates are flexed at a 90 degree angle and there is a break along the hinge. Each part has had five rivets,

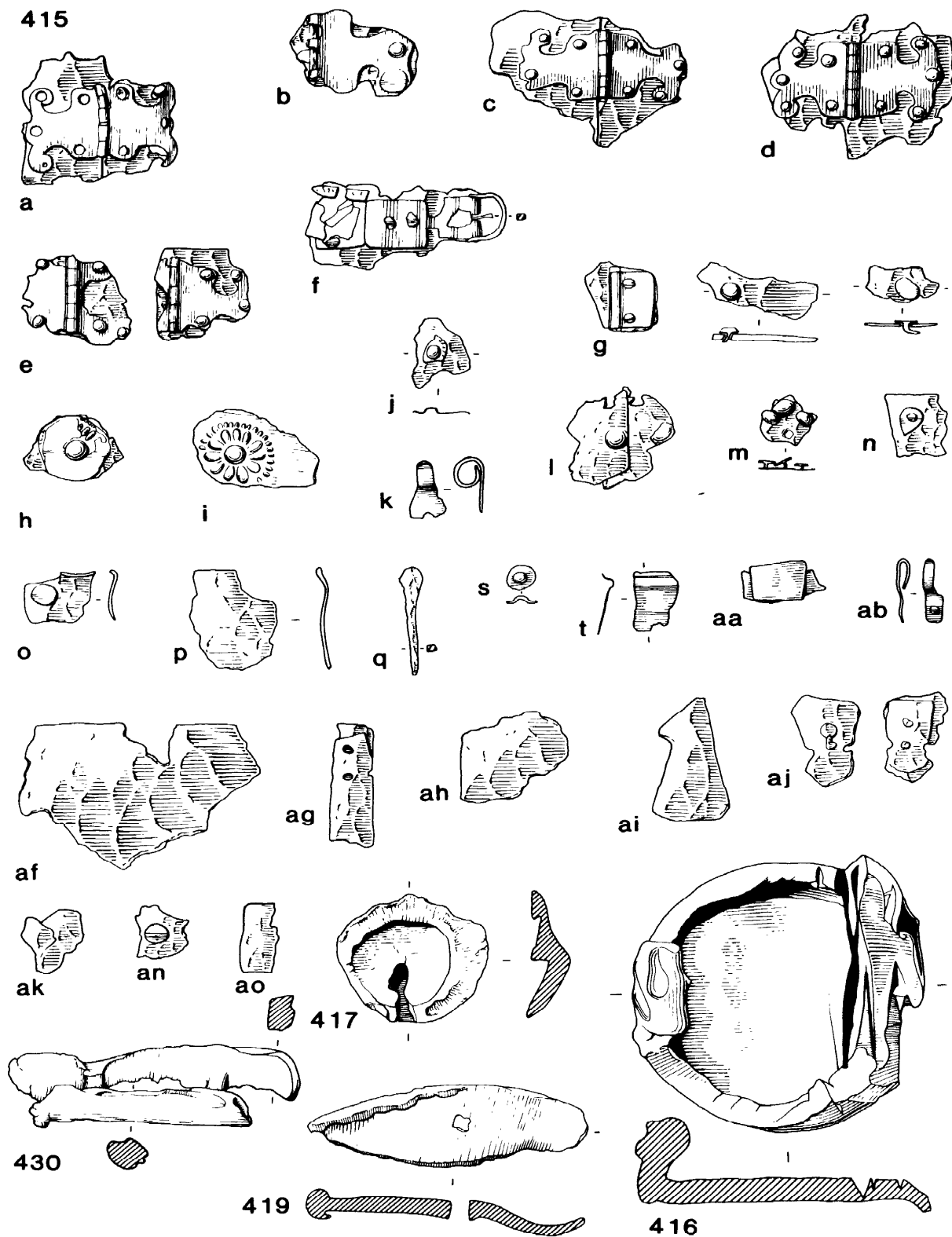


Figure 10.18 Small finds: objects of copper alloy, iron, and lead.

each with a thick disc head. Mid-collar plate/breast - or back-plate.

Total L: 56mm, Max W: 30.5mm, Max.L. of hinge: 28mm.

b. Part of a copper alloy lobate hinge with the iron hinge pin showing clearly. One dome-headed rivet survives (D: 5mm) and a second larger disc-headed rivet may be a repair (D: 10mm). Several fragments of iron cuirass plate were with this hinge.

L. of hinge: 25mm, Total L: 35.5mm.

c. Part of two iron cuirass plates joined together by a copper alloy lobate hinge. Each part has five dome-headed rivets. The hinge pin is of iron. Upper shoulder guard.

Total L: 55mm, Max W: 25mm, T of plates: 1mm.

d. Copper alloy lobate hinge with an iron hinge pin. Each part has five dome-headed rivets of varying sizes, not very carefully placed. The plates are flexed at a slight angle. The edges of the two iron cuirass plates are visible. Upper shoulder guard.

Total L: 59mm, Max W: 28mm, W across plates: 36mm.

e. Two pieces of iron cuirass plates with fragments of lobate hinges. The hinges are both attached with dome-headed rivets. Mid-collar plate/breast- or back-plate.

1) L of hinge: 29mm. 2) L of hinge: 28mm.

f. Copper alloy buckle - D-shaped with the ends expanded to enclose the iron hinge pin which is covered by a rectangular plate. Part of the pin survives ending in a small rectangular plate, either a stop or more probably a repair. This is hinged by an incomplete tubular hinge to a second rectangular plate which is pierced by two disc-headed rivets. Another pair of hinged rectangular plates is attached to the end of the second plate at right angles. An iron cuirass plate fragment lies behind all the pieces. The last rectangular plate is flexed back on to the one before. Left breast plate.

L: 61mm, W of 1st plate: 17mm, W of buckle at hinge: 18.5mm, L of 1st plate: 21mm, W of 2nd plate: 16mm, W of 3rd plate: 15.5mm.

g. Three pieces of iron cuirass plate, two with copper alloy rivets through, one disc-headed (D: 8 x 6.5mm) and one dome-headed (D: 7mm). The third piece has a rectangular plate of copper alloy held in position by two dome-headed rivets (D: 3 and 5mm). Only one section of the tubular hinge survives. Backplate?

L: 24mm. W: 14mm.

h. Large copper alloy embossed washer decorated with repoussé design of small pellets around the edge and longer pellets around a dome-headed rivet which attaches the internal leathering to the iron cuirass plate. When in position the domed head of the rivet forms the central boss of the washer. From upper shoulder guard.

D of washer: 26mm, D of boss: 7mm.

i. Large copper alloy embossed washer similar to above. From upper shoulder guard.

D: 28mm, D of boss: 7mm.

j. Fragment of an iron cuirass plate with a disc washer with a pelleted border around a dome-headed rivet - similar to but simpler than the above. From upper shoulder guard.

D of washer: 12mm, Total H: 5mm.

k. Top of the plate and hook of a copper alloy girdle plate tie hook. The end of the hook is curled right under until it touches the back of the plate which has broken across the upper rivet hole.

L: 23mm, Max W: 12mm.

l. Two pieces of iron cuirass plate with a shaped edge, fastened together by a dome-headed copper alloy rivet. The hole of a second rivet is visible at one broken edge. Backplate.

D. of rivet head: 8mm.

m. Small piece of iron cuirass plate with three oval-headed rivets and a hole for a fourth. One of the rivet heads is held close to the iron plate but the other two stand proud by two millimetres. Breast plate?

Rivet heads: 7 x 6mm.

n. Rectangular iron cuirass plate fragment with a rivet through a flat pear-shaped copper alloy plate. This type of leathering washer can be paralleled at Chichester (Down 1978, Fig 10.36, iii).

Washer: 11 x 8 mm.

o. Iron cuirass plate fragment with a thickened edge. A single disc-headed rivet survives.

D. of rivet head: 9mm.

p. Fragment of an iron cuirass plate with part of a raised rolled edge surviving.

L: 38mm.

q. Iron pin from a lobate hinge.

L: 40mm.

r. (Not illustrated) Very corroded copper alloy boss filled with lead-tin alloy.

D: 12mm.

s. Small flanged domed stud of copper alloy.

D: 9mm.

t. Copper alloy strip bent to a hollow rib in the centre

L: 22mm. W: 14mm.

u. (Not illustrated) Copper alloy rivet with a shallow domed head.

D: 8mm, H: 6mm.

v. (Not illustrated) Copper alloy disc-headed rivet with the shank set to one side.

D: 6.5mm. H: 6mm.

w. (Not illustrated) Fragment of a slightly tapering rectangular-sectioned copper alloy rod.

L: 27mm, Max W: 3mm, T: 2mm.

x. (Not illustrated) Copper alloy rivet with a shallow domed head.

D: 8mm, H: 6mm.

y. (Not illustrated) Rectangular copper alloy strip with one dome-headed rivet in position and a hole for a second.

L: 28mm. W: 11mm, D of rivet: 6.5mm, D of hole: 3mm.

z. (Not illustrated) Fragment of a bossed rectangular plate.

W: 24mm, L: 22mm, D of outer boss: 17mm, D of inner boss: 10mm.

aa. Two plates of copper alloy squashed together

L: 30mm.

ab. Part of the hook of a girdle plate tie hook.

L: 21mm. W: 3.5mm.

ac. (Not illustrated) Fragment of a stud or rivet with a lentoid head and a thick shank.

L: 11mm, W: 6mm, H: 7mm.

ad. (Not illustrated) Disc-headed copper alloy rivet,

D: 6.5mm. H: 2.5mm.

ae. (Not illustrated) Fragment of a piece of copper alloy plate with a roughly shaped rivet through it.

L: 16mm.

There were also several other fragments of copper alloy strip and plate, none of which had any recognizable shape or possible measurements. Possibly waste bronze.

Fragments of cuirass plate

af. Large sheet with a thickened rather than rolled edge.
L: 83mm.

ag. Two iron rectangular strips held together with two rivet holes.

L: 47mm, W: 16mm.

ah. Fragment of plain sheet with a thickened edge.
L: 30mm.

ai. Fragment with two thickened edges and a shaped corner. Corner of an upper shoulder guard or girth plate.
L: 47mm, W: 27mm.

aj. Two rectangular iron strips with two rivets. Rivets and washer from girth hoops.
L: 37mm. W: 16mm.

ak. Two fragments of iron plate which have rusted together, both with rolled edges. Mid-collar piece and back-plate (left).
L: 24mm.

al. (Not illustrated) Two fragments of iron plate rusted together.
L: 36mm.

am. (Not illustrated) Rectangular fragment of iron plate.
L: 25mm, W: 14mm.

an. Fragment of plate with a disc-headed copper alloy rivet. Back-plate?
D of rivet head: 8mm.

ao. Fragment of iron plate with rolled edges. Lower shoulder guard?
L: 26mm.

ap. (Not illustrated) Two disc-headed iron nails.
L: 40mm and 24mm.
Context 2172, SF1099, Period 6A.

Lead

416. Thick lead disc with a raised rim, with a lip at one side. Opposite the lip the disc has been damaged possibly by a plough. Lampholder: more complete examples are known from Pen Llystyn (Hogg 1969, Fig 15, L1 and L2) and Caerleon (Nash-Williams 1929, Fig 17, No 10: AD 70-110; Nash-Williams 1932, Fig 39, Nos 4-6). Two come from contexts dated AD 75-105 whilst a third is dated AD 105-200.

D: 103mm, H of rim: 24mm. Context 2369, SF1167, Period 4.

417. Domed lump of lead with an oval impression on the base and a cord impression across the section. Lead seals are becoming increasingly common finds on Roman military sites where they were used by the military and judicial authorities for sealing documents, boxes, etc. The largest groups come from Brough-under-Stainmore (Richmond 1936) where they covered a wide span of years, and South Shields where the majority appear to have been connected with the Scottish campaigns of the Severi (Allason-Jones and Miket 1984, 8.37). It is now impossible to tell whether the oval impression on the base of this example ever had any motifs or characters.

Impression: 17 x 17mm, H: 9mm. Context 802, SF19, Period U/S.

418. (Not illustrated) Crescent of lead with chamfered edges.
L: 43mm, W: 13mm, T: 6mm. Context 811, SF329, Period U/S.

419. Leaf-shaped lead plate with a square hole pierced through the centre surrounded by a circular depression suggestive of a washer.

L: 49mm, W: 16mm, T: 2mm, Hole: 3 x 3mm. Context 2000A, SF792. Period 10A.

420. (Not illustrated) Lead disc - possibly an ingot rather than a finished article.

D: 68mm, T: 4mm, Weight: 80gm approx. Context 304, SF290, Period 11.

421. Roughly circular disc with a central circular hole. The thickness varies and the edge is raised.

D: 29mm, T: 5mm, Hole: 5mm, Weight: 15gm approx. Context 302, SF888, Period U/S.

422. Disc with raised edges and a central circular hole, also with raised edges.

D: 41mm, Max T: 6.5mm, Hole: 8mm, Weight: 8gm approx. Context 1502, SF303, Period U/S.

423. (Not illustrated) Rectangular bar with a loop at one end. Weight?

L: 44mm, W: 18mm, Max T: 10mm, Weight: 35gm approx. Context 248, SF938, Period 7.

424. (Not illustrated) Tapering rectangular-sectioned rod with a long loop through one end.

L: 127mm. Context 2, SF83, Period U/S.

425. (Not illustrated) Rectangular-sectioned rod with both ends hooked.

L: 75mm, W: 4mm, T: 2mm. Context 451, SF955, Period U/S.

426. (Not illustrated) Squashed strip with a triangular hole neatly cut through.

Hole: 9 x 5mm. Context 75, SF535, Period 10A.

427. (Not illustrated) Twisted strip ending in a short hook.

L: 42mm, W: 5.5mm. Context 932, SF1027, Period 7.

428. (Not illustrated) Tapering oval-sectioned rod bent to a right angle.

L: 55mm, Max W: 7mm. Context 334, SF236, Period 10A.

429. (Not illustrated) Thick bar of rectangular shape and section.

L: 124mm, W: 10mm, T: 10mm. Context 76, SF880, Period 9.

430. (Fig 10.17) Two lead strips joined by two short legs. Clamp for mending pottery eg a Huntcliff type jar from South Shields has a large crack repaired with two such clamps (Museum of Antiquities, Newcastle upon Tyne Act No 1956.128.118.A).

L: 51mm. Context 1544, SF563, Period 9.

431. (Not illustrated) Clamp for mending pottery similar to above with a moulded rib on one face.

L: 62mm. Context 336, SF308, Period 10A.

432. (Not illustrated) Bar with three plugs projecting from it. Repair clamp.

L: 45mm. Context 397, SF527, Period 9.

433. (Not illustrated) Rectangular strip with one third folded over.

L: 25mm, W: 18mm, T: 1mm. Context 811, SF313, Period U/S.

434. (Not illustrated) T-shaped rod of lead.

L: 26mm, Max W: 24mm, T: 4mm. Context 2, SF369, Period U/S.

435. (Not illustrated) Lead sheet with one straight edge, the others undulate. One small rectangular hole is pierced through near one edge.

L: 157mm, T: 2.5mm, Hole: 3 x 1mm. Context 302, SF67, Period U/S.

436. (Fig 10.18) Rectangular sheet with rounded ends, pierced by an iron disc-headed nail near one end. Possibly a clip used to

hold together the seams between two sheets of lead, particularly on roofing. Such clips have been found in Saxon and Medieval contexts: (Harbottle and Salway 1964, 170-l).

L: 45mm. Context 425, Period 8.

437. (Not illustrated) Thin rectangular lead sheet with a short shank projecting from one edge.

L: 30mm, W: 23mm, T: 1mm. Context 811, SF312, Period US.

438. (Not illustrated) Large thick sheet with three straight edges. Roofing?

L: 320mm, Max W: 105mm, T: 5mm. Context 1010, SF1049, Period 5B.

439. (Not illustrated) Large roughly oval sheet folded in half and distorted.

T: 1mm. Context 1067, SF1129, Period 5B.

440. (Not illustrated) Sheet with cutting marks along the edges. Scrap.

L: 49mm. T: 1.5mm. Context 1081, SF1131, Period 5B.

441. (Not illustrated) Thick strip cleanly cut on the curve. Waste.

L: 123mm. Context 1697, SF1111, Period 6A.

442. (Not illustrated) Strip of distorted lead. Window canes?

L: 51mm. Context 314, Period U/S.

443. (Not illustrated) Fragment of lead waste.

Context 304, Period 11.

Lead waste fragments:

Context 7, SF57, Period U/S.

Context 315, SF115, Period U/S.

Context 315, SF153, Period 11.

Context 336, SF242, Period 10A.

Context 2000, SF717, Period 10A.

Context 2156, SF1090, Period 5.

Unidentifiable lead:

Context 811, SF315, Period U/S.

Context 1502, SF323, Period U/S.

Context 1507, SF377, Period 10A.

Context 53, SF419, Period 10A.

Context 53, SF461, Period 10A.

Context 93, SF523, Period 10.

Context 93, SF525, Period 10.

Bone (identified by J Rackham)

444. Fragment of antler inlay with three straight edges and one oblique. One face is decorated with two deep marginal lines. Cf New Market Hall, Gloucester: Hassall and Rhodes 1974, 73, Fig 28, 36, xiii, 4th-5th century context.

L: 16mm, W: 12mm, T: 2mm. Context 310, SF163, Period 10A.

445. Incomplete rectangle cut, unusually, from a rib of a large ungulate. One face is decorated with one large triple dot-and-ring motif (D: 12mm), and two smaller double dot-and-ring motifs (D: 8mm). A small circular hole pierces the plate at one broken edge disregarding the decoration. Inlay. Cf New Market Hall, Gloucester: (Hassall and Rhodes 1974, 73).

L: 31mm, W: 25mm, T: 2.25mm. Context 468A, SF995, Period 8.

446. Cow scapula with the edges trimmed flat and pierced by a large circular hole (D: 9mm). Trimmed scapulae are common finds on Roman period sites and have been described as scoops by MacGregor 1985, 179, probably used for handling flour. The hole is usually much smaller and nearer the narrow end than on the Segontium example and one would suspect that the position and size would affect its efficiency as a flour scoop. An example from Billingsgate, London, is inscribed (Jones and Rhodes 1980, 93, No 490). They appear to have been used

throughout the period and are also known from Viking contexts.

L: 85mm. Context 155, SF884, Period U/S.

447. (Not illustrated) Fragments of trimmed cow scapula. These appear to be two separate, although incomplete, scoops of a similar type to No 446.

L: 200mm approx. Context 2033, SF1107, Period 5A.

448. (Not illustrated) Part of a tubular sword pommel with rounded sides, cut from a long bone of a large animal. See No 449.

H: 37mm, Ext diam: 37mm. Context 1132, SF1147, Period 4.

449. Sword grip cut from the long bone of a large animal. The bone has been trimmed to rectangular section with splayed ends and three transverse ribs giving a fluted effect which serves a practical purpose in providing comfort for the fingers as well as decoration. Both this grip and the pommel (No 448) are very similar in appearance and measurements to the ivory grip and pommel already known on a sword from Segontium (Boon 1962, 85-9). On the first Segontium sword handle a thin bronzed band was added under the pommel, probably after the grip had split. There is no trace of such a band on the handle under discussion. Boon compared the first sword with that worn by T. Flavius Bassus on a 1st-century funerary monument. Boon suggests that the Segontium Sword is unlikely to be later than c AD 140 and there is no reason to suggest that this second handle should be dated differently.

L: 80mm, Max W: 22mm, T: 20mm. Context 2364, SF1169, Period 6.

450. Length of cow metatarsus with rounded ends. The face has been carved into wide ribs with incised transverse grooves. A similar object from the fort ditch at Richborough has been identified as a sword hilt (Bushe-Fox 1949, Pl LVI, 151, No 269) with parallels given from Newstead and a 4th-century grave find from Cologne.

L: 53.5mm. W: 22mm. Context 311, SF112, Period U/S.

451. Large boar's tusk pierced by a 7mm circular hole at the root. No trace of copper alloy binding survives. According to MacGregor (1985, 109) boars' tusks worn as amulets were particularly popular with German mercenaries who wore them in pairs held by bronze or silver sheaths. Some examples from Bichborough are illustrated in Hawkes and Dunning 1961, Fig 105. Boon discusses an example from the 1920 excavation at Segontium (1975, 62-4), drawing attention to the relationship between boars' tusks and Diana, goddess of hunting and the moon. He ends his note with a comment on the lack of such amulets from Hadrian's Wall. However, several are now known from fort sites in the area, and in particular, a group of five from Coventina's Well, Carrawburgh, all showing traces of bronze sheaths (Allason-Jones and McKay 1985, Nos 118-22).

L: 140mm. Context 1283, SF1190, Period 10.

452. Fragment of a handle or hilt made from the long bone of a large animal with deeply carved ridge and groove transverse bands and a double triangle at the surviving terminal.

L: 44mm, W: 20mm. Context 348, SF443, Period 9.

453. Antler tine which has been hollowed and trimmed to make a handle. The end is rounded and there is no attempt at decoration. Examples of this simple form of knife handle are given by MacGregor (1985, 168).

L: 81mm, W: 17mm. Context 2, SF42, Period U/S.

454. Handle made from an antler tine in a similar way to above but with a double row of stamped dot-and-ring motifs around the socket.

L: 77mm. Context 2000, SF779, Period 10A.

455. Fragment of a handle made from a long bone of a large animal. The surviving end is rounded and decorated with four incised transverse lines. At one broken edge there is a sunken arc which does not appear to be the result of natural flaking but the bedding for an inset.

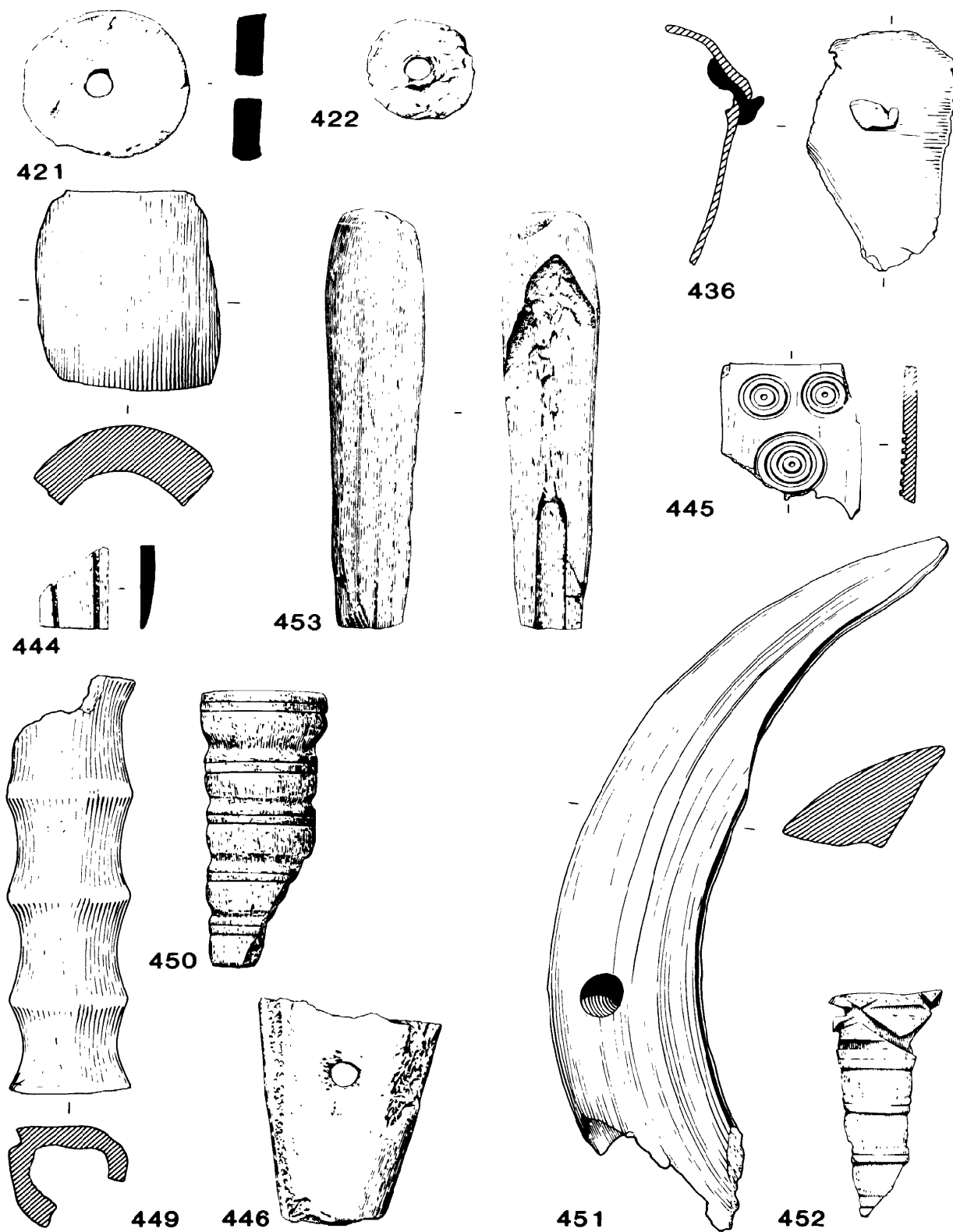


Figure 10.19 Small finds: objects of lead and bone.

L: 49mm, W: 23mm. Context 1662, SF1007, Period 7.

456. Two-piece knife handle of bone or antler which has been well-used in antiquity. Each piece is rectangular in shape and section with the ends cut to a concave shape. A deep triple rib motif runs down both sunken faces and the handle narrows sharply at the blade. A fragment of the iron blade and the whole of the tang survives - the tang running flush with the edge of the handle to the end. The handle appears to be rather short but the tang may have ended in a loop as happens on a knife from London (MacGregor 1985, Fig 88e). A similar handle was found in a context dated to AD 60-130 at Verulamium (Goodburn and Grew in Frere 1984, Fig 29, No 258).

L. of handle: 47mm, Total L: 80mm, W: 14.5mm, T: 13mm. Context 246, SF1029, Period 7.

457. Short handle cut from an antler tine. A circular-sectioned iron tang runs the length of the handle which narrows sharply at one end.

L: 37mm, T: 13mm. Context 1283D, SF1191, Period 1.

458. Sheep's metacarpal with a circular hole drilled transversely through the centre of the shaft. Such implements are described by Wild (1970, 34) as bobbins although Curie suggested that they were dress-fasteners and Houby preferred to regard them as toys (see MacGregor 1985, pp.102-3). Wild stated that he knew of none outside Britain and that 'few, if any, belong to the Roman period within the province. They seem to be purely native.' There are, however, two examples known from Zugmantel (ORL 8, Taf XX, Nos 91, 92) and they are becoming increasingly common finds on Roman military sites in Britain. Examples have been found during recent excavations at Piercebridge, Corbridge, South Shields, Wallsend and Housesteads forts but none so far from the native settlement sites on either side of Hadrian's Wall.

L: 93mm, Hole: 4mm. Context 334A, SF237, Period 10A.

459. Gaming counter cut from the metacarpal or tarsus of a cow with a central incised dot and a dished face. Kenyon 1948, Type A. See also MacGregor 1976, and Turner in Potter 1979, 76-9 for discussions of the possible games played with such counters.

D: 24mm, T: 2.5mm. Context 12, SF81, Period 7.

460. Disc cut from a long bone shaft with a central hole, 2.5mm diameter, with a bar across on one face. Gaming counter. Kenyon 1948, Type B2?

D: 19.5mm, T: 3mm. Context 854, SF553, Period 10.

461. Oval-sectioned antler rod lacking both ends. The antler has been softened and moulded by the method discussed by MacGregor (1985, 63-5). Bracelets made in this way have the ends held together by bronze or silver tubes, 42 are known from Lankhills (MacGregor 1985, 112-3). The internal diameter of this piece is rather large for a bracelet so it may have been intended to be worn as a necklace or, alternatively, the curve of the bracelet may have opened as the antler tried to regain its original form (pers comm Arthur MacGregor).

Int diam: 196mm, W: 3.5mm, T: 4mm. Context ?91, SF643, Period ?10

462. Circular-sectioned, thick, polished bone rod. The head is baluster-moulded and cupped at the end. The shank is broken after narrowing markedly beyond a deep groove. This may be a spindle (cf MacGregor 1985, Fig 101, No 3) or a bobbin (cf MacGregor 1985, Fig 100).

L: 59mm, T: 5mm. Context 1502, SF281, Period U/S.

463. Oval-sectioned shank ending in an oval head with a convex back and a flat face. The whole is warped and roughly shaped and appears to be an unfinished spoon of the type known from Verulamium (Goodburn and Grew in Frere 1984, 73, AD 80-310). Similar spoon blanks from Woodcuts are illustrated by MacGregor (1985, Fig 29).

L: 44mm, T: 4.5mm, W of head: 14mm. Context 111, SF808, Period U/S.

464. Disc neatly cut from a fragment of jaw bone (side of mandible?). The upper face is convex and the flat back is roughly filed. The sides are knurled. Lid?

D: 30mm, T: 7mm. Context 348, SF241, Period 9.

465. Onion-shaped polished bone pin-head with two lathe-turned lines around the tip. At the base a separate antler shank has been inserted. It has been suggested that a similar head from the Broch of Burrian was intended to take a metal shank (MacGregor 1975, 71, No 111) but there is no indication that the shank in question is a replacement.

L: 23.5mm, H of head: 14mm, D: 15mm, T of shank: 3mm. Context 2039, SF1006, Period 5A.

Bone Pins

All the bone pins have been cut from long bone shafts of large animals.

466. Complete pin with a disc head and an undercut grooved neck. The shank is roughly circular in section and slightly bowed.

L: 74mm, D of head: 5mm. Context 348, SF265, Period 9.

467. Pin with a circular-sectioned shank and a double disc neck. The disc head is decorated at the very end with incised radiating lines.

L: 23mm, D of head: 6mm. Context 92, SF543, Period 10A.

468. Long conical head of a pin with incised cross-hatching all over.

L: 20mm, T: 6mm. Context 437, SF886, Period 9.

469. Two fragments of a pin with a conical head and a disc neck. The shank is hippled. Crummy 1979, Type 5: c 250-early 5th century AD.

L: 62mm, W. of head: 7mm. Context 178, SF929, Period 7.

470. Very small pin with a conical head and a disc neck. Hippled shank. Crummy 1979, Type 5: c 250-early 5th century AD.

L: 50mm, W of head: 5mm. Context 331, SF226, Period 10A.

471. Pin with a roughly oval-sectioned hippled shank. The head is onion-shaped and sits on a disc neck. Crummy 1979, Type 5: c 250-early 5th century AD.

L: 76mm, W of head: 6mm. Context ?91, SF640, Period ?10.

472. Head of a pin with a circular-sectioned shank. The small conical head sits on a neck with three pronounced ridges. Crummy 1979, Type 5: c 250-early 5th century AD.

L: 23mm, W: 6mm. Context 1517, SF332, Period 11.

473. Baluster-moulded head from a pin of semi-oval section.

L: 14mm, W: 4.5mm, T: 3mm. Context 1516, SF594, Period 9.

474. Complete pin with a circular-sectioned hippled shank and a globular head. Crummy 1979, Type 3: c 200-late 4th/early 5th century. Allason-Jones and Miket 1984, Type A.

L: 84mm, W of head: 7.5mm. Context 392, SF540, Period 8.

475. Incomplete pin with a roughly-shaped hippled shank which is wider than the globular head. Crummy 1979, Type 3. Allason-Jones and Miket 1984, Type A.

L: 62mm, W: 4mm. Context 92, SF584, Period 10A.

476. Fragment of pin with a globular head and circular-sectioned hippled shank. Crummy 1979, Type 3. Allason-Jones and Miket 1984, Type A.

L: 29mm, W: 6mm. Context 155, SF748, Period U/S.

477. Complete pin with a hippled oval-sectioned shank which is slightly curved. The head is roughly globular in shape. Crummy 1979, Type 3. Allason-Jones and Miket 1984, Type A.

L: 100mm, W: 6mm. Context 109, SF802, Period 10.

478. Tapered circular-sectioned pin with an undecorated flat head.

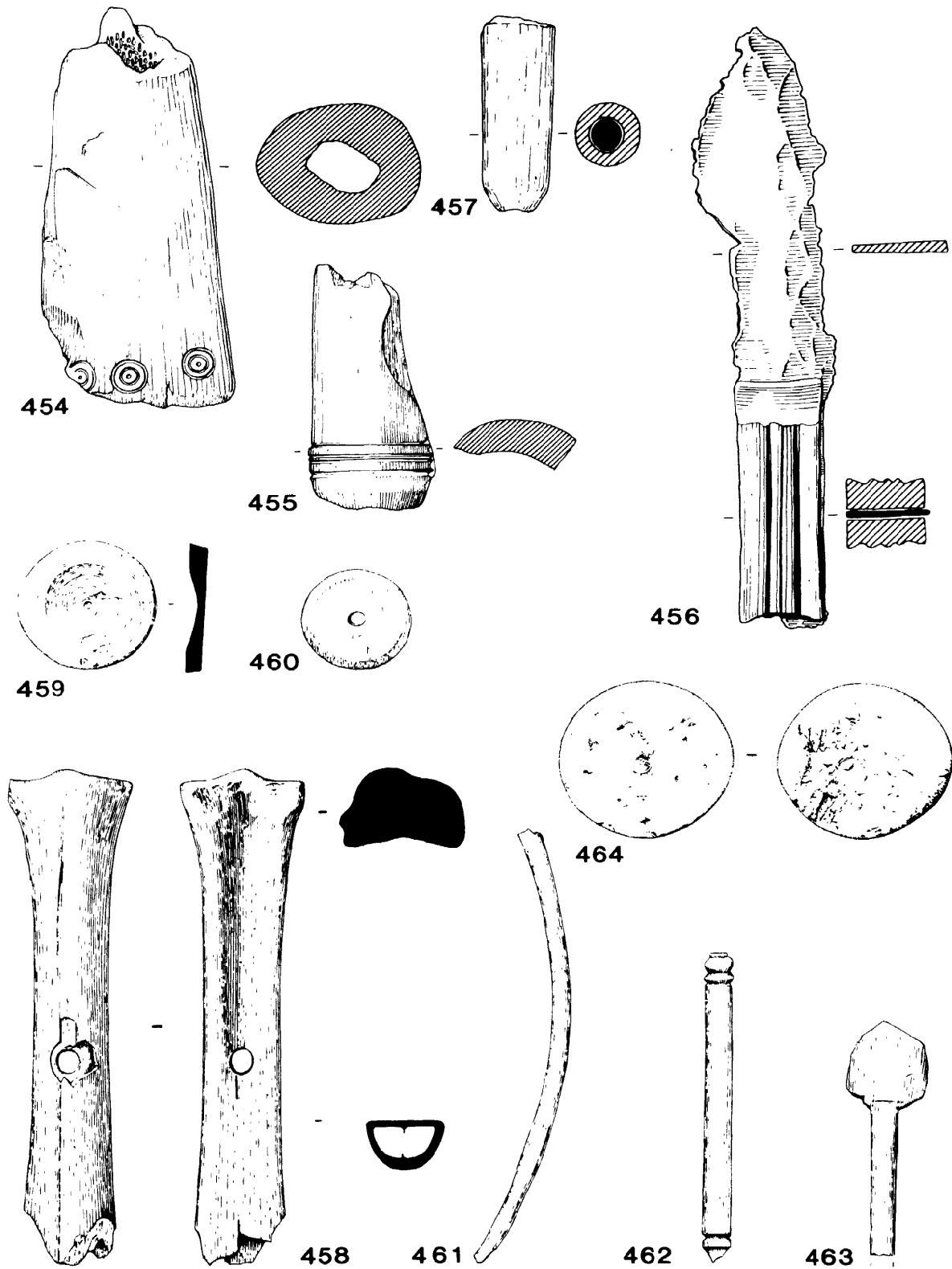


Figure 10.20 Small finds: objects of bone.

L: 89mm, T: 5mm. Context 23, SF161, Period 9.

479. Pointed end of a needle or pin.

L: 42mm, T: 2mm. Context 315, SF107, Period 11.

480. (Not illustrated) Re-sharpened point from a tapering oval-sectioned shank of a pin or needle.

L: 51mm, T: 3mm. Context 1513, SF606, Period 10.

481. (Not illustrated) Shank of a pin or needle of circular section.

L: 37mm, T: 4mm. Context 70-71, SF842, Period 7B.

482. (Not illustrated) Length of circular-sectioned bone rod with traces of iron corrosion at one end.

L: 39mm, T: 3mm. Context 2032, SF1068, Period 10.

483. (Not illustrated) Whittled rod of a long bone which is more carefully shaped at one end. This has been snapped off at one end and there is a lathe stock centre-mark at the other. Waste from bone carving.

L: 52mm. Context 118, SF989, Period 7.

484. Cow scapula (left side) which has been used in the manufacture of counters or buttons: one is still in situ having broken in the cutting and shows how the faces were dished before or during cutting. Each circle was cut from both sides using a centre-bit with an extended centre point to assist in aligning the drill on each side. MacGregor (1985, 101) discusses similar waste products from medieval button and bead manufacture.

D of surviving disc: 13mm. The discs would have been 2.5mm thick. Context 142A, SF726, Period 7B.

485. Tip of a red deer antler which has been whittled to emphasize the point.

L: 68mm. Context 1506, SF638, Period 10A.

486. (Not illustrated) Small antler terminal consisting of a short cylinder with a long hook projecting from the side at the rounded end. A lightly incised ring runs around the open end. Roman?

H: 20mm, W across hook: 31mm, D of cylinder: 8.5mm. Context 1, Period U/S.

487. Fragment of a red deer antler tine sawn across one end and rounded at the other.

L: 32mm, D: 18mm. Context 237, SF930, Period 7A.

488. (Not illustrated) Antler burr with the tines sawn off. The burr has been taken from a carcass and not shed.

Context 1165, SF1174, Period 6.

Intaglio by Martin Henig

489. Onyx intaglio with sides bevelled outwards.

Dimensions: 14 × 12 × 3mm. Shape F4 (Henig 1978, Fig 1). Context 1067, SF 1130, Period 5B.

Device

The gem depicts a lion walking towards the right. There is a ground line. (Impression described. Pl 10.1)

This is a common type on gems. As king of beasts the lion was a powerful protective symbol and, conversely, an image of destruction - it is often shown with the head of another animal in its jaws or on the ground in front of it (Henig 1977, 356-8). It also had an astrological significance.

The style of cutting - simplified, rounded body-modelling with some detailing applied by means of short strokes of the lap-wheel is what Dr Maaskant-Kleibrink (1978, 251-85) designates the Imperial Small Grooves Style. See Maaskant-Kleibrink 1978, 266 No 718 for a very similar rendering of a lion on onyx, though with a lion-head in its jaws. Comparison may also be made to a lion on an onyx intaglio from Chesters (Henig 1978 No 629).

The style was prevalent in the late 1st and early 2nd century

AD, which suits the archaeological context of the intaglio.

Shale

490. Rectangular block of shale with one corner missing. The upper face has a central, drilled, deep hole surrounded by three concentric circular ribs. This may have been used as a mould or more likely as a piece of inlay, the central hole having held an inset.

L: 46mm, W: 39.5mm, T: 10.5mm. Context 301, SF 275, Period U/S

491. Fragment of an undecorated shale bracelet of D-section.

Int diam: 46mm, W: 5mm, T: 8mm. Context 2, SF 33, Period U/S.

492. Fragment of a shale bracelet of sub-oval section without decoration.

Int diam: 70mm, W: 6mm, T: 6.5mm. Context 396, SF 462, Period 8.

493. Fragment of a thick shale bracelet of semi-oval section with heavily scored lines around its inner face.

Int diam: 75mm, W: 7mm, T: 11mm. Context 348, SF 576, Period 9.

494. Fragment of a shale bracelet of rectangular section. Incised oblique lines across the convex outer face encroach on both flat sides and are clearly intended to copy the more common cable-effect bracelets. Parallels where the inner face is left plain are known from Cologne (Hagen 1937, Taf 23, Abb 1, Bio 1) and Silchester (Lawson 1975, 252, No 34; 254, Nos 45 a and b). Both these examples are dated to the 4th century.

Int diam: 50mm, W: 7mm, T: 4.5mm. Context 70-1, SF 847, Period 7B.

495. Short shale pin which has split along a vertical plane. The head is faceted with an incised dot-and-ring motif on the sides and top. The shank is oval in section and the point is blunt, possibly recut after breakage. A similar pin in jet is known from York (RCHM 1962, Pl 69, Grave Group H105) where it is dated 3rd-4th century but the faceted head pin without the added decoration is one of the commonest types with parallels at South Shields (Allason-Jones and Miket 1984, 7.191-2021, Silchester (Lawson 1975, 258, Nos 65a and d) and in Germany (Hagen 1937, Abb 3).

L: 51mm, W of head: 10mm. Context 71, SF 488, Period 7B.

496. Globular shale block with a flat top and base, one narrower than the other. A 9mm diameter hole has been drilled through the centre. This is possibly a spindlewhorl similar to two from Silchester (Lawson 1975, Fig 14, 108a and e) but could equally be a dagger pommel.

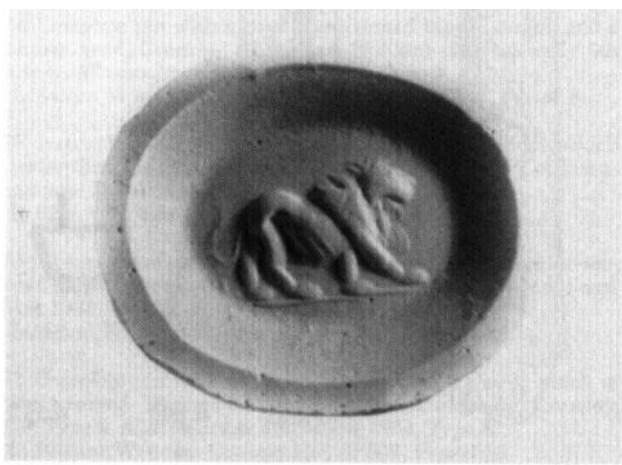


Plate 10.1 Intaglio

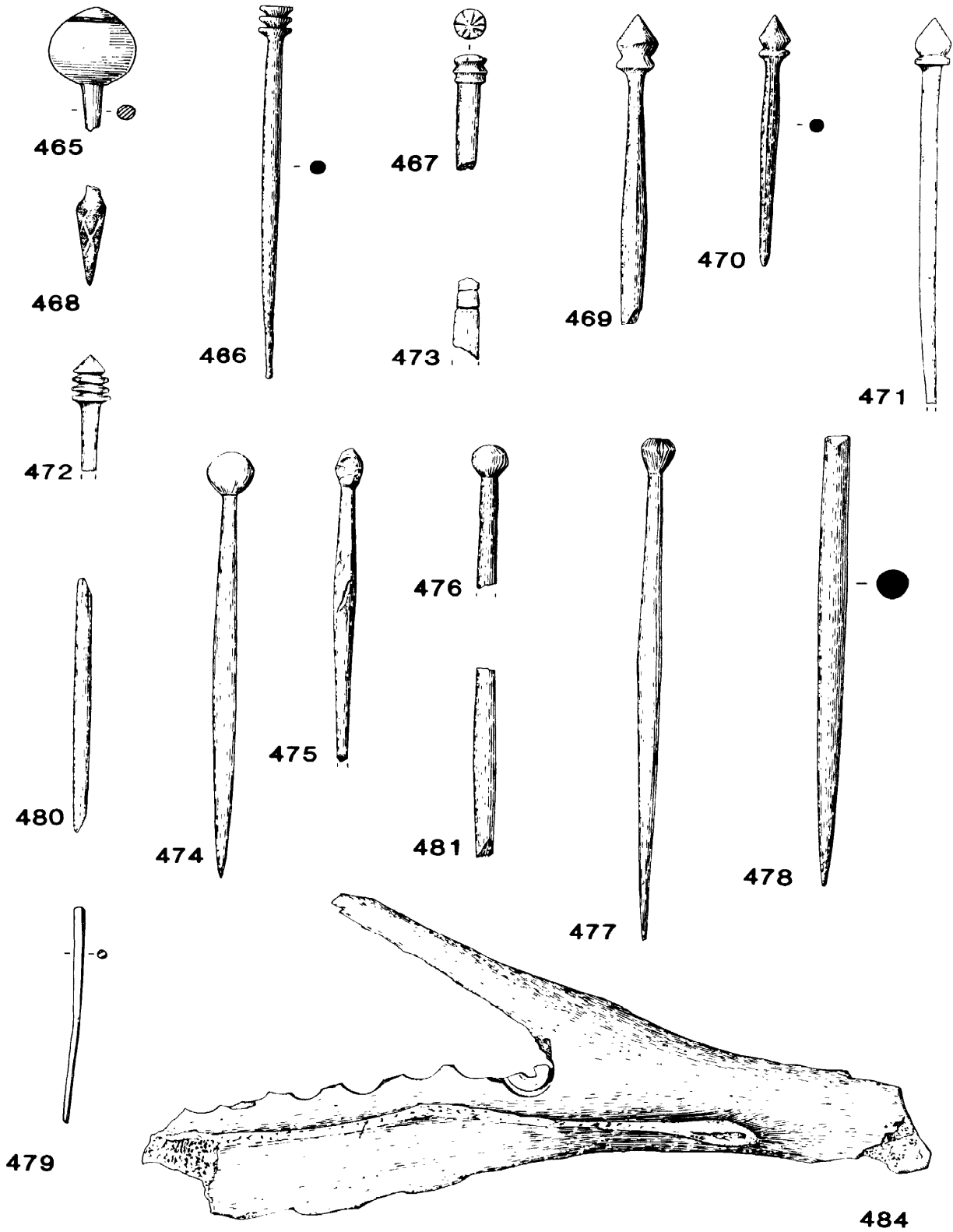


Figure 10.21 Small finds: objects of bone.

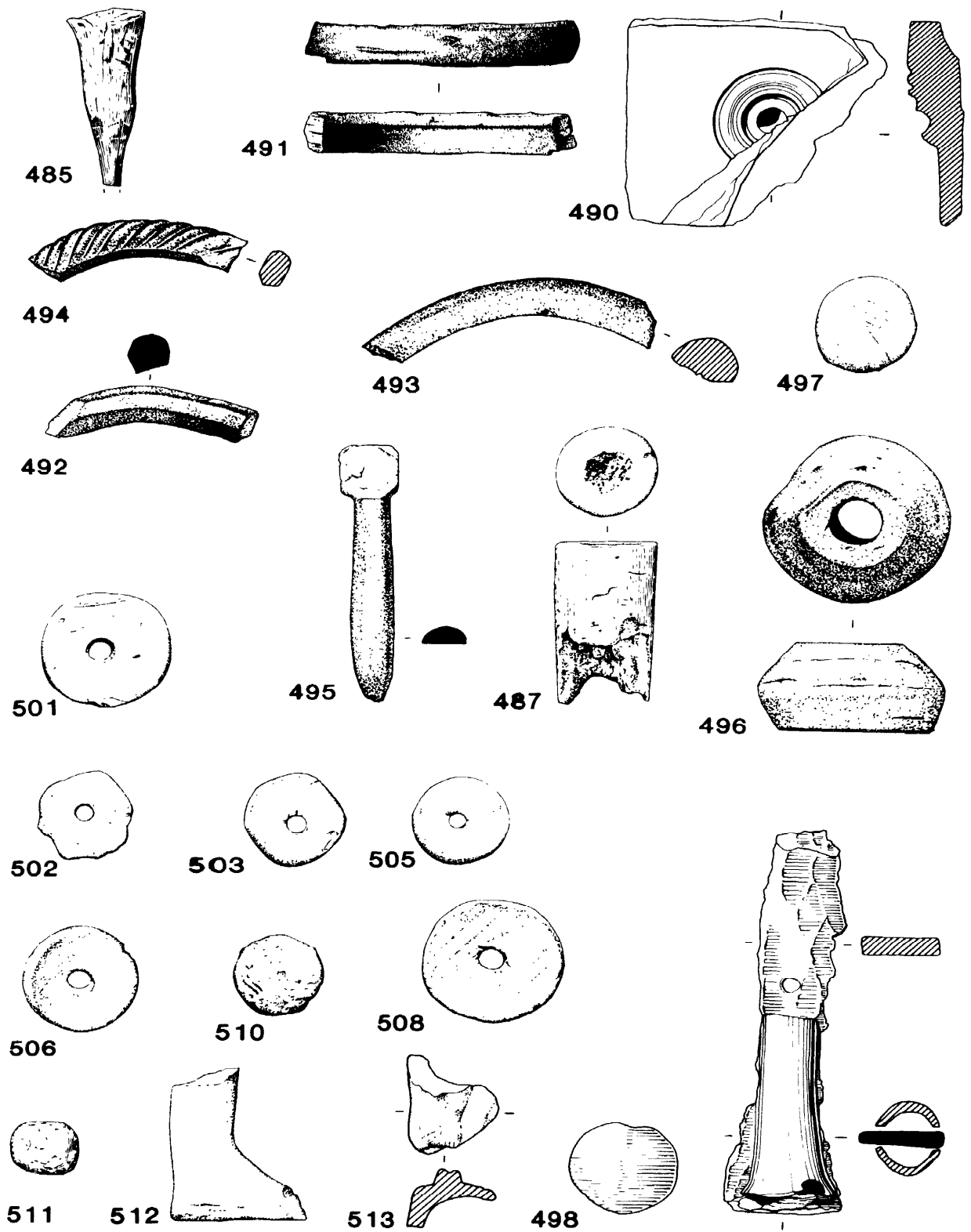


Figure 10.22 Small finds: objects of shale, wood, and pottery.

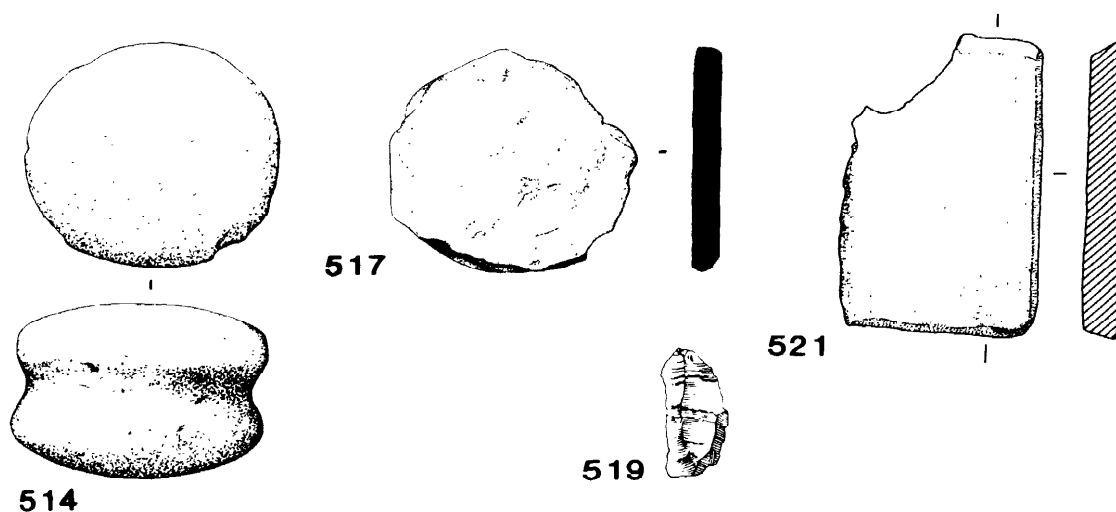


Figure 10.23 Small finds: objects of stone.

D: 31mm, H: 19mm. Context 75, SF 619, Period 10A.

497. Shale disc, possibly a gaming counter. Gaming counters in shale normally come in two forms: the bun-shaped (Allason-Jones and Miket 1984, 7.150-2) or the decorated wedge block (Allason-Jones and Miket 1984, 7.164-8) but flat discs are also known from South Shields (Allason-Jones and Miket 1984, 7.153) and Corbridge (Allason-Jones in Bishop and Dore 1989, 212 No 7).

D: 19mm, T: 3mm. Context 812, SF 376, Period 9.

Wood

498. Two-part wooden knife handle, both pieces being of semicircular section. The outer faces are covered in copper alloy sheeting with a copper alloy disc covering the expanded end. The iron tang runs the length of the handle and continues both the edge and the back of the incomplete blade.

L of handle: 38mm, D of handle: 19mm, W of tang: 10mm. Context 2003, SF 990, Period 10.

Pottery objects

(fabrics identified by JN Dore)

499. (Not illustrated) Half of a disc of Central Gaulish ware with a centrally drilled hole. From a vessel from the 18/31/31R series.

D: 42mm, T: 10mm, Hole: 5mm. Context 336, SF 250, Period 10A.

500. (Not illustrated) Disc cut from a terra sigillata vessel of unidentifiable type.

D: 4mm, T: 4mm. Context 304, SF 311, Period 11.

501. Disc cut from a curved wall-fragment of a Central Gaulish Drag. 31R vessel with a centrally drilled hole.

D: 47mm, T: 9mm, Hole: 7mm. Context 406, SF 538, Period 9.

502. Disc of varying thickness roughly cut from a fragment of a South Gaulish vessel with a centrally drilled hole.

D: 37mm, T: 8mm, hole: 5mm. Context 109, SF 805, Period 10.

503. Disc cut from a Central Gaulish vessel. The disc has split laterally leaving only one original surface.

D: 19mm. Context 446, SF 942, Period U/S

504. (Not illustrated) Thick disc roughly cut from a wall sherd of a sandy orange ware vessel with a centrally drilled hole.

D: 37mm, T: 8mm, Hole: 6mm. Context 109, SF 764, Period 10.

505. Disc carefully cut from a wall sherd of BB2 vessel with a centrally drilled hole.

D: 35mm, T: 7mm, Hole: 5mm. Context 110, SF 700, Period 10.

506. Disc cut from a wall sherd of a BB2? vessel with a centrally drilled hole.

D: 42mm, T: 6mm, Hole: 5.5mm. Context 119, SF 843, Period 7A.

507. (Not illustrated) Disc cut from a wall sherd of a coarse grey ware vessel with a centrally drilled hole.

D: 40mm, T: 6mm, Hole: 5.5mm. Context 76, SF 876, Period 9.

508. Disc cut from a wall sherd of a BBI vessel with a centrally drilled hole.

D: 50mm, T: 9mm, Hole: 6.5mm. Context 1513, SF 896, Period 10.

509. (Not illustrated) Disc cut from a wall sherd of a shell-tempered vessel with a centrally drilled hole.

D: 38mm, T: 9mm, Hole: 6mm. Context 302, SF 72, Period U/S

510. Hemispherical counter (?) of pink baked clay.

D: 23mm, H: 18mm. Context 1503, SF 389, Period U/S.

511. Small grey clay ball. Such balls have been found on sites in the military north but their function is so far unknown. (Allason-Jones 1984, 96, No 155).

D: 17mm. Context 111, SF 771, Period U/S.

512. Stylized human foot fashioned in red clay.

H: 58mm, surviving L. of foot: 42mm, Max. W: 28mm. Context 1562, SF 728, Period U/S.

Pipe clay

513. Fragment of a pipeclay statuette. All that is identifiable is a pair of crossed paws which suggests Hercules in his lion skin cloak although the examples of pipeclay statuettes of Hercules discussed by Rouvier-Jeanlin (1972, Nos 527-9) all show the legs of the cloak hanging separately on either side of the chest.

The outer surface of the statuette shows a considerable quantity of red-brown paint on the body rather than the paws. Rouvier-Jeanlin refers to other pipeclay figurines which have retained red or brown colouring (1972, 25). Analysis by W.A. Campbell, Department of Inorganic Chemistry, University of Newcastle upon Tyne, shows the underlying cream pigment to be yellow ochre. The red layer is a prepared pigment of iron (III) oxide with a small quantity of an inert material, probably gypsum, which was probably mixed in to lighten the shade although it would also modify the texture. In view of the close chemical relation between the two pigments it is surprising that there is not better adhesion between the two layers; perhaps they were applied in different vehicles (such as oil and water) which have now disappeared.

L: 35mm. Context 210, SF 927, Period U/S.

Glass

514. (Not illustrated) Small opaque dark blue/black bun-shaped counter or inset of glass. Such counters are known to have been used in the game *ludus latrunculorum* which used two sets, usually black and white or blue and yellow. However the discovery of just one at Segontium would appear to suggest that it is a brooch or finger-ring inset.

D: 14mm, T: 6.5mm. Context 2006, SF 982, Period 7.

Stone

515. Stone pulley with convex faces and a deep groove around the waist. This is small and can only have taken rope rather than chain, and was probably for domestic use.

D: 67mm, H: 50mm. Context 432, SF 648, Period 8.

516. (Not illustrated) Fragment of a very small schist whetstone of rectangular shape and section with slightly curved end and edges.

L: 31mm. W: 17mm, T: 9mm. Context 302, SF 100, Period U/S.

517. (Not illustrated) Large piece of sandstone which is roughly rectangular with rounded ends and edges - possibly used as a whetstone.

L: 139mm, W: 57mm, T: 22mm. Context 302, SF 268, Period U/S.

518. Roughly cut shale disc - probably intended as a lid for a vessel as it is too big for a counter.

D: 64mm, T: 7mm. Context 1502, SF 403, Period U/S.

519. (Not illustrated) Grey brown flint flake struck from the edge of a nodule as areas of cortex still remain.

L: 50mm. Context 125, SF 753, Period 9.

520. Flake of honey brown flint with nibbled retouch along one edge.

L: 28mm. Context 7, SF 296, Period U/S.

521. (Not illustrated) Large slate disc roughly cut to a circle but with the edges rubbed.

D: 105mm, T: 7.5mm. Context 317, SF 148, Period 11.

522. Incomplete rectangular slate block with bevelled edge and rounded corners. Palette?

L: 87mm, W: 51mm, T: 9mm. Context 2000, SF211, Period 10A.

11 The metal slag

Michael Heyworth

The excavations at Segontium have uncovered a range of waste products from metal-working activities and these can be classified into three groups: working evidence for iron, lead and copper alloy. A full contextual study of the material from all three groups is presented in an appendix. The copper alloy waste was analysed to confirm the types of alloys that were being worked.

Iron-working

The working of iron ore to produce artefacts of iron in antiquity was a two-stage process; the first being the smelting process in which the metal was extracted from the ore in the furnace, and the second being the smithing operation to refine the smelted product (the bloom) and manufacture the artefacts. Both processes produce slag as a by-product.

All the evidence from Segontium relates to the smithing process. Smithing hearths, where iron was forged into its final shape, were presumably quite common in the Roman period (McDonnell 1983); however very few have been recovered. It is likely that the smithing hearths were built up to a convenient height for ease of working and that only the foundations will survive which are difficult to identify during excavation. All that was essentially required was a pair of bellows and a pile of charcoal (Aiano 1977, 75).

A total of some 9kg of iron slag was recovered from the excavations at Segontium. This small quantity of material suggests that the slag represents the waste from small-scale domestic iron-working and represents the sort of background scatter found on most settlement sites. It is however possible that the main area of iron-working lies outside the excavated area, and it would be expected that a major fort like Segontium would have had a large smithy. The iron slag that was recovered in the excavation comes from a variety of contexts, but was mainly found in the fill of ditches and pits where it was dumped as rubbish.

The slag can be sub-divided into two major categories and one sub category: (i) fuel ash slag and (ii) smithing slag, the latter including (iii) more regular lumps of plano-convex form known as hearth bottoms (Bayley 1985). Fuel ash slag is the combination of some of the ash from the hearth and siliceous materials which fuse together. It is characteristically very light in weight and is often light in colour. It is not necessarily associated with metalworking activity and can be produced in any situation where high temperatures exist. Only two

contexts at Segontium were found to contain evidence of fuel ash slags: 91 (Period 10) and 1802 (Unstratified). Hearth bottoms are one of the most frequent remains of metalworking found on archaeological sites (McDonnell 1983, 83), though they vary considerably in size, weight and composition. They are formed by an accumulation of material at the bottom of the hearth. At Segontium the hearth bottoms identified are characteristically highly vesicular, grey/black in colour and often have a vitrified texture. The majority of the slag at Segontium can be classified as iron smithing slag; this is the slag that develops in the smithing hearth and is occasionally raked out. It is usually irregular in shape. Smithing slags are usually comprised of three major phases: a silicate component, normally fayalite, free iron oxide and a glassy phase containing the alkali metal oxides-

There are a large number of sites in North Wales and Anglesey where evidence of iron-working has been found. Of the eight Roman iron-working sites known in Caernarvonshire in the late 1970s only one, Rhostryfan, has a recognised smithing hearth (Aiano 1977). However all the sites had iron-working slags which show that iron working must have been a common activity in the area in the Roman period. Recent excavations at the late prehistoric hillfort at Bryn y Castell in Gwynedd have revealed evidence for both iron smelting and smithing, with over 1200kg of associated debris recovered, in two phases or iron-working dating from 100 BC to AD 70 and AD 150 to 250 (Crew 1988). Several Romano-British farmsteads in Caernarvonshire and Anglesey have now produced evidence for both iron smelting and smithing (Crew 1987), which indicates that iron-working was also widely undertaken on a domestic scale in the Roman period in Wales.

Lead working

There is a small amount of evidence for the working of lead on the site. Seven contexts were excavated which contained lead alloy fragments, though with a total weight of less than 0.5kg. The material came from a number of rubbish contexts such as drain and pit fills and clay dumps.

The lead alloy fragments are likely to be casting waste and associated metal spills or dross (lead oxides).

The working of lead ores in Britain began soon after the Roman conquest (Tylecote 1986). Two lead pigs were recovered from the Mendips with stamps dated to AD 49. A Roman lead extraction

centre has been identified at Carmel in Clywd, clear evidence that lead-working was undertaken in Wales at this time. No mines have been recovered so it is likely that the lead ores were extracted from surface trenches (Briggs 1988).

Copper-alloy working

A number of fragments of copper-alloy spillage were found during the excavations with a total weight of some 160g. The fragments were the residues from copper alloy casting and represent the irregular spillages from the crucibles. A number of the pieces were of a shape which suggested that they were from the top of a crucible incorporating residue from the crucible spout.

In addition to the metal waste a number of ceramic crucibles were found, some in association with a possible metalworking hearth. Qualitative analysis of a selection of the crucible fragments using energy dispersive X-ray fluorescence showed that they were used for melting copper alloys, rather than precious metals. The majority of copper alloys being worked can be classified as bronzes because of the significant presence of copper and tin (Bayley 1989a). Many of the bronzes analysed also contained some lead and zinc, but only in minor amounts. A small number of the crucibles analysed were used for working more mixed copper alloys which contained larger proportions of lead and zinc as well as tin. Analysis of some of the copper-alloy waste showed a range of similar compositions.

Two of the crucibles are complete and similar in type to those found on sites in Britain and abroad dating to the Roman period (eg Bachmann 1976; Bayley 1984a; 1984b; 1986; 1989b). These small hand-made crucibles are made of refractory fabrics and are covered by an outer layer of clay which would have improved their thermal qualities. One crucible (SF1177) was hemispherical in shape with a capacity of about 60ml. The other complete crucible (SF1024) was conical in shape with a capacity of about 50ml, similar to those found at Sewingshields (Bayley 1984a). None of the crucibles has lips for pouring, which is normally characteristic of Roman crucibles (Bayley 1989b). One of the crucibles (SF1177) shows a vitrified fuel ash 'glaze' on the base which was probably caused by the fluxing of the surface by the ash in the fire. Crucibles of this conical shape are quite unusual in this period, two comparable examples were found at Gestingthorpe though they were much larger, wheel-thrown vessels (Tylecote and Biek 1985). The Gestingthorpe crucibles, though not securely dated, appear to date to either the 3rd or 4th century AD.

Four other crucible fragments (SF812, 996, 1038, 1039) are rather larger and have different shapes. SF1039 is a hand-made beaker shape with beaded rim and thickened base and probably dates from the late 1st/early 2nd century AD (Bayley 1984b; 1986). SF1038 is much larger with a flat base and shows a high degree of vitrification on the outside surface. The rim has some fragments of copper alloy fused in a slag deposit. These two crucibles (SF1038 and 1039) were found together in a metalworking hearth. A fragment of crucible base (SF996) was found in the rake-out of the metalworking hearth and seems to be of similar shape to SF1038.

Some other crucible fragments were also recovered from a pit context. SF812 is a much thicker crucible wall fragment, though the shape of the whole crucible is unclear from the small fragment. A further crucible fragment from Context 897 is similarly thick-walled and appears to be similar to SF1038 in shape.

The other crucible fragments are too fragmentary to be diagnostic of any specific form.

Copper-alloy working is to be expected in a Roman military context where much of the military equipment was likely to have been made of such metals. It is not possible from the waste products to determine what was being produced at Segontium, though military equipment would seem to be a strong contender.

Copper ores were commonplace throughout upland Wales and are known to have been exploited from the prehistoric period onwards (Briggs 1988).

Summary

The excavations at Segontium have revealed evidence for the working of iron, lead and copper alloys. The forms of metalworking are not unexpected in a Roman military context. The evidence recovered for metalworking suggests only small-scale activity, though it is quite possible that there was a specific area of the fort, outside the excavated area, where large-scale metalworking took place. In these circumstances the available evidence can only be used as a pointer to the materials being worked.

Acknowledgements

I would like to thank Justine Bayley and Gerry McDonnell for their helpful comments during the preparation of this report

Appendix: Contextual analysis of the slag and crucibles

This list details the context from which the slag was recovered and the phasing of the context within the site matrix.

Iron

Period	Context	Weight	SF No	Phase	Type of context
U/S	111	102.8g		A/AA	
U/S	314	141.2g		B/AA	
U/S	329	52.5g		B/AA	
U/S	1802	36.9g		E/AA	
U/S	1405	59.9g		C/AA	
7	803	34.56		C/AH	Clay dump
8	148	39.4g		A/AN	Demolition debris
8	396	45.3g		B/AG	Soil layer/dump
8	432	38.0g		B/AG	Soil ?dump
8	1511	13.3g		D/AF	Clay dump
8	1551	148.9g		D/AF	Clay dump
	76	1110.6g		A/AB	Dump (of slates)
9	387	64.0g		B/AE	Posthole
9	1516	130.6g		D/AE	Layer/dump
9	1548	166.9g		D/AE	Layer/dump
10	91	102.7g		A/AH	Pit fill
10	109	1917.6g		A/AH	Pit fill
10	110	33.1g		A/AH	Soil accumulation
10	897	70.7g		C/AB	Pit
10	1510	167.5g		D/AD	Pit fill
10	1513	92.7g		D/AD	Pit
10A	53	49.46		A/AG	Drain fill
10A	62	889.46		A/AG	Drain fill
10A	75	2608.4g		A/AG	Drain fill
10A	334	485.6g		B/AZ	Drain
10A	347	49.1g		B/AC	Clay patch-dump
10A	1506	55.3g		D/AC	Drain fill
10A	1805	295.46		E/AB	Drain fill
10A	2000A	61.6g		A/AG	Drain fill
11	304	134.3g		B/AB	Soil accumulation
11	315	68.36		B/AB	Soil accumulation
11	1515	112.3g		D/AB	Soilaccumulation
11	1541	82.46		D/AB	Dark soil

Lead

Period	Context	Weight	SF No	Phase	Type of Context
U/S	811	34.2g	315	C/AA	
8	1551	19.1g		D/AF	Clay dump
10	93	18.8g	523	A/AH	Pit fill
10	93	121.3g	525	A/AH	Pit fill
10A	53	26.1g	461	A/AG	Drain fill
10A	1507	59.2g	377	D/AC	Clay spread
10A	1512	120.8g		D/AC	Clay deposit
11	304	133.9g	290	B/AB	Soil accumulation

Copper alloy

Period	Context	Weight	SF No	Phase	Type of context
U/S	321	14.9g	101	B/AA	
U/S		23.7g	632		
U/S		6.0g	1060		
7A	868	16.7g	819	A/AL	Drain back611
9	1516	10.0g	554	D/AE	Layer/dump
10A	334A	20.7g		B/AZ	Drain
10A	379	18.7g	357	B/AC	Soil layer/dump
11	315	23.8g	143	B/AB	Soil accumulation
11	1515	26.3g		D/AB	Soil accumulation

Crucibles

Period	Context	SF No	Phase	Type of context
U/S	1024			
5A	1271	1177	C/AN	Soil/Demolition
6A	2015	996	A/BQ	Metalworking
				Hearth rake-out
6A	2022	1038	A/BQ	Metalworking
				Hearth
6A	2022	1039	A/BQ	Metalworking
				Hearth
6A	2172	1108	A/BQ	Pit
10	897	812	C/AB	Pit
10	897		C/AB	Pit
10	1665	1032	D/AD	Pit fill

12 Worked stone

J C N Coulston

***With geological analyses by Dr M F Howells
(Geological Survey, Aberystwyth)***

Artefacts

1. Fragment of a lower rotary quernstone. Fine-grained quartzitic sandstone with few feldspars and altered lithic fragments. The piece comprises 60% of the stone. The upper surface is convex with pock-mark tooling for grinding. The lower surface is flat with roughly aligned striations. The outer side is vertical and the side of central eye perforation is slightly conical, rather than simply cylindrical.

2. Fragment of an upper rotary quernstone. Coarse sandstone with a few feldspars, little matrix mica and Fe oxides. The convex upper surface is well finished with a shallow collar around a narrow hopper. The lower, grinding face is concave and covered with radial grooving. The side is vertical and the eye has an inverted, truncated conical profile.

3. (Not illustrated) Fragment of a lower rotary quernstone. Coarse-grained quartzitic sandstone with few feldspars and lithic clasts. The piece represents almost 50% of the stone. It is crudely fashioned with an angled side. Both the upper, grinding face, and the lower base face are plano-convex. The eye is an inverted, truncated cone.
SEG 1975.302.71.

4. Perforated rectangular block. Coarse quartzitic sandstone, with few feldspars and lithic clasts. The stone has been broken across the perforation and was irregularly shaped. The sides are convex, and the top and bottom faces are flat, but the top is not horizontal. A hole cut through the stone has a truncated, bi-conal profile. The dimensions of this hole make it unlikely that this is a re-worked and squared-off quernstone,
SEG 1975.304.211.

5. Perforated rectangular block. Coarse quartzitic sandstone, few feldspars, and strained vein quartz clasts. The stone has been broken across the perforation and was irregularly shaped. The sides are near-vertical. A large hole was cut through with a truncated, biconal profile. Again the dimensions of the cutting make identification of a re-worked quern unlikely.

6. Socketed rectangular block. Sandstone as No 5,

but with more lithic clasts. Irregularly-shaped rectangular block with near-vertical sides and uneven top and bottom faces. A shallow, cup-shaped circular depression has been cut in the middle of the top. This piece may have been a pivot block or a socketed base for an upright post, but neither role is assured.

7. Roof-slate. Bedded silty mudstone, fine micaceous aggregate, non-cleaved, with impersistent laminae of slightly more silty grade. Roughly-shaped pentagonal piece with a nail-hole asymmetrically positioned towards the upper left corner.
SEG 1978.406.

The sandstones are likely to be of Lower Carboniferous age and sources on Anglesey (Greenly 1919, 860), in the Bangor district, or at Coed Helen, south-west of Caernarfon Castle (Greenly 1928) may be suggested. All of these locations are convenient for the occupiers of Segontium.

As a group the querns are unremarkable. They exhibit no interesting features of rotary devices, such as rynd-chases, or elbow-shaped perforations for handles. The identification of No 3 as a lower stone is dictated by its convex lower face. Lack of a truly flat and horizontal base may be paralleled by pieces elsewhere (eg Welfare and Pettigrew 1984, 12.79). Locally-produced quernstones were superceding imported Mayen lava querns from the later 1st century (Welfare 1985, 157).

Sculpture

Relief of Mars (Pl 12.1). H: 180mm, W: 250mm, D: 28mm.

The grey siltstone slab is broken diagonally across the upper left, the lower left and the lower right corners. The top right corner is damaged and there is some pocking overall. The figure is lost from the lower chest downwards, so only the head, upper torso, upper right arm, and the head and upper shaft of a spear remain. The relief surface of the torso and shoulders has split away with the consequent loss of all detail. The tip of the spear is lost and part of the remaining blade surface has also split away. A square hole 7mm wide has been cut through the stone just to the left of the figure's jaw.

The relief of a human figure is framed above and to the right by raised decorative borders. Above the head is a series of small crosses and diagonal lines, topped by a large cross and more diagonals. The frame is divided into three bands by incised horizo-

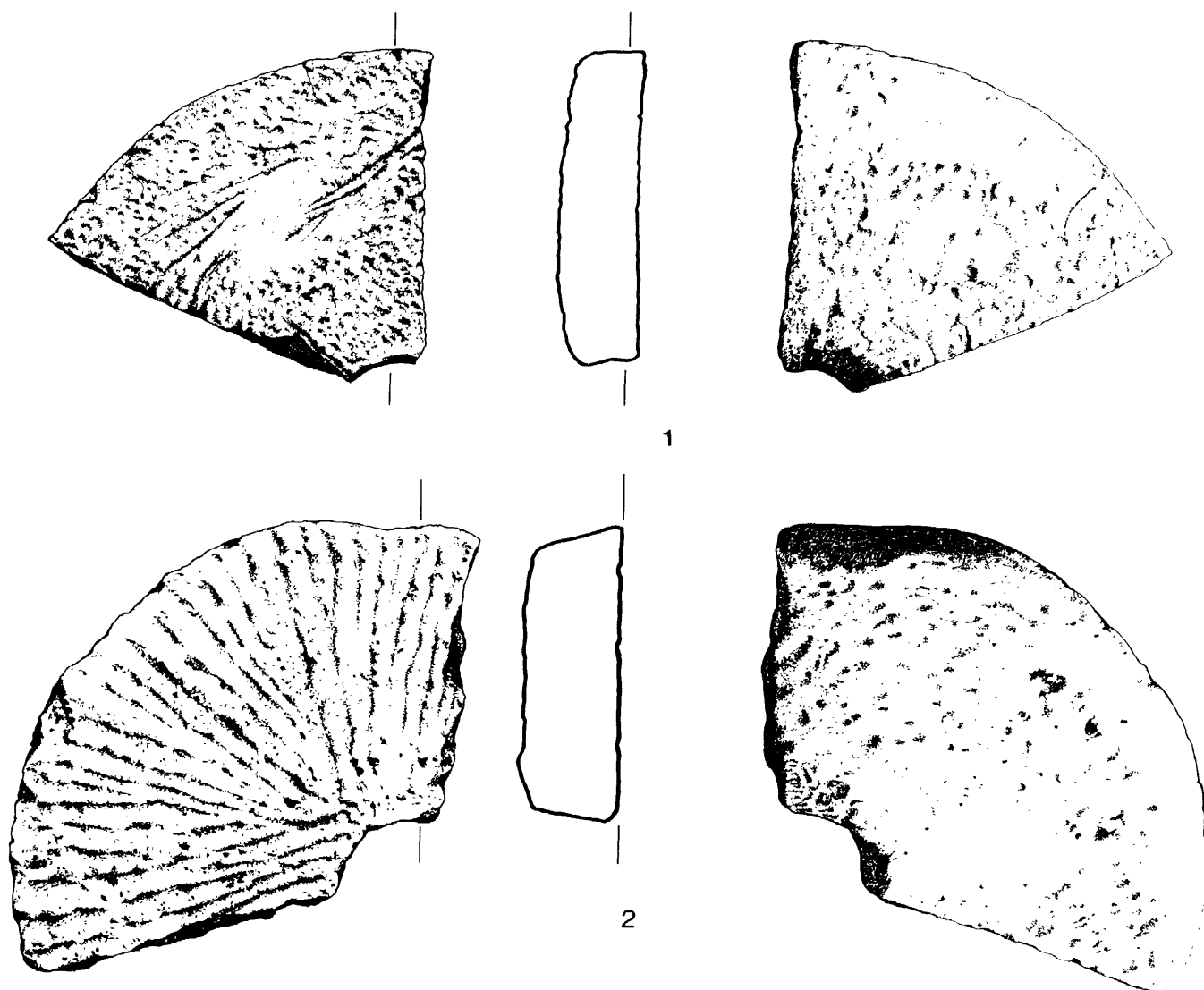


Figure 12.1 Objects of worked stone.

ntal guide-lines. The lower band is left plain whilst the upper two have opposing incised zig-zags which form irregular lozenges. A vertical line separates these bands from the crosses to the left. The right-hand frame is similarly ornamented with incised guide-lines, within which runs an irregular single zig-zag. The inner margin of the frame has a flat incised cable design.

A human figure faces frontally. Parallel vertical bands appear on the short sleeve of the right arm. The ribbed, elliptical blade of a spearhead appears to the left of the head. A collar separates this blade from its socket, the sleeve of which is also

delineated. The face is oval with a rather pointed chin, a thin and narrow off-centre mouth, a long rectangular nose, small elliptical eyes with upper and lower lids, and a low forehead. The neck is short and no ears are shown. The short hair is indicated by a band of radially incised lines which extends down the sides of the face to the level of the eyes. A low and inadequately rendered helmet bowl perches on the top of the head. From it projects a central crest, which has a parting, flanked by a pair of curving plumes.

It is clear from the set of the shoulders that the figure's right arm was upraised and the spear was

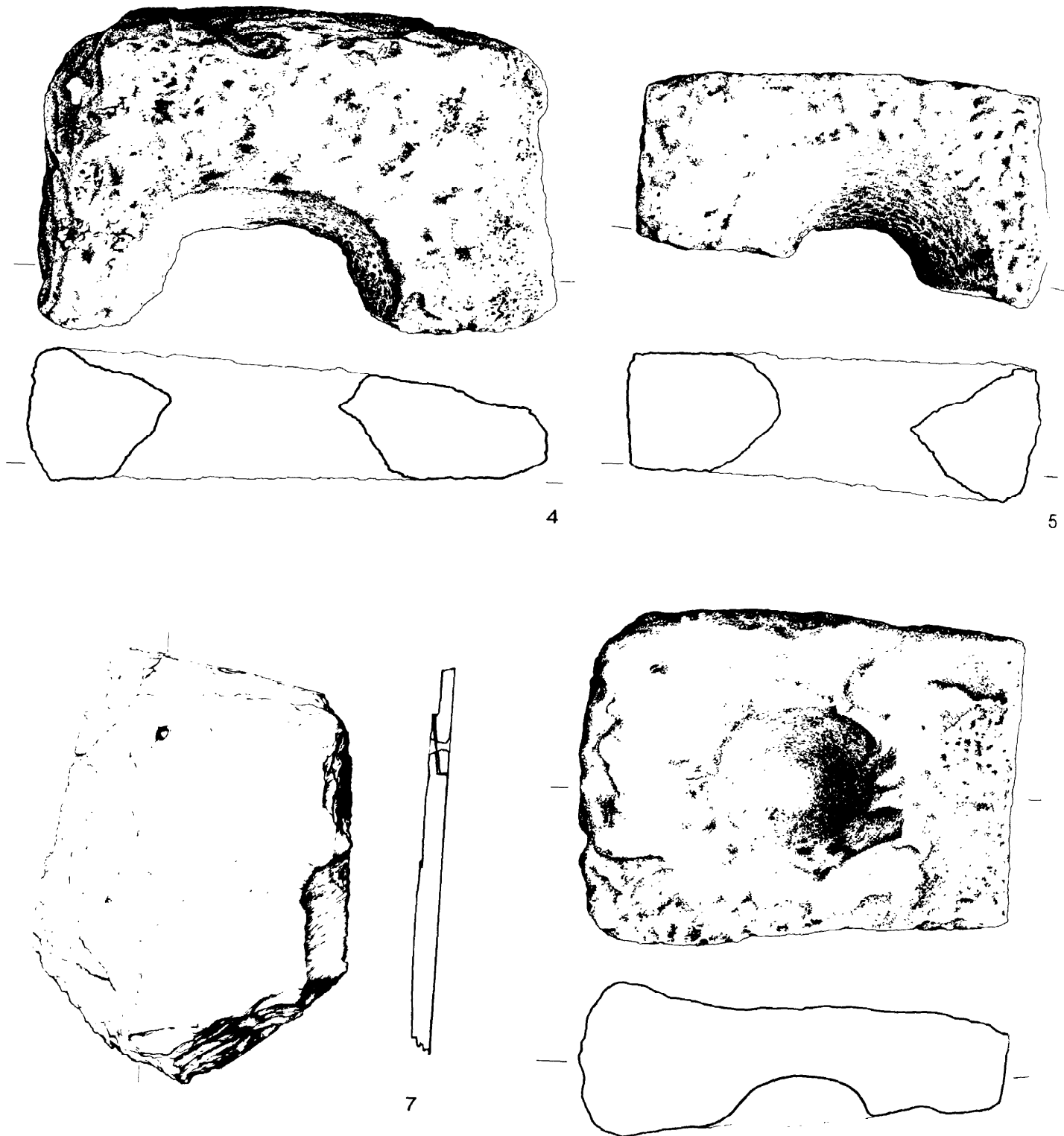


Figure 12.2 Objects of worked stone.



Plate 12.1 Slab with relief depicting Mars.

held in the right hand. The left arm hanging down beside the body probably has leather or laminated textile *pteruges*, and presumably the left hand rested on a shield. The stance and the presence of armour with *pteruges* suggest that the figure represented Mars rather than Minerva.

This identification is further strengthened by the presence of both crest and plumes on the helmet. Minerva's usual Corinthian helmet has a crest alone, and only very occasionally the side-plumes in addition (cf Keppie and Arnold 1984 No 12 for a partial exception). Crests with side-plumes do occur on the representations of soldiers, for example on the *vexillarius* from Chesters, (Northumberland; Coulston and Phillips 1988, No 400), on the *stela* of C Castricius from Aquincum (Hungary; Szilagyi 1956, Pl XXXVI), and, most spectacularly, on the stone of Flavinus from Hexham (Northumberland; Phillips 1977, No 68). However, *pteruges* are more commonly worn in Roman art by Mars than by soldiers, and the size of the Caernarfon panel probably precludes its functioning as a gravestone.

Pteruges and helmets (as opposed to horns) are not generally features of armed native deities (eg Haverfield 1915, Pl VI.22, 39; Toynbee 1964, Pl 164; Coulston and Phillips, No 162).

Indeed, not all Mars figures from Britain have side-plumes in addition to a crest (cf Phillips 1977, No 215; Coulston and Phillips 1988, No 65, 71). It is interesting to observe that those which do are more crudely executed when represented frontally, like the Caernarfon example (Toynbee 1963, Pl 65; Phillips 1977, No 297). The more skilled relief sculptors preferred to depict the head and helmet in a three-quarters view which not only gave the figure vitality, but also displayed a resplendent feather or hair crest to its best advantage (Wright and Richmond 1955, No 65; Phillips 1977, No 215; Coulston and Phillips 1988, No 65, 67, 71, 400, although see No 161). The cruder renditions may display a supposedly 'Celtic' disposition towards frontality, or this may just be a question of expertise, the two not necessarily being interconnected.

Ribbed spear-heads, with or without collars, may

be paralleled artefactually (eg Curle Pl XXXVI.4, 7; XXXVII.10; Manning 1985, V35, V111, V113-4, V132, V135-6).

A graffito of unclear meaning ([. . .] M ~~22~~X has been incised with a guideline on the panel to the right of the head (Brewer 1986, Pl 4).

A 2nd or 3rd century AD date may be assigned to the piece.

Frere *et al* 1977, 358, Pl XXIIB; Brewer 1986, No 9; *RIB* 2453.4.

13 Roman glass

Denise Allen

Introduction

Nearly all the vessel glass from Segontium is blue-green, pale green, yellow-green or colourless. Bright polychrome glass, popular until about the mid 1st century, is absent, and the strong monochrome colours, which continued to be used until the early 2nd century, are represented in the catalogue only by a dark blue bowl rim fragment (no 3).

Much of the blue-green glass, and the blue fragment no 3 make a fairly typical later 1st to 2nd century assemblage. This includes ware in the form of pillar-moulded bowl fragments (no 1), bowls with tubular rims (nos 3-5), and long-necked jugs (nos 35-6), and containers in the form of the ubiquitous cylindrical and prismatic bottles (nos 40-42 and appended list) and a bath-flask fragment (no 32).

In addition there is a good range of colourless ware, mainly of 2nd- to 3rd-century date. Notable are the cast and ground bowl fragment (no 10), a number of wheel-cut bowls and beakers (nos 12-19), several cylindrical cup fragments of common 2nd-century type (nos 20-3, an indented beaker fragment (no 24) and one with arcaded ribbing (no 25). There is, however, none of the fine facet-cut glass which has been found on other Welsh sites such as Caerleon and Caerwent, nor other 'luxury' glassware such as that with snake-thread decoration.

Late Roman glassware is not well represented. There are three colourless container fragments which probably belong to the 3rd or 4th centuries (nos 33-4 and 43), one jug handle fragment typical of the same period (no 38) and possibly another late jug handle (no 37). Only one beaker or bowl rim (no 26) has the rough, cracked-off finish and bubbly metal usually found at this time. 4th-century glass assemblages invariably include a high proportion of such rims (eg Harden 1975, 370-2, nos 9-14, figs 197-8 from Portchester). Unlike sites such as Caerleon, where late Roman glass is quite well represented (eg Allen 1986, 115-6, nos 85-8, 90, 92-3, fig 44), at Segontium there seems to have been a marked decline in the quantity of glassware being used at the site during its last years of occupation.

The beads and gaming pieces or counters are comparable to finds on other sites in Wales and elsewhere in Britain. A similar range, for example, came from the settlement site at Whitton in South Glamorgan (Price 1981, 159, nos 38-41, fig 66 and 161-2, nos 6-17 and 20-3, plate XVIII). The melon-shaped beads (nos 44-6) belong to the 1st

and earlier 2nd centuries; the remainder cannot be closely dated by type, but it is interesting that most were found in late contexts.

Acknowledgement

I am grateful to Mr G C Boon of the National Museum of Wales for his comments.

Beakers, bowls and cups

Blue-green and coloured

cast

1. Fragment from lower body of a pillar-moulded bowl of blue-green glass. Cast in a ribbed mould, rotary polished within, with two bands of horizontal wheel-incised lines just above base. Ribs fire-polished.

Context 1663, SF1008, Period 7A.

Three small body fragments of blue-green pillar-moulded bowls were also found:

- Context 1129, Period 5
- Context 981, Period 7A
- Context 980, Period 6

Pillar-moulded bowls were probably first made in the Syro-Palestinian area during the 1st century BC, but manufacture had spread to Italy and the northwest provinces by the 1st century AD. In Britain they are commonly found in Claudian, Neronian and early Flavian contexts, and bowls of natural blue-green glass continued to be made until some time within the Flavian period (Harden and Price 1971, 329ff.). However, the bowls were still in use for some years after manufacture had ceased - fragments have been found on sites where occupation did not begin until the early 2nd century (Charlesworth 1972, 198-9).

Mould-blown

2. Very small body-fragment of a bowl or beaker of pale yellow glass. Mould-blown. Part of one horizontal rolled rib extant. Diam body c 60mm.

The fragment is unfortunately too small to enable identification of vessel type. Context 1292, Period 5.

Blown

3. Rim-fragment of a bowl of dark blue glass. Rim folded outward and downward forming hollow tube, Diam c 200mm.

Context 3, Period U/S.

4. Rim-fragment of a bowl of clear blue-green glass. Rim folded outward and downward twice, forming hollow tube, Diam c 150mm.

Context 1366, SF1193, Period 2.

5. Base-fragment, possibly the same bowl as no 4 above, of clear blue-green glass. Applied true base ring, Diam c 80mm.

Context 1366, SF1192, Period 2.

Bowls with tubular rims are one of the commonest Roman glass forms, occurring in a variety of shapes at different dates. A good range, for example, was found at Verulamium (Charlesworth 1972, 199-200, v, Fig 74, 6-11). Numbers 3-5 here, however, probably represent bowls of Isings (1957, 59-60), form 44, with plain or ribbed cylindrical bodies. These usually date to

the second half of the 1st and early 2nd centuries. The dark blue colour of No 3 supports this dating, and may be compared with a plain bowl of the same colour found associated with a sherd of Neronian Samian at Long Melford, Suffolk (Avent and Howlett 1980 246, Fig 41).

6. Rim fragment of a bowl or beaker of clear and unweathered blue-green glass, some pinhead bubbles within the metal. Slightly flaring rim, fire-rounded and thickened, Diam c 90mm.

Context 1513, Period 10.

7. Rim fragment of a bowl or beaker of clear and unweathered blue-green glass, some pinhead bubbles within the metal. Slightly flaring rim, fire-rounded and thickened, Diam c 80mm.

Context 334, Period 10A.

8. Rim fragment of a beaker or jar of fairly bubbly and streaky blue-green glass. Slightly flaring rim, fire-rounded and thickened, Diam 50mm.

Context 432, Period 8.

9. Base fragment probably of a bowl or beaker of clear blue-green glass. Applied coil base ring, Diam c 40mm.

Context 811, Period U/S.

These rim and base fragments are not sufficiently diagnostic to allow close identification.

Colourless

cast

10. Fragments of a bowl of colourless glass, now whitish and opaque. Cast in a mould, all surfaces rotary-ground and polished. Flaring rim, with one broken edge showing the beginning of a curve which may originally have been part of a handle, or possibly some sort of wheel-ground decoration. Sides taper downwards, horizontal hollow-ground ridge beneath rim. Moulded and ground base ring, flat base with circular hollow-ground ridge around centre of underside. Height 61mm. Diam rim 156mm. Diam base-ring 70mm.

Context 868B, SF831, Period 7.

It is difficult to be sure of the original method of manufacture of vessels whose surfaces have been rotary-ground, but it was more usual to finish cast pieces in this way.

This bowl belongs to a group of glass vessels imitating the common late 1st and 2nd century Samian form Dragendorff 33. Isings identifies it as her form 80, and dates it to the second half of the 2nd century (1957, 96). The type may have begun a little before this, however - a rim fragment decorated with relief-cut papyrus leaves came from a rubbish pit which closed c AD 150, at Park Street Roman Villa, St. Albans (Harden 1945, 68-70, No 2, Fig 11). Harden identified this piece as being of Alexandrian workmanship, and the group as a whole may have originated there, although copies were probably made in Italy or further west. Fragments of similar bowls have been found at Caerleon from a context dated c AD 130-230 (National Museum of Wales accn No 54.389A G92, information supplied by Mr G C Boon) and Verulamium (Verulamium Museum accn No 81.937). No 10 here has a tantalising broken rim edge, showing the very beginning of a curve which may represent either some form of wheel-ground decoration, or alternatively the edge of a handle or lug. If it was the latter, the form must have been horizontal, as no corresponding scar shows on the vessel wall beneath. Glass examples of the one-handled vessel form (*trulla*, *trulleus* or *trulleum*) do exist (Isings 1957, 92, form 75). Cast and ground handle fragments have been found at Silchester, in polychrome glass (Boon 1974, 230-1, fig 36, No 1) and at Caerwent, in colourless glass (Boon 1972/3, 123, No 51, Fig 5). However, the shape of this bowl from Segontium, with its tapering sides, would be very unusual for such a vessel. It perhaps originally had a pair of lugs on opposite sides of the rim, showing some similarity to the 1st-century cast-and-ground *scyphoi* with winged handles, examples of which have been found in London (Harden 1969, plate XB) and Cologne (Fremersdorf 1967, 62, plate 211. The general shape of these vessels, though, with their

cylindrical bodies, differs from that of the bowl catalogued here, for which an exact parallel remains to be found.

Blown

11. Rim and side fragment of a bowl of colourless glass, now whitish and opaque. All surfaces rotary-ground and polished. Slightly flaring rim, ground smooth, one broken edge shows edge of curve which may just be an irregularity, or alternatively part of a handle or decoration. Sides taper slightly downward. Diam rim c 150mm.

Context 868B, SF834, Period 7.

The thinness of the body walls of this piece suggest that it was blown, although all surfaces have afterwards been rotary-polished. The curve in the rim in this case is perhaps most likely to represent only an irregularity. The surviving profile is not closely identifiable, but the colour and finish suggest a 2nd- or 3rd-century date.

12. Rim fragment of a bowl or beaker of colourless glass, now whitish and opaque. Flaring rim, ground smooth, two horizontal hollow-ground ridges beneath. Diam rim 100mm.

Context 868B, SF835, Period 7.

13. Rim fragment of a bowl or beaker of colourless glass, now whitish and opaque. Rim ground smooth, two horizontal wheel-cut lines beneath. Diam rim 100mm.

Context 868B, SF835, Period 7.

14. Rim fragment of a bowl of colourless glass, now whitish and opaque. Rim flaring slightly, ground smooth, with two horizontal wheel-cut lines beneath. Diam rim 140mm.

Context 868B, SF835, Period 7.

15. Rim fragment of a bowl of colourless glass, now whitish and opaque. Rim flaring slightly, ground smooth, with two horizontal wheel-cut lines beneath. Diam rim 130mm.

Context 868B, SF835, Period 7.

16. Rim and side fragment of a bowl or cup of colourless glass - surfaces dulled, opaque and chipped. Rim outflared and ground smooth, horizontal wheel-cut line beneath, three more further down side. Diam rim 80mm.

Context 1666, SF1059, Period 7.

17. Rim fragment of a beaker of clear colourless glass. Rim ground smooth, horizontal wheel-cut groove beneath, two more further down side. Faint horizontal wheel-incised lines above and below these. Diam rim 80mm.

Context 1213, Period 5A.

18. Body fragment of colourless glass, now whitish and opaque, surfaces dulled. Part of four horizontal hollow-ground ridges extant.

Context 2309, SF1153, Period 5.

19. Base fragment of a beaker of clear colourless glass. Pushed-in tubular base ring, horizontal wheel-cut line around side above. Diam base ring 39mm.

Context U/S, SF939, Period U/S.

All these fragments represent a wide and varied group of beakers, bowls and cups, often decorated with horizontal wheel-cut lines and ridges, which originated in the Flavian period and became widespread on 2nd and early 3rd century sites throughout the Empire (Harden and Price 1971, 346f). The generally good quality of the metal and cutting of these pieces supports this dating.

20. Rim and base fragments almost certainly from the same bowl of clear, colourless glass. Rim outflared slightly and fire-rounded and thickened. Horizontal applied trail beneath rim, cylindrical body, flattened base, with another applied trail around edge. Diam rim 160mm. Diam base 140mm.

Context 161, SFnos: 938, 984, 962, 967, 966, Period 6.

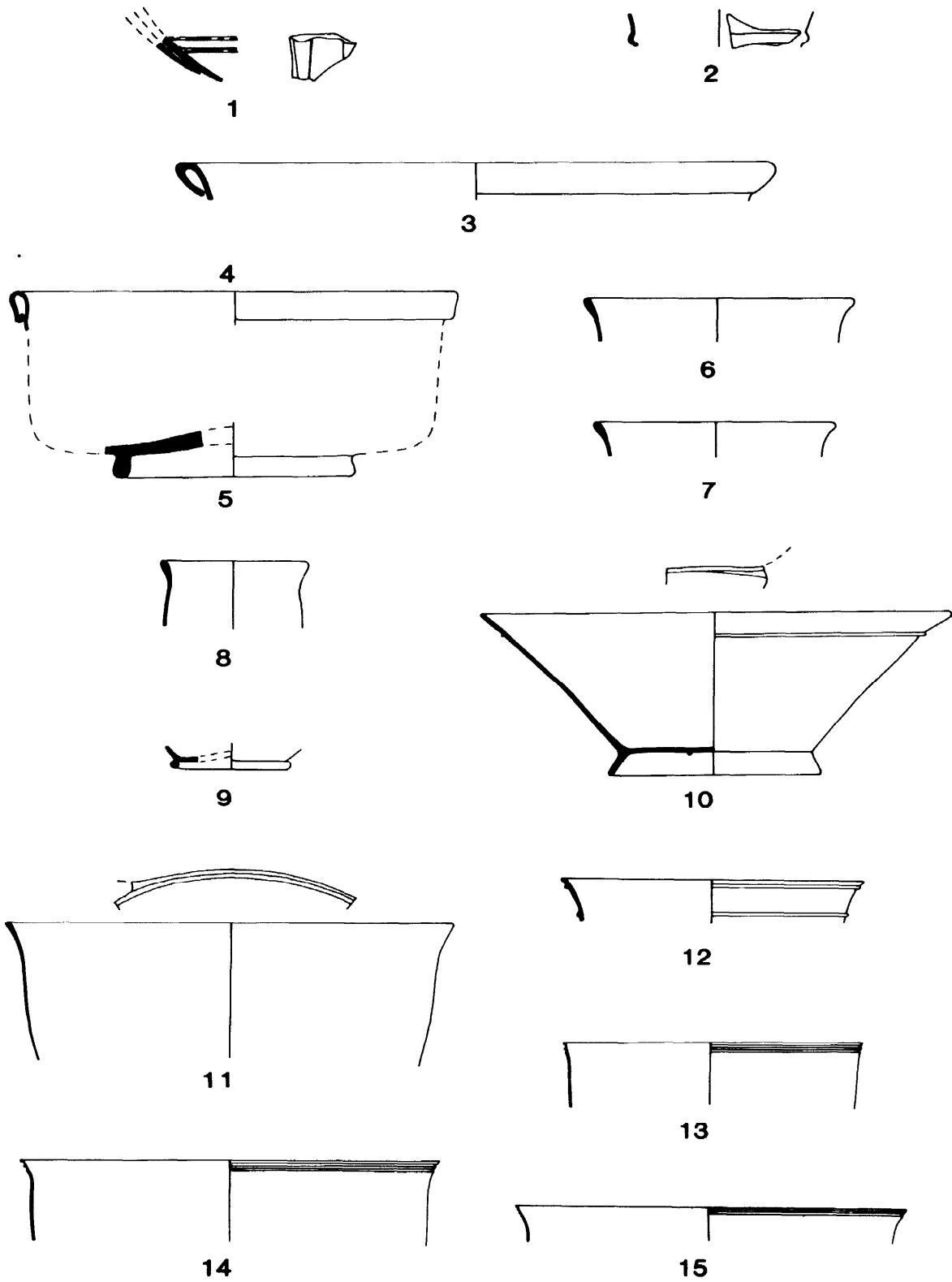


Figure 13.1 Glass.

21. Rim fragment of a bowl of colourless glass, now whitish and opaque, surfaces slightly pitted. Rim outflared slightly and fire-rounded and thickened, Diam 110mm.

Context 161, SF961, Period 6.

22. Base fragment of a bowl of colourless glass, now whitish and opaque. Flattened base with applied trail around basal angle, Diam c 120mm.

Context 277, SF1055, Period 5.

23. Base fragments of a bowl or cup of clear colourless glass. Flat base with applied coil base ring, Diam 60mm.

Context 161, Period 6.

Nos 20-3 probably all come from cylindrical bowls or cups of a type often exemplified by a fine complete vessel found in a 2nd century grave at Baldock, Herts. (Percival Westell 1931, 275-6, No 4828, Fig 6). Variety within the group, and their dating, is discussed by Charlesworth, with reference to three examples from the Commandant's House, Housesteads, dated between AD 128 and 139/42 (1971, 346, figs 1-3). The form was one of the commonest during the 2nd century, but was superseded towards the end of that century and during the early 3rd century by a plain cylindrical cup with slightly turned rim and double base-ring (Isings 1957, 102-3, form 85B). The base fragment No 23 here may actually have belonged to either of these forms.

24. Base fragment of a beaker of colourless glass, now whitish and opaque. Pushed-in tubular base ring, lower part of one oval indent extant above - probably originally one of four. Diam base ring c 50mm.

Context 1041, SF1154, Period 10.

This fragment belongs to an indented beaker with base ring (Isings) 1957, 49-50, form 35). These are fairly common in Britain in later 1st, 2nd and 3rd-century contexts. An early example, from a mid-1st-century context, was found at Richborough (Bushe-Fox 1926, 49, plate XIX, No 8), whilst a late example came from a stone coffin found at York (Harden 1962, 140, plate 66, HG180). Base fragments similar to No 24 here have been found at Caerwent and Caerleon, the latter dated c AD 140-230 (Boon 1972/3, 120-1, No 321).

25. Rim fragment of a beaker of clear colourless glass. Rim ground smooth, side decorated with tooled vertical ribs, joined by arcading beneath rim. Diam rim 90mm.

Context 1091, Period 7A.

Most beakers with this particular decoration of arcading in low relief belong to the later 1st and earlier 2nd centuries (Isings 1957, 47-8, form 33). About seventy examples have come from later 1st-century contexts at Vindonissa (Berger 1960, 47-8, nos 110-15, pls 7 and 19). During the later 2nd and 3rd centuries arcaded ribbing was again popular, although here the ribs are usually pulled out into higher relief, with wider gaps between them (eg Fremersdorf 1959, 71-2, pls 108-9). Typologically no 25 is more like the earlier group, but in view of its late 3rd-century date by context it may belong to the later variety.

26. Rim fragment of a beaker of greenish colourless glass, surfaces heavily swirled and dulled. Rim outflared slightly, broken off flat and roughly ground, Diam c 60mm.

Context 91, Layer II, Period 10.

The quality and finish of this rim fragment suggest a late Roman date.

27. Base fragment of a beaker of colourless glass, now whitish and opaque. Pushed-in tubular base ring, Diam c 40mm.

Context 1013, SF1119, Period 10.

28. Base of a beaker of colourless glass, surfaces dulled, badly cracked, broken and mended. Base complete except for central circular gap. Pushed-in tubular base ring, Diam 45mm.

Context 304, SF310, Period 11.

29. Base fragment of a bowl or beaker of colourless glass, now whitish and opaque. Rounded, thickened base with applied coil base ring, and another concentric trail applied just above base. Diam base ring c 40mm.

Context 2000A, SF799, Period 10A.

30. Fragment from centre of base of a beaker or bowl of colourless glass, now whitish and opaque. Outer surface rotary-ground, leaving a small raised dot in centre.

Context 835, Period 7.

Base fragments nos 27-30 are not sufficiently diagnostic to allow close identification.

Flasks Blue-green

31. Rim fragment of a flask, or possibly a jug, of very bubbly blue-green glass. Rim folded outward, upward and inward and flattened, Diam 46mm.

Context 984, SF1031, Period 10.

This common rim type cannot be closely dated.

32. Handle of a bath flask of clear and unweathered blue-green glass - handle itself fairly streaky. Top of globular body extant, 'dolphin' handle with extended tail continuing down over shoulder.

Context 2011, SF999, Period 5B.

Globular bath-flasks with dolphin handles were a common and long-lived Roman glass vessel type. They first appeared during the second half of the 1st century and continued in use throughout the 2nd and well into the 3rd centuries (Isings 1957, 78-80, form 61). They were used for carrying oil to the baths, and would originally have had bronze handles or chains looped through the 'dolphin' eyelets for suspension. Complete examples with handles and stoppers have been found at Cologne (Fremersdorf 1958, 31, plate 41). The type is frequently found in Britain - a very fine complete example came from a pit at Corbridge (Richmond and Gillam 1952, 259, plate VIII), and many fragmentary examples were found in the drains of the bath-house recently excavated at Caerleon, the majority dating AD 160-230 (Allen 1986, 104-7, nos 32-42, fig 41).

Colourless

33. Fragment probably from the shoulder of a cylindrical flask or bottle-jug of clear colourless glass. Blown into a cylindrical body mould, two horizontal wheel-cut lines beneath shoulder. Diam body c 70mm.

Context 1618, Period 7A.

34. Lower side and base fragment of a small cylindrical flask or bottle-jug of colourless glass, now whitish and slightly opaque. Blown into a body mould, sides taper slightly downwards, flat base. Wheel-cut decoration on body in the form of a row of short diagonal broad cut lines, above which part of two longer vertical lines are extant. A faint horizontal wheel-incised line just shows at the top of the fragment. Diam base c 25mm.

Context 109, SF801, Period 10.

These two fragments may have belonged to any of a number of cylindrical flask and bottle types which appeared during the 3rd and 4th centuries, including Isings 1957, 119ff, forms 100, 102, 126, 127 and 130, all of which occur in a variety of sizes, with and without cut decoration. British examples of some of these types have been found in a lead coffin at York (Harden 1962, 140, Fig 90) and in a stone coffin at Gravel Hill Farm, Cambridge (Jaffe 1978, 41-2, No 80a). Examples with a variety of cut decorations have been found at Cologne (Fremersdorf 1967, 125f, plates 146-62).

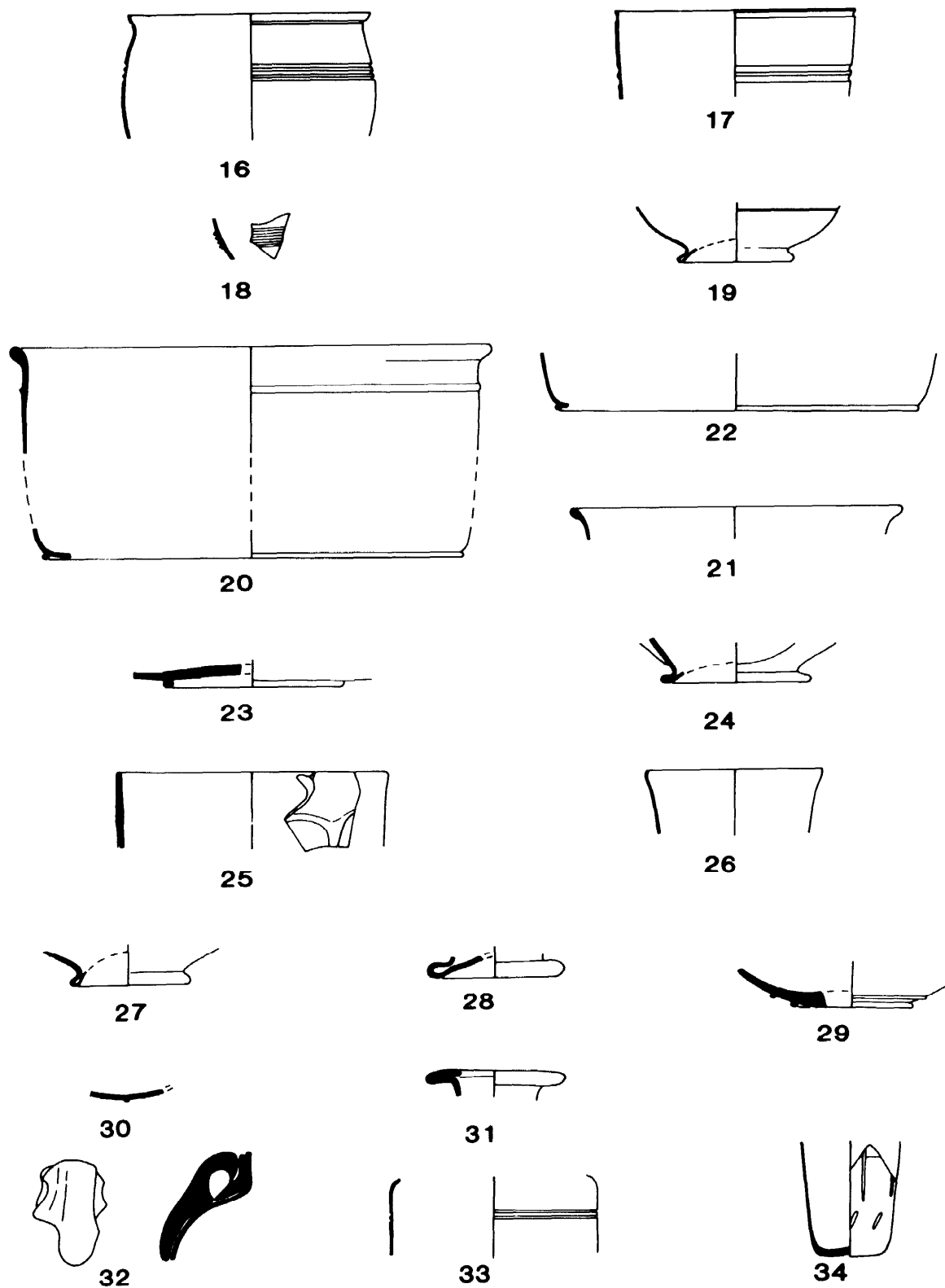


Figure 13.2 Glass.

Jugs

Blue-green, pale-green and coloured

35a. Lower part of body of a jug of very clear blue-green glass. Rounded conical body with vertical optic blown ribs. Base would originally have been concave. Diam base c 140mm.

Context 1139, SF1151, Period 3.

b. Fragment of neck of the same or very similar jug of thick blue-green glass, surfaces swirled slightly. Cylindrical neck with constriction at its base, Diam 25mm.

Context 1148, SF1160, Period 5B.

c. Fragment of the handle of the same or a very similar jug of blue-green glass. Flat-sectioned handle with raised central rib, 23.5mm wide.

Context 959, SF1178, Period 6A.

These fragments represent a type of jug commonly found in the north west provinces during the second half of the 1st and early 2nd centuries AD (Isings 1957, 72-3, form 55A). Their distribution, restricted to this area of the Empire, suggests manufacture somewhere in the Seine-Rhine region (Price 1978, 74). Jugs of the shape represented here, with conical body and concave base, seem to be the first form of the group appear, but vessels with conical bodies and base rings, and globular and discoid bodies soon followed (Isings 1957, 69f, form 55B and 52). The characteristics of these jugs have been discussed in full, giving many examples, with reference to vessels from a Flavian burial at Winchester (Harden 1967, 238-40, fig 7, plate XLIIIa) and from Endfield, Middlesex (Price 1977, 155-8, No 2, Fig 27.2, plate 7).

36. Not illustrated. Fragment of a handle of a jug of amber glass. Flat-sectioned with central raised rib, c 40mm wide.

Context 321, Period U/S.

This fragment belongs to a vessel of the group discussed above. Handles of this shape seem to belong most often to conical jugs (Price 1977, 155).

37. Two joining fragments of a handle of a jug of very clear yellow/green glass. Angular handle, with circular cross-section, with an added trail with pincer or notched decoration extending the full length. Small fragment of the shoulder of the vessel still adheres, the angle suggesting that the body was conical.

Context 75, SFs 618 and 622, Period 10A.

Handles decorated with pincer trails are a feature of the group of jugs discussed above with reference to nos 35-6. The trail occurs most often as an extension beneath the handle on the shoulder or body of the jug, but there is some variation. A blue-green ribbed conical jug from Corbridge has a flat-sectioned handle with pincer trail beginning at the neck and then running outside the entire length (Corbridge Museum accn no 75.3516). The rounded cross-section of no 37 can be paralleled by an olive green jug with ribbed conical body and base-ring, from Bayford, Kent. This has two handles, one of them being round-sectioned (Harden *et al* 1968, 82-3, no 108). However, the 4th-century context of no 37 causes uncertainty about including it in a late 1st/early 2nd-century group of vessels. Its yellow-green colour would not be out of place in the earlier period, but was also typical of 4th-century glass. The apparently good quality of the metal suggests an early rather than a late date, but pincer trailing was not unknown in the late Roman period (cf Isings 1957, 153-4, forms 122-3). Thus, in the absence of an exact parallel, it is impossible to assign the handle with any certainty to a specific vessel type.

38. Very small, cracked fragments of a handle of a jug of pale green glass, some joining. Surfaces dulled. Three-ribbed handle with ring-fold at rim. Tiny part of rim still adhering - apparently folded outward, upward and inward.

Context 342, Period 10A.

The ring-fold next to the rim of this handle fragment is characteristic of jugs of the later Roman period, usually with ovoid bodies (Isings 1957, 149-51, form 120). They are most commonly found in 3rd and 4th-century contexts. British examples include a small dark blue jug from a late 3rd or 4th-century burial at York (Harden 1962, 74, Fig 58 and 140-1, plate 67), a jug from a similarly dated burial at Arbury Road, Cambridge (Liversidge 1977, 14, burial v) and one from a 4th-century grave in the Butt Road cemetery, Colchester (CAT 1978, 1-4). The folded rim of this fragment is unusual; the rims of these jugs are usually outflared and fire-rounded. It may suggest that it is an early example of the type: a similar feature is seen on an ovoid jug from Verulamium, from a well dated AD 160-90 (Wheeler 1936, 186-7, Fig 29, No 25).

Colourless

39. Body fragment, probably of a jug, of colourless glass, now whitish and opaque, surfaces pitted and dulled. Vertical optic blown ribs, nipped together at intervals forming a 'chain' pattern. Diam body c 100mm.

Context 2017, SF1077, Period 6.

Nipped vertical ribbing was used to decorate a variety of forms. Probably its most common application was on ovoid jugs of the 3rd and 4th centuries (cf no 38 above). A fine complete example, of blue-green glass, comes from Colchester (Harden *et al* 1968, 84, no 111). Beakers and cups were sometimes similarly decorated: two fragmentary hemispherical vessels have come from Caerleon, one dated c AD 130-230, the other to the late 3rd century (National Museum of Wales). The Hadrianic date by context of no 39 would seem therefore to be unusually early.

Bottles

Blue-green

40. Rim, neck and handle of a bottle of clear blue-green glass - a number of elongated bubbles in neck. Rim folded outward, upward and inward. Angular, four-ribbed handle. Diam rim c 40mm.

Context 868B, SF832, Period 7.

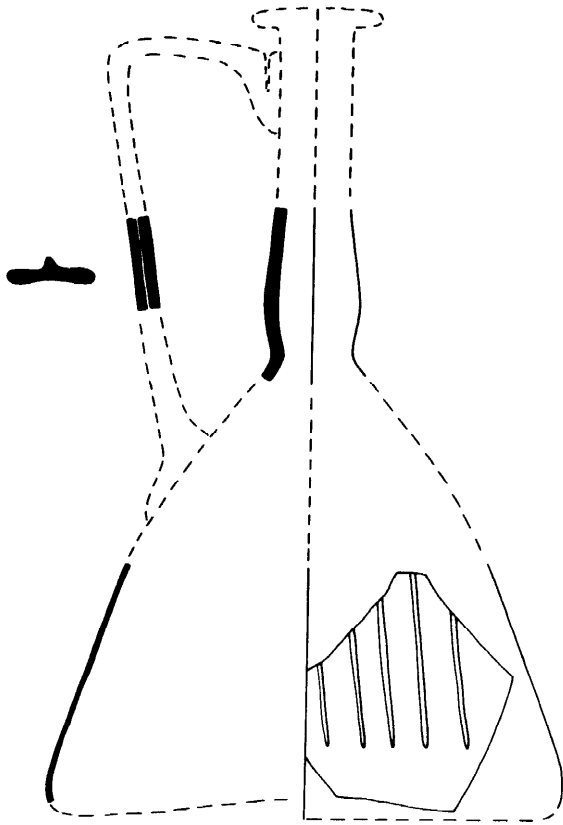
41. Base fragment of a prismatic bottle of thin, very clear blue-green glass. Blown in a body mould; design in relief on base includes a curved arc with raised dots between the ends.

Context 868B, SF835, Period 7.

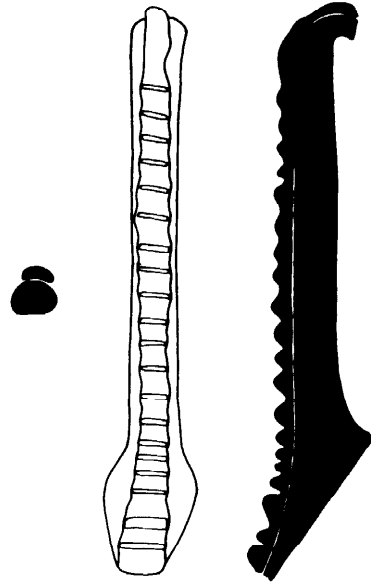
42. Base fragment of a small square bottle of clear blue-green glass. Blown into a square-sectioned body mould - part of two concentric circles extant. Width of sides c 50mm.

Context 1042, SF1045, Period 7.

These fragments belong to the very common blue-green bottles used for the transportation and storage of liquids during the 1st and 2nd centuries. Their characteristics have been discussed by Charlesworth (1966), who suggests that the majority was in use between the years AD 70 and 130, although they first appeared around the middle of the 1st century and continued in circulation well after manufacture had ceased (Isings 1957, 63f, forms 50 and 51). They represent the commonest Roman glass vessel type occurring on sites in Britain, and many other fragments were found at Segontium (see Table 13.000 for a list of contexts.) Some differences in dating are apparent according to vessel-shape. The cylinders tend to disappear after the Trajanic period, whereas the squares continued to be made throughout the 2nd century, and possibly into the 3rd. Hexagonal and rectangular bottles were much less common, the former being produced until about the second quarter of the 2nd century, the latter occurring only in 2nd century contexts. In this assemblage prismatic bottles slightly outnumber the cylinders.



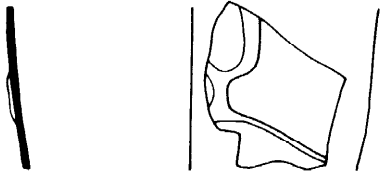
35



37



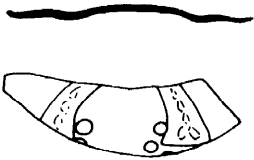
38



39



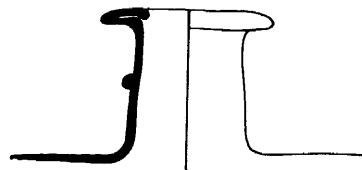
40



41



42



43

Figure 13.3 Glass.

Table 13.1 Contexts in which blue-green bottle fragments were found

<i>Cylindrical bottles</i>			
13	Period 7	308	Period U/S
248	Period 7	455	Period 9
277	Period 5	464	Period 9
293	Period 5A	832	Period U/S
392	Period 8	900	Period 7A
868B	Period 7	954	Period 5A
933	Period 7	964	Period 5A
976	Period 5B	969	Period 6A
1013	Period 10	981	Period 7A
1021	Period 7A	1032	Period 5B
1071	Period 4	1080	Period 5
1072	Period 8	1081	Period 5B
1080	Period 5	1091	Period 7A
1091	Period 7A	1131	Period 4
1106	Period 5A	1132	Period 4
1162	Period 6A	1140	Period 6A
1226	Period 5	1148	Period 5B
1228	Period 2	1164	Period 5B
1292	Period 5	1165	Period 6
1322	Period 1 (Intrusive)	1264	Period 3
1355	Period 5	1270	Period 5A
1568	Period 8	1272	Period 5
1612	Period 5B	1366	Period 2
1668	Period 10	1513	Period 10
2000A	Period 10A	1547	Period 9
2033	Period 5A	1574	Period 11
2051	Period 5A	1584	Period 7A
2063	Period 7A	2038	Period 5A
2066	Period 5	2094	Period 5B
2152	Period 4		
2197	Period 5A	<i>Indeterminate: (Rim, neck, handle and shoulder fragments)</i>	
2332	Period 5A	158	Period 7
1673	Period 7	202	Period 7
2092	Period 4	849	Period 7A
		868B	Period 7
		897	Period 10
		932	Period 7
		984	Period 10
		1130	Period 5
		2000	Period 10A
		2009	Period 6
		2255	Period 5.
<i>Prismatic bottles (Square, hexagonal or rectangular)</i>			
53	Period 10A		
86	Period 10		
153	Period 7		
193	Period U/S		
257	Period 5A		

Colourless

43. Rim and neck of a bottle of greenish-colourless glass - now cloudy and opaque, surfaces streaky. Rim folded outward, upward and inward and flattened. Tiny part of handle still attached half-way up neck. Diam rim 47mm.

Context 835, Period 7.

Colourless cylindrical bottles, which occur in later 2nd, 3rd and 4th-century contexts, must have taken over to some extent from the blue-green vessels of the earlier Roman period discussed above. They were, however, much less common.

Beads

Melon beads of turquoise-blue glass paste

44. Diam 18mm. Context 3014, SF1064, Period 7A.

45. Diam 13mm. Context 1214, SF1173, Period 5A.

Not illustrated:

- a. Diam 18mm. Context 1625, SF921, Period 6.
- b. Diam 25mm. Context 2051, SF1036, Period 5A.
- c. Diam 12mm. Context 2359, SF1166, Period 5.
- d. Diam 11mm. Context 2185, SF1165, Period 5A.
- e. Diam 12mm. Context 1131, SF1176, Period 4.
- f. Diam 12mm. Context 1051, SF1121, Period 5B.
- g. Diam 17mm. Context 336, SF193, Period 10A.

h. Context 71, SF450, Period 7B.

i. Context 2152, SF1109, Period 4. Badly decayed.

46. Fragment of a melon bead of mid-blue glass. Diam 22mm. Context 1041, SF1139, Period 10.

Melon beads were very common on Roman sites in Britain during the 1st and earlier 2nd centuries (Guido 1978, 100, fig 35, Nos 21 and 22, and 230).

Miscellaneous Beads

A variety of beads of well known Roman types, unfortunately not closely datable, was also found on the site:

47. Annular bead of dark blue-green glass, Diam 24mm. Context 317, SF154, Period 11.

48. Annular bead of colourless glass with marvered spiral threads of opaque yellow glass. Diam 7mm. Context 54, SF590, Period 10.

49. Cylindrical bead of blue-green glass. Diam 8mm. Context 2000A, SF852, Period 10A.

50. Not illustrated. Bead of green glass similar to No 49, Diam 6mm. Context 304, SF287, Period 11.

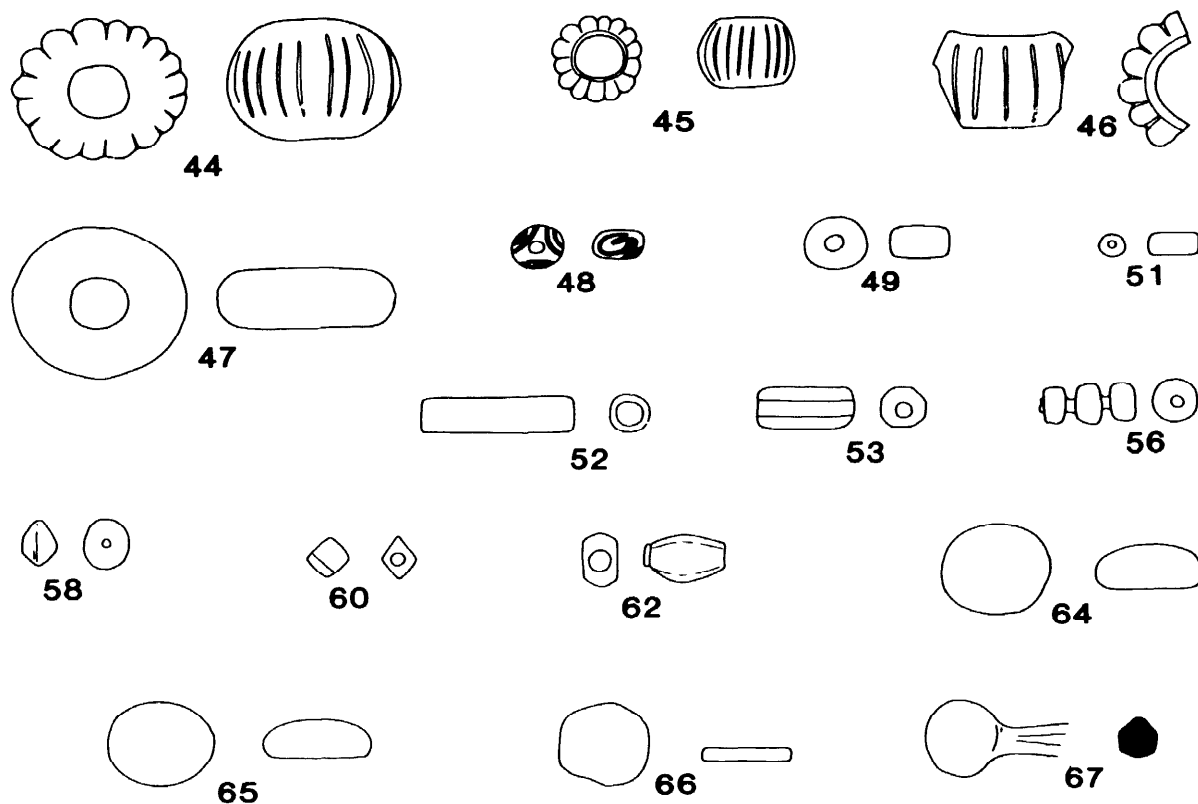


Figure 13.4 Glass.

51. Cylindrical bead of green glass, Diam 4mm. Found together with fragments of a silver or bronze chain with double circular links.

Context 1513, SF603, Period 10.

52. Cylindrical bead of blue glass, Diam 5mm.

Context 302, SF76, Period U/S.

53. Hexagonal bead of green glass, 13mm long, 6mm wide.

Context 76, SF864, Period 9.

54. Not illustrated. Smaller hexagonal bead of green glass, 8mm long, 4mm wide.

Context 318, SF95, Period U/S.

55. Not illustrated. Similar bead, badly weathered, 7mm long, 5mm wide.

Context 2336, SF1161, Period 4.

56. Segmented bead of green glass - three segments extant. Diam 6mm.

Context 342, SF245, Period 10A.

57. Not illustrated. Smaller segmented bead of turquoise glass, Diam 3mm.

Topsoil, SF657, Period U/S.

58. Biconical bead of blue opaque glass, Diam 6mm.

Context 1502, SF965, Period U/S.

59. Not illustrated. Smaller conical bead of blue glass, Diam 4mm.

Context 1502, SF459, Period U/S.

60. Rhomboid-sectioned bead of blue glass, 4mm wide.

Context 315, SF130, Period 11.

61. Not illustrated. Fragment of a bead of blue glass similar to No 60.

Context 2, SF350, Period U/S.

62. Bead of green glass - flattened oval with longitudinal perforation. 11mm long, 7mm wide.

Context 15, SF111, Period 9.

63. A number of tiny beads, mostly rounded: not illustrated

a. Turquoise fragment. Context 1547, SF855, Period 9.

b. Red fragment. Context 805, SF286, Period 7.

c. Green bead. Context 1506, SF580, Period 10A.

d. Green bead. Context 352, SF248, U/S.

e. Green bead. Context 336, SF198, Period 10A.

f. Blue bead. Context 801, SF272, U/S.

Objects

Gaming counters

64. Counter of black glass - circular, with rough, flat base and rounded top, Diam 14mm.

Context 932, SF1004, Period 7.

Very similar counters, not illustrated:

a. Diam 13mm. Context U/S, SF1181, Period U/S.

b. Diam 13mm. Context U/S, SF1072, Period U/S.

- c. Diam 15mm. Context 932, SF1004, Period 7.
 d. Diam 15mm. Context 2199, SF1124, Period 4.
 e. Diam 14mm. Context 2006, SF982, Period 7.

65. Counter of blue-green glass - circular with rough, flat base and rounded top, Diam 14mm.
 U/S, SF1093, U/S.

Gaming counters of this type are common finds on Roman sites.

66. Fragment of blue-green glass chipped and polished around to make an approximately circular counter, Diam 13mm.
 Context 1512, SF665, Period 10A.

Pins

67. Pounded head of a pin of blue-green glass - shaft probably twisted spirally. Glass pins are fairly common Roman finds, and were probably used as hair ornaments, or possibly in clothing.
 Context 314, SF99, U/S.

Window glass

Several fragments of window glass were found on the site. This was all of the matt/glossy variety. in use until the end of the 3rd century (Boon 1966, 45).

Contexts:

2	Period U/S
75	Period 10A
76	Period 9
304	Period 11
347	Period 10A
453	Period 9
817	Period U/S
852	Period U/S
931	Period 7A
1041	Period 10
1220	Period 6A
1512	Period 10A
1517	Period 11
1534	Period 10A
1584	Period 7A
1697	Period 6A.

Stratified contexts in which intrusive post-mediaeval fragments were found:

36	Period 6A
310	Period 10A
39	Period 6A
317	Period 11
125	Period 10
983	Period 10
304	Period 11
2104	Period 5

14 Brick and tile

J L Davies

The excavations yielded substantial quantities of tile and lesser amounts of brick, mostly in the form of small fragments, 4365 in all from stratified deposits. The total of fragments and identifiable types from each period context were noted, though, unfortunately, their weights were not recorded. The following shows the number of fragments and types represented thereby, together with their percentage of the total.

The 'Undiagnostic' totals undoubtedly include a large percentage of *tegula* fragments (given their relatively large size), large floor tiles of c 25-30mm thickness (*sesquipedales*) and at least from Period 7 onwards some tiles of the box variety.

Insofar as *tegulae* and *imbrices* are concerned some must manifestly be of local manufacture. The discovery of a tile kiln c 200m north-west of the fort (White 1985) containing a mass of incompletely fired tiles, among which were fragments of the above forms, is confirmatory evidence. It also raises the possibility that this may be *the*, or a source for the tiles used for the fort in Periods 2 and 3, though most likely not for those of Period 5 (unless re-used) since following the kiln's disuse it was backfilled with rubbish containing pottery of the period c AD 80-110. (The coarse pottery from the fill is unfortunately unpublished in detail, though the samian is Flavian). If not producing tiles for

roofing barracks and the like, the the kiln may either have furnished them for the buildings of the central range of the Flavian fort or the putative external bath-house. The situation seems to be analogous to that at Trawscoed, Dyfed, where a tile/brick kiln is known outside the north-west gate of the fort but the barracks of all phases seem to have been roofed with thatch or shingles (Davies 1986, 43).

Pedales, c 270mm square, or the more common *Laterculi besales*, c 200mm square, only occurred in Period 6A and later contexts, the latter clearly forming the component parts of *pilae* (or leaving impressions thereof) in the *caldarium* and *tepidarium* of the small bath-house. Similarly fragments of box-tiles, first occurring in Period 7 contexts, either relate to the above building, or initially belong to the hypocausted Room 2c in the east range of the courtyard building (SS2). These tiles may be more firmly identified since either a near-complete cross-section was noted, or the fragments showed vents for communication between the various flues of a hypocaust system. The recorded examples all appear to derive from wall-jacketing, no certain example of *voussoirs* being noted. Some fragments of half-box or L-shaped tiles were also recorded and have been included within the general category.

Table 14.1 Brick and tile from Segontium

Period	Tegulae	Imbrices	Box	Floor tile/	Undiagnostic	%
2	-	-	-	-	7	0.16
3	-	1	-	-	15	0.36
4	1	-	-	-	11	0.35
5	22	30	-	40	300	6.87
5A	1	5	-	-	41	1.07
5B	13	39	-	5	87	3.3
6	2	10	-	-	86	2.25
6A	11	33	-	2	265	7.1
7	21	29	14	4	254	7.4
7A	15	32	1	5	352	9.3
7B	3	5	8	-	132	3.4
8	5	24	-	3	232	6.05
9	21	38	11	3	394	10.7
10	63	186	78	6	780	25.5
10A	19	29	1	-	578	14.3
11	6	3	-	-	77	1.98



Plate 14.1 Tile stamp of legio XX Valeria Victrix (SF1005).

Discussion

The quantity of tile from Period 2-4 contexts is very small and would seem to confirm that the buildings of the Flavian fort, with the possible exception of those of the *latera praetorii*, were not roofed with tile. Thereafter the greatly increased quantity of tile in Period 5, with floor-tile being used as hearth-bases in centurions' quarters, together with those deriving from the Period 5A demolition deposits and others relating to the continued use of centurions' quarters in Period 5B, all suggest that it was only then that the buildings in the *praetentura* were roofed with tile.

The tiles from Period 6, largely derived from make-up deposits, together with the much greater totals from Period 6A, suggest that the proto-courtyard building (SS1) was roofed with this material. The building of the small bath (B1) again substantially increased the incidence of brick and tile, with these items being integral in its fabric.

Period 7 saw the construction of the courtyard building (SS2), with tile being occasionally incorporated in its fabric; for example in drain D10 through the south range. The relatively high proportion of tile, including those of the box variety

for the first time, from Period 7 and 7A contexts, reflects alterations to Room 2 with the insertion of a small, heated room together with modifications to the small bath-house. The courtyard building is also likely to have been tile-roofed, though slate was appearing in Period 7B contexts, certainly, in part, as flooring material.

The subsequent incidence of tile and brick relates to modifications to provide heated accommodation in the east range of the courtyard building (Periods 7B and 8); the disuse (and demolition?) of the small bath-house; and the at least partial demolition of the courtyard building. Thereafter there is no evidence of its explicit structural use and its incidence (often very prolific) relates to later pit-digging, excavations for later structures such as bath-house B2, and drainage, together with its dispersal as rubbish.

The presence of *cohors I Sunicorum*, the unit attested at Segontium in the Severan period (RIB 430) and at the legionary tiler at Holt (Clwyd) (Grimes 1930, 43-4, fig 60, 3) suggests that they contributed labour to pottery and tile production in the early 3rd century, or earlier. It is unlikely that their labour did not relate to the provision of



Plate 14.2 Tile stamp of legio XX Valeria Victrix (SF668).

materials for their fort. Two stamped tiles were recovered in the present excavations, one (SF No 1005 from Context 973; PI 14.1; *RIB* 2463.36 (xiv)) is an example of Grimes' stamp type No 7 from the Holt kilns (Grimes 1930). The second (SF No 668, Context 1802 [topsoil]; PI 14.2) is of Grimes' type 23 (*RIB* 2463.12 (iii)) and comes from the same source. A third (Grimes type 21, *RIB* 2463.16 (ii)) was

found in 1963, in a service excavation. The first of these tiles derives from material lying on the floor of the centurion's quarters of TS8 and may come from the demolition of this structure during its replacement by SS1 in the Trajanic period. However, the context is not securely stratified and a later date for the production of the tile is not precluded.

15 Graffiti

R S O Tomlin

1. Flanged rim of a BBI bowl (in 4 pieces), Hadrianic-Antonine. A graffito has been scratched on the lip after firing, in irregular capitals:

○ L OAMMOIVS

The L is separated from the first O by two vertical strokes which were incised on the lip before firing with the same tool that was used to decorate the wall of the pot. It is possible that the writer intended to incorporate this piece of decoration as II (ie E), but it seems unlikely, particularly in view of the rarity of names beginning Leo... compared with those in Lo..... He may have intended something like (*centuria*) *Lo(ngini) Ammo(n)ius*, For an Ammonius of about this date, cf *RIB* 2213 (Tomlin 1980, 417).

Context 1613, SF918, Period 7.

2. Graffito on the interior of a lid or bowl: [...]INIS (vessel missing).

Context 1502, SF509, U/S.

3. Part of an imbrex. A graffito cut before firing in careful capitals reads: [...]ABSO[...]. The final letter is either an O or C. There may be a space between AB and SO which would make AB a preposition; otherwise this may be a record of work done (*absolvi*, etc) but there are many other possibilities

(Tomlin 1976,391).
U/S.

4. Graffito on top right-hand corner of the 'Mars' relief (see Chapter 12). Clumsily-formed letters have been lightly scratched above a horizontal guideline: [...]M 22X. Casual scratches, and the poor quality of the letters prevent a certain reading (*RIB* 2453.4). It might be

!!!CENAM22X

but there are other possibilities. Neither practice lettering nor a personal name seem likely explanations.

Context 350, SF458, Period 9.

5. Tegula fragment with flange c 17 x 135mm. About 90mm below the flange are fragments of 2 lines of an undeciphered graffito inscribed before firing (Plate 15.1).

Context 2088, Period 7.

6. Two joining sherds of a South Spanish amphora base (Dressel 20). The graffito reads MI written upside down, i.e. by reading down from the top of the vessel.

Context 1129, Period 5.



Plate 15.1 Tegula with undeciphered graffito.

16 Samian

Anthony King and Martin Millett

With a report on the stamps by Brenda Dickinson

Introduction

The site produced a total of 1087 sherds of samian, many from primary contexts, making them extremely useful for the dating of the site. This material has been processed by the two authors, Martin Millett dealing with the South Gaulish material and Anthony King the Central and Eastern Gaulish. The general discussion and analysis is a combined effort.

In preparing the report we initially prepared an archive catalogue by excavated context, listing the form, fabric, number of sherds, weight, and the date of the individual sherds where appropriate. For the purpose of this report this material has been grouped by the excavators' phases, with a commentary on the dating of each period group. All stamps, together with non-residual decorated wares have been described and illustrated where appropriate. Catalogue numbers are used in the Figures (16.1-3). For these purposes South Gaulish material is considered residual if it occurs later than Period 5B and Central/East Gaulish material is similarly considered residual if it occurs in contexts later than Period 7A. Details of the remaining decorated material are generally presented as descriptions only. The full details of the assemblages are given in Tables 16.1-9. The details presented form the basis of a summary of dating and a more wide-ranging discussion which follows the catalogue.

Catalogue

The samian stamps (Pl 16.1)

by Brenda Dickinson

1. [OFCALV[I] on form 18: Calvus i of La Graufesenque, Die 5j. One of Calvus's less-common stamps, noted at Rottweil (2) and the Nijmegen fortress. c AD 70-95. Context 1139, SF1150, Period 3.
2. OICICELRIS on form 18: C Iulius Celer of La Graufesenque, where the die, 'la' is known to have been used. The stamp comes from a die into which swallow-tail ends have been cut as a secondary feature. Two stamps from the original die occur at Chester, and so the modified die version will not have been in use before the Flavian period. Context 2052, SF1016, Period 5A.
3. oFRVFI, retrograde, on form 27: Rufus iii of La Graufesenque, Die 3g. Like some of his other stamps, this was used in the late-Neronian and early-Flavian periods. The earliest example noted by us comes from the Gloucester Kingsholm site and the latest is from Brough-under-Stainmore. Stamps from other dies occur at Newstead and the main site at Corbridge. c AD 65-90.

Context 1080, SF1126, Period 5.

4. SAC[RA]PV on form 27: Sacrapus of Central Gaul, who used the die (4a) at Les Martres-de-Veyre and Lezoux, in the Trajanic and Hadrianic periods, respectively. This piece is from Les Martres. c AD 110-25. Context 932, SF1022, Period 7.

5. (TABIVIRTVTIS on form 27g: Tabus-Virtus of South Gaul (presumably La Graufesenque), Die la. The stamp is known from Domitianic foundations, such as Butzbach, the Saalburg (3) and Wilderspool, but there is said to be an example on form 29 (Royal Ontario Museum. personal comment from Mrs A. Easson), which should not be later than AD 85. c AD 75-100. Context 1165, SF1179, Period 6.

Unidentified

6. CATVLLINVS on form 18/31 or 31. The stamp is not very clear but it almost certainly belongs to Catullinus i, who worked in Central Gaul, presumably at Lezoux, in the Hadrianic or early-Antonine period. Context 1008, SF1113, Period 5B.

7. IIIII? on form 27g. South Gaulish and almost certainly illiterate. Flavian. Context 2012, Period 5.

8. OF[on form 18, South Gaulish. Flavian. Context 348, Period 9.

9. IISIN? on form 33. An illiterate stamp, South Gaulish. Flavian-Trajanic. Context 825, SF869, Period 9.

10. SATTO[?, on form 33, Central Gaulish. Perhaps a stamp of Satto v of Lezoux. The date of this piece, mid- to late-Antonine, would fit his range, but the attribution is very tentative. Context 396, Period 8.

Cursive signature

11. On form 37, Central Gaulish. A faint cursive signature (upside-down?), below the decoration, from a mould inscribed before firing, seems to read either Joicis or Idicis, retrograde. Neither the name, nor the only surviving motif, a lozenge of the general type Rogers U29-37, suggests a known Lezoux potter, though the fabric suggests origin there. Below the decoration is a double ridge. Probably early to mid-Antonine. Context 110, Period 10.

The decorated and other significant sherds Period 2

1. Dr 29 SG Upper register large bead rows with running ?hound? apparently in metope cf Knorr 1952, Taf 25 G and H, Frontinus (Domitianic), and Taf 9 A and B, Bassus/Coelivs (Claudio-Neronian); also Pompeii hoard bowls by Mommo. Atkinson 1914, pls II-III. Good gloss. Probably early Flavian. Context 1377.
2. Dr 37 SG Series of fragments of metopes below ovolo with coarse coalescent bead rows. Diana with bow (Oswald 1936-37, 103A); and St Andrew's Cross motif included in fill. Another unidentified draped standing figure. Exactly same mould as Pompeii hoard Atkinson 1914, Pl XV no 76. Vespaianic-Domitianic. Contexts 1044, 1091, 1228, 1259, 1269, 1510, 1569, 1668.
3. Dr 29 SG 'blob' from central zone. (Not illustrated). Context 1254.

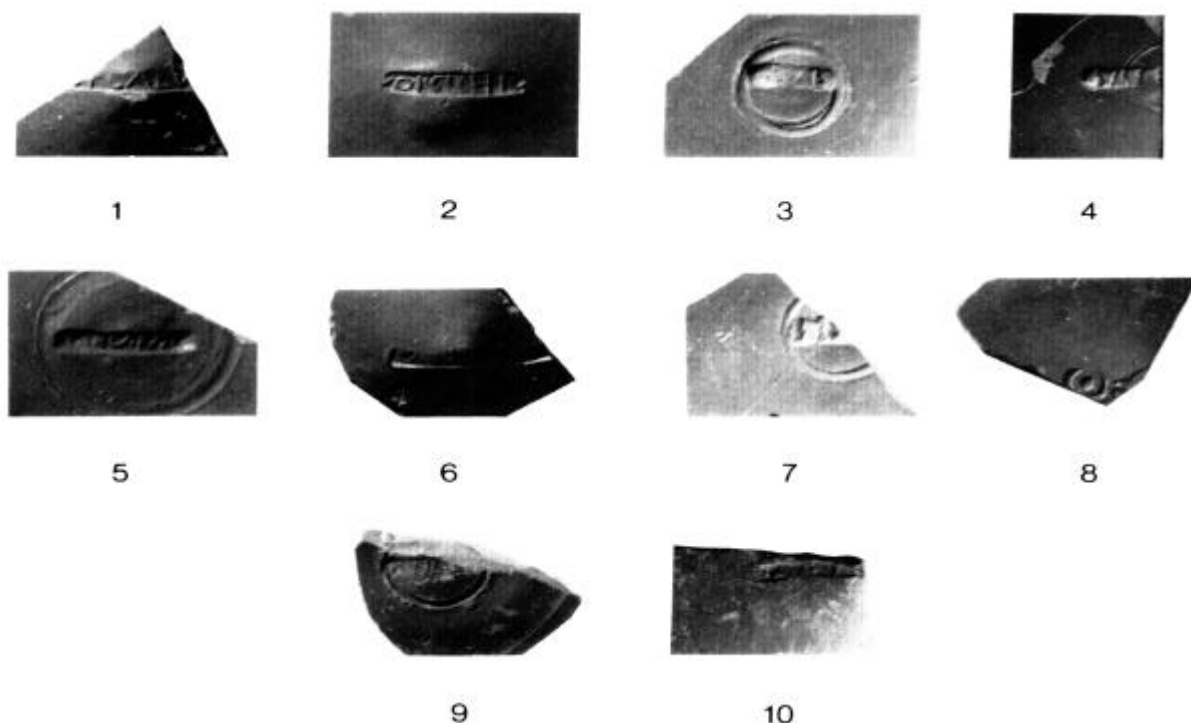


Plate 16.1 The samian stamps. (Scale 1:1)

Period 3

4. *Dr 37 SG* Poorly moulded - blurred. Ovolo above wavy line. Main zone single-sided double-stalked scroll with opposed leaves as Knorr 1919, Textbild 12/20 used by BIRAGIL, OF FLGER-MANI and OF PATRIC. Birds in corners (Oswald 1936-7, 2244). Beneath are birds (Oswald 1936-37, 2245 and 2290) and hare running to left above tuft. Wavy line and basal horizontal wreath. Cf Pompeii (Atkinson 1914, Pl XIII no 72). Flavian. Contexts 1013, 1081, 1139.

5. *Dech.67 SG* One-sided treble-stalked scroll with opposed leaves and bird; medallion with rosette beneath plus serpent and two birds (cf Oswald 1936-37, 2285 and 2244 neither exact). Leaf cf Knorr 1919. Textbild 9/23 used by Senicio. Probably Early Flavian. Contexts 848, 868, 964, 1173, 1264, 2208.

Period 4

6. *Dr 37 SG* Large ovolo above wavy lines, above horizontal wreath and another wavy line; main zone has hound and boar (neither in Oswald) separated by tufts. Basal treble-stalked scroll with lanceolate leaves. Generally similar to pompeii vessels (Atkinson 1914, X, 51; XV, 77). Probably Domitianic. Contexts 186, 315, 464, 802-3, 825, 848, 854, 932, 940, 981, 1021-3, 1031, 1070, 1568, 1615.

7. *Dr 29 SG* Lower register. Basal, single-side treble-stalked scroll. Pinnate leaves beneath. Wavy line border on either side of central wreath which contains a straight wreath. Flavian Contexts 2174, 2256, 2390.

8. *Dr 37 SG* Thick-walled vessel with ovolo above clear wavy line. Main zone shows elements of a large scroll used to make an upright plant with leaf and bird (too blurred to identify), probably a large St Andrew's Cross. Probably Domitianic-Trajanic. Contexts 1067, 1133.

Period 5

9. *Dr 37 SG* Metope, leaf and hound above wavy line. (Heavily burnt). Probably Vespasianic-Domitianic. Context 2210.

10. *Dr 37 SG* Fragments from bowl with ovolo above wavy line and 'S' beneath; then metopes with gladiators (not in Oswald) and imbricated leaves. Compare Pompeii (Atkinson 1914 no 59) - Style of Mommo? Vespasianic-Domitianic. Contexts 1032, 1080, 1088, 2003.

11. *Dr 29? SG* Basal panel of vertical bead rows. (Not illustrated). Context 2394.

12. *Dech 67 SG* Tiny scrap with three basal rosettes, one with visible vertical leaf(?) attached. (Not illustrated). Context 277.

13. *Dr 37 MdV* Base of decoration; nothing identifiable. Early to mid-2nd century. (Not illustrated). Context 956.

Period 5A

14. *Dr 37 SG* (Small) Fine ovolo, fine bead rows above and below. Straight wreath beneath. Transitional style. Vespasianic-Domitianic. Contexts 362, 1271.

15. *Dr 37 SG* Ovolo above straight wreath. 'S' motif beneath that and above horizontal basal wreath. Wavy lines as borders. Transitional style. Cf Pompeii (Atkinson 1914, Pl XIII nos 64 and 681. Vespasianic-Domitianic. Contexts 118, 2051.

16. *Dr 29 SG* Upper register; single-sided stalked scroll with pinnate leaves infilling beneath, above large bead row. Flavian. Context 2332.

17. *Dr 18 SG* Bearing graffito 'TETRIC' on underside of base. Contexts 954, 1148, 1647.

18. *Dr 29 SG* Lower register - central wreath above 'S' motifs, with fine bead row either side, above horizontal basal wreath. Good gloss. Flavian. Context 2052.

19. *Dr 29 SG* Upper register: Stalked scroll with star beneath; both above large bead row. Bather worn. (Not illustrated). Flavian. Context 245.

20. *Dr 27 Large*, heavily burnt, in micaceous Lezoux fabric (Boon 1967, 31). Probably c AD 70-80. Contexts 245, 276.

21. *Dr 29 SG* Upper register double-stalked scroll with star beneath; large bead rows bordering plain central zone: lower register shows diagonal fill to metope with bead rows. Good gloss. Neronian-Flavian. Context 2039.

22. *Dr 37 SG* Tiny scrap with poorly moulded ovolo. (Not illustrated). Context 257.

23. *Dr 37 CG* Bifid Rogers 1974 G362. festoon *ibid* F42, rosette as C278, unidentified bifid above bead row in place of ovolo; probably metope and medallion style. Vegetus I or Quintilianus group, CG II. Context 2052.

24. *Dr 37 CG* Trace of rubbed ovolo. Unidentified. (Not illustrated). Context 2052.

Period 5B

25. *Dr 37 SG* Ovolo above wavy line and (?) leaf. Coarse and poorly moulded. Domitianic-Trajanic. Context 974.

26. *Dr 37 SG* Ovolo with large rosette above wavy line. Metopes beneath. St Andrew's Cross to left; lanceolate leaf infilling quarter to right. Poorly moulded. Closely similar to Pompeii (Atkinson 1914, Pl XI 55 Mommo and Pl X 53 'Potter of the large rosette'). Vespasianic-Domitianic. Context 1612.

27. *Dr 29 SG* Two sherds from base of lower register. Small metopes; large arrowhead at base; wavy line borders with columns between and (?) St Andrew's Cross. Deeply moulded. Flavian. Context 1032.

28. *Dr 37 SG* Complex straight basal wreath; wavy line above and main zone with festoons separated by vertical leaves. Festoons contain birds (Oswald 1937, 2231?). Probably Domitianic-Trajanic. Contexts 976, 1013.

29. *Dr 37 SG* Basal zone with hounds above tufts; bead row above. Poorly moulded. Probably Domitianic-Trajanic. Contexts 932, 1067.

30. *Dr 37 SG* Head of left-looking figure below bead row. (Not illustrated). Context 2195.

31. *Dr 37 SG* Scrap from below ovolo with corner of festoon. (Not illustrated). Context 976.

32. *Dr 29? SG* Chip from horizontal wreath. (Not illustrated). Context 1148.

Period 6

33. *Dr 37 SG* Poor ovolo above wavy line with arrowheads infilling triangular corner of metope with wavy line below. (Not illustrated). Context 2043.

34. *Dr 37 MdV* Bead row forming small panel, smeared figure, unidentifiable, burnt, early to mid-2nd century. (Not illustrated.) Context 2055.

Period 6A

35. *Dr 37 SG* Basal 'S' with wavy line above. Double-sided treble-stalked scroll with buds and zone of arcading above. These arcades appear to contain hounds and leaves. (Cf Knorr 1952 39, E Medillivis style). Transitional style: Flavian. Contexts 848, 932, 969.

36. *Dr 37 SG* Large-stalked scroll with ? leaf below beaded border. (Not illustrated). Context 228.

37. *Dr 37 SG* Stalk of scroll. (Not illustrated). Context 912

38. *?(Form uncertain) SG* Tiny scrap with leaf (?) and bead row. (Not illustrated). Context 1227.

39. *Dr 29 SG* Bead row above stalked scroll in upper register: central and lower register; small pinnate leaves and diagonal bead rows. ?Metope above figure? (Not illustrated). Context 2172.

Period 7

40. *Dr 37 SG* Ovolo above bead row. Treble-stalked scroll above bead row. (Not illustrated). Context 276.

41. *Dr 37 SG* Ovolo. (Not illustrated). Context 178.

42. *Dr 37 SG* Ovolo above wavy line and complex double horizontal wreath. (Not illustrated). Context 803.

43. *Dr 37 SG* Well moulded ovolo with bead row and figure beneath. (Not illustrated). Context 868B.

44. *Dr 29 SG* Upper register: Metope; Vertical wavy line and arrowheads to right. (Not illustrated). Context 868B.

45. *Dr 37 SG* Upper part of very poorly moulded ovolo. (Not illustrated). Context 932.

46. *Dr 29 SG* Central band with bead row. (Not illustrated). Context 1666.

47. *Dr 37 CG* (Four pieces, one from a U/S context) Erotic group Oswald 1937 B in double medallion, erotic group Oswald 1937 O H variant in double medallion, telamon *ibid* 1207A, ovolo Stanfield and Simpson 1958 fig 33/2; metope and medallion style. Divixtus, CG III. Context 1058/1502 (joins).

Period 7A

48. *Dr 29 SG* Lower register: basal stalked scroll with lanceolate leaf above and below. Wavy line above and central wreath with large bead row above. (Not illustrated). Context 1023.

49. *Dr 37 SG* Tiny scrap of poorly moulded ovolo. (Not illustrated). Context 868.

50. *Dr 37 SG* Ovolo above wavy line. (Not illustrated). Context 981.

51. *Dr 37 SG* Narrow basal wreath below metope with wavy line boundary and vertical border. (Not illustrated). Context 981.

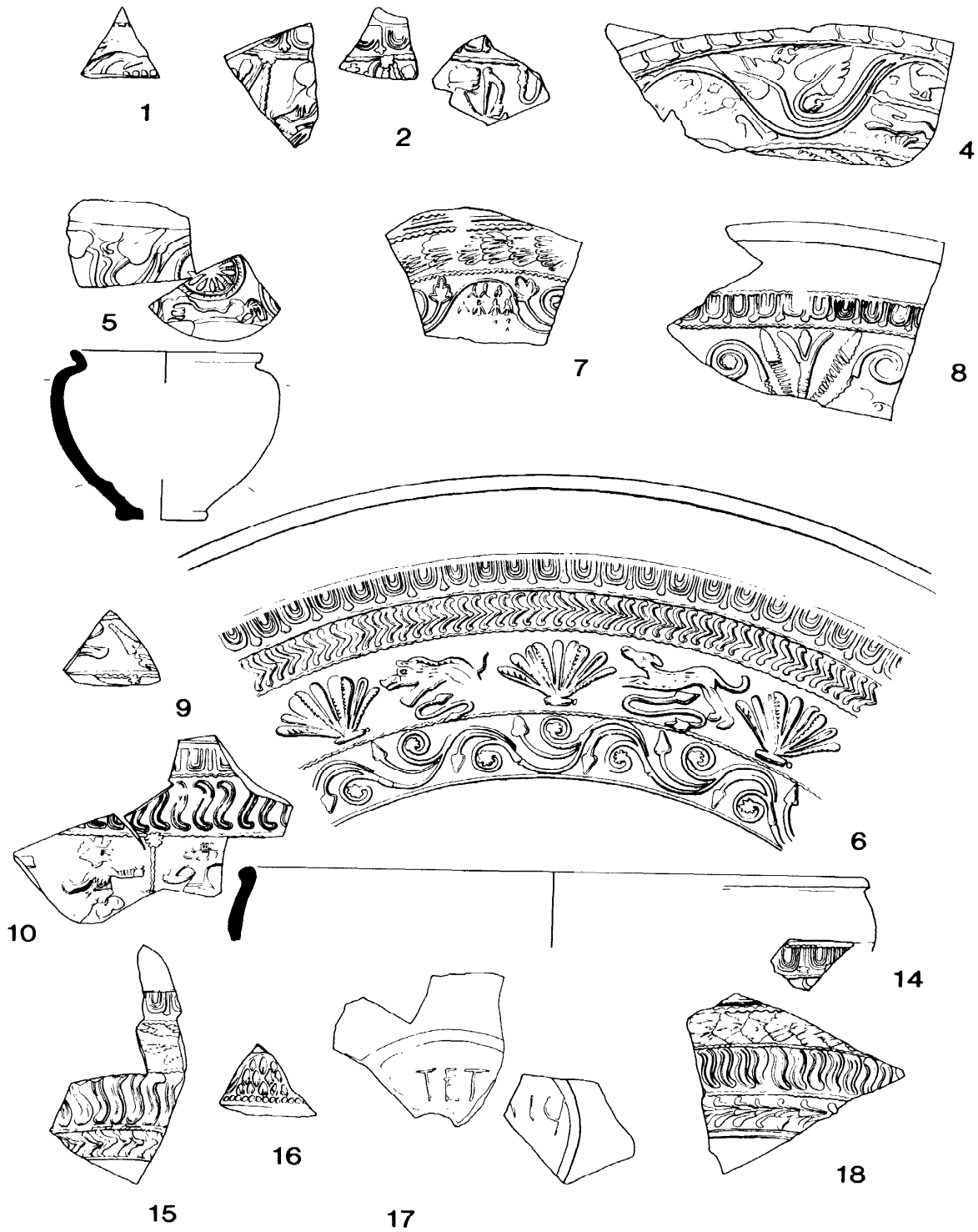


Figure 16.1 Decorated samian. (Illustration numbers refer to catalogue).

52. *Dr 37 SG* Small: small wreath medallions in lieu of ovolo above bead row. (?) Scroll beneath. (Not illustrated). Contexts 1568, 1657-8.

53. *Dr 37 SG* Double festoons with vertical motif between and lanceolate bud within. (Not illustrated). Context 1569.

54. *Dr 37 CG* Shield of gladiator as Oswald 1937 1001. CGII-IV. (Not illustrated). Context 868.

55. *Dr 37 CG* Female figure probably Oswald 1937 126B. Cettus?, CG III. (Not illustrated). Context 868.

56. *Dr 37 MdV* Vase Rogers 1974 T9, ovolo Rogers 1974 B29, wavy line below ovolo. Igocatus, CG I. Context 1585.

Period 7B

57. *Dr 37 SG* Ovolo above wavy line. (Not illustrated). Context 70/71.

58. *Dr 37 CG* Ovolo Rogers 1974 B143, large dolphin not in Oswald 1937. Probably Cinnamus, CG III. Context 71.

59. *Dr 37 CG* Trefoil Rogers 1974 G109. Probably Pugnus, CG III. (Not illustrated). Context 71.

Period 8

60. *Dr 37 SG* Bead row over horizontal wreath. (Not illustrated). Context 1568.

61. *Dr 37 SG* Metope with 'blob' fill to left and vertical wavy lines to right. (Not illustrated). Context 1568.

62. *Dr 37 CG* Figure with cloth draped over left arm as Oswald 1937 576A, bead row. Probably Cinnamus, CG III. (Not illustrated). Context 281.

63. *Dr 37 SG* Small ovolo above wavy line. (Not illustrated). Context 396.

64. *Dr 37 SG* Ovolo above wavy line. (Not illustrated). Context 396.

65. *Dr 37 SG* Good ovolo above wavy line with wreath festoons separated by vertical motif. Duck(?) within. (Not illustrated). Context 396.

66. *Dr 37 EG* (Two pieces, one from a Period 9 context), ovolo Ricken and Fischer 1963 E17, circle *ibid* K7?, other details *ibid* 0161, 0179; medallion style, see Ricken 1942, Taf 204/4 for an identical sherd except for the ovolo. Julius II-Julianus I of Rheinzabern, Rh IIIa. Context 74/76 (joins).

67. *Dr 37 CG* (Five pieces, one from an unstratified context), goat Oswald 1937 1840, feline *ibid* 1534, bird *ibid* 2365, sea-horse *ibid* 33, vase Rogers 1974 T23, ornament U263, rosette C170, large ring not in tigers; winding scroll and medallion style, poor moulding. Probably a CG IV potter, using details usually ascribed to Patemus II, Doecus, Iullinus and associates. Context 148/826 (joins).

68. *Closed form CG*, partially slipped internally. This is not the usual form 72 type, and may be the flask form 63, the piece coming from the shoulder part of the vessel. Mid 2nd century? (Not illustrated). Context 148.

69. *SMB CG* With barbotine leaves in the decorative zone. Late 2nd century. Context 331.

70. *Dr 37 CG* Trifid Rogers 1974 G138 in St Andrew's cross design. Probably Censorinus, CG IV. Context 396.

71. *Dr 37 CG* Base of ovolo possibly Rogers 1974 B148, leaf as Rogers 1974 H 14-15, bird Oswald 1937 2365, small bead row; winding scroll style. In style of Paternus II or associate, CG IV. (Not illustrated). Context 468.

Period 9

72. *Dr 37 SG* Large ovolo above wavy line. (Not illustrated). Context 348.

73. *Dr 37 SG* Poorly moulded ovolo below long beaded row: hole for rivet. (Not illustrated). Context 825.

74. *Dr 37 SG* Large ovolo above wavy line. (Not illustrated). Context 848.

75. *Dr 37 SG* Large ovolo above large wavy line with vertical leaf beneath. (Not illustrated). Context 848.

76. *Dr 37 CG* Deer Oswald 1937 1704 in medallion. Cinnamus or Doecus, CG III-IV. (Not illustrated). Context 125.

77. *Dr 37 CG* Ovolo probably Rogers 1974 B160, bead row of Doecus type, very micaceous fabric. Doecus, CG IV. (Not illustrated). Context 348.

Period 10

78. *Dr 29 SG* Horizontal row with (?) leaf below. (Not illustrated). Context 984.

79. *Dr 37 SG* Ovolo above wavy line. (Not illustrated). Context 993.

80. *Dr 37 SG* Metopes with wavy line boundaries. Dolphin above arrowheads to left; Eagle to right. (Not illustrated). Context 999.

81. *Dr 37 SG* Top of well moulded, large ovolo. (Not illustrated). Context 1041.

82. *Dr 29 SG* Scrap of stalked scroll. (Not illustrated). Context 1041.

83. *Dr 37 EG* Head of feline, unidentified ornament with scroll, reminiscent of Ricken 1934, Taf 11/3 from La Madeleine (ovolo K1), which has a lion and tendrils formed of overlaid small elements to make up a tree. Mid/late 2nd century, (Not illustrated). Context 54/55.

84. *Dr 37 CG* Cupid Oswald 1937 450 in double medallion, corded vertical bead row, double impressed small horizontal bead row; metope and medallion style. Paternus II, CG IV. (Not illustrated). Context 81.

85. *Dr 37 CG* Ovolo Rogers 1974 B235, square bead row, trace of winding scroll. Doecus, CG IV. (Not illustrated). Context 109.

86. *Dr 37 CG* Tall pedestal for caryatid not in Oswald 1937, leaf of Rogers 1974 J49/67 type, bead row; metope style, coarse fabric. Probably a CG IV potter, but could be earlier. Context 109.

87. *Dr 37 CG* Diamond Rogers 1974 U29 type, cursive signature, (above, p 236, no 11). Context 110.

88. *Dr 37 CG* Ovolo Rogers 1974 B32. Mapillo, Pugnus, X-5, X-6, CG II-III. (Not illustrated). Context 110.

89. *Dr 37 CG* Bear Oswald 1937 1627, deer Oswald 1937 1772; free style, with shapeless vegetation in the field; non-micaceous, fairly coarse, underfired fabric. Attianus or early Cinnamus, or possibly Paullus, CG II-III. Context 138.

90. *Dr 37 MdV* Ovolo probably Rogers 1974 B7. X-14, Attianus

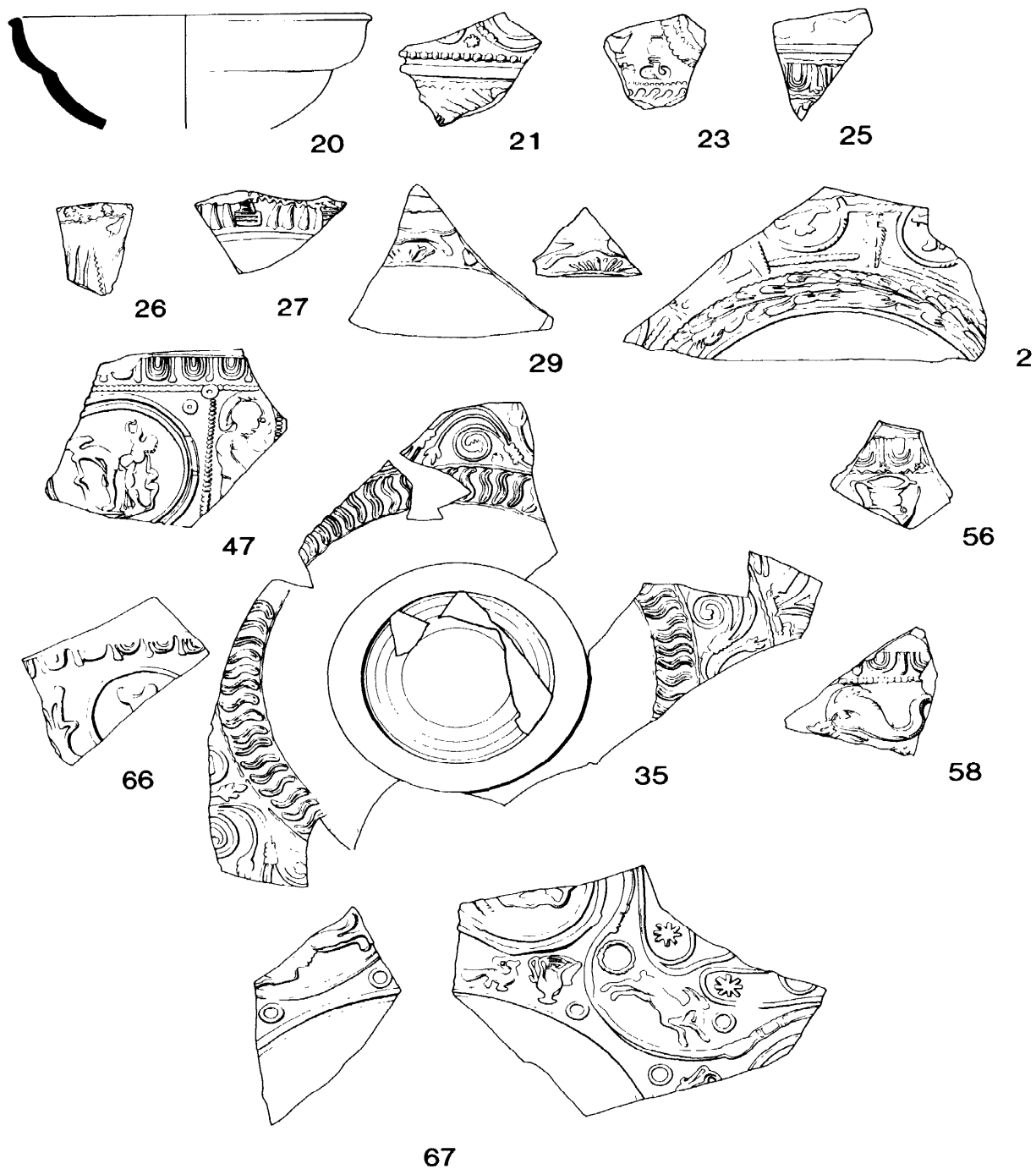


Figure 16.2 Decorated samian. (Illustration numbers refer to catalogue).

and others, CG; II. (Not illustrated). Context 1510.

91. *Dr 37 CG* Ornament Oswald 1937 2155; small bowl. Attianus or Criciro, CG II-III. (Not illustrated). Context 1513.

92. *Dr 37 CG* Mask Oswald 1937 1214. CG III-IV, possibly earlier. (Not illustrated). Context 1513.

93. *Dr 37 CG* Ovolo probably Rogers 1974 B176, legs of feline, small blobs in field; free style. Cinnamus or Casurius, CG III-IV. (Not illustrated). Context 1513.

94. *Dr 37 CG* Large ovolo as Rogers 1974 B1. Doeccus, P-24 or P-26, CG IV? (Not illustrated). Context 1513.

95. *Dr 37 CG* Circle as Rogers 1974 E8, circle Rogers 1974 E68. Caletus or Doeccus, CG IV. (Not illustrated). Context 1513.

96. *Dr 37 CG* Festoon Rogers 1974 F22, circle Rogers 1974 E1, animal - possibly a boar as Oswald 1937 1641; metope and medallion style. Probably Docilis, CG II. Context 2003.

97. *Dr 37 CG* Victory Oswald 1937 809, circle as Stanfield and Simpson 1958 fig 47/11; metope and medallion style, good gloss, shallow impression. Late Cinnamus, CG III. (Not illustrated). Context 2032.

98. *Dr 45 CG* Trace of lion's head spout. Probably late 2nd-early 3rd century. (Not illustrated). Context 1510.

Period 10A

99. *Dr 37 SG* Coarse metopes with vertical arrows in two; hare in another; and final having figure. Borders are wavy lines; basal straight wreath. (Not illustrated). Context 2000A.

100. *Dr 37 CG* Ovolo Rogers 1974 B14, rosette Rogers 1974 C132, figure Oswald 1937 599; see Stanfield and Simpson Pl 84/15. Sacer, CG II. Context 336.

101. *Dr 37 CG* Ovolo Rogers 1974 B105. Paternus II or associate, CG IV. (Not illustrated). Context 336.

102. *Dr 37 CG* Rosette as Rogers 1974 C214, ovolo not in Rogers 1974, wavy line border; metope style, orange fabric. Catussa I or P-18, CG III. (Not illustrated). Context 2000A.

103. *Dr 45 EG* Flange has hole drilled containing a bronze staple to mend a break. (Not illustrated). Context 75.

Period 11

104. *Dr 37 CG* Ovolo Rogers 1974 B223, Victory Oswald 1937 126A; metope style. Late Cinnamus, CG III. (Not illustrated). Context 306.

105. *Dr 37 CG* Ovolo Rogers 1974 B103, helmeted figure as Oswald 126/126A. Advocisus or Divixtus, CG III. Context 1515.

106. *Dr 37 EC* (Four pieces) Ovolo probably Ricken and Fischer 1963 E25, but tip of dart is obscured by an air bubble formed during moulding; large piece of grog in fabric exposed on interior surface, riveted. Comitialis IV or associate, Rh IIa. (Not illustrated). Context 116.

Period: unstratified

107. *Dr 37 SG* Basal 'S' motif. (Not illustrated). Context 1.

108. *Dr 37 SG* Medallion? (Not illustrated). Context 1.

109. *Dr 37 SG* Large leaf. (Not illustrated). Context 1.

110. *Dr 37 SG* Small wreath medallion with hare within. (Not illustrated). Context 2.

111. *Dr 37 SG* (Two fragments) Double medallions; one with ovolo above. (Not illustrated). Context 2.

112. *Dr 37 SG* Large metope; beaded border double medallion or festoon (?) to left and circle in spandrel. (Not illustrated). Context 2.

113. *Dr 37 SG* Large ovolo above wavy line. (Not illustrated). Context 301.

114. *Dr 37 SG* Lower register. Metope with arrowhead fill to left, wavy line boundary. Wreath with lanceolate leaf in quarter and figure within. (Not illustrated). Context 311.

115. *Dr 37 SG* Basal horizontal wreath. Well moulded. (Not illustrated). Context 314.

116. *Dr 29 SG* Scrap with two leaves (?) within scroll. (Not illustrated). Context 826.

117. *Dr 37 SG* Metopes. with bead row borders. Double stalk medallion with bird in quarter. Vertical motif. (Not illustrated). Context 1073.

118. *Dr 37 SG* Two fragments of a large ovolo. (Not illustrated). Context 1502.

119. *Dr 29 SG* Bead row above? (Not illustrated). Context 1502.

120. *Dr 37 SG* Ovolo. (Not illustrated). Context 3002.

121. *Dr 37 CG* Leaf Rogers 1974 H21 in winding scroll. Probably Cinnamus, CG III. (Not illustrated). Context 1 (U/S).

122. *Dr 37 CG* Ovolo Rogers 1974 B105, deer Oswald 1937 1805, astragalus bead row. Albucius, CG III. (Not illustrated). Context 1.

123. *Dr 37 MdV* Small figures Oswald 1937 699, Oswald 1937 703 in medallion, small ring of X-12 type. X-12?, CGI (Oswald 1937 703 is a new type for this potter). Context 2.

124. *Dr 37 CG* Arm of figure Oswald 1937 644A, lion's head not in Oswald 1937. Late Cinnamus ?, CG III. (Not illustrated). Context 2.

125. *Dr 37 CG* Caryatid Oswald 1937 1205/6. Probably Pugnus or late Cinnamus, CG III. (Not illustrated). Context 111.

126. *Dr 37 CG* Ovolo probably Rogers 1974 B223, leaf *ibid* H21, bird Oswald 1937 2315; winding scroll style. Late Cinnamus, CG III. (Not illustrated). Context 111.

127. *Dr 37 CG* Ovolo Rogers 1974 B50, Diana Oswald 1937 106, Bacchus *ibid* 571; metope style. Divixtus style, but ovolo of Figentinus, CG III. Context 155.

128. *Dr 37 CG* Eagle Oswald 1937 2167 in medallion. Cinnamus or associate, CG III. (Not illustrated). Context 155.

129. *Dr 30 CG* Rosette Rogers 1974 C227, leaf *ibid* H40; winding scroll and medallion style. Laxtucissa, CG III. (Not illustrated). Context 302.

130. *Dr 37 CG* Ovolo Rogers 1974 B206, sea-bull Oswald 1937 42, wavy line border, half-medallion; metope and medallion style, identical to Stanfield and Simpson 1958 fig 50 from Lezoux. Paullus, CG III. Context 309.

131. *Dr 37 CG* Sea-bull Oswald 1937 52A, dolphin *ibid* 2382, trifold Rogers 1974 G259, Rosette *ibid* C132, ornament *ibid* U261; metope and medallion style. Doeccus, CG IV (the rosette is a new type for this potter). Context 399.

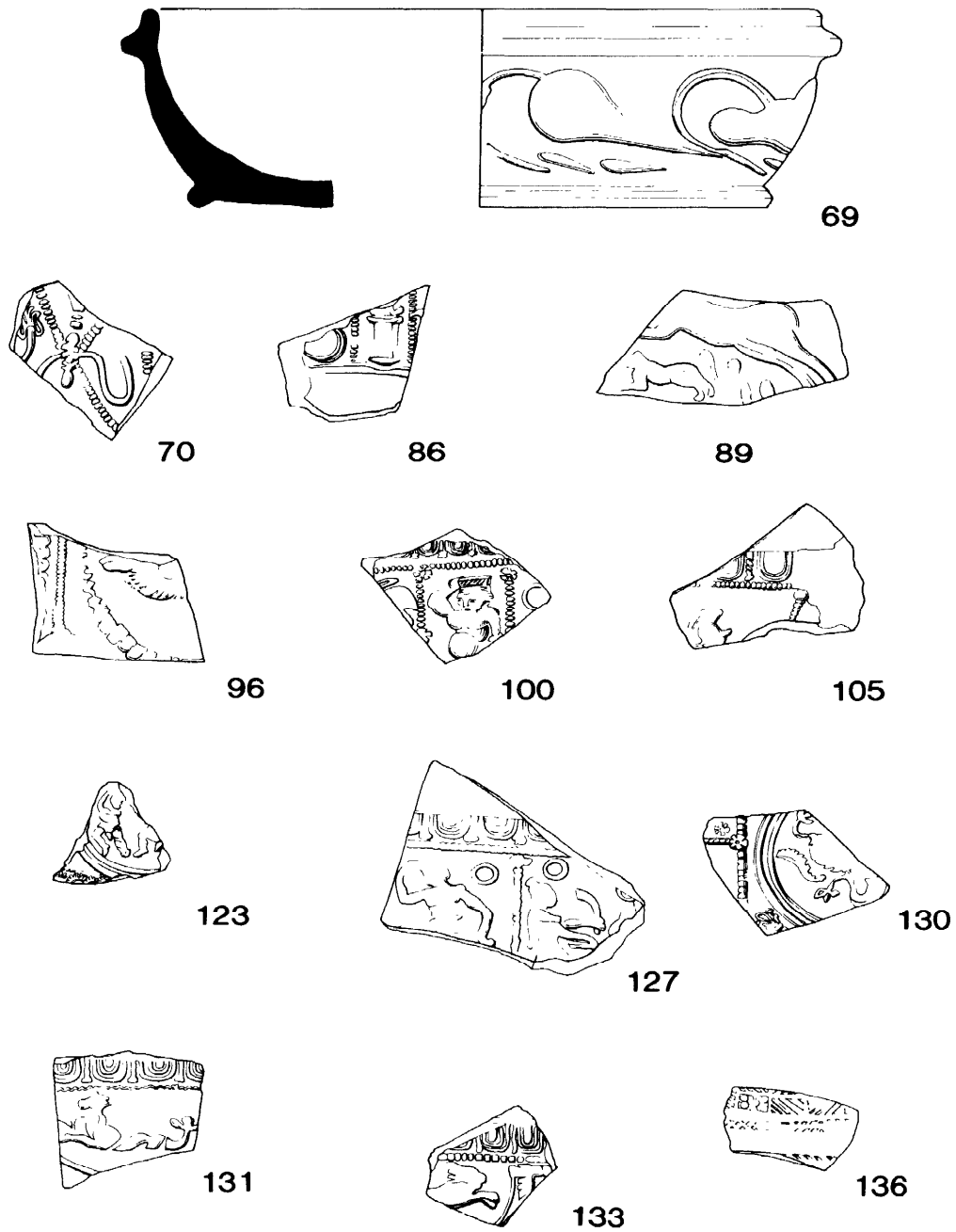


Figure 16.3 Decorated samian. (Illustration numbers refer to catalogue).

132. *Dr 37 CG* Ovolo Rogers 1974 B206, probably free style, poor moulding. Probably CG IV potter. (Not illustrated). Context 309.

133. *Dr 37 CG* Ovolo not in Rogers 1974, festoon as *ibid* F47, lion Oswald 1937 1403A/1404 (smeared), large bead row; metope style. CG II-III potter. Context 314.

134. *Dr 37 CG* Wavy line and squarish line-connector with striations across it; see Stanfield and Simpson 1958 Pl 58/660. Probably Butrio. CG II. (Not illustrated). Context 801.

135. *Dr 37 MdV* Ovolo Rogers 1974 B37, boar Oswald 1937 1696P, wavy line border; identical to Stanfield and Simpson 1958 P119/245. Igocatus, CG I. (Not illustrated). Context 802.

136. *Dr 37 (= Chenet 320) Arg* Lowest row of the roller-stamp decoration is a variant of Unverzagt 1919, nos 107-8 (Hubener 1968, group 5). Late 4th century. This is an outlier in a predominantly eastern distribution. Hubener 1968 lists no Welsh sites in his distribution. Context 111.

General comments on dating

There is a general absence of characteristically Pre-Flavian or early Flavian forms, suggesting that samian only began to arrive c AD 80. The small quantities present in the earliest periods (and the absence of samian from Period 1) should caution against too firm a reliance on this date; campaign camps are unlikely to have been well supplied with samian until they became more permanent.

The presence of a substantial residual group in Period 5A can perhaps be compared with the assemblages at Cirencester (Wacher and McWhirr 1982, 133) and perhaps Colchester (Millett 1987) where the military appear to have dumped pottery during clearance phases within forts.

The contribution of the decorated ware to the 2nd and early 3rd century occupation of the site is not easy to assess, in view of the small number of sherds stratified in those periods that relate directly to contemporary levels. However, if the entire assemblage of decorated pieces is considered, as given in the catalogue, there are enough pieces to show an apparent increase in representation from the mid 2nd century onwards. The figures are CG I, 3; CG II, 7; CG III, 14 and 7 by Cinnamus; CG IV, 12. There is also an East Gaulish La Madeleine sherd and two from Rheinzaubern (Rh IIa and IIIa). These groupings of potters and their abbreviations are given in detail in King 1985: in brief, the CG groups are based on Hartley 1972 and the Rh groups as given in Bernhard 1981. CG II = Hartley 1972, s IV and V upper; CG I is made up of potters, largely from MdV, earlier than *ibid*, IV; CG III = *ibid*, V middle; CG IV = *ibid*, V lower. The absolute chronology of these groups is disputed, especially for CG III and IV. A short chronology is favoured by Hartley (*ibid*); CG III, 145 - c 175, CG IV, 160-200, while a longer time-scale is given in King 1985; CG III, mid-late 2nd century, CG IV, late 2nd-early 3rd century,

with a long overlap between the two groups. CGI is generally dated to the early 2nd century, and CG II to the Hadrianic-early Antonine period.

The representation of decorated ware from all four CG periods provides a guide to the relative supply of CG samian ware over time, and indicates that the inhabitants of Caernarfon were using and discarding the pottery throughout the period. There are no appreciable gaps that might indicate a hiatus in occupation, although it should be noted that comparative research on other assemblages is not yet sufficient to be able to assess statistically whether the Caernarfon figures suggest a diminution in supply at any period. That said, however, the CG I-II figures appear relatively low and may signify a possible diminution in samian supply (and therefore, possibly, site activity) at that time.

Dating of periods based on samian Period 2

All the pottery is South Gaulish. The two decorated sherds are consistent with a date in the 70s or 80s. The Dr 29 is marginally more common than the Dr 37 favouring the earlier part of the range.

Period 3

All the material is South Gaulish. The two decorated sherds are consistent with a date in the 70s or 80s. The absence of the Dr 29 favours a date in the latter part of this range.

Period 4

All the material is South Gaulish. The four decorated sherds are consistent with a date in the 80s or more likely 90s.

Period 5

The assemblage is dominated by South Gaulish material, with the two decorated sherds dating to the 80s. Nevertheless, the presence of a late South Gaulish Dr 18/31 and Dr 33 are consistent with the single Dr 37 from Les Martres-de-Veyre in giving a date in the very early 2nd century.

Period 5A

There is a large, but coherent and largely unused residual South Gaulish group of Vespasianic-Domitianic material in this phase, perhaps a dump. The remaining Central Gaulish sherds are all probably earlier than the mid-2nd century.

Period 5B

The Central Gaulish sherds are all probably earlier than the mid-2nd century.

Period 6

Fifteen of the sixteen sherds come from a single, underfired Dr 35/36, of probable Martres-de-Veyre fabric, early 2nd century or later.

Period 6A

A Dr 33 of probable East Gaulish fabric dates this assemblage to the mid-2nd century or later.

Period 7

The presence of a bowl by Divixtus and sherds of form 31 date the assemblage to the third quarter of the 2nd century or later.

Discussion

Tables 16.2 and 16.3 show that the supply of samian to Segontium (as represented in these excavations) is closely similar to the pattern previously observed on the site (Greene in Casey 1974a) and now known to be typical of much of Britain and the north-west provinces (Marsh 1981). Our figures are not directly comparable with those published by Greene and Marsh since the latter were organised by sherd date, and Marsh's were based only on the decorated sherds. This accounts for some minor variations, since the proportion of decorated material within the total samian assemblage varies through time (Table 16.6). At Segontium the aggregate percentages of decorated vessels are South Gaulish 28%; Les Martres 19%; [this figure is distorted by the anomalous medieval plainware count (see Table 16.3)]; Central Gaulish 30%; East Gaulish 12.5% (calculated by sherd number). One result of the low East Gaulish figure is that Marsh underestimated the quantity of supplies from East Gaul as it produced significantly less decorated samian. Notwithstanding this variation in method of calculation and presentation it does appear that Segontium received significantly less East Gaulish material than other sites for which data are available (Marsh 1981, Fig 11.8). Whether this is a function of an overall reduced level of supply having a greater effect on peripheral north-west Wales than elsewhere (cf Bulmer 1979, 21), or whether it is a result of a reduction in the intensity of occupation is open to question, although we prefer the former explanation in the absence of other data. The idea that a scarcity of supply is responsible is perhaps lent support by the increased (although still low) occurrence of riveted sherds in periods dated after the later 2nd century (Table 16.5; for general discussion of supply in this period see Ring 1985).

These estimates although relying on an assessment of the whole samian assemblage do however suffer from the weakness that they do not relate the samian to the rest of the ceramic assemblage. Data concerning this variation are available from Segontium (Table 16.8 - based on evidence sup-

plied by the excavators). Despite the problems of residuality (which are clear in outline from Tables 16.2 and 16.3) there does seem to be a tendency for the numerical importance of samian ware to decline through time, with values declining from above 10% before Period 5, to only marginally above 5% by Period 7. This supports the view that the volume of supplies decreased after the cessation of South Gaulish production. The low figure in Period 5A may relate to the apparent trough in supply during the Trajanic period which Marsh has noted (1981) although we must be aware of the possibility that this is a result of a dating problem. The principal difficulty in assessing these figures lies in the general absence of comparable figures. Overall values of around 10% compare reasonably well with the Boudiccan deposits (Millet 1983) but are well below the levels found at the port site in London (Richardson 1986, 98) even allowing for the inclusion of vessel glass here. In the absence of data from a range of other sites further comment is difficult.

The deposits examined also show some interesting spatial variation, for when we compare the deposits from different areas of the site (Table 16.9), although the Centurion's quarters do not appear to show not only a higher percentage of samian than the *contubernia* they do have a higher ratio of decorated to plain samian. Although these variations are not enormous they do appear to support the conclusions arrived at by Breeze (1977; cf now 1984) at Bearsden, that the Centurion's quarters produce a larger quantity of high-status material when compared with other parts of fort sites. The high figures from the rampart back are not immediately comprehensible in relation to differences in status within the fort. It seems likely that similar spatial variations in the samples (cf Millet 1987) account for the variations which can be noted in the proportions of decorated material through time (Table 16.6). The only consistent feature which appears to emerge is a rise in the proportion of decorated South Gaulish material through the sequence. This perhaps suggests a higher rate of survival for decorated bowls, possibly resulting from differential use patterns, although it may also reflect a concentration on a higher value, more profitable trade. If further evidence can be adduced in support of this hypothesis it may have wide-ranging implications for the use of samian for dating. (See also discussion in King 1985 and Arnold 1985).

Other worthwhile aspects of the residual samian are shown in Tables 16.4, 16.5 and 16.7. Table 16.4 clearly demonstrates that the average sherd size varies for the different samian centres, with the thinner walled, South Gaulish forms having a smaller sherd size than the later production centres. It also demonstrates that, contrary to expectations, there is no clear pattern of sherd size decrease through the sequence where pieces are residual. The sherd size relates to a sequence of

variables (Millett 1983, Evans 1985), and the 'older = smaller' formula is therefore not a valid summary on its own (cf Bradley and Fulford 1980). This conclusion of the complexity of residuality is also shown by the pattern of conjoining sherds (Table 16.7) which should further caution against too heavy a reliance for dating on individual sherds.

A similar lack of hoped-for patterning emerges when the quantity of burnt material is assessed (Table 16.5). This shows that burnt material, often presumably residual, is present throughout the

sequence, and does not concentrate in particular destruction horizons. When it is also noted that material from major burnt destructive horizons elsewhere is often not visibly burnt (for the Boudican horizon see Millett 1983; 1987), it becomes very difficult to use this burnt material to draw conclusions about the site's history.

It is hoped that this brief discussion of the samian ware has demonstrated that this pottery type has a significant potential for study beyond simply dating the site.

Table 16.1 Samian forms by fabric and period (Period 11 and Unstratified excluded)

Table 16.1A South Gaulish

Table 1B Les Martres-de-Veyre

Period	2	3	4	5	5A	5B	6	6A	7	7A	7B	8	9	10	10A	5	5A	5B	6	7	7A	8	9	10
Closed Forms																								
Déch 67		2		2	2					1			1											
K 72																								
K 72 or 65																								
<i>Total closed forms:</i>		2		2	2					1			1											
Bowls																								
Dr 29	2		2	3	7	4	1	2	3	1		2		3	2									
Dr 30																								
Dr 37	1	2	3	4	5	11	1	18	21	15	1	6	14	12	4	1		1		1	2	1		
<i>Total decorated bowls:</i>	3	2	5	7	12	15	2	20	24	16	1	8	14	15	6	1		1		1	2	1		
Ritt 12	1																							
Curle 11																								
Lud Smb																								
Dr 38																								
Dr 38T																								
<i>Total other bowls:</i>	1																							
Dishes																								
Dr 15/17				1					2					1	1									
Dr 18	7	4	22	5	12	10	3	9	16	10		5	9	16	9									
Dr 22													1											
Dr 18/31				1				1			2			4					1			1	1	
Dr 18/31R					2																			
Dr 18/31T																	2		1			1		
Dr 31																								
Dr 31R																								
Dr 31T																								
Dr 32																								
Dr 32T																								
K 79																								
Lud Tg																								
Dr 35/36		1	2	2	1	5	3	1	1	1				1	2								1	
Dr 42																								
<i>Total dishes:</i>	7	5	24	9	15	15	6	11	19	11	2	5	20	22	12	2		2				2	2	
cups																								
Ritt 8																								
Ritt 9													3											
Dr 27	3	2	5	17	13	25	3	9	19	10		1	4	11	5		1			1	1			
Dr 33				5						1			3										1	
Central Gaulish micaceous								3	1	2														
<i>Total cups:</i>	3	2	5	22	13	25	3	12	20	13		4	7	11	6		1			1	1	1		
Mortaria																								
Dr 45																								
Unidentified																								
	3	4	4	4	2	2	1	6	2			3	5	2	3							1	1	
<i>Grand total:</i>	14	14	38	44	46	57	13	44	69	43	3	20	37	50	27	1	2	1	2	2	2	4	3	4

NB All numbers are in minimum number of vessels

Table 16.2 Fabric quantity by period (by Sherd number)

Production centre:		South Gaulish	Les Martres de Veyre	Central Gaulish	East Gaulish	Total
Period	2	14 (100%)	—	—	—	14
	3	14 (100%)	—	—	—	14
	4	38 (100%)	—	—	—	38
	5	44 (98%)	1 (2%)	—	—	45
	5A	46 (92%)	—	4 (8%)	—	50
	5B	57 (97%)	1 (1%)	1 (1%)	—	59
	6	13 (45%)	16 (55%)	—	—	29
	6A	41 (95%)	—	1 (2%)	1 (2%)	43
	7	68 (90%)	2 (3%)	6 (8%)	—	76
	7A	38 (73%)	2 (4%)	12 (23%)	—	52
	7B	3 (23%)	—	10 (77%)	—	13
	8	28 (50%)	4 (7%)	21 (38%)	3 (8%)	56
	9	37 (47%)	3 (4%)	34 (44%)	4 (5%)	78
	10	50 (37%)	2 (1%)	76 (56%)	7 (5%)	135
	10A	27 (32%)	—	53 (62%)	5 (6%)	85
	11	12 (37%)	1 (3%)	15 (47%)	4 (12%)	32
Total =		530 (65%)	32 (4%)	233 (28%)	24 (3%) =	819

Table 16.3 Fabric quantity by period (Weight in g)

Production centre:		South Gaulish	Les Martres de Veyre	Central Gaulish	East Gaulish	Total
Period	2	46 (100%)	—	—	—	46
	3	79 (100%)	—	—	—	79
	4	204 (100%)	—	—	—	204
	5	289 (97%)	10 (3%)	—	—	299
	5A	369 (96%)	—	15 (4%)	—	384
	5B	336 (97%)	5 (1%)	5 (1%)	—	346
	6	142 (52%)	130 (48%)	—	—	272
	6A	316 (91%)	—	25 (7%)	5 (2%)	346
	7	314 (80%)	15 (4%)	65 (17%)	—	394
	7A	292 (66%)	15 (3%)	135 (31%)	—	442
	7B	36 (25%)	—	110 (75%)	—	146
	8	120 (21%)	25 (4%)	395 (70%)	25 (4%)	565
	9	235 (30%)	40 (5%)	415 (54%)	85 (11%)	775
	10	392 (25%)	75 (5%)	995 (63%)	105 (7%)	1567
	10A	121 (19%)	—	475 (76%)	30 (5%)	626
	11	45 (16%)	5 (2%)	165 (59%)	65 (23%)	280
Total	U/S*	192 (8%)	130 (5%)	1930 (81%)	125 (5%)	2377
		3528 (38%)	450 (5%)	4730 (52%)	440 (5%)	9148

[*plus 10g] [Argonne.]

Table 16.4 Average sherd size (weight in g) by period

Production centre:		South Gaulish	Les Martres de Veyre	Central Gaulish	East Gaulish	Overall
Period						
2		3.3	—	—	—	3.3
3		5.6	—	—	—	5.6
4		5.3	—	—	—	5.3
5		6.6	10.0	—	—	6.6
5A		8.0	—	3.8	—	7.7
5B		5.9	5.0	5.0	—	5.9
6		10.9	8.1	—	—	9.4
6A		7.7	—	25.0	5.0	8.1
7		4.6	7.5	10.8	—	5.2
7A		7.7	7.5	11.25	—	8.5
7B		12.0	—	11.0	—	11.2
8		4.3	6.3	19.5	3.3	10.1
9		6.4	13.3	12.2	21.5	9.9
10		7.8	30.0	13.1	15.0	11.5
10A		4.5	—	9.0	6.0	7.4
11		3.8	5.0	11.0	16.25	8.7
U/S		3.7	8.7	11.4	9.6	9.4

Table 16.5 Percentage of burnt material by sherd number

Period	Burnt material	Riveted sherds
2	7 (50%)	—
3	3 (21%)	—
4	5 (13%)	—
5	12 (27%)	—
5A	14 (28%)	—
5B	10 (17%)	—
6	4 (14%)	—
6A	14 (33%)	—
7	16 (21%)	—
7A	14 (27%)	—
7B	3 (23%)	—
8	8 (14%)	2 (4%)
9	7 (9%)	2 (3%)
10	20 (15%)	—
10A	11 (13%)	2 (2%)
11	2 (6%)	1 (3%)

Table 16.6 Proportion of decorated samian (minimum number of vessels) within samian assemblage

Production centre:		South Gaulish	Les Martres de Veyre	Central Gaulish	East Gaulish
Period	2	3 (14%)	—	—	—
	3	2 (14%)	—	—	—
	4	5 (13%)	—	—	—
	5	7 (16%)	1 (100%)	—	—
	5A	12 (26%)	0	2 (100%)	—
	5B	15 (26%)	0	0	—
	6	2 (14%)	1 (50%)	—	—
	6A	21 (48%)	—	0	0
	7	24 (35%)	0	2 (50%)	—
	7A	16 (37%)	1 (50%)	3 (25%)	—
	7B	1 (33%)	—	4 (40%)	—
	8	7 (35%)	2 (50%)	10 (56%)	1 (33%)
	9	14 (38%)	0	7 (23%)	0
	10	15 (30%)	1 (25%)	26 (38%)	2 (29%)
	10A	6 (22%)	—	16 (31%)	0

Table 16.7 Residuality of decorated samian vessels

(Blocks indicate phases in which sherds of the same vessel were found).

Period	2	3	4	5	5A	5B	6	6A	6B	7	7A	8	9	10	10A	11	U/S
Catalogue Number																	
2	■	■	■								■	■		■			
4		■				■								■			
5		■		■	■						■		■				
6			■			■				■	■	■	■	■			
7			■	■							■						
8			■			■											
10				■	■	■								■			
14					■										■		
15					■					■							
17					■	■								■			
20					■					■							
28						■								■			
29						■				■							
35								■		■			■				
52				■													■
68												■		■			■

Table 16.8 Summary of samian within the assemblage by sherd number (%)

Period	Coarse ware	Fine ware	Glass vessels	Samian ware	Total
1	0	—	0	0	0
2	44 (69%)	14 (22%)	7 (11%)	14 (22%)	65
3	127 (81%)	14 (9%)	15 (10%)	14 (9%)	156
4	185 (81%)	38 (17%)	5 (2%)	38 (17%)	228
5	370 (86%)	46 (11%)	15 (4%)	46 (11%)	431
5A	841 (93%)	50 (6%)	17 (2%)	50 (6%)	908
5B	450 (84%)	75 (14%)	14 (3%)	59 (11%)	539
6	234 (82%)	34 (12%)	19 (7%)	28 (10%)	287
6A	679 (90%)	63 (8%)	14 (2%)	58 (8%)	756
7	940 (87%)	110 (10%)	30 (3%)	80 (7%)	1080
7A	859 (90%)	72 (8%)	20 (2%)	52 (6%)	951
7B	182 (87%)	28 (13%)	0 —	13 (6%)	210

Table 16.9 Variation in assemblages between areas on site (by sherd number)

	Coarse ware	Glass vessels	Samian ware	Total
Contubernia	277 (87%)	9 (3%)	33 (10%)	319 [2 dec; 31 plain]
Centurion's block	506 (84%)	39 (7%)	55 (9%)	600 [11 dec; 44 plain]
Rampart back	38 (76%)	0	12 (24%)	50 [3 dec; 9 plain]

17 Coarse pottery

P V Webster

Introduction

As would be expected, the excavations at Segontium produced a considerable volume of coarse pottery with fragments of over three thousand vessels identified. All coarse pottery was examined soon after excavation and summaries of the approximate dating of each context produced. The mortaria were then separated and are reported upon by Mrs KF Hartley below. The remaining pottery was then examined in more detail and all pottery from each context summarised. This initial list was divided by year of excavation but was otherwise in approximate numerical order of context. Most rims and some decorated sherds were drawn and subsequently numbered, where necessary, in relation to the initial list. This numbered sequence of pottery descriptions and drawings forms the basis of the archive which will be presented within the site archive in three ways:

- The sequence as first reported
- By period and numerical order of context within periods
- In numerical order of context.

The archive should thus enable the enquirer to find easily a summary of the pottery in any context or period or to refer back from drawings to text. It is the basis from which all statistical comments and lists below are based. From it has been extracted:

- A full list of all drawn rims from each period
- The catalogue below.

It should be noted that the archive sections a-c were compiled as a preliminary to dating each

period and comments on dating, residual elements and individual contexts are superseded by those in the catalogue e). Vessels within the catalogue have been renumbered and do not bear their archive number.

General

Note: in the following discussion and catalogue the term 'flanged', as in flanged bowl or dish, refers to any rim form which is everted into a horizontal or near-horizontal plane.

Chronology

The chronology of the site is treated separately for each period or group of periods in the catalogue below. The dating evidence for each period is further summarized in Table 17.1. This was achieved by giving a date (however general) to all coarse pottery (excepting mortaria) and relating this to a minimum vessel count for each context. Where a vessel can be seen to appear in more than one context, it has been counted only once. However, some pieces of the same vessel from different contexts may have escaped notice and have been counted more than once. The minimum vessel count enables us to see that many periods have a considerable residual element in their assemblages but also that material from the site as a whole polarises around the beginning and ends of the overall occupation. There is plentiful late-1st to early-2nd century and late 3rd- and 4th-century

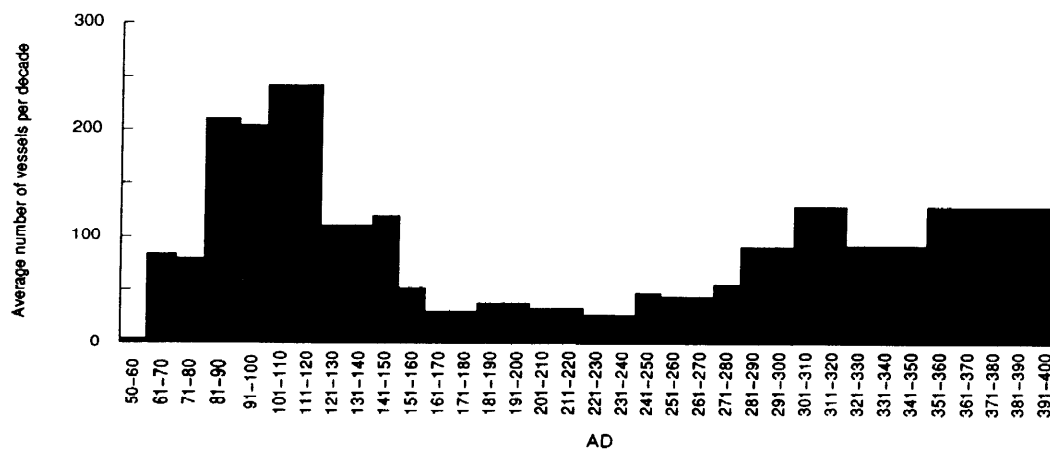


Figure 17.1 Histogram showing the chronological spread of all coarse ware (excluding mortaria).

Table 17.1 Coarse pottery - minimum no of vessels; totals by phase and date

	2	3	4	5	5a	5b	6	6a	7	7a	7b	8	9	10	10a	11	U/S	Total%
Mid C1	-	-	-	2	2	2	1	-	-	-	-	-	-	2	-	-	-	9
Mid-late C1	2	1	1	3	8	2	4	5	2	4	-	3	-	5	1	1	-	42
Late C1-EC2	10	11	10	68	71	35	20	98	37	58	-	13	8	23	6	3	45	516
Mid C1-MC2	14	36	31	52	31	52	32	62	35	52	12	19	19	28	9	5	34	523
Late C1-MC2	-	-	-	-	-	1	3	3	13	7	-	3	-	3	1	2	6	42
Early-mid C2	-	3	3	3	8	18	2	4	11	8	-	3	-	16	3	2	8	92
Mid C2	-	-	-	-	-	1	1	2	2	4	-	1	-	2	-	-	1	14
Mid-late C2	-	-	-	-	-	1	1	-	2	3	-	1	1	-	-	-	4	13
Late C2	-	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	2
C2	-	-	-	2	-	6	6	10	53	50	2	18	9	18	10	4	28	216
Late C2-EC3	-	-	-	-	-	-	-	-	2	-	-	-	2	5	5	1	5	20
Late C2-MC3	-	-	-	2	-	-	1	-	2	-	1	1	-	-	1	-	2	10
Early-mid C3	-	-	-	-	-	-	-	-	2	-	1	-	-	-	1	1	4	10
Mid C3	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-	-	2
Mid-late C3	-	-	-	-	-	-	1	-	1	4	1	2	3	1	4	-	7	24
C3	-	-	-	-	-	-	2	1	4	6	-	4	4	4	3	-	4	28
Mid C3-C4	-	-	-	-	-	-	-	-	1	1	7	9	17	25	48	26	78	212
Late C3-C4	-	-	-	-	-	-	-	-	1	-	2	10	21	26	30	21	61	172
C3-C4	-	-	-	-	-	-	-	-	5	4	8	21	39	43	37	29	98	286
Late C3-EC4	-	-	-	-	-	-	-	-	-	-	2	7	14	16	38	17	47	141
Early-mid C4	-	-	-	-	-	-	-	-	-	-	3	4	13	14	43	9	37	123
Mid-late C4	-	-	-	-	-	-	-	-	2	1	3	3	16	35	97	51	93	301
C4	-	-	-	-	-	-	-	-	-	-	-	-	12	20	64	14	75	185
C1-C4	-	-	-	-	-	-	-	-38	7	3	28	26	32	32	27	9	47	217
																		3200
																		98

pottery, but comparatively little mid 2nd- to late 3rd-century material.

To show the chronological spread of all coarse pottery (excepting mortaria) in a more readily comprehended form, the histogram Figure 17.1 has been prepared. For this, each vessel counted was regarded as a unit and that unit divided evenly between the decades of its probable date range. Thus a single vessel dated late 1st to early 2nd century would appear as 0.25 in each of the decades between 80 and 120. This enables us to estimate the average number of vessels present from each decade and shows very clearly the late 1st- to early 2nd-century and late 3rd- and 4th-century peaks. If anything, the trough in the middle years in the occupation is underestimated by this method, as the vessels shown in that section include many from very generalised dating (eg '2nd century', '3rd century', or even '1st to 4th century'). A marked reduction in activities which resulted in the deposition of contemporary pottery within this middle period is apparent. Indeed, one would be hard put to demonstrate clear evidence for more than casual usage of this part of the fort between the mid 2nd and late 3rd century on the basis of the coarse pottery alone.

Sources

Wherever possible the sources of pottery listed have been identified. This information is summarised in two charts (Tables 17.2 and 17.3 below)

which show the minimum number of vessels present in each period from any particular source (Table 17.2) and the same information expressed as a percentage of all vessels within the period (Table 17.3). The latter enables us to compare periods more easily but is not wholly satisfactory because of the marked difference in overall numbers of vessels in each period. Some specific points concerning sources within each period are noted in the catalogue. Here we can offer a number of general comments based upon the summary charts.

Mainly local self-coloured fabrics

These appear in the charts as 'probably local' and 'oxidised' or 'reduced' 'possibly local' and include all vessels for which a local source seems likely. They include one particular fabric whose frequent occurrence makes a local source very likely (see Periods 3-5). The charts make it clear that local sources play a part of decreasing importance across time on this site. In the early periods these sources are totally dominant (a total of 87% of all Period 2 pottery and 83% of Period 3) but they decline to form only 31% of all Period 10 material and 11% of Period 10A. If the considerable residual late 1st to early 2nd century element in Period 10 is taken into account we may well suppose that the picture presented by Period 10A more closely represents the true pattern of supply in the later years of the occupation. The dominance of non-local supplies in

Table 17.2 Coarse pottery - minimum no of vessels. Totals by phase and source

	2	34	6	5a	5b	6	6a	7	7 a	7 b	8	9	10	10a	11	U/S	Total	%age	
Oxidised																			
poss local	6	25	22	56	49	29	22	46	50	36	7	24	33	36	16	5	78	550	17
Reduced																			
poss local	5	12	13	42	32	28	29	67	62	62	7	27	28	59	32	14	66	585	17
Prob local	2	6	-	8	8	14	-	26	8	22	1	2	2	2	-	-	2	103	3
BB1	-	2	-	5	4	16	10	10	33	39	8	42	74	91	178	62	226	800	25
Cheshire	-	2	2	2	3	6	3	11	11	3	-	2	2	4	-	2	-	53	2
Verulamium	1	2	-	4	4	4	1	2	1	-	-	-	-	1	-	1	3	24	1
Non-local oxidised	-	1	4	3	5	5	3	11	16	18	2	5	5	8	5	5	9	105	3
Non-local reduced	-	-	—	—	—	—	—	-	2	1	-	3	-	3	2	1	3	15	-
W Midlands inc																			
Malvern	—	—	—	1	1	1	—	—	1	—	—	—	—	—	—	—	—	4	-
Amphorae:																			
S Spain D20	2	1	2	7	5	10	3	6	10	13	3	7	6	13	7	3	16	114	4
Cl85	-	-	—	1	—	—	—	-	-	-	-	-	-	-	—	-	-	1	-
Cl86	-	-	—	2	—	1	—	-	1	1	-	1	-	-	—	-	2	8	-
Italy D2-4	-	-	1	—	2	—	—	1	1	3	-	-	-	2	1	1	-	12	-
S Gaul P47	-	1	1	—	3	—	2	2	4	3	-	2	-	4	—	-	4	26	1
Med Cl89	-	-	—	—	2	—	—	-	1	-	-	-	-	1	—	-	-	4	-
SevValley W	—	—	—	—	—	—	—	-	3	3	4	4	12	13	12	-	24	75	2
BB2	—	—	—	—	—	—	—	-	1	-	-	-	-	-	1	—	—	2	-
E Midlands																			
calc grit	—	—	—	—	—	1	—	1	3	3	5	2	15	30	66	39	65	230	7
E Yorks	—	—	—	—	—	—	—	—	1	—	—	—	1	5	5	6	13	31	1
Derbys	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	-	1	1	-
Dales	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	-	1	1	-
Co1 Coats:																			
Lyon	—	—	-	1	2	1	1	-	-	-	—	—	—	-	-	-	-	5	-
N Gaul	—	—	-	-	-	1	—	2	1	2	-	2	—	1	1	-	1	11	-
NV/Cologne	—	—	-	-	-	1	-	1	2	-	-	2	—	2	2	-	1	11	-
Nene Valley	—	—	—	—	—	—	-	-	-	—	—	7	5	5	29	19	47	112	4
Lezoux	—	—	—	—	—	—	-	—	—	—	—	1	2	1	-	-	1	5	-
Moselle (Rhenish)	—	—	—	—	—	—	-	—	—	—	—	—	1	—	2	-	1	4	-
A L'éponge	—	—	—	—	—	—	—	—	—	—	—	—	—	1	-	-	-	2	-
Oxford	—	—	—	—	—	—	—	—	1	—	6	10	17	33	66	35	105	273	9
New Forest	—	—	—	—	—	—	—	—	—	—	—	—	—	—	-	-	1	1	-
Pompeian red	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	-
Lamp	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	1	-
Ceramic pipe	—	—	—	—	—	—	—	—	—	1	1	2	3	3	4	2	14	30	1
																		3200	97

the late 4th century may also explain the demise of pottery use (and manufacture) generally in North Wales in the immediately post-Roman period.

Black-burnished ware Category 1

Black-burnished 1 first appears in quantity in the military North of Britain some time early in the reign of Hadrian. It is not easy to be certain that a similar date pertains in North Wales. Certainly further South there are some examples of the ware from the earliest period (eg at Neronian Usk); but sites identified with the Flavian advance (eg Loughor or Caerau/Beulah) have few, if any, examples from their earliest levels. South Wales does, however, receive some Trajanic vessels and a

flood of Hadrianic and later examples. We may suspect, therefore, that we are seeing in both areas the result of a rapid expansion of the Black-burnished 1 industry (centred on Dorset, cf Farrar 1973, Williams 1977) and that this expansion will be similarly reflected in the assemblages of North Wales. At Segontium, in particular, it is not easy to separate the intrusive from the early introductions but some examples of the ware are found in Periods 3, 5 and 5A and we can claim the ware in some quantity from Period 5B. Thereafter, it is present in increasing quantities, with the highest percentage from the latest Roman period (41% from Period 10A). There seems no reason to suppose that the ware was not reaching the site right up to the end of the Roman occupation and there is no sign of

Table 17.3 Coarse pottery- minimum no of vessels; percentage by phase and source

	2	3	4	5	5a	5b	6	6a	7	7a	7b	8	9	10	10a	11	U/S
Oxidised																	
poss local	61	48	49	42	41	25	30	25	23	17	16	17	16	11	4	3	11
Reduced																	
poss local	19	23	29	31	27	24	39	36	29	29	16	19	14	19	7	7	10
Prob local	7	12	-	6	7	12	-	14	4	10	2	1	1	1	—	-	-
BB1	-	4	-	4	3	14	14	5	15	18	18	29	36	29	41	32	33
Cheshire	-	4	4	2	3	5	4	6	5	1	-	1	1	1	—	1	-
Verulamium	4	4			3	3	1	1	—	—	—	—	—	—	—	1	-
Non-local oxidised	-	2	9	2	4	4	4	6	8	9	5	3	2	3	1	3	1
Non-local reduced	-	-	—	—	—	—	—	—	1	—	—	3	—	1	—	1	-
W Midlands inc																	
Malvern	—	—	—	1	1	1	—	—	—	—	—	—	—	—	—	—	—
Amphorae:																	
S Spain D20	7	2	4	5	4	8	4	3	5	6	7	5	3	4	2	2	2
C185	—	—	—	1	-	-	-	-	-	-	-	—	—	—	—	-	-
C186	—	—	—	1	—	1	—	—	—	—	—	1	—	—	—	-	-
Italy D2-4	—	—	2	—	2	—	—	1	—	1	—	—	—	1	1	7	-
S Gaul P47	—	2	2	—	3	-	3	1	2	1	—	1	—	1	—	-	1
Med C189	—	—	—	—	2	-	—	—	—	—	—	—	—	—	—	-	-
Severn Valley Ware	—	—	—	—	—	—	—	—	1	1	9	3	6	4	3	-	4
BB2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	-	-
E Midlands																	
Shell tempered	—	—	—	—	—	1	—	1	1	1	11	1	7	9	15	20	10
E Yorks	—	—	—	—	—	—	—	—	—	—	—	—	—	2	1	3	2
Derbys	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	-
Dales	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	-
Col Coats:																	
Lyon	—	—	—	1	2	1	1	—	—	—	—	—	—	—	—	-	-
N Gaul	—	—	—	—	—	1	—	1	1	1	—	1	—	—	—	-	-
NV/Cologne	—	—	—	—	—	1	—	1	1	—	—	1	—	1	-	-	-
Nene Valley	—	—	—	—	—	—	—	—	—	—	—	5	2	2	7	10	7
Lezoux	—	—	—	—	—	—	—	—	—	—	—	1	1	—	-	-	-
Moselle (Rhenish)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	-	-	-
A L'éponge	—	—	—	—	—	—	—	-	-	-	-	-	-	-	-	-	-
Oxford	—	—	—	—	—	—	—	-	-	-	14	7	8	10	15	18	15
New Forest	—	—	—	—	—	—	—	-	-	-	-	-	-	-	-	-	-
Pompeian red	—	—	—	—	—	—	—	-	-	-	-	-	-	-	-	-	-
Lamp	—	—	—	—	—	—	—	-	-	-	-	-	-	-	-	-	-
Ceramic pipe	—	—	—	—	—	—	—	-	-	-	2	1	1	1	1	1	2

a decrease or cessation of supplies after c AD 370 such as has been observed by Gillam in the North of Britain (Gillam 1976, 59).

Cheshire Plain

The characteristic 'sandy' fabric of the Cheshire and Lancashire Plain has been described elsewhere (Webster 1979, 17; 1982, 15). This granular fabric is present in small quantities at Segontium, particularly in earlier periods (3-7).

Verulamium

The kilns of the Verulamium region were an important source of mortaria in the late 1st and early 2nd centuries (cf p 314, mortarium fabric 8). At

Segontium there are also a few vessels in the characteristic granular cream fabric of the Verulamium kilns. These are mainly flagons although some bowl sherds also occur. Presumably, these vessels reached the site as a by-product of the mortarium trade.

West Midlands

The principal ware listed under this heading is a coarse gritty brown to black fabric with dark grey or black partially burnished surface, made without the services of a potter's wheel. The ware appears throughout Wales in the 1st and early 2nd century (for a partial list see Webster in White 1978, 58, number 22). The probable source is the Malvern area (cf Peacock 1967). Most vessels represented

are wide-mouthed jars of such crudity that one does not feel that they can have been marketed for other than as a cheap container (perhaps for salt?).

Severn Valley Ware

The ware is described in Webster 1976. It was reaching Chester in the late 1st century (Carrington 1977) and Hadrian's Wall by the Hadrianic period (Webster 1972). There are also scattered examples in South Wales from the 1st century onwards (at Sudbrook, Usk, Cardiff, Loughor and Carmarthen), while the ware appears in Central Wales at Caersws from the late 1st to early 2nd century (Webster in Britnell 1989). It is thus surprising that the ware does not appear at Segontium before the later occupation (Period 7 onwards). Forms represented are mainly narrow-necked jars, a class of vessel which is widely distributed away from the area of production (see, for example, the vessels from the Antonine Wall, Webster 1977). One wonders whether vessels of this size were being marketed empty simply for their usefulness or whether they served as containers and mask a trade in some commodity. For whatever reason, it is clear that the later Severn Valley industry was remarkably successful in marketing its jars with 3rd- to 4th-century examples known from as far apart as Carmarthen (James 1978, no 27) Segontium and Lancaster (Webster 1988, fig 52, nos 360-3; these examples of the so-called 'late Quernmore' production are almost certainly Severn Valley Ware).

East Midlands

The late 4th century in South Wales and the Marches is characterised by the appearance of a dark grey shell-tempered fabric, often in jars with noticeable external rilling and apparently identical in both forms and fabric to that manufactured

throughout the Roman period in the East Midlands and marketed throughout East Central Britain. As further South, this ware appears in North Wales mainly in the later 4th century. It would, indeed, appear to be present in greater quantities in the North than in the South of Wales, but this might be due to a lack of late 4th-century sites in the latter area. It is certainly a feature of mid 4th century Dinorben (Webster in Guilbert forthcoming, see also comments on Period 10 below) and is present in large quantities at Segontium from Period 9 to Period 10A. By the late 4th century at Segontium (Period 10A) it is forming 15% of the assemblage. The even higher percentage (20%) in the post-Roman Period 11 may also be noted. Period 11 yielded an assemblage which is almost wholly Roman and is presumably derived from post-Roman agricultural disturbance of the latest levels of the Roman site. It may thus give an indication that the share of the market enjoyed by this fabric was expanding right up to the very close of the occupation. The characteristic form of this ware is a jar with a profile which starts moderately wedge-shaped and becomes hooked (cf Figs 17.24-5, nos 749-61). This is, however, the later form of the East Midlands calcite-gritted jar. Surprisingly, we have also a few examples of the earlier production from the 2nd century onwards (cf nos 332, 335, 381).

East Yorkshire

The rapid expansion of the East Yorkshire kilns is normally dated to the second half of the 4th century (Gillam 1973, 61-2) and it is clear that in the last quarter of the 4th century these kilns took over the majority of the market in coarse wares in northern Britain. However, neither the characteristic lead-grey ware of Crambeck, nor the calcite-gritted jars normally associated with one of their major findspots, the signal station at Huntcliff, are

Table 17.4 Functional analysis of all pottery by Period

Period	Dishes	Bowls	Jars	Flagons	Lids	Mortaria	Amphorae	Cups	Query	Lamps	Colanders	N
2	7.7	15.4	30.8	7.7	7.7	-	7.7	23.0	-	-	-	13
3	20.0	12.0	40.0	4.0	16.0	4.0	-	-	4.0	-	-	25
4	34.8	17.4	17.4	8.7	-	4.4	-	17.4	-	-	-	23
5	10.5	13.4	40.3	1.5	14.9	3.0	-	16.4	-	-	-	67
5A	21.5	16.9	35.4	3.1	7.7	1.5	1.5	10.8	1.5	-	-	65
5B	18.6	16.3	27.9	4.7	15.1	1.2	-	16.3	-	-	-	86
6	26.2	19.0	23.8	-	16.7	9.5	-	4.8	-	-	-	40
6A	12.9	25.8	47.3	1.1	8.6	1.1	-	3.2	-	-	-	93
7	16.6	29.9	25.5	4.5	7.6	2.6	1.9	8.9	1.9	-	0.6	157
7A	9.1	23.1	36.4	5.8	11.6	3.3	1.7	8.3	-	0.8	-	121
7B	7.1	10.7	60.7	3.6	-	7.1	-	10.7	-	-	-	28
8	10.3	30.8	38.5	5.1	7.7	2.6	-	5.1	-	-	-	78
9	11.4	26.9	44.3	1.3	4.7	6.0	0.7	4.7	-	-	-	149
10	9.0	23.2	46.5	0.5	3.8	10.9	-	5.7	0.5	-	-	211
10A	16.4	24.2	48.1	1.2	0.6	5.4	0.3	3.9	-	-	-	335
11	7.0	26.4	56.6	0.8	-	8.5	-	0.8	-	-	-	129

normally found far South of the Mersey-Humber line. The few examples of both these wares present at Segontium represent a notable outlier for the East Yorkshire industries and thus carry an interest beyond their small numbers.

Amphorae

The excavations at Segontium seem unusually poor in amphorae. Particularly in levels of the earlier centuries, Dressel 20, the South Spanish olive oil amphora is usually present on most sites in quantity and in most contexts. Here it is represented by only a scatter of small pieces. Other amphorae are present in even smaller quantities with only the Italian wine amphora Dressel 2-4 and the South Gaulish wine amphora Pélisset 47 represented by more than just a few sherds. Such a dearth of commodity containers must imply something about the function of the area excavated and will be commented upon again below.

Colour-coated wares

The overall pattern of fine wares as revealed by the charts (Tables 17.2-3), is most unusual. Colour-coated wares from Lyon, N Gaul (Argonne), Cologne, the Moselle, Lezoux, the Nene Valley, Oxfordshire and the New Forest as well as two other probably continental locations (for the Pompeian red ware and the vessel decorated à l'éponge) are all present, bearing witness to the wide-ranging nature of Roman ceramic trade. However, with the exception of late finewares from Oxfordshire and the Nene Valley, both of which were marketing more kitchen-oriented forms, the quantities are remarkably small. There are, for instance, very few rough-cast beakers from North Gaul despite the high concentration of late 1st- to mid-2nd-century pottery. The poor showing of the early Cologne or Nene Valley wares and the 'Rhenish' wares (from the Moselle or Lezoux) is less surprising and could be a by-product of the low level of pottery-depositing activity on the site in the middle years of the occupation. It might, however, also be a product of the function of the site where, as we shall note later, kitchen wares predominate. The Lyon ware may also be noted. This is generally characteristic of pre-Flavian sites (cf Greene 1979, 13-42, particularly 17-18). Recent work on pottery from sites in Wales, not available to Greene, shows that the ware is not restricted to Caerleon among sites associated with the Flavian advance. Lyon ware is now known from Loughor, Carmarthen, Caersws and Segontium. This does not necessarily alter Greene's dating, however. The ware is still predominantly pre-Flavian but clearly some vessels remained in use long enough to be deposited on sites which must date to the middle 70s or later. This is by no means improbable if they were among the latest production of the Lyon-ware kilns.

Other sources are mainly represented by isolated

sherds. Items noted include Derbyshire ware and Dales ware. Both could well have come in as a by-product of trade with the East Midlands (see above).

Ceramic pipes

Examples of ceramic pipes have been noted in the archive report and, on occasion, in the catalogue. All are of an interlocking type, a pipe with a 'plain' open end and a constricted narrow end to allow 'male and female' type jointing. Most pieces examined belong to the ends of the pipes and it may be that other sherds were categorised with tile *imbrices* and left on site. While use as a water pipe associated with a late phase of the bath-house is possible, it seems more likely that the pipes served as vaulting tubes (cf Mason 1990; Wilson 1992).

Social and economic implications

As has already been stated, the Segontium coarse pottery assemblage seems remarkably lacking in finewares and in particular in beakers. That fineware beakers were not being replaced by other vessels in coarser fabrics is shown by Table 17.4 above (kindly prepared by Dr Jeremy Evans).

As we have already said, the general lack of late 2nd- to mid-3rd-century material will have distorted the picture somewhat, but the picture seems to hold good, even within the well-represented late 1st to mid 2nd century. The dearth of North Gaulish rough-cast ware has already been noted. We can also note a general absence of Holt fineware and even of the coarser coated fabrics from Wilderspool. We appear to be within an area which one would normally class as being of low social status and where subsistence or kitchen-related activities predominate. This needs to be borne in mind when considering the somewhat different conclusions drawn from the samian ware. The only finewares which appear in quantity are those from the Oxfordshire and Nene Valley kilns, and even these are mainly later coarser wares in which colour-coated kitchen wares play an important part.

This kitchen-oriented pattern makes the more unusual the general lack of amphorae. Such as there are show that Segontium was receiving the usual olive oil from South Spain (Dressel 20), wine from Italy and South Gaul (Dressel 2-4 and Pélisset 47), defrutum from South Spain (Camulodunum 185) and a commodity which may be fruit (dates?) from the southern mediterranean (Camulodunum 189). The number of vessels represented is, however, small and the range of commodities and sources disappointingly small. One can only suppose either an unusually poor supply of amphora-borne commodities at Segontium, or, more probably, that the store for this type of commodity was situated at some distance from the area excavated.

Something of the changing pattern of trade as shown by the pottery has already been noted. The 1st and early 2nd century is characterised by a heavy reliance on local coarse ware, balanced, however, by imports from abroad in the form of samian, some finewares and containers (amphorae). This pattern begins to alter in the 2nd century, especially as Black-burnished 1 cooking wares become dominant. We can say little of the late 2nd and early 3rd century because of the general lack of pottery of this period, but clearly the site was receiving both continental and British finewares and still receiving Black-burnished 1 in quantity. From the late 3rd century non-local sources begin to predominate, but it is worth bearing in mind that these are overwhelmingly British (the Black-burnished 1 kilns, Nene Valley and Oxfordshire) and that the continental sources had all but ceased to supply the site. By the late 4th century local sources had declined still further and it is the Black-burnished 1 kilns (of Dorset), Oxfordshire, the Nene Valley and, a new source, the East Midlands makers of shell-tempered pottery, which dominate the Segontium market.

In all, the Segontium assemblage shows fewer imports, whether from Britain or abroad than might be expected and shows a lower level of social and economic activity than one would normally expect on a military site. Comparable assemblages are difficult to find, but the material from the bath-house site at Pentre Farm, Flint (Webster in O'Leary *et al* 1989) shows the type of diversity of products which one looks for in vain in our assemblage. One suspects that there are a number of factors distorting the picture at Segontium. The unusual chronological pattern of distribution is certainly one. Another may be the nature of the activity on this particular part of the site. One suspects that modern excavation in the *praetentura* of the fort might produce a very different ceramic pattern. Until this happens, it is probably best simply to note the rather mundane nature of the assemblage from the *retentura* and await further data.

Period 2: the primary timber fort

There is very little coarse pottery from this period and of this little is closely datable. The flagon (no 1) below would suit a mid-1st-century date (cf Usk Fortress type series no 4, Manning 1981, 205) but is not necessarily as early as the Usk parallel might suggest. The amphora (no 9) may belong to the third quarter of the 1st century. The bowl (no 4) on the other hand, if truly derived from the samian form 37, is unlikely to date before the 70s AD. The remaining vessels are characteristic of the Flavian and Flavian-Trajanic period. A Flavian date for the whole collection would be acceptable but is by no means certain on the coarse pottery evidence taken alone.

There are too few pieces to make meaningful

comments on sources. It may, however, be noted that the suggested local fabric (see Period 3 below) occurs only once (a jar sherd from Context 1366). That is not to say that many of the remaining vessels are not local, simply that there are too few pieces to make any meaningful pattern.

Context 1112

1. Flagon neck in very light orange-buff fabric. Even rings such as this are generally considered 1st-century characteristic.

Context 1228

2. Jar in light orange-buff fabric. The everted rim and high shoulder suggest a later 1st- to early 2nd-century date.

3. Lid in light orange-buff fabric.

Context 1254.

4. Bowl in light grey fabric with mid/dark grey surface. The shape and zonal arrangement may have been derived from the samian form 37.

Context 2093

5. Jar in light grey fabric with rusticated decoration. Late 1st to early 2nd century. Rustication is primarily a later 1st- and early 2nd-century fashion, cf Thompson 1958; Gillam 1970, nos 97-8.

6. Flanged bowl with reeded rim and carination in light grey fabric. One of the Flavian-Trajanic series.

7. Jar in light pink-buff fabric. The high shoulder and everted rim suggests a late 1st-early 2nd century date. A small fragment of a tube apparently once attached to the wall of this vessel (no point of junction survives) suggests that the vessel may have served as an infant or invalid feeder, although, if s.o. it is of unusual size for such vessels and thus may best be interpreted as an oil-lamp filler.

Context 2221

8. (Not illustrated) Everted-rim jar in pink-buff. Later 1st to early 2nd century.

Context 2222

9. Rim of Dressel 20 South Spanish oil amphora. There is some similarity to Martin-Kilcher Type 15 (mid to mid/late 1st century) cf Peacock and Williams 1986, 137.

Period 3: the second timber fort

The small amount of material from Period 3 is predominantly Flavian or Flavian-Trajanic and includes a few which would best suit a late Trajanic or even later date. Of these, no 12 from Context 1170 is most likely to be mid/late 2nd century and intrusive. Context 1139 (cf nos 10-11) also contained a sherd of Black-burnished ware flanged bowl. Although the ware occurs in South Wales from the mid 1st century onwards, it is likely to appear in quantity this far north only from the Hadrianic period onwards. Occasional examples occur from Trajanic levels on the northern frontier and our piece from 1139 could well be of this date. It may be noted that Period 3 also contains vessels in the characteristic fabric of the Cheshire Plain, where known kilns post-date c AD 90, again suggesting a Flavian-Trajanic rather than a purely Flavian deposit.

There is one distinctive and presumed local

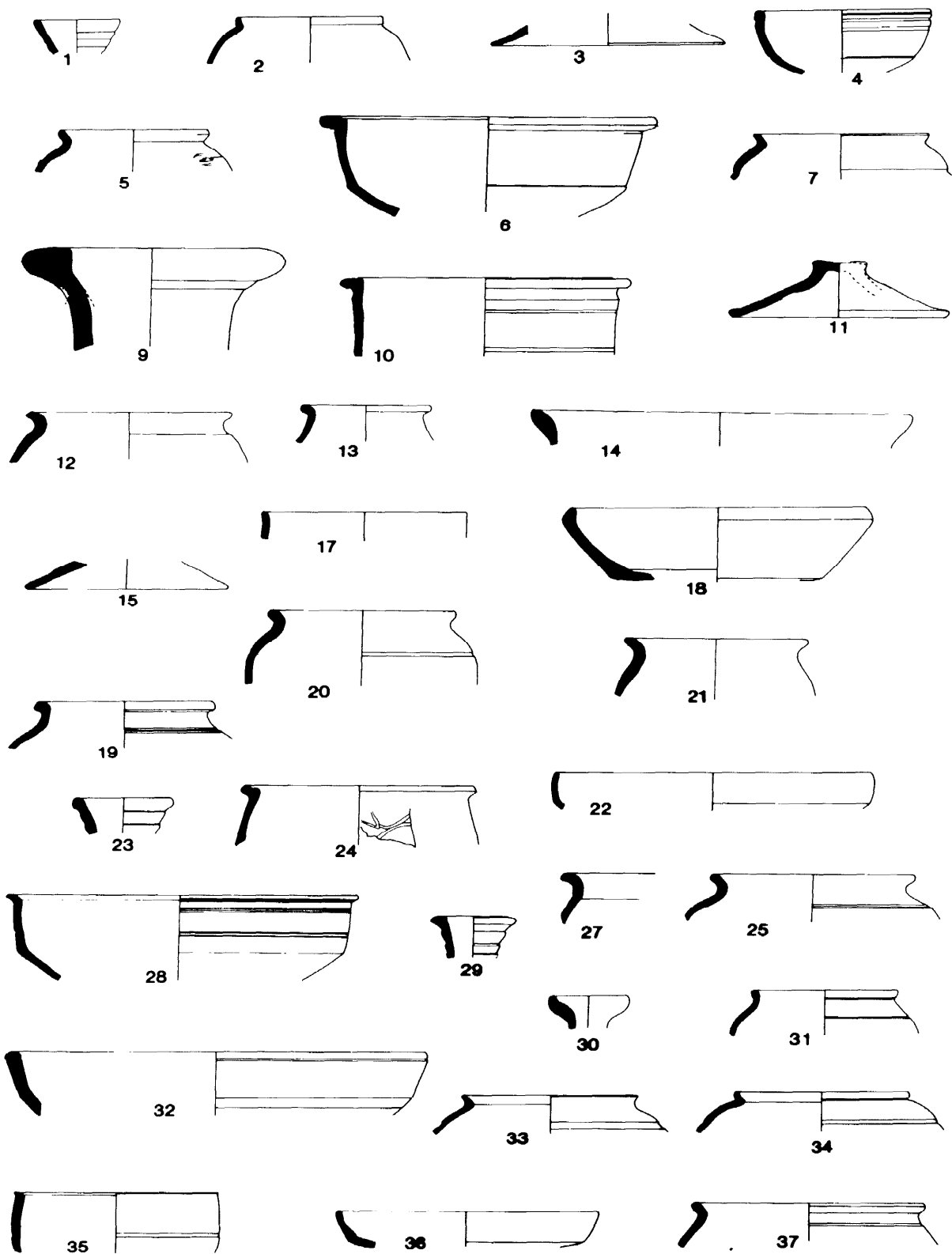


Figure 17.2 Coarse ware.

fabric. Examination under a hand lens shows a tendency to laminate with broken dark grey rock and some soft white inclusions. The surface is generally smooth but slightly pimply and tends to appear darker than the body fabric. Reduced fabrics are the norm, but some oxidised examples are found. Other sources include Verulamium (a bowl or flagon from Context 1256 and a bowl or jar from Context 1264). Along with the common Dressel 20 South Spanish oil amphora, the South Gaulish wine amphora Pélisset 47 was noted from context 1139. Local sources are likely to have predominated among remaining vessels.

Context 1139

10. Flanged bowl in light grey fabric; one of the Flavian-Trajanic series.

11. Lid in grey fabric.

Context 1170

12. Jar in Black-burnished ware; probably Gillam 1976, no 4 (late 2nd century).

Context 1173

13. Jar in light grey fabric with dark grey surface.

14. Jar or bowl in pink-grey fabric with grey surface.

15. Lid in mid grey fabric.

16. (Not illustrated) Lid in granular light orange fabric with mica dusting on the surface. Probably a Cheshire Plain product.

Context 1256

17. Jar in orange fabric.

18. Dish in light red fabric with grey core and mica dusting internally. Cf Holt (Grimes 1930) no 134. A late 1st- to early 2nd-century date would suit the type.

Context 1264

19. Jar in light grey fabric with mid grey surface. Derived from the mid-1st-century type Usk fortress series 11 (Manning 1981, 207) but more probable, here to be a later variant as Gillam 1970, no 108. Late 1st to early 2nd century.

20. Jar in grey fabric with darker surface.

21. Jar in light grey fabric with dark grey and white inclusions and darker surface. Perhaps one of the local products discussed above.

22. Dish or possibly lid in light orange-buff fabric.

Context 1277

23. Flagon in hard grey-brown with dark grey core. The even rings suggest a 1st-century date. Cf no 1 above.

Context 1333

24. Rim, probably of a bowl in light grey fabric with a darker surface. Probably one of the flanged and carinated late 1st- to early 2nd-century types. With sherds of the same vessel from Context 1041.

Context 1340

25. Jar in mid grey fabric.

Context 1348

26. (Not illustrated) Lid in light orange-buff fabric.

Context 2355

27. Jar in mid grey fabric, hard. There are signs of rustication.

For the general type see Gillam 1970, no 95. Late 1st to early 2nd century.

Period 4: timber fort with reduced garrison

There is very little pottery from this period. Such as there is can all be ascribed to the Flavian or Flavian-Trajanic period. Any refinement of the date range within this must depend upon the likely dates of Periods 2-3 and 5. A Trajanic date would seem reasonable.

Sources are similar to those of Period 3, although the complete absence of Black-Burnished ware, even in small sherds, may be noted and highlights the anomalies in Period 3. Context 2175 contained a sherd of probable Dressel 2-4 Italian wine amphora.

Context 255

28. Bowl in pink-buff fabric. Probably related to the flanged and carinated bowls of late 1st- to early 2nd-century date.

Context 1131

29. Flagon in pink fabric with traces of a white slip; cf Gillam 1970, type 5 (early-mid 2nd century).

Context 1132

30. Flagon in orange with traces of a white slip.

Context 2046

31. Jar in grey fabric burnt orange in places.

Context 2054

32. Dish in light orange-buff fabric burnished internally and burnt in places.

Context 2092

33. Jar in light orange-buff fabric. The everted rim and high shoulder suggests a late 1st- or early 2nd-century date.

Context 2209

34. Numerous fragments of a fawn jar with everted rim and high shoulder. One of the later 1st- to early 2nd-century series.

Context 2244

35. Bowl in pink-buff fabric.

36. Dish or possibly lid in pink-buff fabric.

Also a fragment of vessel no 34 (Context 2209).

Context 2279

37. Jar in hard mid/dark grey fabric.

Context 2369

38. Flanged bowl in pink-buff fabric. One of the later 1st- to early 2nd-century series.

Period 5: final timber fort

Stratigraphically this period divides between occupation (Period 5), demolition of the main barracks (Period 5A) and contexts associated with the continued occupation of the centurions' quarters (Period 5B).

Period 5. This is in fact indistinguishable ceramically from Period 5A. The assemblage is

predominantly pre-Hadrianic, but with fragments of two Black-burnished ware lids from contexts 1080 and 1130. Sources are predominantly local. The fish-sauce amphora No 45 from context 1080 may be noted.

Period 5A. This yielded an assemblage which is almost entirely pre-Hadrianic, although there is a single Black-burnished ware bowl fragment from Context 964, a worn Black-burnished 1 jar sherd from Context 1001 and a further jar fragment from 2044 (none illustrated). These are but a small number of sherds to set against the weight of pre-Hadrianic material and a Trajanic date of demolition can be suggested.

Sources are again local with the suggested local fabric much in evidence both in 5A and 5B. Other sources include the Cheshire Plain and the Verulamium region. No 118 may come from the Malvern area. Amphorae, alongside Dressel 20 include Pélichet 47 (South Gaulish wine) from Contexts 1102, 2332 and 2333 and Dressel 2-4 (Italian wine from Context 2153).

Period 5B. The material from 5B contexts is markedly different from that from 5A with many more vessels in Black-Burnished ware present. There seems little doubt that the major expansion of the Black-Burnished 1 markets into northern Britain lies in the period between the closure of Periods 5A and 5B. Black-Burnished 1 types present are predominantly early to mid 2nd century and there seems sufficient of the ware present to suggest that Period 5B did not close before the decade c AD 130-40. This impression is borne out by the presence in Context 1081 of a fragment of colour coated white ware beaker (not illustrated) probably from Cologne which, although it could be earlier than mid-2nd century in date, would fit more happily in a late Hadrianic or early Antonine context.

In addition to the sources already mentioned, the Lyon beaker, no 135 (from Context 1003) may be noted. The fabric is predominantly pre-Flavian in date (cf Greene 1979) although survivals on Flavian sites in Wales have been noted (examples at Loughor, Carmarthen and Caersws are known to the author). The Lyon sherd must be residual in this period and is presumably derived from the earliest occupation of Segontium. The early occurrence of East Midlands calcite-gritted fabrics in this period (no 172 from Context 1148) may also be noted. Alongside amphora types already noted from Period 5 is a Camulodunum type 186 (South Spanish Fish-sauce container) from Context 1081.

Period 5

Context 277

39. Small jar in pink fabric.

40. (Not illustrated) Jar in orange-buff fabric. The everted rim and high shoulder suggests a late 1st- to early 2nd-century date.

41. Jar in Black-Burnished ware; similar to Gillam 1976, no 1

but lacking the wavy line on the neck. Probably early to mid 2nd century.

Context 956

42. (Not illustrated) Jar in mid grey fabric.

43. Jar in fawn-grey fabric with rusticated decoration cf Gillam 1970 no 95 (late 1st to early 2nd century).

Context 979

44. Rim probably of a wide-mouthed jar in a light cream fabric with mid/dark grey exterior surface.

Context 1080

45. (Not illustrated). Handle of Camulodunum 186 amphora: the type originates in southern Spain and was used for a container for fish products, mainly fish sauce.

Nos 46-7 are both jars which owe their origin to forms current in the mid 1st century (see, for instance, Usk Fortress series, type 11, Manning 1981, 207). The form did, however, remain popular into the early 2nd century (cf Gillam 1970, nos 107-9) and the pieces here could well be late examples in the series, as comparison of our no 47 and Gillam 1970, no 113 (dated AD 110-30) will show.

46. Jar in light grey fabric with darker external surface

47. Jar in fabric which varies between grey and pink. One of two similar jars.

48. Jar in light to mid grey fabric cf Whitchurch (Jones and Webster 1968, no 135). Probably late 1st to early 2nd century.

49. (Not illustrated). Flange fragment from a flanged and probably carinated bowl in dull orange fabric with a grey core. One of the late 1st- to early 2nd-century series.

50. Lid in fawn fabric.

51. Lid in light brown fabric sooted on the edge.

52. Lid in light grey fabric with grey and white inclusions and mid grey surface.

53. Lid in pink to peach fabric with grey and white inclusions. Probably the same fabric as no 52 above but oxidised.

54. Lid in Black-Burnished ware burnt grey-buff. For the form see Holt (Grimes 1930) no 100. For a discussion of Black-Burnished lids see Wallace and Webster 1989. The context also included a lid fragment in normally-coloured Black-Burnished ware. Despite the difference in colour this is most likely to be from the same vessel.

It may be noted that context 1080 is unusual in that it contains almost entirely jars and lids.

Context 1086B

55. Everted-rim jar in orange-buff fabric.

Context 1110

56. Flanged bowl in light grey fabric with mid grey surface. One of the later 1st- to early 2nd-century series.

Context 1129

57. Bowl in orange-buff fabric possibly intended to be reminiscent of the Samian form 37. The fabric shows traces of mica dusting.

58. Jar in light grey fabric with a darker surface. Cf no 48 above.

59. Jar in grey fabric.

60. Flanged ?bowl in light grey fabric.

Context 1130

61. Small jar in pink-buff fabric.

62. Jar in hard grey fabric.

63. Flanged bowl in orange-buff fabric burnt grey in places.

64. Lid in grey fabric.

65. Lid in grey fabric.

66. Lid in Black-Burnished ware; see Holt (Grimes 1930, no 100) for the general type.

Context 1150.

67. Lid in grey-fawn fabric.

Context 1252

68. Jar in grey with mid grey surface.

Context 1262

69. Jar in grey fabric with sooting on the rim.

Context 1292

70. Jar in pink-buff fabric.

71. Jar in pink-buff fabric.

72. Jar in light grey fabric with a darker surface.

73. Jar in pinkish fabric with a mid grey surface.

74. Jar in light grey fabric with darker external surface.

Context 2026

75. Substantial portions of a jar in light orange-buff fabric. One of the Flavian-Trajanic jar series.

76. Jar in light grey fabric with a light brown interior and with rusticated decoration. See above no 5.

Context 2106

77. Several fragments of a thin-walled, flanged and carinated bowl in orange-buff fabric. The general type is Flavian to Trajanic.

Context 2128

78. (Not illustrated) Flagon, probably originally with two handles, in light grey fabric with considerably limey accretions acquired after breakage. The form appears from the mid 1st century (cf Usk fortress type series no 8 (Manning 1981, 207)) but is also found later in late 1st to mid-2nd-century contexts of Northwich (Jones 1971, no 10). A Flavian or Flavian-Trajanic date would be acceptable.

Context 2193

79. Lid in cream to orange-buff fabric. Also grey jar fragments.

Context 2203

80. Everted rim jar in light grey fabric. One of the later 1st- to early 2nd-century series.

Context 2309

81. Jar in orange-brown fabric with a grey surface.

82. Flanged bowl in fawn to grey fabric. One of the later 1st to early 2nd-century series.

Period 5A

Context 245

83. Jar in pinkish white smooth fabric. The high shoulder suggests a late 1st- or early 2nd-century date.

84. Jar in mid grey fabric with applied grey dots. This style of decoration is most likely to be late 1st to early 2nd century in date, cf Gillam 1957, no 68.

85. Dish in rose-pink fabric, grey internally.

86. Dish or cup in pink-buff fabric.

Context 274

87. Dish in dull pink fabric with a grey core and traces of mica dusting on external and internal surfaces. Cf Holt (Grimes 1930) no 134. Late 1st-mid 2nd century.

Context 948

88. Jar in light grey fabric. The drawing is reconstructed from many sherds which, although they do not always join, appear to yield a near-complete profile.

89. Dish in orange fabric.

Context 954

90. (Not illustrated). Many fragments of an everted rim jar in orange-buff sandy fabric possibly of Cheshire Plain origin. The rim form and high shoulder suggest a later 1st- to early 2nd-century date.

Context 964

91. Jar in light fawn fabric with rouletted decoration.

92. (Not illustrated) Rim of a jar in light grey fabric with a mid grey surface. Probably from a high-necked jar of the same general type as Gillam 1970, types 106-7.

93. Bowl in orange fabric with reeded rim.

94. Lid in light grey fabric. Slight burnished decoration externally.

All the drawn items from this context could be pre-Hadrianic but the context also includes part of a bowl in Black-Burnished ware with basal chamfer and closely drawn acute-angled lattice decoration. Although a pre-Hadrianic date is not impossible, final deposition c AD 120-30 seems more likely.

Context 1075

95. Flanged bowl in pink fabric.

Context 1102

96. Jar in light grey fabric with grey and white inclusions and mid grey surface.

97. Jar in light grey fabric.

98. Jar in light grey fabric.

99. Lid in orange-buff fabric.

100. (Not illustrated) Rim fragment and wall sherds of a jar Black-Burnished ware of Gillam 1976, type 1 (early-mid 2nd century).

Context 1106

101. Jar in light grey fabric

102. Jar in grey fabric.

103. Dish in light orange fabric

104. Lid in light orange fabric burnt on the rim; reminiscent of the lids in the fortress fabric at Usk (type series no 31.1; Manning 1981,211).

The collection is undoubtedly pre-Hadrianic and could be Flavian.

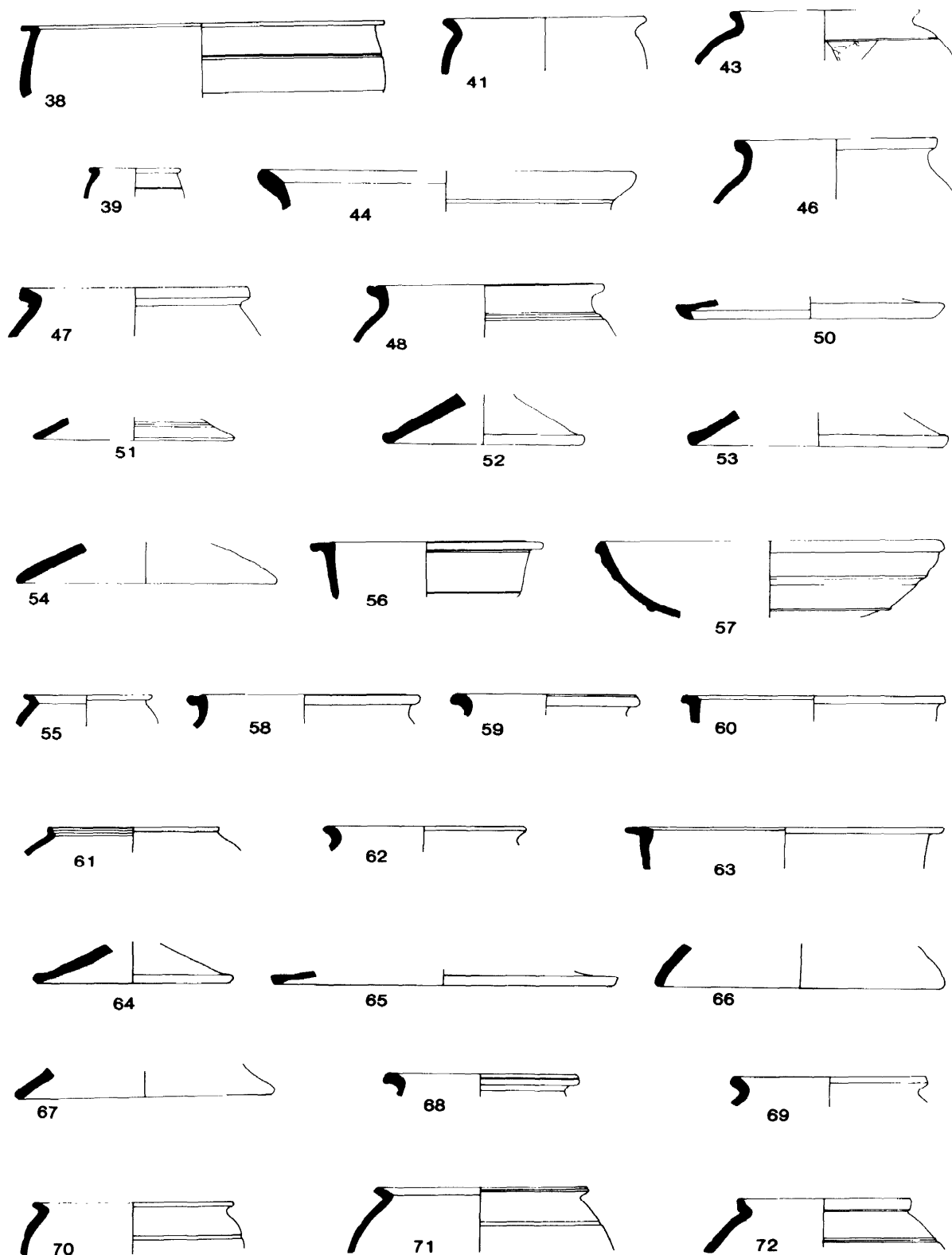


Figure 17.3 Coarse ware.

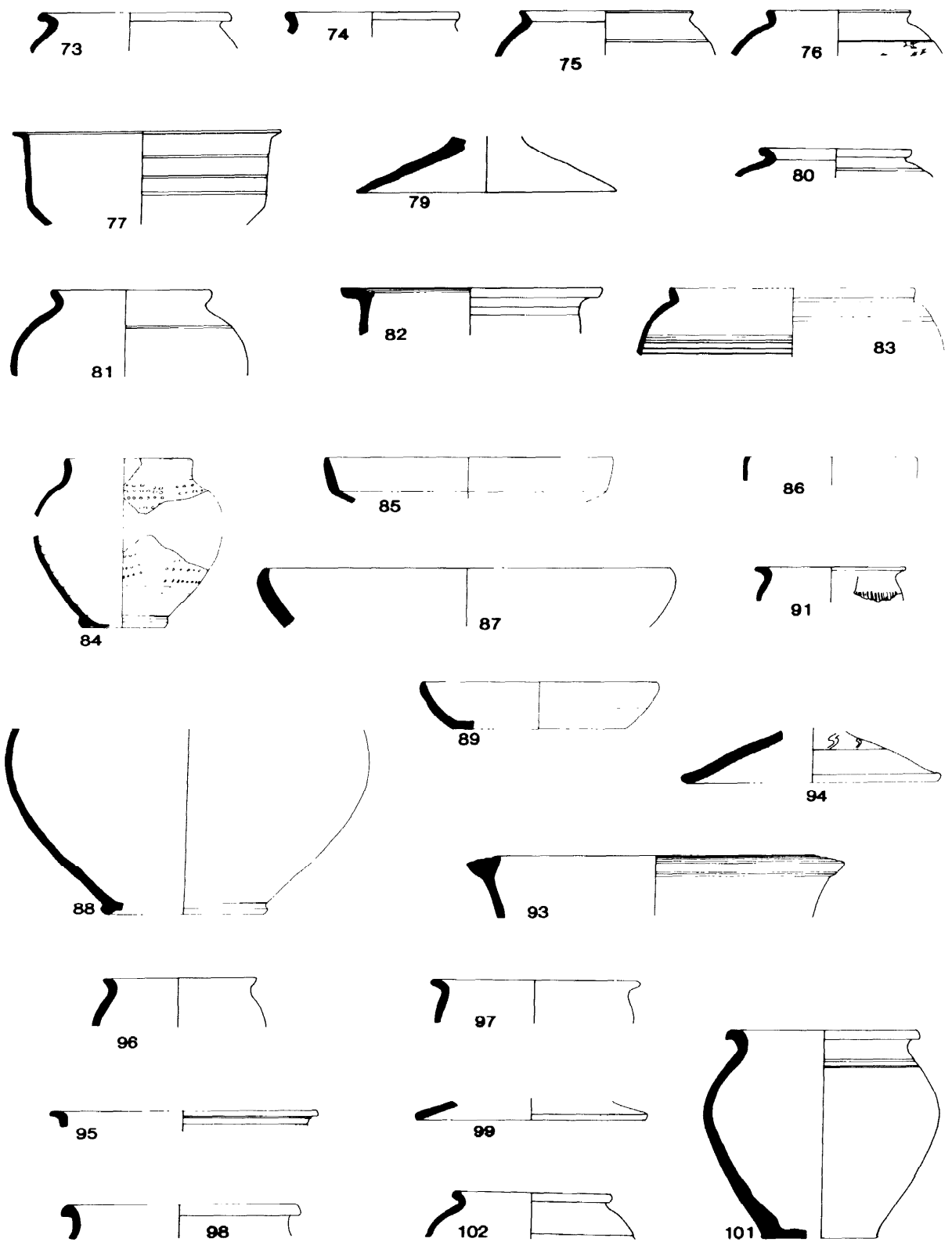


Figure 17.4 Coarse ware.

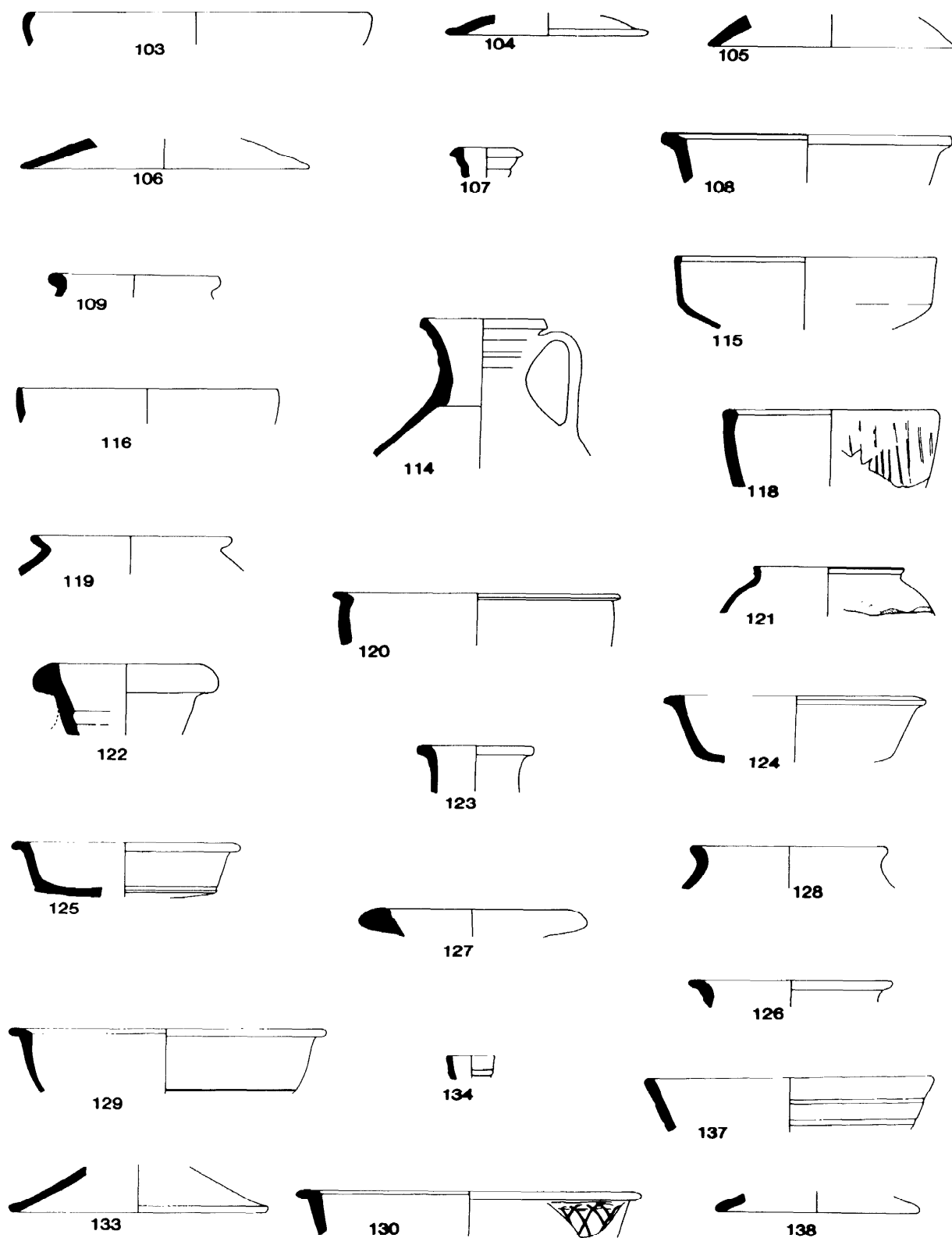


Figure 17.5 Coarse ware.

Context 2019

105. Lid in pink-buff fabric.

Context 2033

106. Lid in light orange-buff fabric, burnt grey on the rim.

The context also contained many fragments of a jar in a similar fabric to the above. The pedestal-like base survives, but not the rim.

Context 2038

107. Flagon in light orange-red fabric with traces of a white slip cf Gillam 1970, type 5 (early-mid 2nd century).

Context 2041

108. Fragment of bowl in light grey fabric with a reeded rim. Late 1st to early 2nd century.

Context 2044

109. Jar in mid grey fabric.

Context 2051

110. (Not illustrated) Jar in light grey fabric with a darker surface and lightly rusticated decoration.

111. (Not illustrated) Bowl in orange fabric. The type is similar to one in common use by the Roman army in the mid 1st century; see, for example, Usk fortress (Manning 1981) type 22.

Context 2062

112. (Not illustrated). Rim of a jar in grey fabric with an orange core.

113. (Not illustrated). Flange (?) in orange fabric with diagonal scored decoration on the edge. Perhaps from a tazza.

114. Flagon in somewhat granular pink fabric with a grey core. The regular and somewhat angular rings suggest an early date (cf Gillam 1970, types 1-4). Perhaps Flavian.

115. Bowl in light orange-buff fabric.

116. Rim of a bowl or dish in light orange-buff fabric.

117. (Not illustrated). Base of a ?bowl in pink to very light grey fabric with a light red-brown slip sponged on. The context would suggest a late 1st- to early 2nd-century date.

Context 2100

118. Jar in dark grey fabric with plentiful white grits. The vessel is made without a wheel and has vertical burnishing marks externally. Although Iron Age in tradition, it need not necessarily be very early Roman (or Iron Age) in date. Cf Brecon, Cl7 (Wheeler 1926; Peacock 1958).

Context 2196

119. Jar in light grey fabric with a mid grey surface. The everted rim suggests a later 1st- to early 2nd-century date.

120. Flanged bowl in light pink-buff fabric. Probably one of the Flavian-Trajanic series.

Context 2201

121. Jar in light grey fabric with slight evidence of rustication. probably late 1st to early 2nd century.

context 2333

122. Rim of Pélisset 47 South Gaulish wine amphora.

*Period 5B***Context 974**

123. Narrow-necked jar in light grey fabric.

124. Flanged dish in light grey fabric.

125. Flanged dish in Black-Burnished ware. The basal groove is unusual. The rather 'square' appearance and upright wall could denote an early example.

126. (Not illustrated) Vessel possibly a dish in light grey fabric with a darker surfaces, burnished externally.

Context 976

127. Rim of a large flagon in light grey to off-white granular fabric. The fabric could be from the Verulamium region cf Frere 1972, Fig 12, no 820 (mid 2nd century).

128. Jar in pink fabric sooted on the rim.

129. Flanged bowl in Black-Burnished ware cf Gillam 1976, nos 37-9 (mid to late 2nd century).

130. Flanged bowl in Black-Burnished ware cf Gillam 1976, no 34 (early to mid 2nd century).

131. (Not illustrated). Small fragment of a flanged bowl in Black-Burnished ware; similar to no 130 above but burnt light grey to orange-pink.

132. (Not illustrated). Bowl in light grey fabric with light to mid grey surface, burnished in places. A campanulate shape is likely.

133. Lid in light grey fabric.

134. Rim of flagon in orange-buff fabric. Probably from a collared type derived from the so-called 'Hofheim' flagon type. Probably mid to late 1st century.

Context 1003

135. (Not illustrated). Fragments of a rough-cast colour-coated beaker probably from Lyon.

Context 1008

136. (Not illustrated). Jar in Black-Burnished ware burnt light grey on the surface. Probably Gillam 1976, no 1 (early to mid 2nd century).

137. Bowl or dish in pink-buff fabric.

138. Lid in pink-buff fabric burnt on the rim.

139. Lid in light grey fabric with white and dark grey inclusions and dark surface.

Context 1032

140. Jar in light grey fabric; cf Whitchurch (Jones and Webster 1968, no 135). Probably late 1st to early 2nd century.

141. Jar in light grey fabric.

142. Rim of jar in slightly burnt Black-Burnished ware; probably Gillam 1976, no 1 (early to mid 2nd century).

143. Lid in light grey fabric.

144. Lid in very light grey fabric darkened in places by fire.

Context 1067

145-8 are all in a similar fabric. It is light grey with white and dark grey filler and tends to darken on the surface. A local source seems likely.

145. Jar, sooted on the rim.

146. Everted rim jar

147. Jar with mid grey core.

148. Flanged bowl, probably one of the later 1st- to early 2nd-century series.

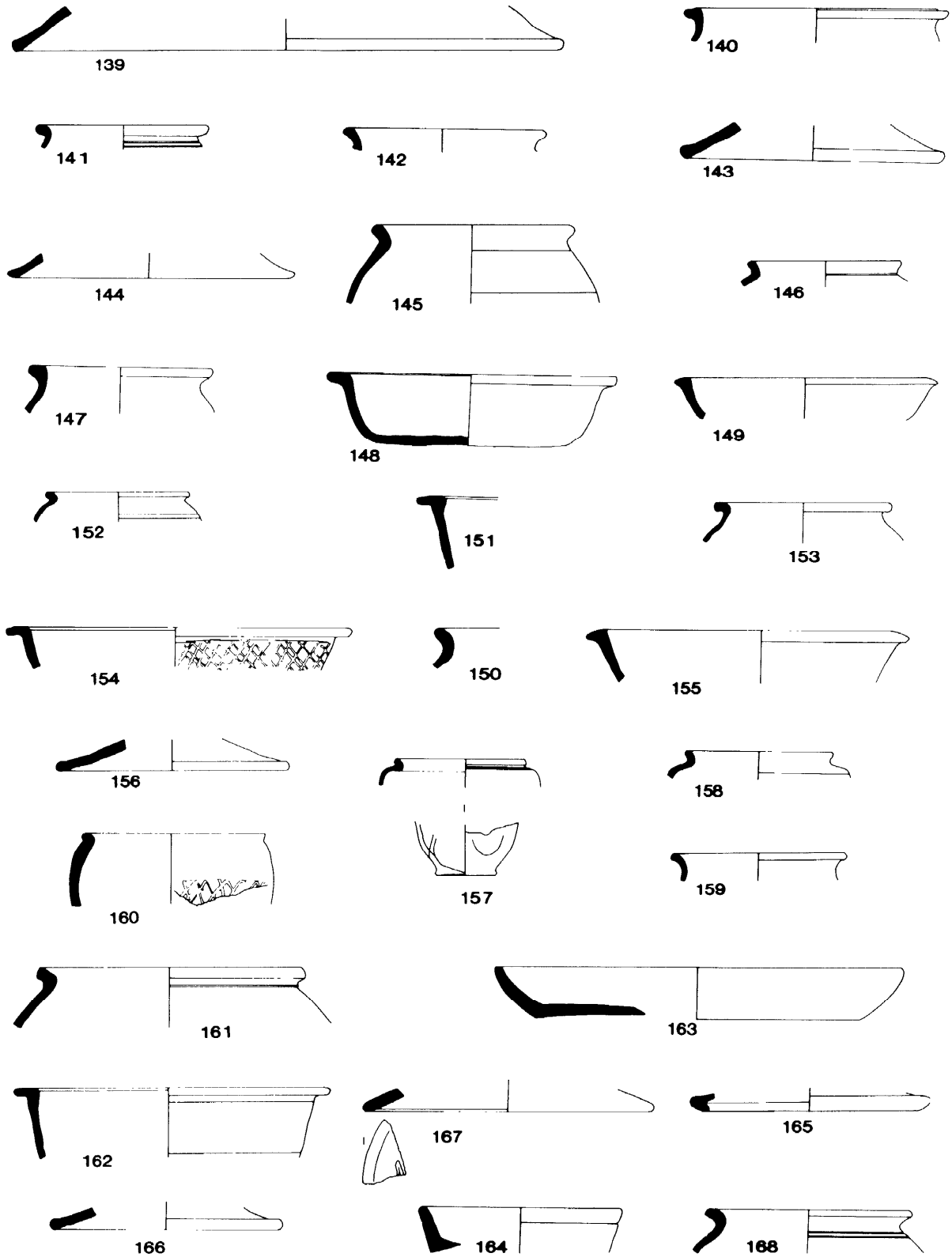


Figure 17.6 Coarse ware.

149. Dish in what is probably Black-Burnished ware. The rim form resembles those of Black-Burnished ware category 2 (cf Farrar 1973 and for this piece Gillam 1970, no 310). Despite its affinities the piece is more likely to be Black-Burnished category 1

No 149 is anomalous. Otherwise the collection would certainly be pre-Hadrianic.

Context 1074

150. Jar in grey fabric burnt pink in places.

Context 1079

151. Flanged bowl in light orange fabric. One of the later 1st- to early 2nd-century series.

Context 1081

152. Jar in grey fabric.

153. Jar in mid grey fabric. See comments to nos 46-7 above.

154. Flanged dish in Black-Burnished ware cf Gillam 1976, no 54 (early to mid 2nd century).

155. Flanged dish in grey fabric with grey and white inclusions. Perhaps intended to be reminiscent of Black-Burnished dishes of the 2nd century.

156. Lid in light grey fabric.

Context 1081

157. Rim and base (not joining) probably from the same dimpled beaker in light orange fabric with traces of mica dusting externally. Cf Holt (Grimes 1930) no 202 for the general type.

158. Jar in pink-buff fabric.

159. Jar in mid grey fabric.

160. Jar in Black-Burnished ware. Typologically rather earlier than those illustrated by Gillam (cf 1976, nos 30-3). Although a 1st-century date would not be impossible an early-mid 2nd-century date for this piece seems more probable.

161. Jar in light orange to grey-brown fabric with a light red core.

162. Flanged bowl in light orange fabric.

163. Dish in light orange to light red fabric cf Holt (Grimes 1930) no 129.

164. Dish in fawn-grey fabric.

165. Lid in light grey fabric.

166. Lid in light red fabric with pink surface.

167. Lid in Black-Burnished ware burnt light grey and orange in places. Cf Holt (Grimes 1930) no 100, also Wallace and Webster 1989.

Context 1082

168. Jar in light grey fabric with dark grey surface.

Context 1083

169. Flanged bowl in orange fabric. One of the later 1st- to early 2nd-century series.

Context 1148

170. Jar in thin pink to pink-buff fabric. The everted rim and high shoulder suggests a late 1st- to early 2nd-century date. With a further sherd from 1162.

171. Jar in pale orange-buff fabric.

172. Jar in calcite-gritted (shell gritted) fabric. The form and fabric are derived from the East Midlands cf Jewry Wall, Leicester (Kenyon 1948) Fig 30, no 16. This is a 1st- and 2nd-century type but it is unusual to find the fabric this far west at such a date.

173. Jar in light grey fabric.

174. Jar in light grey fabric with lightly burnished decoration.

175. Flanged bowl in light pink-buff fabric sooted externally in places. There are many fragments from context 1148 and a further fragment from context 1162.

176. Flanged bowl in Black-burnished ware. Cf Gillam 1976, nos 34-6 (early to mid 2nd century).

177. Lid in light grey fabric with dark grey inclusions and mid grey surfaces.

178. Lid in pink fabric with grey core. Apparently a partially oxidised version of the putative local fabric more normally seen in light grey see no 177 above.

179. Jar in orange-buff fabric.

Context 1221

180. Lid in mid-grey fabric with white inclusions and grey-orange surface. Possibly an unusually fired example of the putative local fabric.

Context 1224

181. Flagon in granular light red fabric. The surface and edges are heavily eroded but much of the vessel is present. The drawing is a reconstruction from pieces, not all of which join. Cf Gillam 1970, no 4 (late 1st to early 2nd century).

182. Flanged bowl in brown fabric granular with grey core and burnished dark grey surface.

Context 1225

183. Lid in cream-white fabric with some small dark inclusions.

Context 2011A

184. Complete bowl in light grey fabric. This is a good example of the flanged and carinated bowl common in the second half of the 1st century and in the early 2nd century. Cf Caerhun (Baillie-Reynolds 1934) fig 28 and particularly no 124.

Context 2094

185. (Not illustrated.) Neck and handle fragment of a flagon in white granular fabric with a pink core in places. Probably a product of the Verulamium region, cf Frere 1972, no 244 (c AD 75-105).

186. Flanged bowl in light grey fabric. One of the Flavian-Trajanic series.

Context 2195

187. Everted-rim jar in light pink granular fabric. One of the late 1st- early 2nd-century series.

Periods 6/6A: first stone building

Material from Period 6 is closely similar to that from 5A (see above). There is a considerable assemblage of vessels which are typologically Flavian or Flavian-Trajanic. Partly this may be the result of building activity which has impinged upon or moved materials from earlier periods. Partly, however, it may be indicative of the way in which Trajanic styles persisted into the next reign.

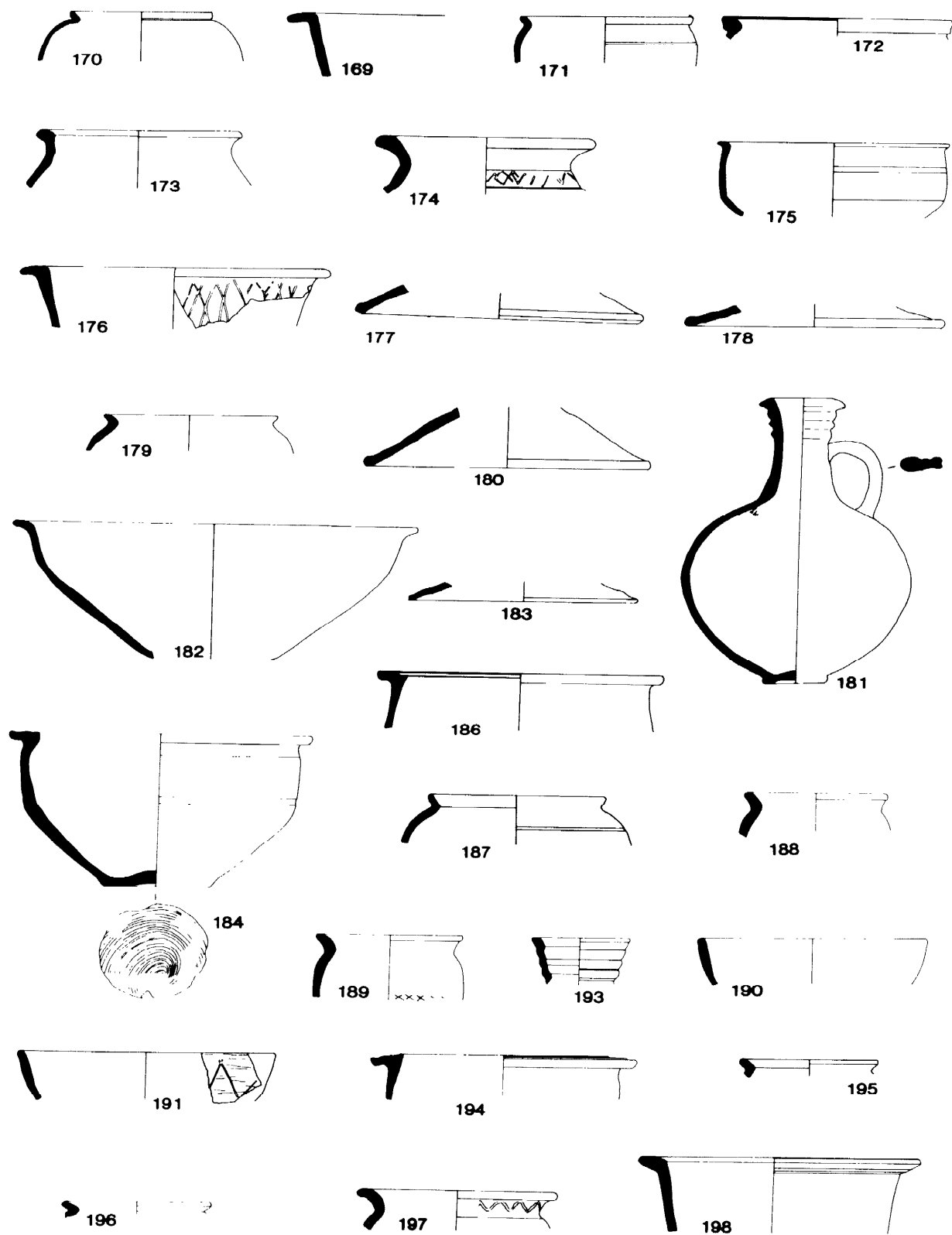


Figure 17.7 Coarse ware.

As a whole, the period contains sufficient Black-Burnished ware of early to mid-2nd-century date to suggest deposition under Hadrian. There is no obvious difference between Period 6 and 6A.

Sources are similar to those of pottery in Period 5. A further (residual) sherd of Lyon beaker (no 192 from Context 188) may be noted. A number of mica-dusted pieces are present (from Contexts 2043, 2068, 952 and 2067). The roughcast ware from North Gaul (no 238 from Context 969) should occasion little surprise at this date but does, in fact, stand out as this ware seems unusually scarce at Segontium. Context 969 yielded a sherd of colour-coated white ware, probably from Cologne.

Period 6

Context 161

188. Jar in Black-Burnished ware, probably as Gillam 1976, no 1 (early to mid 2nd century).

189. Jar in Black-Burnished ware. The form could be 2nd century. The lattice and form suggests a later vessel.

190. Dish in Black-Burnished ware burnt in places. The zig-zag line externally suggests a date in the 2nd or early 3rd centuries

191. Dish in Black-Burnished ware. The lattice decoration suggests a 2nd-century date.

Context 168

192. (Not illustrated). Body sherd of a beaker in a slightly greeny buff fabric with roughcast decoration and brown slip. This is part of a Lyon Beaker, a form which is predominantly pre-Flavian and unusual in a context as late as Segontium. Cf Greene 1979, 13-42 *passim*. There is a further sherd from context 204 (No 135).

Context 240

193. Flagon in orange-pink fabric. The even rings suggest a 1st-century date.

Context 270

194. Flanged bowl in light to mid grey fabric. One of the late 1st- to early 2nd-century flanged and carinated bowl series. With other fragments probably of the same bowl.

Context 291

195. Everted-rim jar in grey fabric. Probably late 1st to early 2nd century.

Context 939

196. Everted-rim jar in light orange fabric. Everted-rim jars are typical of the Flavian period and early 2nd century.

197. Jar in Black-Burnished ware cf Gillam 1976, no 3 (mid to late 2nd century).

198. Flanged bowl in mid grey fabric. For the general type see Gillam 1970, no 217 (c AD 110-130).

199. Grooved flange from a bowl in mid grey fabric. Probably from a 1st- to early 2nd-century flanged bowl.

200. Lid in granular orange-brown fabric,

Context 980

201. Jar in light grey fabric.

202. (Not illustrated) Flanged and carinated bowl in mid grey fabric with white inclusions. One of the later 1st- to early 2nd-century series.

203. Flanged and carinated bowl in light grey fabric probably containing clay granules as a filler. Cf no 202 above.

204. Flanged bowl in light grey fabric cf no 202 above.

Context 1141

205. Jar in grey fabric.

206. Wall of a jar in orange-buff sandy fabric with smoothed surface and white painted circles cf Holt (Grimes 1930) no 54. Probably late 1st to early/mid 2nd century.

207. Flanged bowl in light grey fabric with a darker surface. One of the Flavian-Trajanic series.

208. Flanged bowl with grooved rim in light grey fabric with a darker surface.

209. Lid in fawn fabric.

Context 2017

210. Jar in light orange-buff fabric.

211. Lid in hard light grey fabric with a brown core.

212. Dish in orange fabric with some burnishing.

Context 2034

213. Lid-seated jar in light grey fabric.

214. Flanged bowl in light grey fabric. There is some resemblance to the samian bowls in the Ritterling 12/Curle 11 range and a Flavian date seems probable.

215. Lid in light grey fabric with a darker surface.

Context 2040

216. Dish in light orange fabric. The type is derived from a form fashionable with the army in the mid 1st century (cf Usk fortress series 29) and could well be Flavian here. There is a further fragment from context 2042.

217. Lid in light grey granular fabric with a darker surface.

Context 2043

218. (Not illustrated). Wall and base fragment of a dish in grey granular fabric with an orange surface and mica dusting both internally and externally, cf no 296 below.

Context 2204

219. Jar in orange-buff fabric sooted in places externally. One of the later 1st- to early 2nd-century series.

Context 2364

220. Flanged bowl in Black-Burnished ware, now burnt pink in places. Cf Gillam 1976, nos 61-2 (mid 2nd century).

221. Lid in orange-buff fabric.

Period 6A

Context 35

222. Jar in light grey fabric. The everted rim and globular character of the vessel suggest a late 1st- to early 2nd-century date cf Caerhun (Baillie-Reynolds 1934) no 376 for an example of the same rim form with rusticated decoration.

223. Jar in light grey fabric. A necked vessel somewhat similar to Caerhun (Baillie-Reynolds 1934) no 362 is possible.

224. Lid fragment in hard mid grey fabric.

Context 39

225. Jar in granular orange fabric with a pronounced lid seating. There is a certain resemblance to butt beakers and a 1st-century date seems likely.

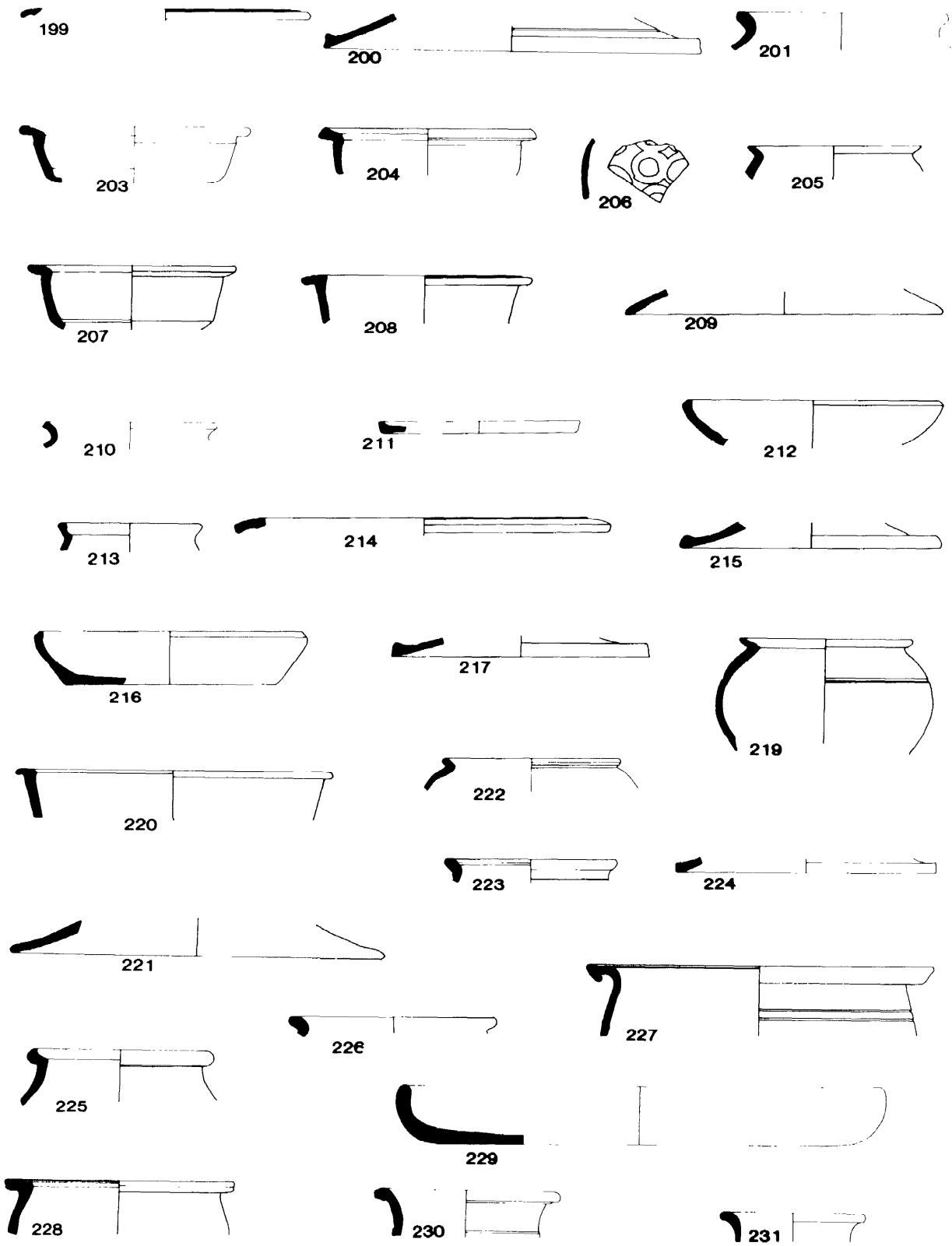


Figure 17.8 Coarse ware.

226. Jar in brown fabric burnt grey on the rim. Probably part of an everted rim jar of late 1st- to early 2nd-century date.

227. Flanged bowl in granular white fabric burnt grey on the rim. One of the 1st- to early 2nd-century flanged and carinated bowl series.

228. Flanged and reeded-rim bowl in creamy grey fabric burnt on the rim. One of the 1st- to early 2nd-century flanged and carinated bowl series.

Context 171

229. Dish in orange fabric apparently containing ground pottery, cf Holt (Grimes 1930), no 137.

Context 192

230. Jar in light grey fabric. A non-joining sherd suggests that the lower part of the vessel was decorated with obtuse-angled lattice.

Context 930

231. Jar in light grey fabric.

Context 952

232. Jar in light grey fabric. A derivative of a 1st-century jar of Usk fortress fabric type 11 (Manning 1981, 201); see also Gillam no 107. Probably late 1st to early 2nd century.

Context 957

233. (Not illustrated). Flagon top in white fabric. The neck has been pinched to form a figure-of-eight conformation when viewed from above.

234.Handled jar in pink fabric.

235. Flanged dish in Black-Burnished ware cf Gillam 1976, no 62 (mid 2nd century).

236. Bowl rim in orange-buff fabric with traces of a mica-dusted surface. Perhaps from a vessel intended to be reminiscent of the samian form 37.

237. (Not illustrated) Handle from a lid in Black-Burnished ware.

Context 969

238. Rim of a beaker in creamy fabric with a red-grey colour coat and traces of roughcast decoration. The fabric has a slight pinkish tinge in places and is probably Anderson's North Gaulish fabric 2 (cf Anderson 1981, Fig 19.3, no 28, mid 2nd century) from the Argonne.

239. Jar with lid seated rim in pink shell tempered fabric.

240. Jar in grey fabric.

241. Everted rim jar in light grey fabric with a darker surface.

242. Jar in light grey fabric with a mid grey surface.

243. Large jar in cream fabric.

244. Flanged bowl in light grey fabric with a darker surface. One of the late 1st- to early 2nd-century series.

Context 988

245. Flanged bowl in Black-Burnished ware. One of the 2nd-century series.

Context 1000

246. Jar in Black-Burnished ware. The rim varies considerably but the complete vessel may have resembled Gillam 1976, no 4 (late 2nd century).

Context 1000A

247. Jar in pink fabric cf Caerhun (Bailie Reynolds 1934) no

386. A late 1st- to early 2nd-century type.

Context 1094

248. Jar in light brown fabric with grey external surface. See comments to no 47 above.

249. (Not illustrated) Jar in light red fabric.

250. Jar in light grey fabric with darker surface externally.

251. Jar in light grey fabric with darker inclusions and slightly darker surface.

252. Jar in Black-Burnished ware cf Gillam 1976, no 1 (early to mid 2nd century).

253. (Not illustrated) Flanged bowl in light grey fabric with white inclusions and darker surface. One of the later 1st to early 2nd-century series.

254. Flanged bowl in light grey fabric with grey and white inclusions and buff surface.

255. Dish in light orange-buff fabric with sooting internally.

256. Dish or possibly a lid in light orange fabric.

Context 1108

257. Jar in light grey fabric with white and dark grey inclusions and mid grey surface.

258. Flanged bowl in similar fabric to no 257. One of the later 1st- to early 2nd-century series.

259. Flanged bowl with reeded rim in similar fabric to no 257. One of the later 1st to early 2nd-century series.

260. Lid in similar fabric to no 257.

261. Lid in similar fabric to no 257.

Context 1109

262. Jar in light grey fabric with light grey and dark grey inclusions and mid grey surface.

263. (Not illustrated) Flanged bowl in light orange fabric. One of the later 1st to early 2nd-century series.

Context 1145

264. Jar in hard mid grey fabric.

265. Jar in light grey fabric with darker surface.

266. Jar in hard mid grey fabric.

267. Jar in grey fabric.

268. Narrow-necked jar in fawn-grey fabric.

269. Dish or lid in pink buff fabric.

Context 1162

270. Everted rim jar in pale orange-buff. One of the later 1st- to early 2nd-century series.

271. Jar in grey fabric. The form is closely similar to one current on military sites in the mid 1st century (cf Usk fortress series type 11, Manning 1981,207) and despite the perseverance of the type into the early 2nd century the present piece is more likely to be 1st century in date (cf no 232 above where another example of the general type is discussed).

272. Jar in light grey fabric.

273. Jar in mid grey fabric.

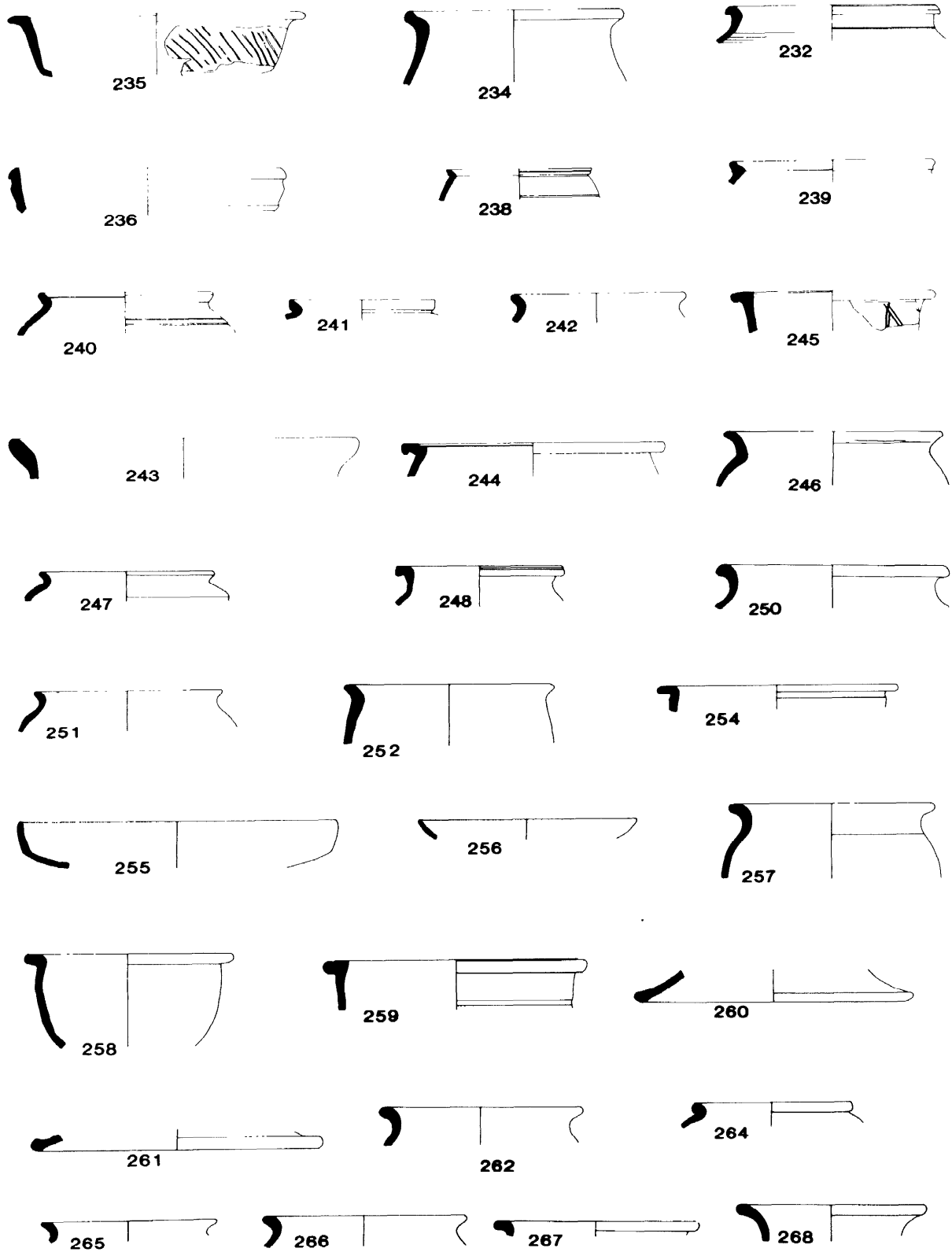


Figure 17.9 Coarse ware.

274. Jar in pale orange-buff fabric.

275. Rim of a large jar or possibly a bowl of light grey fabric with dark grey inclusions and mid grey surface.

276. Lid in grey to buff fabric with dark grey and white inclusions.

277. Jar in light grey fabric.

Context 1220

278. Jar in very pale orange-buff fabric.

279. Flanged bowl in light grey fabric with grey and white inclusions and mid grey surface.

280. Flanged dish in Black-burnished ware cf Gillam 1976, no 56 (early to mid 2nd century).

Context 1227

281. Jar in grey fabric with a darker surface. One of the later 1st- to early 2nd-century series.

282. Jar in cream fabric with grey and white angular gritty filler.

Also grey jar or ?Verulamium mortarium.

Context 1229

283. Flanged bowl in light grey fabric with grey inclusions and darker surface. One of the Flavian-Trajanic flanged and carinated series.

Context 2018

284. (Not illustrated). Flanged bowl in light grey-buff fabric. Probably one of the late 1st- to early 2nd-century series.

285. Lid in granular pink-grey fabric with a grey-brown surface.

Context 2022

286. Lid in light grey fabric.

Context 2047

287. (Not illustrated) Rim, probably of an everted-rim jar in light grey.

288. Flanged bowl in grey fabric with a darker surface externally. One of the Flavian-Trajanic series.

289. Reeded rim of a flanged bowl in grey granular fabric. One of the Flavian-Trajanic series.

290. Flanged bowl in grey-buff granular fabric with sooting on the rim. One of the Flavian-Trajanic series.

291. Jar in light grey fabric.

Context 2067

292. Jar in hard grey fabric.

293. Jar in orange fabric. Cf Holt (Grimes 1930) no 67 (late 1st to early 2nd century).

294. Flanged bowl with grooved rim in light grey fabric with a darker surface. One of the Flavian-Trajanic series.

295. Dish in orange-brown fabric with a grey core and mica-dusted surface. There is a similar or the same vessel from Context 1978.

Context 2066

296. (Not illustrated) Dish in grey granular fabric with an orange-fawn surface and mica-dusted decoration inside and out. Probably the same vessel as no 218 and no 295 from context 2067. The form is a traditional one for military use in the 1st and early 2nd centuries, cf Holt (Grimes 1930) no 129. The

mica-dusting makes this likely to be Flavian or, at latest, early 2nd century.

Context 2097

297. Jar in light grey fabric.

298. Jar in light grey fabric very similar to no 297 above.

299. Jar in light grey fabric.

300. Flanged bowl in light grey fabric with grooved rim. One of the Flavian-Trajanic series.

301. Flanged bowl in grey fabric.

The group shows considerable homogeneity in both fabric and form and similarities with such mid-century assemblages as that from the Usk fortress. A Flavian, even a relatively early Flavian date is possible and the group is presumably, therefore, residual.

Context 2172

302. Everted-rim jar in pink-buff fabric. The rim and high shoulder suggest a late 1st- to early 2nd-century date. See context 2171 below.

303. (Not illustrated) Fragment, probably of a bowl in orange fabric burnished above a groove. The rim is missing but a vessel imitating the samian form 37 is probable.

Periods 7-7B: courtyard building

Their position in the overall stratigraphy of the site means that these periods should be mid 2nd century or later. However, periods 7 and 7A contain large quantities of material which would seem to be derived from earlier levels, material which is adequately represented above. Therefore, although a complete catalogue of all illustrated pieces from Periods 7 and 7A has been drawn up and will be available as an archive, we shall here only publish those pieces which are of chronological or intrinsic interest. Material from Period 7B is more homogeneous and will be published in full.

The dating of these periods poses problems. There is sufficient 2nd-century material to suggest activity (but not necessarily in this area) commencing soon after Period 6-6A (ie in or after the late Hadrianic/early Antonine period). There is little that need be early to mid 3rd century; there are no flanged and grooved bowls in Black-Burnished ware and no 'Rhenish' ware (ie Moselle or Lezoux colour-coated wares). Unless we can suppose that this is a product of the building being in use during the early to mid 3rd century (and thus kept clean) there would appear to be some form of hiatus and it would not be impossible on the ceramic evidence to suggest a gap between the close of Period 6 in the early/mid 2nd century and the beginning of Period 7 in the mid/late 3rd century. There are, certainly, significant quantities of late 3rd- to 4th-century pottery including later Black-Burnished ware types, Oxfordshire colour-coats and calcite-gritted wares. The latest pieces are: from Period 7, no 308 (Context 158, mid-late 3rd century), no 333 (Context 932, mid-late 4th century), no 335 (Context

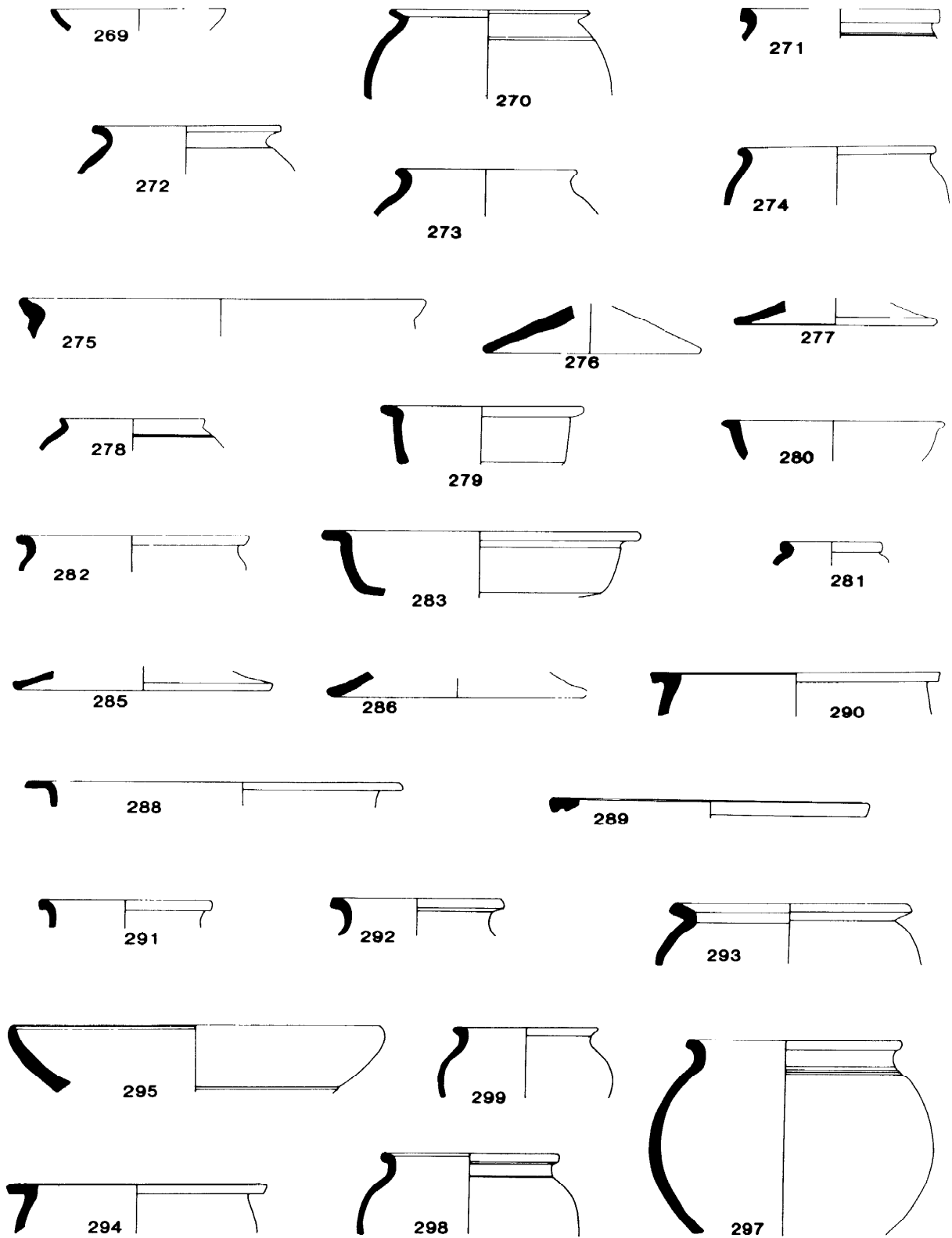


Figure 17.10 Coarse ware.

932, late 3rd to 4th century), no 336 (Context 932, mid-late 4th century); from Period 7A, no 371 (Context 132, late 3rd century), nos 375-6 (Context 212, late 3rd century), no 396 (Context 1671B, mid-late 4th century); from Period 7B, no 402 (Context 70/1, late 3rd-4th century), no 404 (Context 70/1, early 4th century), no 406 (Context 70/1, mid 3rd-mid 4th century), no 410 (Context 70/1, mid 4th century), no 413 (Context 70/1, mid 3rd-4th century), no 416 (Context 70/1, probably mid 4th century), no 422 (Context 142, early 4th century). It would thus seem fairly clear that 7B is 4th century and unlikely to have closed before the mid or mid/late 4th century. Both 7 and 7A have some mid-late 4th century sherds. However, all the late pieces from Period 7 are from Context 932 and those from 7A from Context 1671B. It seems possible that there were unobserved intrusions into these two contexts (in which case both 7 and 7A could be dated up to the late 3rd century). Otherwise all three periods continued into the mid 4th century at the earliest.

The high residual content of these periods makes comment on sources difficult. However, the great amount of Black-Burnished ware is noticeable. The majority of this is, of course, Black-Burnished ware category 1. However, two vessels of Black-Burnished 2 may be noted (no 310 from Context 158 and a dish from Context 199). The general dearth of colour-coated ware has already been commented upon. Oxfordshire colour-coated ware is, however, present. Manufacture and wide marketing of this ware commenced cAD 240 at a time when importation of Lezoux and Moselle colour-coats may well have been nearly over. Its presence thus tends to reinforce the possible mid-late 3rd-century character of Period 7-7A occupation. In addition to published vessels, sherds of Oxford colour-coated ware have been noted from Contexts 178 and 803 (both in Period 7). Calcite-gritted ware of East Midlands origin is a feature of late Segontium. Late types will be discussed in more detail in the context of later periods. Those from Periods 7-7B are, in the main, earlier types (see for example, no 332 from Context 932, no 355 from Context 1666 and no 381 from Context 924). These earlier forms are much more unusual out of their area of origin than the hook-rim jars which are such a feature of our later occupation.

There is a probable Cologne beaker from Context 932 (no 340). Severn Valley Ware is also present in these Periods. There are a few early pieces (eg no 342 from Context 1101) but also a number of undoubtedly later types including the 'double-bead-rim' narrow-necked jar (no 318 from Context 199, no 420 from Context 142). Amphorae include several examples of Pélichet 47 (no 356 from Context 1666, no 386 from Context 1020 and no 393 from Context 1585). North Gaulish (Argonne) roughcast ware comes from Context 934 (archive no 1520). The (?imported) lamp no 387 (from Context 1022) may also be noted.

There are a few ceramic pipe fragments from contexts in these periods (see p 255). A number of examples have been noted from Segontium although none were sufficiently well preserved to show their length. Joints appear to have been of the 'male/female' type. The open ('female') end of one pipe is illustrated as no 412 (Context 71, Period 7B). They may be vaulting tubes.

Period 7

Context 9

304. (Not illustrated). Shoulder fragment of an amphora in granular fabric, probably originally orange and burnt light grey. Probably from a Dressel 2-4 wine amphora of Italian origin. Although made into the 2nd century, importation in the 1st century is more probable. Cf Peacock and Williams (1986, 106).

305. Small dish in granular orange fabric probably from the Cheshire Plain.

Context 153

306. Flanged bowl in Black-Burnished ware; one of the 2nd-century series.

307. (Not illustrated). Base of an amphora in pink fabric with a grey buff (possibly burnt) exterior. The form is probably Pélichet 47 (cf Peacock and Williams 1986, 142). The contents will probably have been South Gaulish wine.

Context 158

308. Jar in Black-Burnished ware, possibly from a jar as Gillam 1976, No 9 (mid to late 3rd century).

309. Flanged bowl or dish in Black-Burnished ware: one of the 2nd-century series.

310. Flanged bowl in Black-Burnished ware category 2, cf Gillam 1970 No 310 (2nd and early 3rd century).

311. Rim in coarse gritted dark grey fabric with a burnished surface, cf Peacock 1967, Fig 1, No 6.

context 164

312. (Not illustrated). Handle of an amphora in granular buff fabric. Probably from a vessel in the Camulodunum type 186 series (a fish-sauce container).

Context 178

313. Small fragment of a bead rim jar in grey fabric.

314. Jar in pink-buff fabric. Possibly Severn Valley Ware.

315. Rim, probably of a bowl in orange-buff fabric.

316. Flanged bowl in Black-Burnished ware. One of the 2nd-century series.

317. Joining fragments from contexts 178 and 266 in orange granular fabric. It would appear to be a flange and might possibly be from a tazza.

Context 199

318. Jar in pink fabric with buff surface, probably Severn Valley ware cf Webster 1976, Nos 10-11 (3rd to 4th century).

319. Everted rim jar in peach-buff fabric. 1st to early 2nd century.

A dish in Black-Burnished ware category 2 cf Gillam 1970, No 310 (2nd to early 3rd century) was also present.

Context 202

320. Bowl in orange fabric. Probably intended to be reminiscent

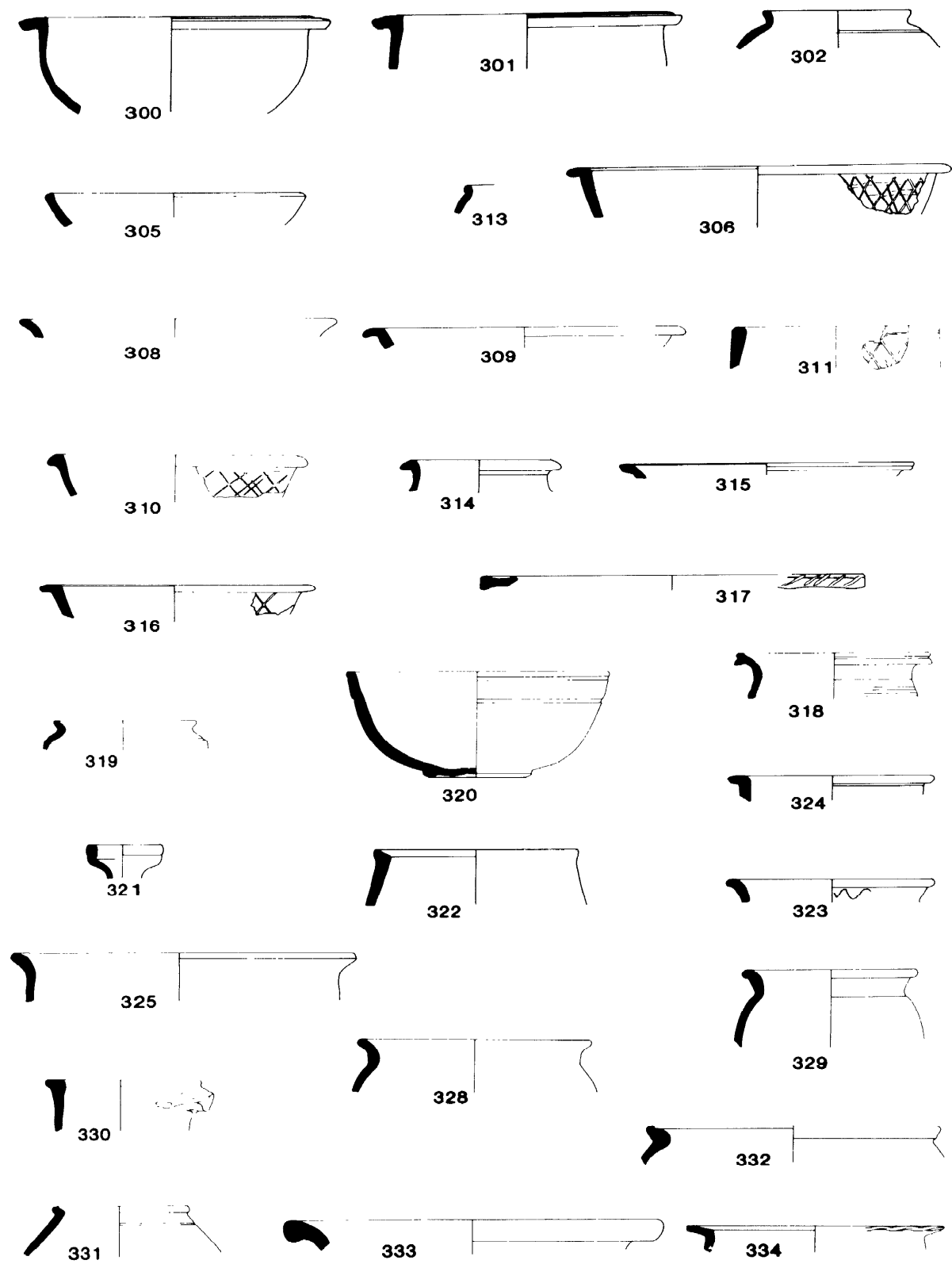


Figure 17.11 Coarse ware.

of the samian form 37 and most likely to be later 1st- or 2nd-century in date.

Context 246

321. Flagon in granular white fabric. This resembles the fabric of Verulamium region mortaria and could well be from the same source.

322. Vessel in orange granular fabric.

The context also yielded a sherd of a poppyhead beaker, cf Gillam 1970, nos 70-1 (2nd century).

Context 603

323. Jar in Black-Burnished ware cf Gillam 1976, no 2 (mid 2nd century).

324. Bowl or dish in Black-Burnished ware burnt red-brown in places. One of the 2nd century series.

325. Bowl in smooth orange-buff to fawn fabric.

Context 868b

326. (Not illustrated) Flagon in light orange fabric. Gillam ascribed an early to mid-2nd-century date to this type in northern Britain (1970, no 5) and it seems reasonable to apply a similar date to the type here.

327. (Not illustrated) Base of a vessel in light orange fabric with a reddish brown slip externally. A barrel-shaped vessel is probable although this was probably not totally closed as there is some slip in the interior. Perhaps the whole resembled a vessel from Ribchester (Edwards and Webster 1988, no 361) but see also Gillam 1970, no 21.

Context 932

328. Jar in Black-Burnished ware cf Gillam 1976, no 6 (early 3rd century).

329. Jar in Black-Burnished ware cf Gillam 1976, no 7 (early-mid 3rd century).

330. Two-handled flagon or jar in light grey fabric.

331. Jar in light orange-red fabric sooted or stained. The form suggests one of the so-called 'honey-pots'.

332. Jar in light grey calcite-gritted (shell-tempered) fabric with light brown interior and dark grey-brown exterior. The source is probably the East Midlands cf Jewry Wall (Kenyon 1948) Fig 30 no 14-15. Perhaps 3rd-4th century.

333. Jar in grey shell-tempered fabric. One of the mid-late 4th-century series. Possibly intrusive here.

334. Flanged bowl in light orange-buff fabric. Perhaps one of the carinated bowl series and residual.

335. Flanged bowl in Black-Burnished ware burnt grey. Cf Gillam 1976, no 34. Residual.

336. Flanged and beaded bowl in Black-Burnished ware with a lead rivet repair. Cf Gillam 1976, nos 46-9 (late 3rd-4th century).

337. Bowl or dish in light grey fabric with a darker surface.

338. Lid in Black-Burnished ware cf Holt (Grimes 1930) no 100.

339. Bowl or dish in light orange-buff fabric.

340. Beaker in white fabric with dark grey-brown colour-coat externally. The decoration was probably originally roughcast but is now very worn. With a fragment of another roughcast beaker. The source could be the Nene Valley area cf Corder

1961, 52. Recent work has emphasised the continental origin of some colour-coated white ware and our pieces may have been made at Cologne (cf Anderson 1981, Fig 19.1).

There is also a flange probably from a flanged and carinated bowl. The fabric is light grey and the probable origin East Yorkshire. Probably mid-late 4th century.

Context 933

341. Jar in Black-Burnished ware; cf Gillam 1976, no 4 (late 2nd century).

Context 1101

342. Rim, probably of a Severn Valley Ware tankard in light orange fabric. The angle of the wall would suit a 2nd-century date cf Webster 1976, no 39.

Context 1613

343. Handled jar in light grey fabric.

344. Jar in Black-Burnished ware cf Gillam 1976, nos 1-2 (early to mid 2nd century).

345. Rim of a jar or wide mouthed jar in light grey granular fabric with a grey surface.

346. Colander in smooth light grey fabric with a burnished mid grey external surface.

347. Rim probably of a bowl in pink fabric. There are inclusions up to 2mm diameter of broken pottery and stone. The complete vessel may have been a hemispherical bowl reminiscent of the samian form 37.

Context 1613

348. Jar in hard mid-grey fabric.

349. Indented beaker in orange-buff fabric with traces of mica-dusting externally. Cf Holt (Grimes 1930, no 202). Late 1st to early 2nd century.

350. Bowl in cream fabric with a pink core.

351. (Not illustrated) Bowl in orange fabric with a grey core. An orange slip has been applied to both internal and external surfaces using a sponge or similar object. A vessel reminiscent of the samian form 37 seems intended and a later 1st- to 2nd-century date likely.

352. (Not illustrated) Lid in Black-Burnished ware, cf Holt (Grimes 1930) no 100. Probably 2nd century.

Context 1614

353. (Not illustrated) Jar in grey fabric with buff core.

354. Flanged bowl in Black-Burnished ware. One of the 2nd century series.

Context 1666

355. Jar in buff calcite-gritted (shell-tempered) fabric. An East Midlands type, probably a fore-runner of the more common hook-rimmed late calcite-gritted jars. Cf Jewry Wall (Kenyon 1948), fig 29, no 27 (probably late 2nd to early 3rd century).

356. Rim of amphora in pale buff fabric. Pélichet form 47, South Gaulish wine amphora.

357. Flagon in granular pink fabric with a white slip, probably of Cheshire Plain origin; cf Wilderspool (Hartley and Webster no 21. Late 1st to early 2nd century).

358. Jar in Black-Burnished ware cf Gillam 1976, nos 3-4 (mid to late 2nd century). With a rim of a further Black-Burnished jar perhaps of the same type.

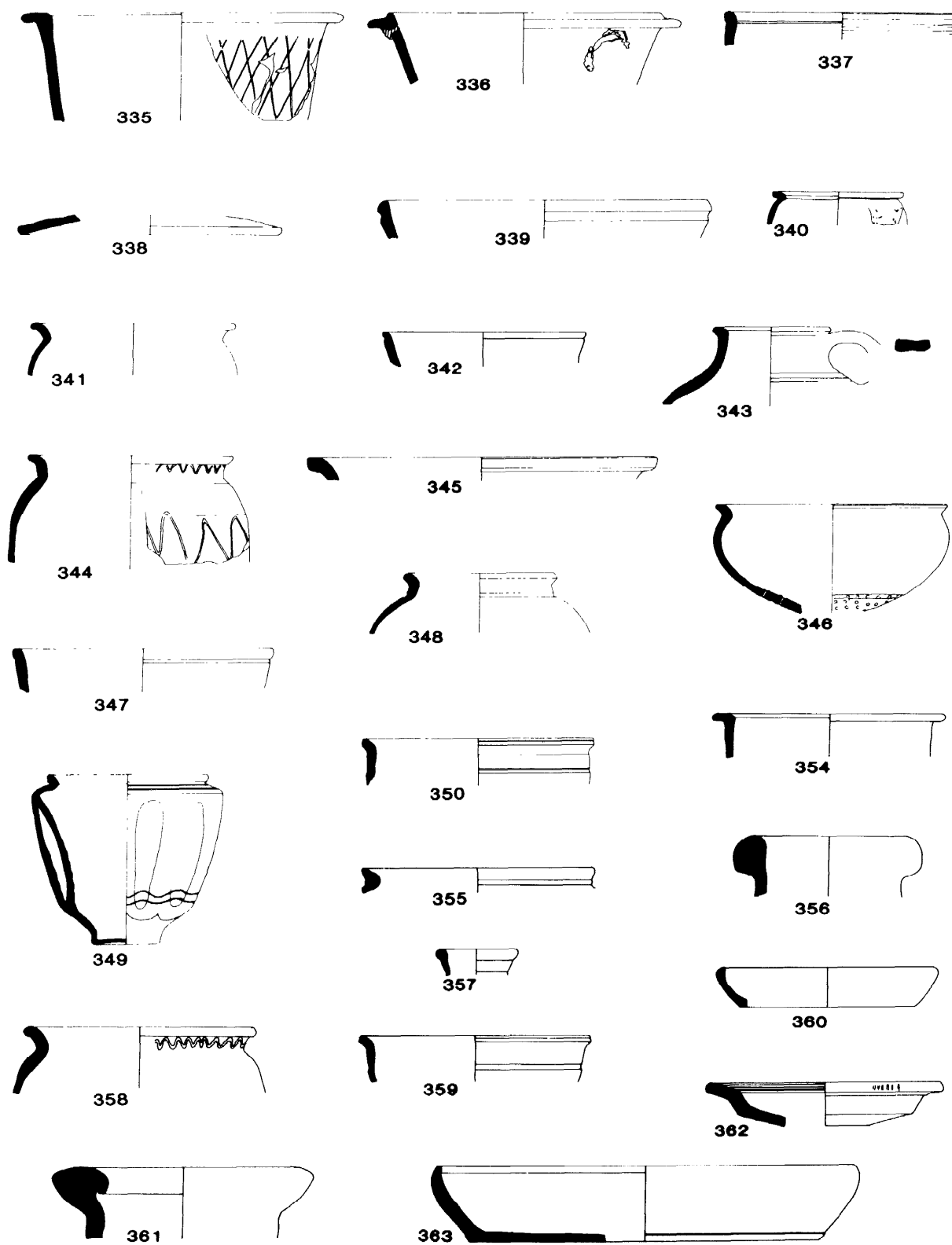


Figure 17.12 Coarse ware.

359. Bowl in pale orange-buff smooth fabric. Some basal fragments apparently in the same fabric suggest that this is a colander.

360. Dish in orange-buff fabric with signs of burning internally.

Context 1673

361. Amphora neck in buff granular fabric. Dressel 20, South Spanish oil amphora. The flattened rim and deep recess suggests a late 1st to early 2nd century date (Martin-Kilcher Type 23, cf Peacock and Williams 1986, 137).

362. Dish in pink fabric with grey and red angular filler and signs of burning internally.

Context 2065

363. Dish in orange-brown fabric with a grey core dusted with mica on the surface. The general form is to be found in 1st-century military vessels (cf fox- instance Usk Fortress type 32) and a 1st- or early 2nd-century date seems probable.

Period 7A

Context 34

364. Amphora neck in granular buff fabric. Dressel type 20, a South Spanish oil amphora.

Context 47

365. Bowl in light grey fabric, fairly smooth and with darker patches externally. Reminiscent of the samian form 37 and likely to be late 1st century or later.

366. Jar in Black-Burnished ware burnt grey in places. There are similarities to Gillam 1976 No 10 (late 3rd century).

Context 119

367. Flagon in light orange fabric.

368. Jar in Black-Burnished ware cf Gillam 1976, No 8 (mid 3rd century).

369. Bowl in light orange fabric with a grey core.

Context 130

370. Jar in Black-Burnished ware burnt light orange-buff on the surface. The rim is incomplete but its angle suggests a 3rd-century date.

Context 132

371. Jar in Black-Burnished ware; probably from a vessel as Gillam 1976, No 10 (late 3rd century).

Context 160

372. Beaker in pink-buff fabric with impressed decoration.

Context 177

373. Jar in Black-Burnished ware burnt light grey similar to Gillam 1976, No 7 (early to mid 3rd century).

374. Flanged bowl in Black-Burnished ware. One of the 2nd-century series. The decoration of intersecting inverted looped chevrons may indicate a date later in the century.

Context 212

375. Jar in Black-Burnished ware cf Gillam 1976, No 10 (late 3rd century).

376. Jar in Black-Burnished ware burnt light grey; cf Gillam 1976, No 10 (late 3rd century).

Context 256

377. Flanged dish in Black-Burnished ware cf Gillam 1976, no 62 (mid 2nd century).

Context 281

378. Dish in Black-Burnished ware cf Gillam 1976, no 76 (mid to late 2nd century).

Context 849

379. Jar in orange fabric with a grey interior. The surface is 'lumpy' probably due to the use of dried and ground-up clay as a filler. Despite the unusual fabric the vessel is almost certainly from the Severn Valley and can probably be regarded as an abnormal example of Severn Valley Ware. Cf Webster 1977, no 7.

380. Flagon neck in light red fabric with traces of a cream-white slip. For the general type cf Gillam 1970, no 5 (early to mid 2nd century).

Context 924

381. Jar in brown to grey shell-tempered fabric of East Midlands origin. The form probably pre-dates the hook-rim jars which are such a feature of late 4th century Segontium. For the type cf Jewry Wall (Kenyon 1948, Fig 30, 14) mainly 2nd century.

Context 981

382. Jar in light grey fabric with a darker surface cf Caerhun (Baillie-Reynolds 1934) no 397.

383. Flanged bowl in light grey fabric with a mid-grey surface. One of the Flavian to early 2nd-century series. The footstand is unusual.

384. Lid in off-white fabric with dark grey inclusions.

385. Lid in pink fabric with dark grey inclusions.

Context 1020

386. (Not illustrated). Substantial fragment of the lower portion of an amphora in pink to buff fabric of Pélichet form 47 (Peacock and Williams 1986, 142-3). The type is current from the mid 1st into the 3rd century and was probably a South Gaulish wine container.

Context 1022

387. (Not illustrated). Handle of a small lamp in light peach-coloured fabric with a dark brown slip.

Context 1091

388. Jar in light grey fabric with decoration of applied dots. For the general style see Gillam 1970, type 68 (late 1st-early 2nd century; see also context 1106 and 1260 for further fragments).

389. Rim possibly from a wide-mouthed jar or a bowl in hard dark grey.

Context 1514

390. Cup in mid grey fabric. Possibly from a vessel intended to be reminiscent of the samian form 27.

Context 1584

391. Flagon in orange fabric with a white slip cf Gillam 1970, no 5 for the general type (early to mid 2nd century). With a handle probably from the same vessel.

392. Jar in light grey fabric with a mid grey smoothed surface. The similarity to late Black-Burnished ware jars may be noted.

The context also includes a fragment of ceramic pipe cf p 255 above.

Context 1585

393. Amphora rim in buff fabric. Pélichet form 47, South Gaulish wine amphora, cf Peacock and Williams 1986, 142-3.

Context 1631

394. Bowl in Black-Burnished ware. 2nd century.

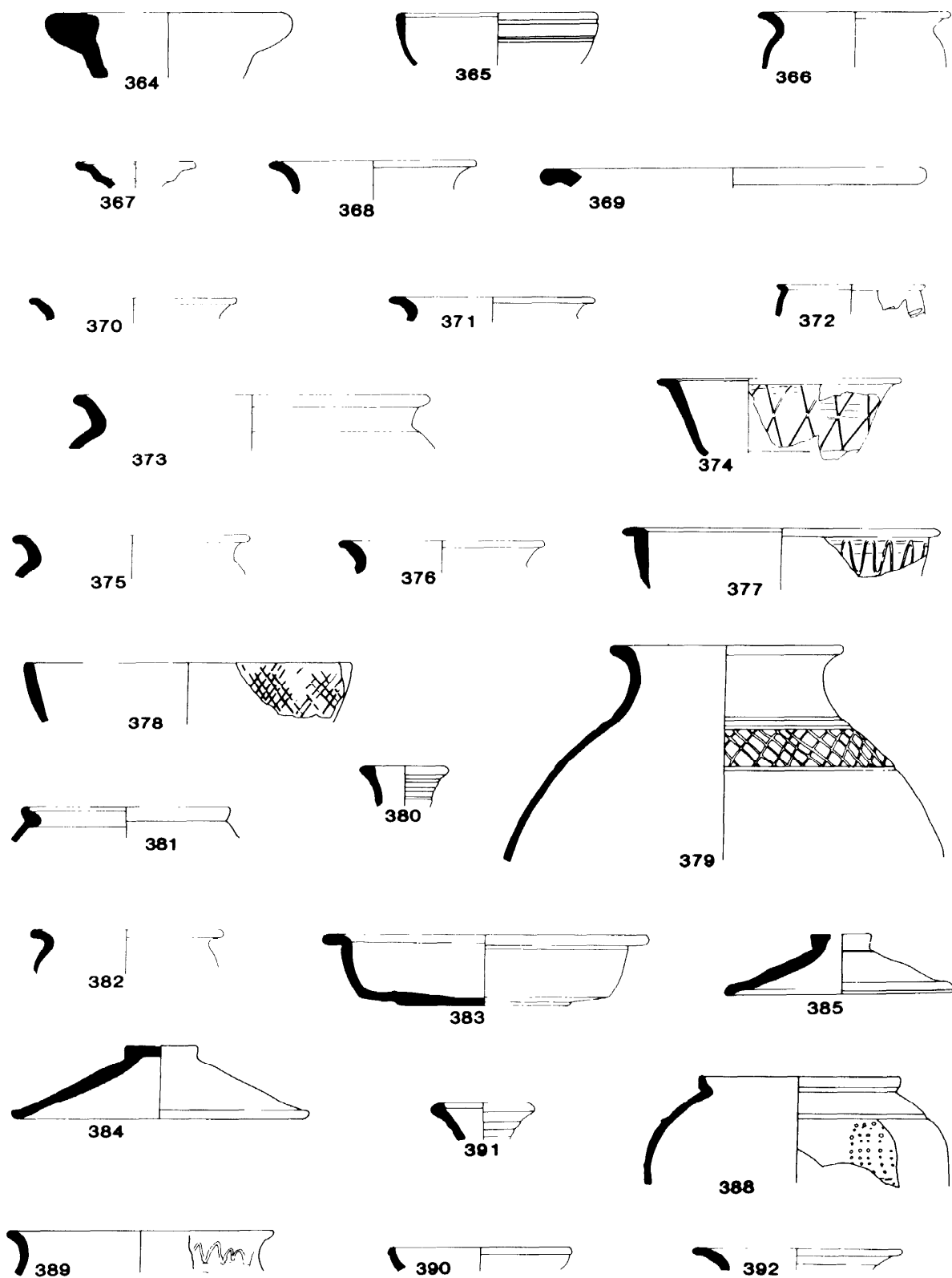


Figure 17.13 Coarse ware.

Context 1671

395. Bowl or possibly a tankard in pink-buff fabric with some smoothing or burnishing.

Context 1671b

396. Jar in grey-brown shell-tempered fabric with dark grey rim and neck. One of the later 4th-century series from the East Midlands see nos 646-50 below. Probably intrusive here.

Context 2063

397. Lid in Black-Burnished ware; cf Holt (Grimes 1930) no 100; also Wallace and Webster 1989.

Period 7B**Context 70/71**

398. Jar in light grey fabric with a darker surface.

399. Jar in Black-Burnished ware: possibly from a vessel such as Gillam 1976, type 10 (late 3rd century).

400. Jar in light grey fabric.

401. Jar in light orange-buff Severn Valley Ware cf Webster 1976, No 10 (3rd-4th century).

402. Bowl in light orange-buff fabric with an abraded red colour-coat: an Oxfordshire product cf Young 1977 C45 (c AD 270-400+).

Also from the context is a sherd of Dressel 20 amphora.

Context 71

403. Jar in Black-Burnished ware cf Gillam 1970, Nos 143-5 (late 2nd to late 3rd century).

404. Jar in Black-Burnished ware cf Gillam 1976, No 12 (early 4th century).

405. Jar in Black-Burnished ware. Probably from a jar similar to No 404 above.

406. Jar in Black-Burnished ware. The angle of the rim suggests a vessel in the mid 3rd to mid 4th century range.

407. Jar in orange granular fabric with a grey core and dark grey surface. The slight rim and globular form suggest a 1st- or 2nd-century vessel.

408. Jar in fawn-buff fabric with sparse quartz-like filler.

409. Wide-mouthed jar in slightly micaceous orange-buff fabric.

410. Jar in dark grey shell-tempered fabric cf Dinorben (Gardner and Savory 1964, No 11). Perhaps mid 4th century.

411. Flagon in granular light red fabric with a cream slip externally. Possibly residual in this context.

412. Fragment of ceramic pipe in orange-buff granular fabric.

413. Bowl in light orange fabric with a tendency to laminate and with orange-red colour-coat. An Oxfordshire product cf Young 1977, C44 (c AD 270-350).

414. Bowl in orange fabric with grey core in places and red to maroon colour coat. An Oxfordshire product cf Young 1977, C48 although without the painted decoration of the type-vessels. (c AD 270-400+).

415. Dish in Black-Burnished ware.

416. Dish in dark grey calcite-gritted fabric with light brown interior surface. The fabric appears to be that of the more common shell-tempered jars of Midlands origin. For a dish of

similar fabric cf Dinorben (Savory and Gardner 1964) Fig 32, No 10.

Among other material from this context are sufficient shell tempered sherds to suggest further jars in this fabric, and a jar shoulder in what is probably Severn Valley Ware, the rim of a samian vessel of form 18/31 or 31 and a portion of amphora neck in granular orange with marked corrugations.

Context 87

417. Beaker in peach-coloured fabric with a red-brown colour coat and rouletted decoration. The source is uncertain, but a date in the 3rd or 4th century probable.

418. (Not illustrated) Jar in dark grey burnished fabric. Probably residual.

419. Dressel 20 South Spanish oil amphora.

Context 142

420. Jar in orange-buff Severn Valley Ware; cf Webster 1976, No 11 (3rd to 4th century).

421. Jar in Black-Burnished ware. For the general type cf Gillam 1976, No 10 (late 3rd century).

422. Jar in Black-Burnished ware, probably from a vessel of Gillam 1976, type 12 (early 4th century).

423. Rim of a wide-mouthed jar in light orange-buff Severn Valley Ware with a grey core; cf Webster 1976, Nos 27-9 for the likely vessel form (late 3rd to 4th century).

The context also yielded two fragments of Oxford red colour-coated bowl of the form reminiscent of the samian form 31.

Context 175

424. Amphora, Dressel 20, South Spanish oil amphora.

Also from the same level comes two sherds of a red colour-coated bowl of Oxfordshire origin, probably a vessel from a form resembling the samian form 31.

Context 175

Orange-buff jar or flagon, Dressel 20 fragments, base of jar in Midlands calcite grit (probably mid to late 4th century).

Context 220

Sherds of at least three grey jars and one orange-buff ?flagon. Possibly pre-Hadrianic.

Context 227

3 self-coloured jar sherds.

Period 8: rampart-back baths

There are again residual elements in the collection although late 3rd- and 4th-century pottery predominates and indicates the general date range. A total list of pottery from Period 8 will be found in the archive. Here, obviously residual pieces have been omitted (unless they have intrinsic interest ceramically). Of the published pieces, the latest are 429 (early 4th century, Context 74), 431 (early 4th century, Context 84), 437 (mid 4th century, Context 148), 432 (early to mid 4th century, Context 84), 443 (?mid to late 4th century, Context 369), 446 (early 4th century, Context 425), 456 (early 4th century, Context 1551) and 471 (early 4th century, Context 1587). The absence of all but an isolated sherd of shell-tempered ware (from Contexts 148

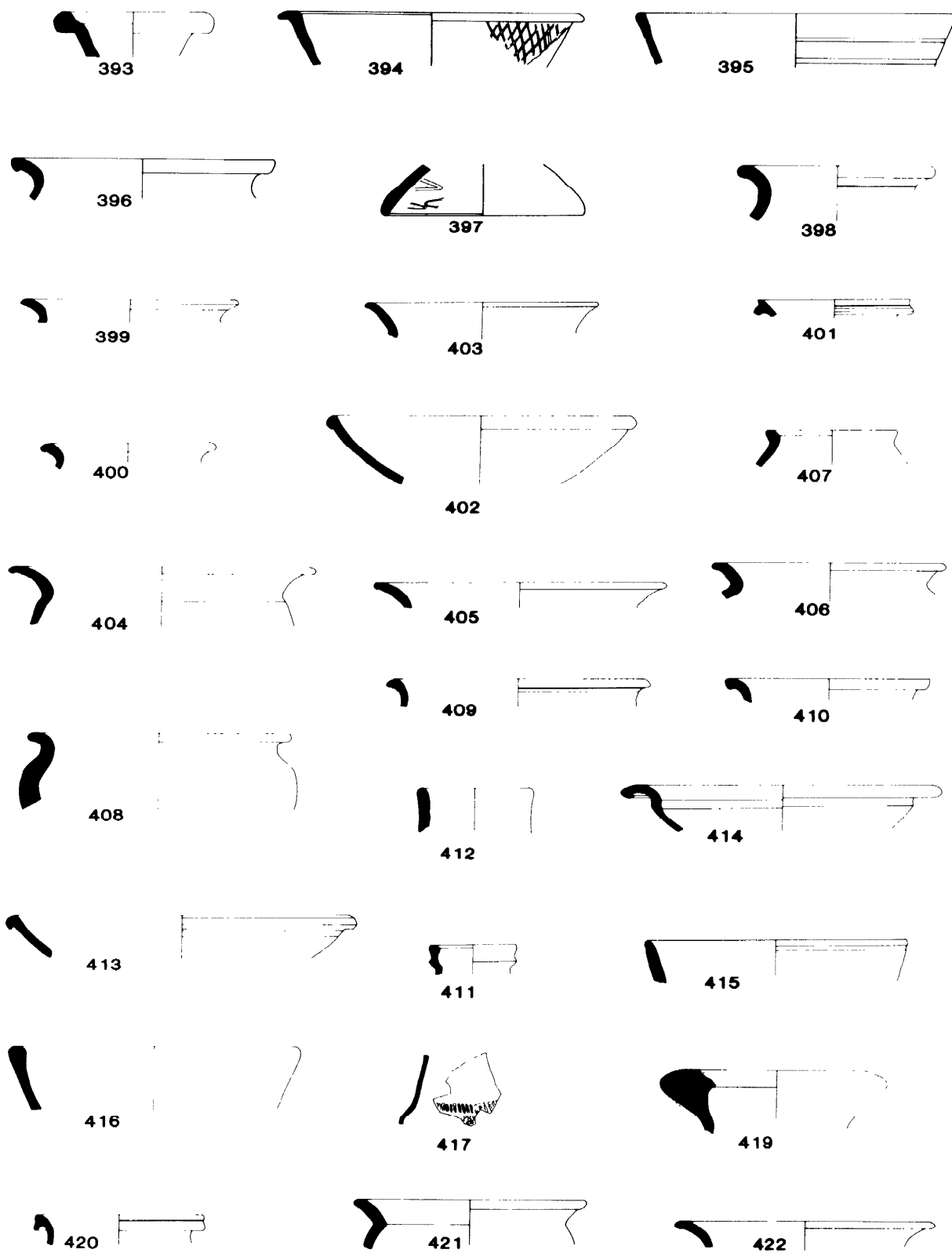


Figure 17.14 Coarse ware.

and 425) may be noted and supports the proposition that the chronology should not be stretched too far into the 4th century. A period commencing in the later 3rd century and ending in the early/mid 4th century is suggested.

Among fabric sources, the Black-Burnished ware industry is again important, as one would expect. There are a few examples of Severn Valley Ware (Contexts 10 and 396). The range of vessel types in colour-coated wares is interesting with vessels other than the beaker and cup forms appearing. Of the colour-coats, Oxfordshire ware is the most significant with bowls and dishes represented by nos 435, 443 and 447, a jar sherd from Context 338 and beakers from 12 and 702. The same diversification into what may be 'kitchen' forms is apparent in Nene Valley products (see no 449; there are flagon fragments from Contexts 405 and 1551, a 'castor box' from 3011A and beaker sherds from 407 and 432). Attention should also be drawn to the vessel decorated '*à l'éponge*' (no 458 from Context 1568) which might well be a continental import. Among residual colour-coated wares were a probable Cologne beaker and North Gaul rough cast ware beakers from Contexts 1568-9.

Context 27

425. Two fragments from a folded beaker in light orange fabric with decoration in the form of single bands of rouletting and with a chocolate brown slightly metallic colour coat. The fabric suggests that the origin of the piece is Lezoux. Cf Greene 1978, Fig 2.3, No 5 and p. 18. Greene suggests a date 150-200.

426. Jar rim in Black-Burnished ware.

427. Jar rim in Black-Burnished ware. The angle suggests a late 3rd or 4th-century date but too little survives for precision.

428. Flanged and beaded bowl in Black-Burnished ware burnt grey in places. There are similarities to Gillam 1976 No 45 (late 3rd century).

Context 74

429. Jar in Black-Burnished ware, cf Gillam 1976 No 12 (early 4th century).

Context 84

430. Jar in light orange-buff fabric burnt light grey in places.

431. Jar in Black-Burnished ware probably from a vessel such as Gillam 1976, No 12 (early 4th century). With a fragment from a similar or the same jar.

432. Flanged and beaded bowl in Black-Burnished ware cf Gillam 1976, nos 47-8 (dated there early to mid 4th century).

433. Flanged and beaded bowl in Black-Burnished ware. The slight bead suggests a date early in this series, perhaps mid to late 3rd century.

434. Bowl in orange-buff fabric. With two other sherds possibly from the same bowl.

435. Bowl in buff fabric with a dull red colour-coat; an Oxfordshire product cf Young 1977, C45 (c AD 270- 400+).

436. Dish in Black-Burnished ware.

Context 148

437. Jar in Black-Burnished ware burnt light brown cf Gillam, 1976, No 14 (mid 4th century).

438. Jar in light grey fabric.

Context 331

439. Two handled jar in light orange fabric with burnished rim (internally) and burnished decoration on the neck and upper body. This could be Severn Valley Ware.

440. Crudely made neck in light orange-buff fabric. There are traces of a white deposit both inside and out. Possibly the neck of a water pipe or vaulting tube.

441. (Not illustrated). Neck fragment from a beaker or flagon in light orange fabric with a grey-brown colour coat. An Oxfordshire product. The cord around the neck suggests a vessel such as Young 1977, C13.

Context 358/3a

442. Jar in Black-Burnished ware. Cf Gillam 1970, no 147 (late 3rd to mid/late 4th century). A joining sherd of this vessel comes from context 342.

Context 369

443. Fragment of flanged bowl in dull red fabric with a grey core and dark red-brown colour-coat. The decoration on the flange is in cream but the whole piece has probably been burnt and was originally a red colour-coated Oxfordshire product; cf Young 1977, C52 (probably c AD 350- 400).

Context 407

444. Jar in Black-Burnished ware.

Context 396

445. Rim of a beaker in orange fabric with an orange-brown colour-coat. Probably an Oxfordshire product. Young 1977, C29 has a similar rim but without the lower part of the vessel one cannot ascribe our piece to any particular Oxfordshire type.

Context 425

446. (Not illustrated) Jar in Black-Burnished ware cf Gillam 1976, no 12 (early 4th century).

447. Bowl in light orange-red fabric with an orange-red colour-coat. This could be an Oxfordshire product although the finish is unusually crude if so.

448. Flanged and beaded bowl in Black-Burnished ware burnt grey in places, cf Gillam 1976, no 46 (late 3rd to early 4th century).

449. Flanged bowl in white fabric with red-brown colour-coat, probably of Nene Valley origin. The rim is missing but the whole vessel will have been reminiscent of the samian form 38 cf Howe et al 1980, no 83 (late 3rd and 4th century).

Context 426

450. Rim probably of a flagon in light orange granular fabric

Context 432

451. Jar in Black-Burnished ware. The angle of the rim appears to be more pronounced than Gillam 1976, no 9 and a slightly later date might, therefore, be appropriate. ?Late 3rd to early 4th century.

Context 466

452. Jar in light grey fabric with mid to dark grey surface.

Context 1511

453. Jar in Black-burnished ware, cf Gillam 1976, no 9 (mid to late 3rd century).

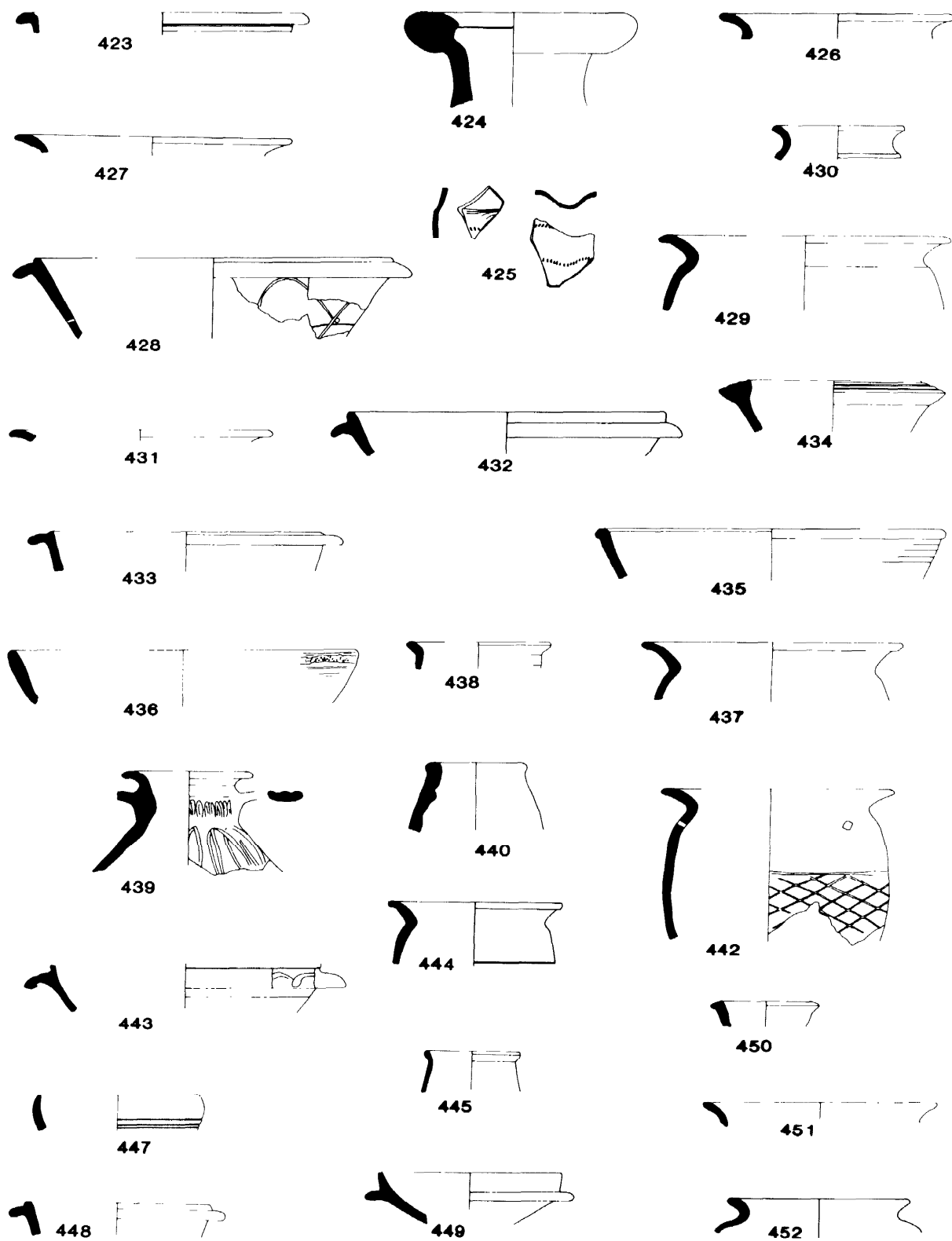


Figure 17.15 Coarse ware.

454. Abraded and laminated sherd probably from a bowl reminiscent of the samian form 31.

Context 1551

455. (Not illustrated) Jar in orange fabric.

456. (Not illustrated) Jar in Black-Burnished ware; probably from a vessel such as Gillam 1976. no 12 (early 4th century).

Context 1568

457. Beaker in peach-coloured fabric with rough cast decoration and dark grey-brown colour-coat. This is Anderson's North Gaulish Fabric 2 (Anderson 1981, Fig 19.3, no 28, mid 2nd century) from the Argonne.

458. Bowl in light orange fabric with a grey core and orange-red colour-coat. The decoration has the patchy coloration of decoration à l'éponge.

459. Flanged bowl in light grey fabric.

460-3 are all lids. The typological variations possible on such a functional vessel as this are slight and the vessels are probably best dated by their general context.

460. Lid in hard light grey fabric.

461. Lid in grey-brown fabric.

462. Lid in light orange fabric.

463. Lid in orange-buff fabric.

464. Bowl in light orange-red fabric. Probably intended to be reminiscent of the samian form 37.

465. Bowl in light grey fabric. The form may ultimately derive from a Terra-nigra form (cf Greene 1969, Fig 46) but is found in derivative forms like this up to the late 2nd century (cf Gillam 1970, nos 211 and 213).

466. Bowl in light grey fabric with a mid grey surface.

467. Lid in pink-buff fabric.

Context 1569

With a beaker rim in peach-coloured fabric with a red-brown colour coat from the Argonne (Anderson 1981, Fig 19.3, nos 25-6; late 1st to mid 2nd century):

468. Jar in light grey fabric.

469. Flanged bowl in light grey fabric with a darker surface. Residual.

Context 1573

470. Lid in orange fabric.

Context 1587

471. Jar in Black-Burnished ware cf Gillam 1976, no 13 (early 4th century).

472. Flanged dish in light grey fabric.

473. (Not illustrated) Flanged dish in fawn-grey fabric.

Context 3010

474. Jar in Black-Burnished ware; cf Gillam 1976, no 11 (late 3rd to 4th century).

Context 3014

475. ?Dish in dark grey fabric with possible crushed stone grits burnt red on the rim. A late Iron Age/early Roman date seems probable.

Period 9: rampart-back building

Periods 8 and 9 are isolated from Period 7B and could be, in part, contemporary with it. These two periods should, however, follow one after the other and a starting date for Period 9 immediately after the close of Period 8, ie early/mid 4th century would not be contradicted by the pottery illustrated below. Again, a number of obviously residual pieces will be found in the archive report but are omitted below. The bulk of the illustrated material must be dated within the late 3rd and 4th centuries with some material noticeably later than the Period 8 pottery above. Crucial for determining how far into the 4th century this period should be dated are the shell-tempered jars, a range of which are conveniently illustrated as numbers 521-4 below. These jars are in a fabric common in the East Midlands throughout the Roman period (see, for instance, Jewry Wall, Leicester, Kenyon 1948, figures 29-30) but they are not common in Wales before the 4th century (and probably not before the second half of that century) although a few earlier types from Segontium have been noted above. The late jars in this fabric show a typological development from a rounded rim (as our nos 521-2) to a hooked rim (523-4). The rounded rim type appears in South Wales on sites thought to have been occupied from the mid 4th century. If the pattern in North Wales is similar, then the type should not be earlier than mid 4th century here. Useful in determining the point of transition between the rounded rim and the hooked rim types is the North Welsh site of Dinorben, where the coin series only goes down to the mid-350s (Boon in Gardner and Savory 1964, 114) and where rounded rim types predominate (Savory and Gardner 1964, figure 33 and, in particular, Webster in Guilbert forthcoming). The presence of shell-tempered jars in Period 9 suggests that it lasted into the mid-4th century. The small number of hooked rim types present (nos 523-4, 561, 571?) along with the single example of Crambeck ware (no 479) suggests that the period came to an end in the third quarter of the century, perhaps in the 360s.

The importance of the Black-Burnished ware source for jars, bowls and dishes will be evident from the catalogue. East Midlands shell-tempered wares have already been commented upon. There are a few examples of Severn Valley Ware (from Contexts 357, 395, 457) and further examples of late colour-coated fabrics (Oxfordshire ware from Contexts 348, 395, 397, 951 and in archive material from Contexts 384, 387, 472, 1547; Nene Valley ware from Contexts 397, 729, 3006A, 3007 and with archive material from 452).

Context 19

476. (Not illustrated). Fragment of a folded beaker probably from Lezoux and from the same vessel as no 425 above (context 27, Period 8).

477. Jar in Black-Burnished ware with traces of sooting on the rim. Cf Gillam 1976, No 10 (late 3rd century).

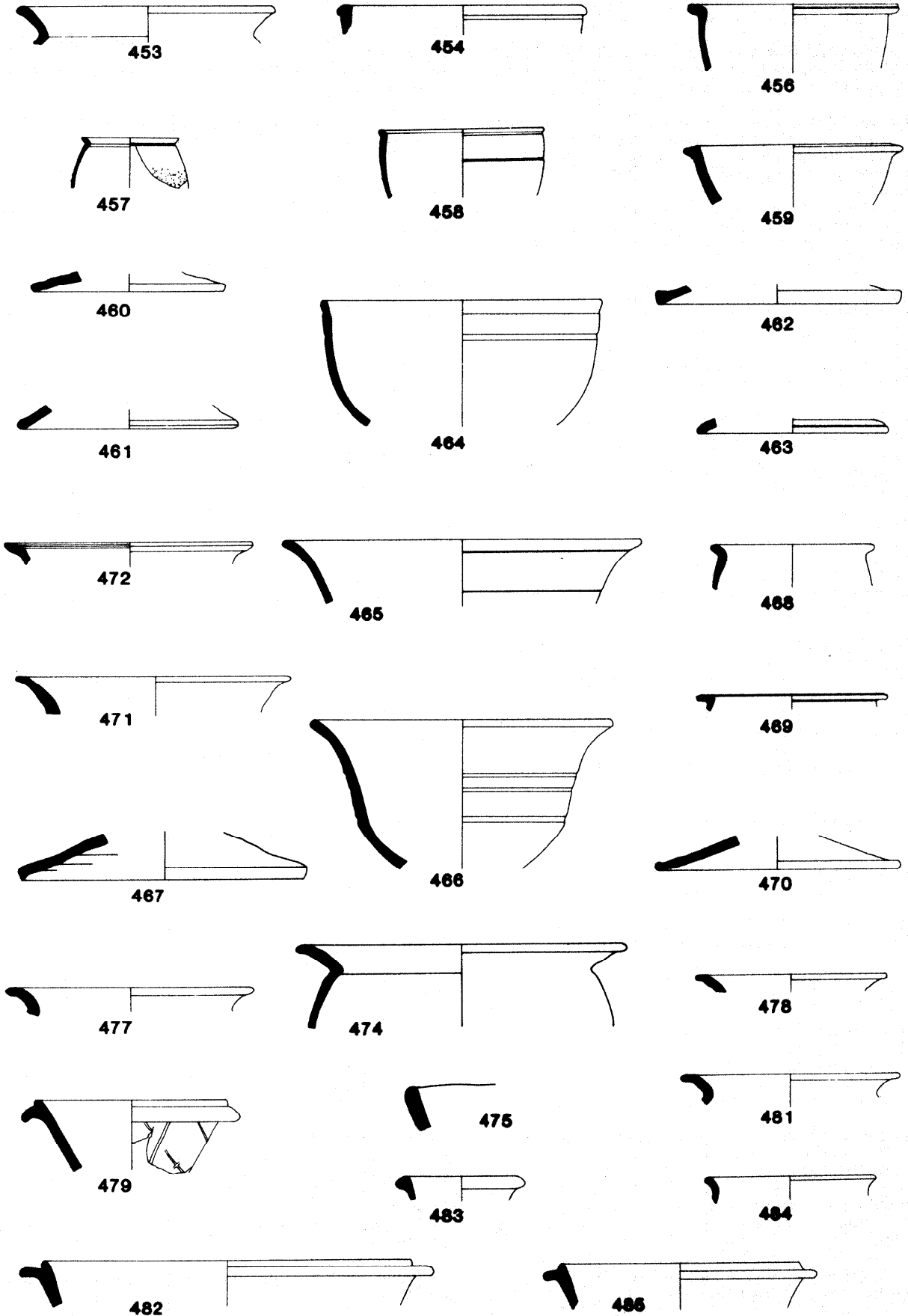


Figure 17.16 Coarse ware.

478. Rim fragments from one of two jars in Black-Burnished ware, Too little remains to be truly diagnostic but the flared rims suggests a late 3rd- to 4th-century date.

479. Flanged and bead& bowl in light grey burnished fabric. Probably a product of the East Yorkshire factories cf Crambeck (Corder 1937) type 1 In this context probably 2nd half of 4th century. There is a joining sherd from context 23.

Context 23

480. (Not illustrated). Jar in Black-Burnished ware perhaps from a jar as Gillam 1976, No 10 (late 3rd century). A single hole in the wall suggests that the vessel was repaired using a rivet

Context 72

481. Jar in Black-Burnished ware probably from a vessel such as Gillam 1976, No 12 (early 4th century).

482. Flanged and beaded bowl in Black-Burnished ware, cf Gillam 1976, No 47 (early 4th century).

Context 76

483. Flagon rim in light orange-buff fabric.

484. Rim possibly from a wide-mouthed jar in pink buff fabric, possibly Severn Valley Ware.

485. flanged and beaded bowl in Black-Burnished ware cf Gillam 1976, No 47 (early 4th century).

Nos 486-92 show a range of jars in Black-Burnished ware. All are likely to belong to the later 3rd or 4th century. The latest can hardly be earlier than the mid 4th century.

486. Jar in Black-Burnished ware. Possibly from a vessel such as Gillam 1976, No 8 (mid 3rd century) although the angle of the surviving fragment might indicate a slightly later type.

467. (Not illustrated) Jar in Black-Burnished wars. Probably from a vessel such as Gillam 1976, No 10 (late 3rd century).

488. Jar in Black-Burnished ware; cf Gillam 1976, No 12 (early 4th century).

489. Jar in Black-Burnished ware of the same general type as no 488 above.

490. Jar in Black-Burnished ware burnt light grey and orange in places.

491. Jar in Black-Burnished ware, possibly from a vessel such as Gillam 1976, No 14 (mid 4th century).

492. Jar in Black-Burnished ware cf Lydney Wheeler 1932) No 56, mid to late 4th century.

493. Jar in light pink-buff fabric, probably Severn Valley Ware.

494. Jar in light orange fabric.

495. (Not illustrated) Jar in orange fabric.

496. Ranged and beaded bowl in Black-Burnished wars cf Gillam 1976, No 45 (late 3rd century). One of three flanged and beaded Black-Burnished bowls.

497. Beaded bowl or dish in orange-buff fabric with traces of burnishing internally. A form reminiscent of the samian form 31 is likely.

498. Dish in Black-Burnished ware cf Gillam 1976, No 79 (early 3rd century) One of two Black-Burnished dishes.

The total absence of shell-tempered pottery from this context may be noted. A date A date of position in, the early/mid 4th century seems likely.

Context 348

499. Rim of a jar in dark grey shell-tempered fabric. Mid to late 4th century.

500. Beaker or small jar in light orange fabric with an orange-red colour coat. An Oxfordshire product.

501. Jar in hard grey fabric.

502. Jar in Black-Burnished ware cf Gillam 1976, no 12 (early 4th century).

503. Jar in dark grey shell-tempered fabric. Mid to late 4th century.

504. Jar in pink shell-tempered fabric, a burnt example of a similar jar to 714 above.

SOS. Cup in light orange fabric with an orange colour-coat. An Oxfordshire product cf Young 1977, C88.

506. Bowl in light orange fabric with an orange-red colour-coat. An Oxfordshire product probably similar to Young 1977, C45 (c AD 270-400+).

507. Flanged and beaded bowl in Black-Burnished ware. One of the later 3rd-to 4th-century series,

SOS. Dish in Black-Burnished ware. One of three dishes,

509. Handled dish in Black-Burnished ware. The complete vessel was probably oval cf Gillam 1976, no 85 (late 3rd to 4th century).

Context 350

510. Jar in Black-Burnished ware burnt buff to light grey on the surface. Probably from a vessel such as Gillam 1976, no 10 (late 3rd century).

Context 356

611. Jar in Black-Burnished ware; cf Gillam 1976, no 13 (early to mid 4th century).

512. Jar in Black-Burnished ware. The surviving fragment is small and the rim characteristic changes within its length. A vessel similar to Gillam 1976 nos 11-12 is probable. Late 3rd to early 4th century.

513. Rim in light orange fabric. Possibly from a tankard in which case the angle of the wall would suit a 3rd- to 4th-century date.

514. Flanged and beaded bowl in Black-Burnished ware. One of the late 3rd- to 4th-century series.

Context 357

515. Jar in orange fabric; possibly Severn Valley Ware.

Context 384

516. Jar in Black-Burnished ware cf Gillam 1976, no 11 (late 3rd to early 4th century).

514. Jar in grey shell-tempered ware discoloured light brown in places cf Dinorben (Gardner and Savory 1964) Fig 34 no 11. (?mid 4th century).

Context 395

518. Jar in Black-Burnished ware. Probably from a vessel such as Gillam 1976, no 11 (late 3rd to early 4th century).

619. Jar in Black-Burnished ware. Of the same general type as no 518 above.

526. Jar in orange fabric with some signs of burning externally.

Nos 521-4 are all in a shell-tempered fabric and show the

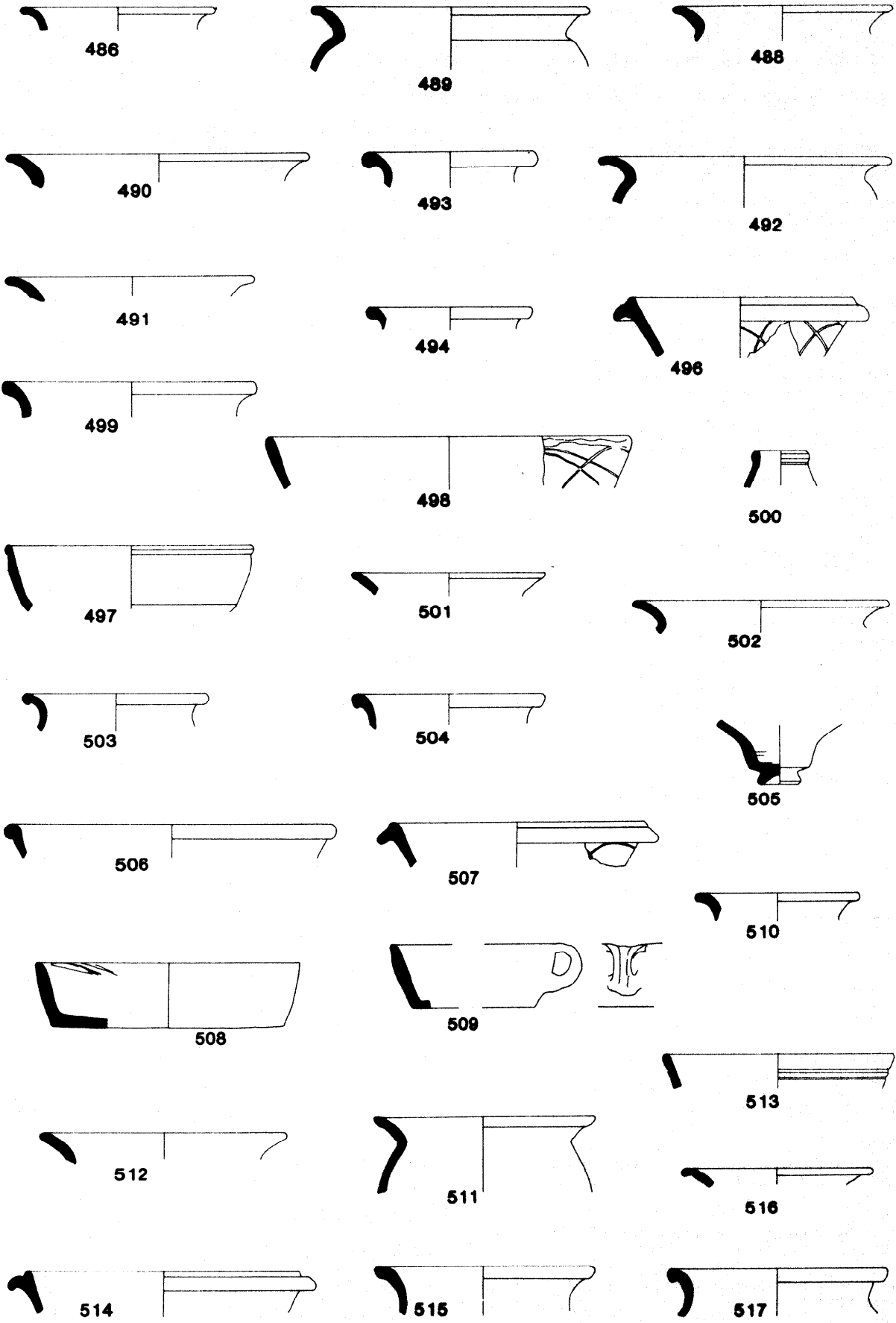


Figure 17.17 Coarse ware.

typological development typical of the mid to late 4th century.

521. Jar in grey shell-tempered fabric discoloured fawn in places.

522 Jar in dark grey shell-tempered fabric with considerable leaching of grits evident.

523. Jar in grey shell-tempered fabric with sooting on the neck and surfaces discoloured fawn to light brown in places.

524. Jar in grey shell-tempered fabric with a fawn internal surface.

525 Small jar in light red slightly granular fabric with a dark red surface.

526. Rim of a bowl in orange fabric with a grey core and red colour-coat. An Oxfordshire product and probably from one of the bowls reminiscent of the samian forms 18/31 or 31.

527. Rim of a bowl or tankard in light orange-buff Severn Valley Ware. Perhaps from a vessel such as Webster 1976, no 40.

528. Rim of a vessel in granular pink-buff. Probably a fragment of ceramic pipe.

Context 397

529. Jar in Black-Burnished ware, Gillam 1976, no 11 (late 3rd to early 4th century).

530. Rim of the lower portion of the so-called 'castor box', cf Howe *et al* 1980, no 89. The type has a long history but in the present context is most likely to belong to the later periods, 7th century.

531. Bowl in light orange fabric with an orange colour-coat. Probably an Oxfordshire product and possibly from a vessel reminiscent of the samian form 38.

Context 398

532. Jar in Black-Burnished ware. The angle of the rim suggests a vessel late in the jar series perhaps Gillam 1976, no 14. 4th century.

533. Dish in Black-Burnished ware burnt light buff and red in places.

Context 437

534. Jar in light grey fabric.

535. Jar in light grey fabric with darker surface.

Context 452

536 Jar in Black-Burnished ware cf Gillam 1976, no 14 (mid 4th century).

537. Flanged and beaded bowl in Black-Burnished ware; one of the late 3rd- to 4th-century series.

538. Dish in Black-Burnished ware.

Context 453

539. (Not illustrated). Flanged and beaded bowl in Black-Burnished ware; one of the late 3rd- to 4th-century series.

Context 455

540. Jar in Black-Burnished ware: cf Gillam 1976, no 12 (early 4th century).

541. Rim of a jar in Black-Burnished ware; cf Gillam 1976, nos 12-14 (4th century).

542. Bowl or dish in light grey fabric with smoothed or burnished mid-grey surface.

Context 457

543. Jar in Severn Valley Ware cf Webster 1976, no 9 (3rd to 4th century).

544. Flanged and beaded bowl in Black-Burnished ware cf Gillam 1976, no 48 (early to mid 4th century). The type probably survives into the late 4th century.

545. Dish in Black-Burnished ware.

Context 467

546. Flanged and beaded bowl in Black-Burnished ware cf Gillam 1976, no 49. 4th century.

Context 468

547. (Not illustrated) Neck of a beaker in pale orange fabric with a brown metallic slip, perhaps an Oxfordshire product.

548. Jar in Black-Burnished ware cf Gillam 1976, nos 12-14 (4th century).

549. (Not illustrated) Flanged and beaded bowl in Black-Burnished ware. Late 3rd to 4th century.

Context 472

550. Flanged and beaded bowl in Black-Burnished ware. Burnt and containing rivet holes. Late 3rd and 4th century.

Context 812

551. Neck of small jar or beaker in pink-buff fabric with sand and crushed pot or clay filler. The most likely source is the Lancashire-Cheshire Plain.

552. Jar in Black-Burnished ware, probably from a vessel such as Gillam 1976, no 8 (mid 3rd century).

553. Lid in light grey fabric.

Context 825

554. (Not illustrated) Beaker in light orange fabric. The rim form resembles the 'cornice' rims found on colour-coated beakers in the 2nd and early 3rd century.

555. (Not illustrated) Jar in Black-Burnished ware, perhaps from a vessel such as Gillam 1976, no 10 (late 3rd century).

556. (Not illustrated) Jar in grey shell-tempered fabric with pinky surface. One of the mid to late 4th-century series.

Context 825

557. Jar in light grey fabric with a darker surface.

558. Jar in light grey fabric with a dark grey surface.

559. Flanged bowl in light grey fabric see Gillam 1970, no 218 for the general type (there dated Hadrianic).

560. Lid in light orange-red fabric burnt on the rim.

Context 848

561. Jar in dark grey shell-tempered fabric. This vessel is mid to late 4th century in date.

562. Jar in light grey fabric, possibly part of the same vessel as 1157 above.

563. Jar in pink fabric.

564. Lid in mid grey fabric.

565 Lid in light orange fabric.

566. Vessel in fawn fabric with a grey surface. Possibly the flange from a flanged vessel or a lid.

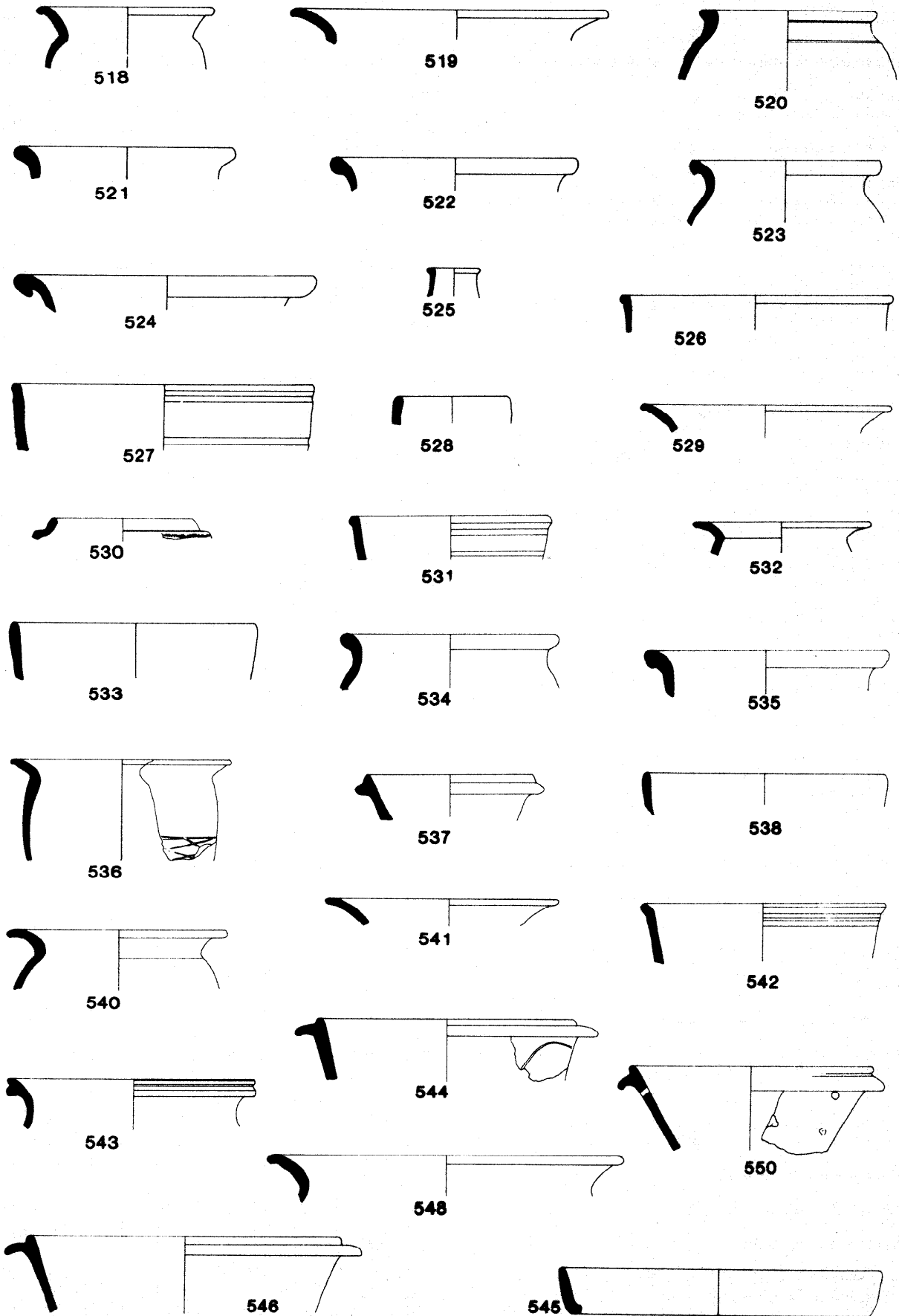


Figure 17.18 Coarse ware.

567. Dish in Black-Burnished ware burnt pink in places,

Context 951

568. Dish in Black-Burnished ware.

569 Lid in light grey fabric,

570. Bowl in light orange-red fabric with micaceous surface and red colour coat, An Oxfordshire product cf Young 1977 C45 (c AD 270-400+),

Context 1516

571. (Not illustrated) Large jar in shell-tempered fabric originally probably dark grey but now largely light buff. Cf Great Casterton (Corder 1951) Fig 8 no 19. Mid to late 4th century.

573. Flanged and beaded bowl in Black-Burnished ware, one of the late 3rd to 4th century series.

574. Dish in Black-Burnished ware.

Context 1547

575. Rim probably of a flagon in light orange-buff fabric with a lighter surface.

576 Jar in Black-Burnished ware burnt light grey to brown cf Gillam 1976, no 11 (late 3rd to early 4th century).

577. Jar in Black-Burnished ware burnt light grey; of the same type as no 949 above.

678. Jar in Black-Burnished ware burnt light brown cf Gillam 1976, no 10 (late 3rd century).

579. Jar in Black-Burnished ware; probably Gillam 1976, no 13 (early to mid 4th century).

580. Jar in Black-Burnished ware burnt light brown.

581. (Not illustrated) Jar in Black-Burnished ware burnt light brown, perhaps from a vessel similar to Gillam 1976 no 12 (early 4th century).

582. Jar in light orange fabric.

583. Rim of a bowl or wide mouthed jar in light red fabric.

584. Wide-mouthed jar in fawn fabric; abraded and possibly burnt but perhaps Severn Valley Ware.

585. Flanged and beaded bowl in Black-Burnished ware burnt light brown to buff Cf Gillam 1976, no 46 (late 3rd to early 4th century).

586. Flanged and beaded bowl in Black-Burnished ware.

587. Flanged and beaded bowl in Black-Burnished ware burnt light brown to buff; cf Gillam 1976, no 46 (late 3rd to early 4th century).

588. Flanged and beaded bowl in Black-Burnished ware cf Gillam 1976, nos 47 and 49 (early to mid 4th century).

589 Dish in Black-Burnished ware.

590. Lid in light fawn-brown fabric.

591. Lid in light orange fabric.

Context 1548

592 Open end of a ceramic pips in light orange fabric.

593. Flanged and beaded bowl in Black-Burnished ware burnt orange in places cf Gillam 1976, no 47 (early 4th century).

594. Flanged and beaded bowl in Black-Burnished ware.

Context 3006A

595. Jar in light grey with darker surface. It is apparently wheel-thrown but the flaring rim is reminiscent of later Black-Burnished ware forms.

596. Wall sherd of dish in Nene Valley fabric, off-white with a light red-brown colour coat. Cf Howe *et al* 1980, no 87. 4th century.

context 3007

597. Double-handled flagon in Nene Valley Fabric, off-white with a grey-brown colour coat. The type appears to be similar to Howe *et al* 1980, no 95 but with the addition of handles. A 4th century date seems likely despite this.

Period 10: pits and metalworking

Period 10 bears considerable similarities to Period 9. Again there are considerable quantities of residual pottery, mainly of 1st- to 2nd-century date, which have been listed and illustrated only in the archive. There can be no doubt, however, that the period is later than the late 3rd century. It is notable for more later 4th century pieces than Period 9, including shell-tempered jars with hooked rims and a scatter of Crambeck and Huntcliff pieces. The latter would, elsewhere, normally be associated with Period IV on Hadrian's Wall and with the Yorkshire Coast Signal Stations. It would seem likely, therefore, that Period 10 lasts into the last quarter of the 4th century. Closer precision than this and, indeed, the answer to the question of whether either Period 10 or Period 10A lasts into the 5th century is a matter for numismatic or historical argument. We can only note that the two periods contain pottery which is as late as any in Roman North Wales.

The sources of pottery in Period 10 are typical of late Segontium. There are considerable quantities of Black-Burnished 1 and there seems no good reason why this should not be contemporary with the shell-tempered ware and to have been imported into North Wales at a time after importation had ceased in the Wall Zone. The dates suggested for Black-Burnished ware in Periods 10 and 10A are generally based on those suggested by Gillam (1976). However, if it is accepted that some of the Black-Burnished 1 in Periods 10 and 10A are contemporary with the shell-tempered jars then this dating is a little early and we should be suggesting that a number of the forms which Gillam dates up to the mid 4th century (eg Gillam 1976, numbers 13-14, 48-9 and even possibly 12 and 46-7 which are dated to the early 4th century) should all have their *floruit* extended, as indeed the assemblage at the predominantly late site at Lydney (Wheeler 1932) suggests.

Whatever the status of the Black-Burnished industry, it is clear that the East Midlands source of calcite-gritted jars became increasingly important during the later 4th century so that the hook-rim calcite-gritted jar with rilled body is almost a

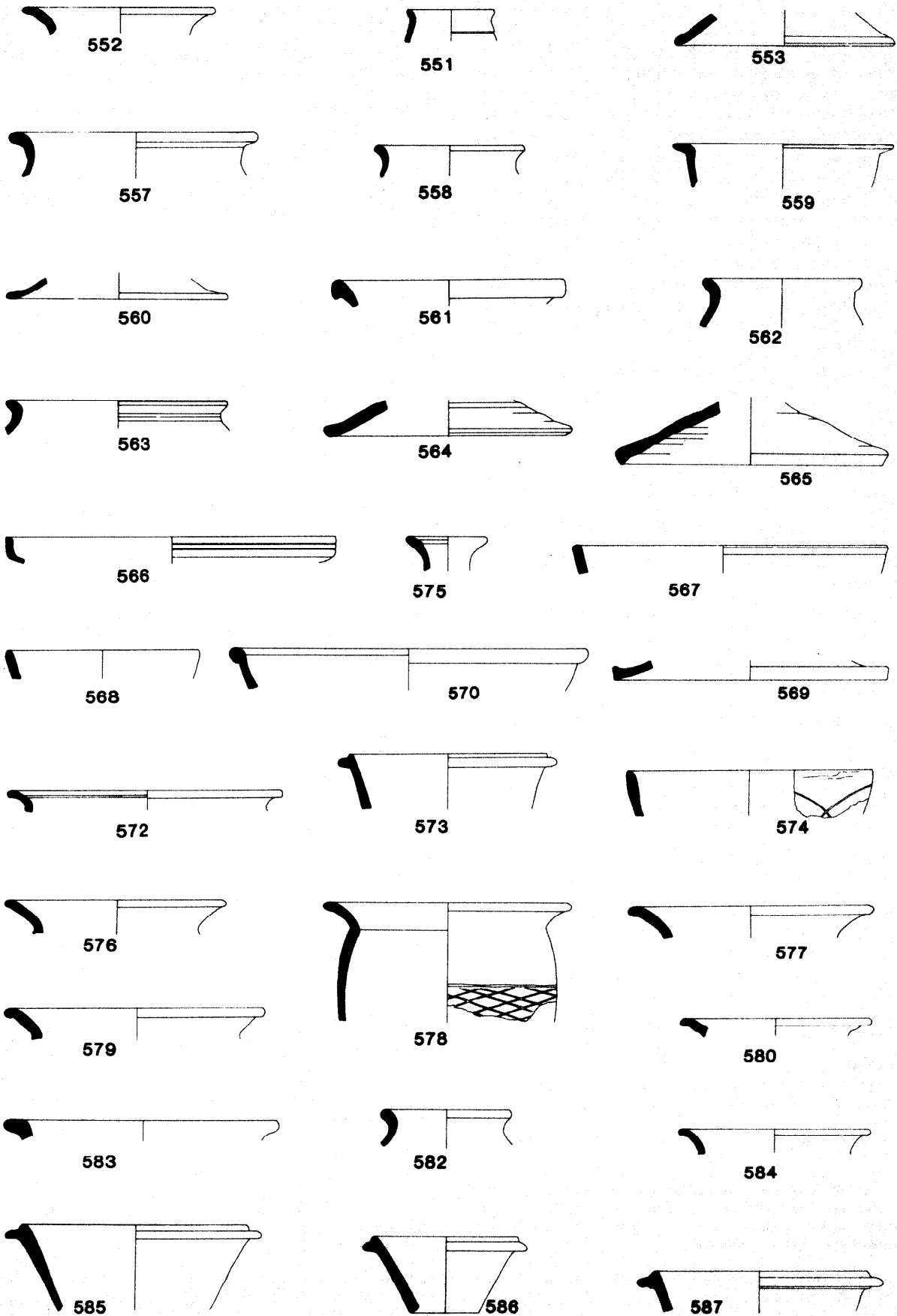


Figure 17.19 Coarse ware

types fossil for late Roman occupation in Wales.

Other sources include Oxfordshire ware, which is present in, most large contexts of this period and would seem to have been imported up to the close of occupation. Severn Valley Ware is present in small but significant quantities (cf Contexts 149, 1570, and nos 606, 616, 618, 632-3, 638, 641-2). Huntcliff and Crambeck wares have already been mentioned. Numerically they are insignificant (three examples of Huntcliff ware, nos 657-8, 706; two of Crambeck Ware, nos 604 and 659) but they are indicative of continuing contact with sources in northern England. A different and again tenuous contact is shown by two Nene Valley pieces, nos 631 and 651.

A few intrusive medieval pieces are noted in the archive,

Context 54

598. Jar in Black-Burnished ware burnt light orange-buff in places, Cf Gillam 1976, No 12 (early 4th century). Two fragments probably both from the same vessel.

599. Flanged and beaded bowl in Black-Burnished ware. The slight bead suggests a vessel early in this series (cf Gillam 1976 Nos 45-9). Perhaps late 3rd to early 4th century. One of three similar examples.

600. Dish in Black-Burnished ware burnt grey to orange. One of two examples,

601. Jar in Black-Burnished ware perhaps from a vessel such as Gillam 1976, No 12 (early 4th century).

602. Jar in dark grey shell-tempered ware. Mid to late 4th century.

Context 90

603. Jar in Black-Burnished ware cf Gillam 1976, No 12 (early 4th century). The wall section of a jar with a narrow band of obtuse-angled lattice may be part of the same vessel.

604. Flanged and beaded bowl in grey burnished fabric cf Crambeck (Corder 1937) No 1. Mid to late 4th century.

Context 91

605. Jar in dark grey shell-tempered fabric. Mid to late 4th century.

606. Wide mouthed jar in light orange Severn Valley Ware cf Webster 1976, No 28 (late 3rd-4th century),

607. Flanged and beaded bowl in Black-Burnished ware.

Context 109

608. Jar in dark shell-tempered fabric discoloured light brown internally. Mid to late 4th century.

609. Jar in dark grey shell-tempered fabric similar to No 608 above,

610. Jar in dark grey fabric burnished externally below the neck. The vessel is wheel thrown and contains some mica. A jar reminiscent of late 3rd to 4th century Black-Burnished ware jars appears to have been intended.

611. Jar in Black-Burnished ware cf Gillam 1976, No 11 (late 3rd to early 4th century).

612. Jar in Black-Burnished ware; cf Gillam 1976, Nos 10 and 13 (late 3rd to mid 4th century).

613. Jar in Black-Burnished ware cf Lydney (Wheeler 1932) No 55 (probably mid to late 4th century).

614. Jar in Black-Burnished ware.

615. Jar in dark grey fabric.

616. Jar in dark grey fabric burnished in zones externally. Possibly reduced Severn Valley Ware. The rim is distorted but probably not sufficiently to make this either a 'second' or a waster.

617. Jar in grey fabric.

618. (Not illustrated) Dish in Black-Burnished ware.

619. Jar in light orange-buff Severn Valley Ware cf Webster 1976, Nos 10-12 (3rd to 4th century).

620. Jar in light orange-buff Severn Valley Ware cf Webster 1976, Nos 10-11 (3rd to 4th century).

621. Ceramic pipe in light orange fabric. Accretions suggest that the pipe had been set in mortar.

622. Bowl in light orange fabric. There are faint signs of an orange-red colour coat. An Oxfordshire Ware product cf Young 1977, C45 (c AD 270-400+).

623. Bowl in light orange-buff fabric. Probably from a vessel of similar form to No 621 above but of unknown source.

624. Dish in orange fabric. The fabric is moderately granular but contains inclusions of considerable size for pottery (up to 7mm diameter) in stone and possibly crushed pottery.

625. Flanged and beaded bowl in Black-Burnished ware cf Gillam 1976, No 46 (late 3rd to early 4th century).

626. Flanged and beaded bowl in Black-Burnished ware.

627. Flanged and beaded bowl in Black-Burnished ware, cf Gillam 1976, Nos 46-7 (late 3rd to early 4th century).

628. Flanged and beaded bowl in Black-Burnished ware.

629. Beaker in light orange fabric with a dark grey-brown colour-coat; probably an Oxfordshire product.

630. Beaker in light orange fabric with a grey core and dark grey-brown colour-coat. Decoration is in painted white lines and blobs. Probably an Oxfordshire product and possibly from the same vessel as No 623 above. Cf Young 1977, C27 (c AD 270-400).

631. Lower portion of a so-called 'Castor box' in off-white fabric with abraded light orange-brown colour-coat, apparently dark grey brown internally and on the rim. Cf Howe et al 1980, No 89.

632. Narrow necked jar in light orange-buff Severn Valley Ware. Cf Webster 1976, No 4 (2nd to 4th century) for the general type.

633. Jar in light orange-buff Severn Valley Ware. Cf Webster 1976, No 11 (3rd and possibly 4th century).

634. Bowl in light orange fabric with traces of an orange-red colour-coat. An Oxfordshire product, cf Young 1977, C45 (c AD 270-400+).

635. Beaker in orange fabric with a grey core and dark grey colour coat. A body sherd (not joining) indicates that the body was decorated with white slip with lattice and dots. Probably an Oxfordshire product cf Young 1977, C 27 (c AD 270-340).

636. Jar in Black-Burnished ware cf Gillam 1976, nos 13-14

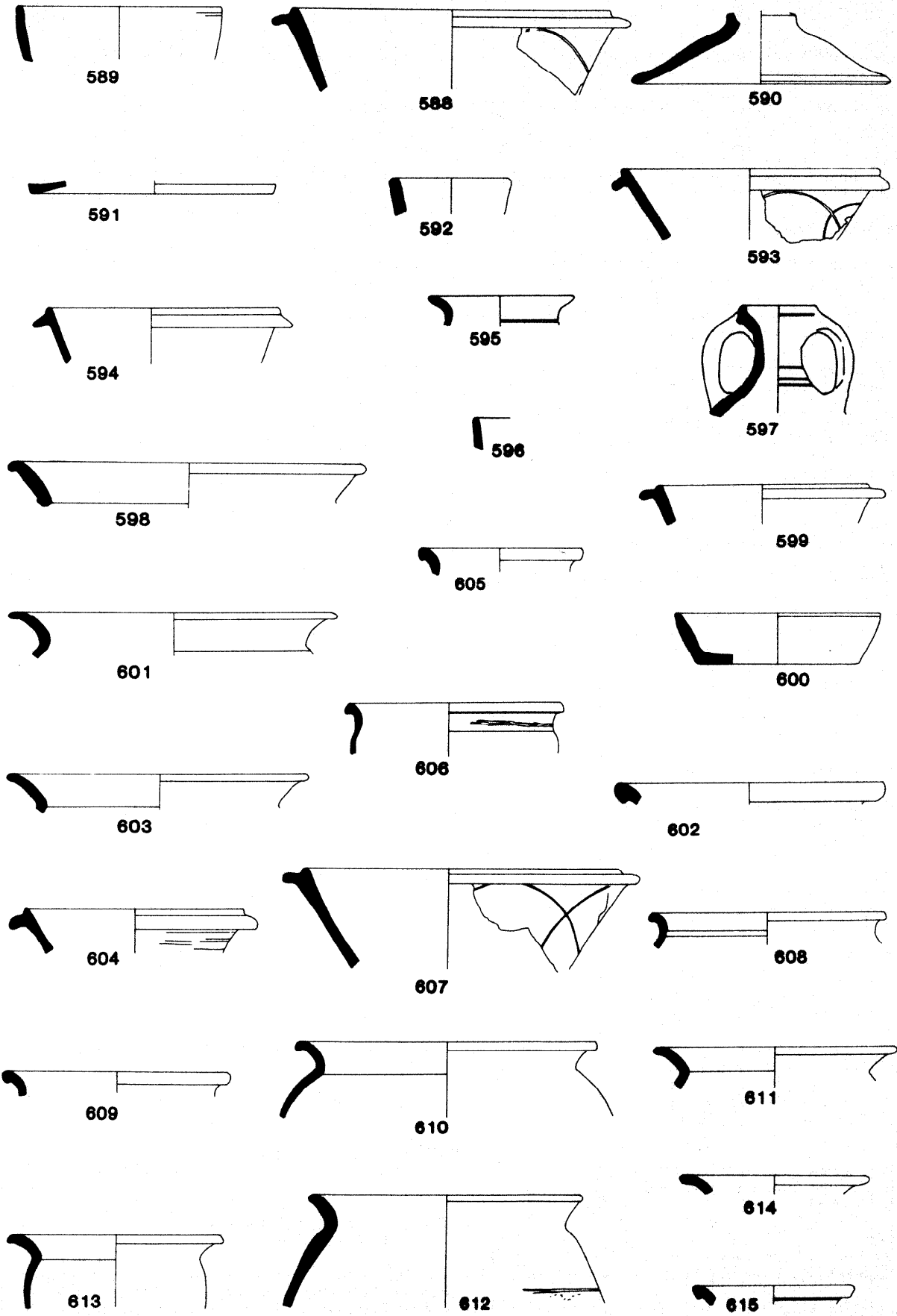


Figure 17.20 Coarse ware.

(4th century) with sherds of two other Black-Burnished jars probably of earlier date,

637. Vessel in pink-buff fabric with a buff surface. Possibly a medieval jug?

Context 110

638. Jar in light orange fabric With buff surface. Possibly severn valley ware.

639. Jar in light grey fabric

640. Jar in Black-Burnished ware. Possibly from a vessel such as Gillam 1976, No 10 (late 3rd century).

641. Jar in orange fabric, probably Severn Valley Ware, cf Webster 1976, 9-12, mainly 3rd-4th century.

642. Jar in orange-buff Severn Valley Ware; cf Webster 1976, No 5 (2nd to 3rd century).

643. Flanged and beaded bowl in Black-Burnished ware; cf Gillam 1976, No 46 (late 3rd to early 4th century).

644. (Not illustrated) Dish in orange fabric burnished internally.

Context 128

645. Jar in black shell-tempered fabric, Mid to late 4th century.

646. Jar in gray shell-tempered fabric with a surface discoloured buff in places.

647. Jar in dark grey shell-tempered Ware with grey to buff

648. Jar in dark grey shell-tempered fabric with grey to buff surface,

649. (Not illustrated) Flanged and beaded bowl in Black-Burnished ware. The height of the flange suggests a vessel fairly late in the series. ?Mid 4th century.

Nos 646-8 are all in shell-tempered fabric of Midlands origin. All are of the more developed hooked-rim variety. A mid to late 4th-century date is suggested.

Context 140

650. Jar in grey shell-tempered fabric with a surface discoloured buff in places. Of the same general type as Nos 646-8 above. Mid to late 4th century.

Context 154

651. Base of a jar or beaker in off white fabric with mid brown-red colour-coat. A further fragment, probably of the same vessel is rouletted suggesting a vessel such as Howe et al 1980, Nos 55-7 (4th century).

652. Jar in smooth pink-buff fabric.

653. Jar in dark grey shell-tempered fabric of Midlands origin. Mid-late 4th century.

Context 229

654 Dish in orange fabric with internal coating which has been burnt dark red-brown. 'Pompeian red ware' type cf Greene 1979, 129-33, Residual

Context 386

655 Jar in Black-Burnished ware, burnt and cracked, Probably from a vessel such as Gillam 1976, no 12 (early 4th century).

656 Jar in Black-Burnished ware. The angle of the wall suggests a vessel such as Gillam 1976, no 14 (mid 4th century).

657 Jar in grey calcite-gritted fabric of Huntcliff type. The

surface has been oxidised orange in places. Cf Gillam 1970, no 161 (c AD 300-70).

658. Jar in similar fabric to no 657 above and of the same general type.

659. Flanged and beaded bowl in grey fabric with a smoothed surface and burnished decoration internally. The surface has been discoloured buff, Probably a Crambeck product cf Corder 1937, no 1b, also Gillam 1970, no 231 (c AD 370-400).

660. Part of a wall-sided mortarium in orange fabric with an orange-red colour-coat. An Oxfordshire product cf Young 1977, C97 (c AD 240-400+).

661. Rim probably from a bowl in orange fabric with a red colour-coat. An Oxfordshire product.

Context 442

662. Jar in Black-Burnished ware; probably from a vessel such as Gillam 1976, no 12 (early 4th century).

663. Jar in dark grey shell-tempered ware, cf p 290-2. Mid to late 4th century.

664. Jar in dark grey shell-tempered fabric, as no 663.

665. Jar in dark grey shell-tempered fabric as no 663.

666. Flanged bowl in light orange fabric with the flange missing. An orange colour-coat has been burnt maroon. An Oxfordshire product cf Young 1977, C51 (c AD 240-400+).

667. Bowl in dark grey shell-tempered fabric of similar source as no 663 above and probably of a similar date.

668. Dish in Black-Burnished ware.

Context 842

669. Dish in Black-Burnished ware burnt light grey in places.

Context 854

670. Jar in light grey fabric with a darker grey surface.

671. Jar in maroon fabric - possibly overfired - with dark grey surface. Similar to no 670 above.

672. Bowl or possibly a wide mouthed bowl in light grey fabric.

673. Flanged and beaded bowl in Black-Burnished ware, cf Gillam 1976, no 46 (late 3rd to early 4th century).

674. Dish in Black-Burnished ware.

Context 897

676. Jar in Black-Burnished ware.

676. Jar in dark grey shell-tempered fabric of Midlands origin. Mid to late 4th century.

677. Rim possibly of a bowl in cream fabric with a metallic maroon colour-coat.

678. Bowl in light orange-buff fabric with slight traces of a red colour-coat. An Oxfordshire product, cf Young 1977 C45 (c AD 270-400+)

679. Jar in light grey with darker surface; cf no 140 above (late 1st to early 2nd century).

680. Narrow-necked jar in grey fabric with light grey core and burnished surface. Non-joining wall sherds suggest that the burnishing on the wall of the vessel was in lines and bands.

Context 1506A

681. Jar in Black-burnished ware. Probably from a vessel such

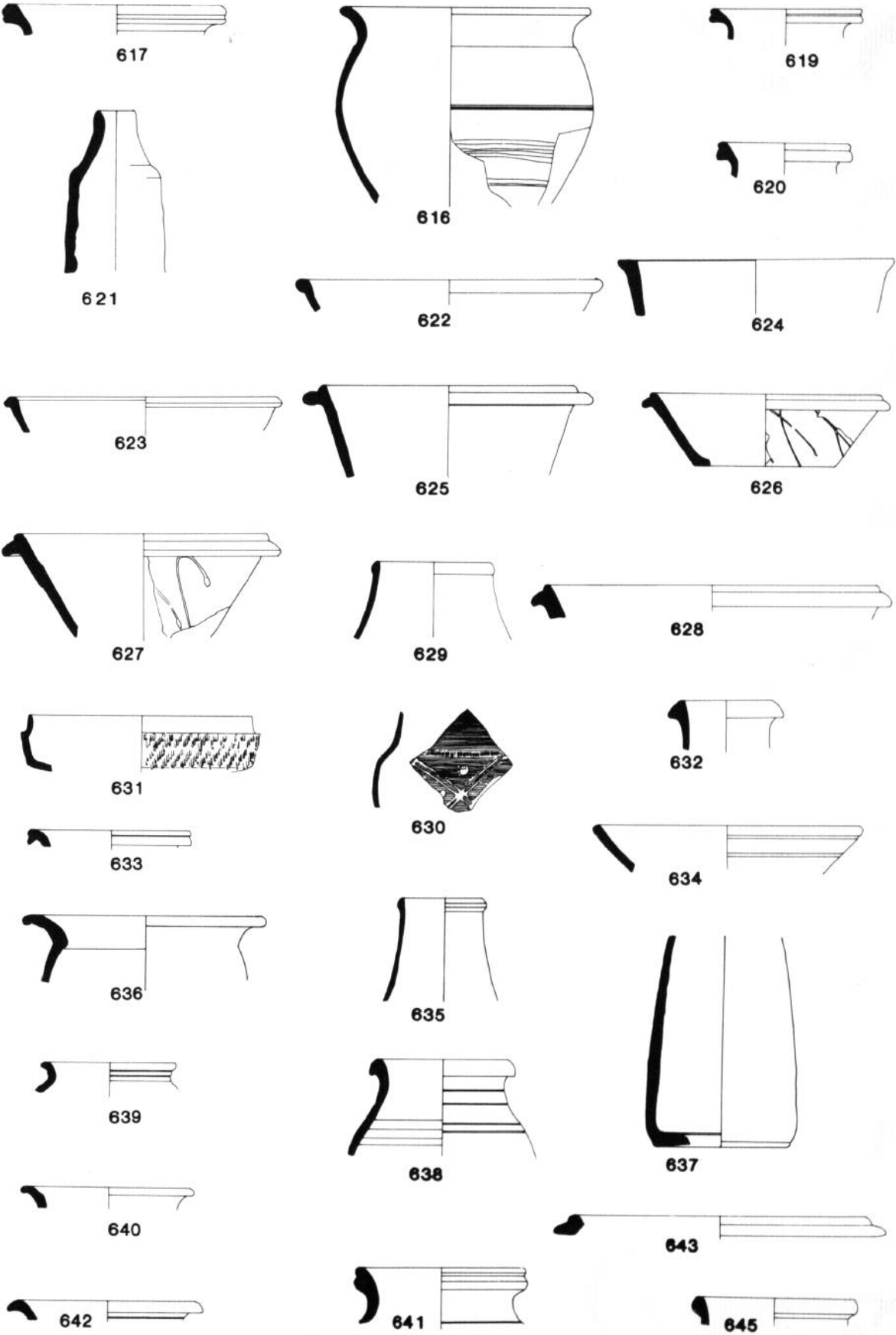


Figure 17.21 Coarse ware.

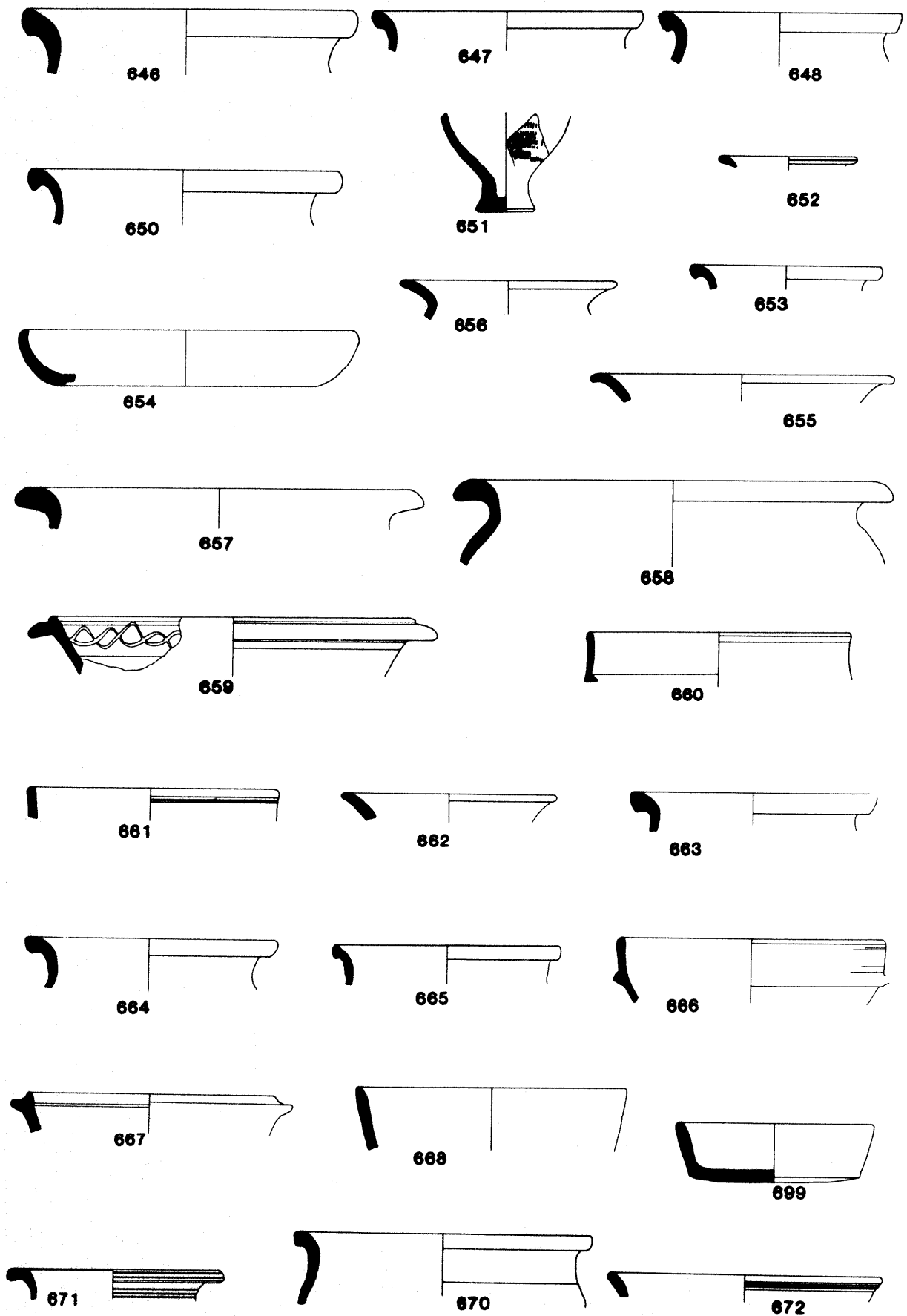


Figure 17.22 Coarse ware.

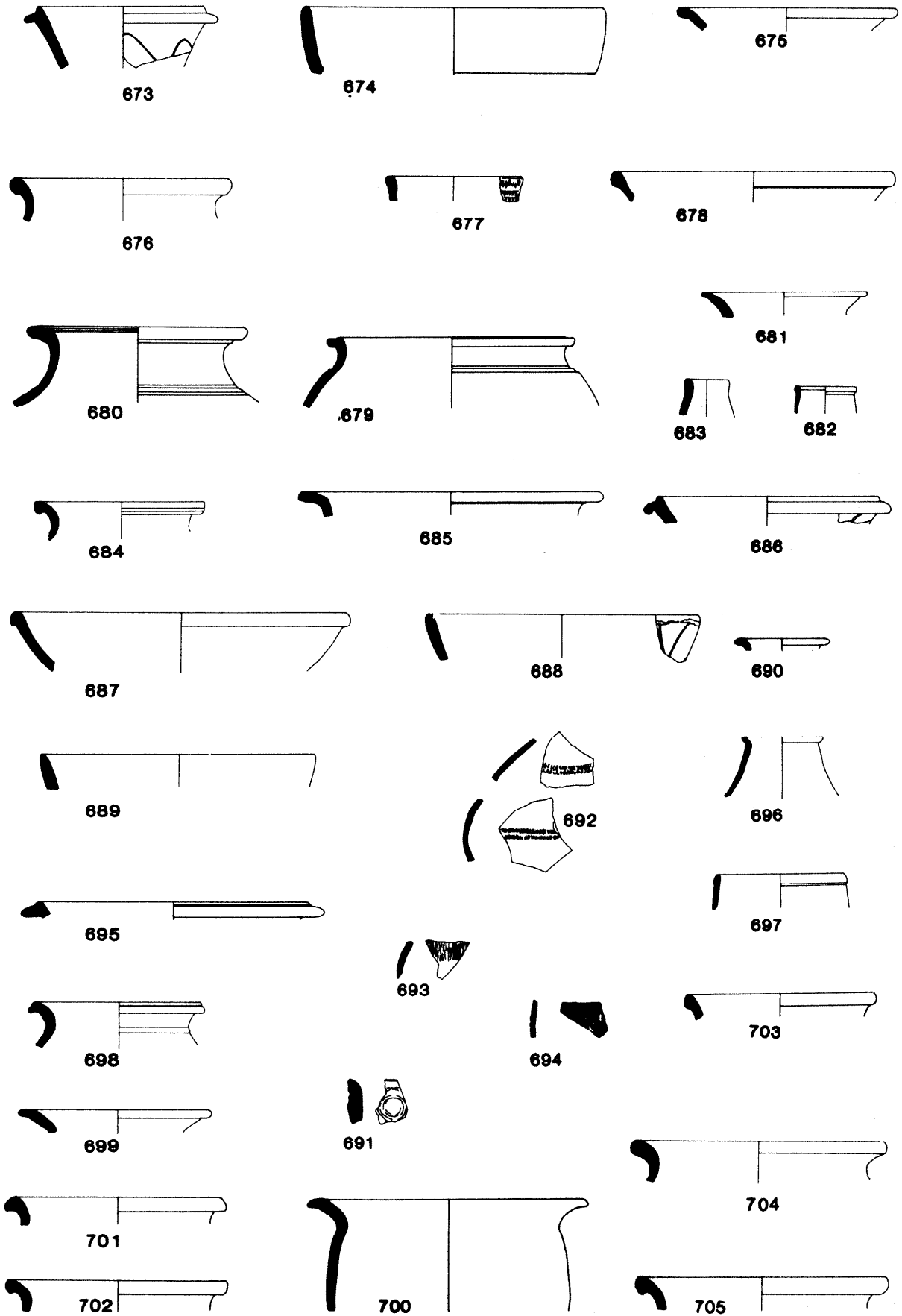


Figure 17.23 Coarse ware.

as Gillam 1976, nos 11-12 (late 3rd to early 4th century).

Context 1510

682. Neck of a small jar or beaker in orange fabric with traces of a red colour coat. An Oxfordshire product.

683. Neck of ceramic pipe in light orange fabric,

684. Jar in light orange-buff Severn Valley Ware.

685. Flanged bowl in light grey fabric.

686. Flanged and beaded bowl in Black-burnished ware cf Gillam 1976, no 46 (late 3rd to early 4th century).

687. Bowl in a fabric burnt light orange to grey with evidence of a colour coat. An Oxfordshire product, cf Young 1977, C45 (c AD 270-400+).

688. Dish in Black-burnished ware, possibly from a vessel such as Gillam 1976, no 83 (mid 4th century).

689. Dish in Black-burnished ware.

Context 1513

690. Rim probably of a narrow-necked jar or flagon in smooth orange-buff fabric.

691. Jar or bowl in buff fabric with a grey exterior surface. Decoration has been applied with the aid of a tube.

692. Globular vessel, probably a flagon in light orange fabric with an orange colour-coat, probably an Oxfordshire product; cf Young 1977, C1-10. (c AD 240-400+).

693. Two fragments probably from a similar vessel to no 692 above.

694. Beaker or possibly a flagon in orange fabric with a grey core and grey-brown colour coat. Decoration has been applied in white slip. An Oxfordshire product.

695. Flanged and beaded bowl in Black-burnished ware burnt light grey in places. One of the late 3rd to 4th century series.

696. Beaker in light orange-brown fabric with a grey-brown colour-coat; an Oxfordshire product; cf Young 1977 C23 for the likely form (c AD 270-400+).

697. Beaker in light grey fabric with a grey-brown colour-coat; probably a burnt Oxfordshire product of similar date to no 696 above,

698. Jar in light orange fabric burnt grey in patches.

699. Jar in Black-burnished ware; probably a vessel similar to Gillam 1976, no 12 (early 4th century).

700. Jar in Black-burnished ware cf 1976, no 13 (early to mid 4th century).

701. Jar in light grey fabric with a dark grey surface.

702. Jar in dark grey shell-tempered fabric discoloured light brown internally, cf pp 290-2 above. Mid to late 4th century.

703. Jar in dark grey shell-tempered fabric discoloured light brown in places cf no 702 above.

704. Jar in dark grey shell-tempered fabric discoloured orange in places. One of the mid to late 4th-century series.

705. Jar in dark grey shell-tempered fabric. One of the mid to late 4th-century series.

706. Jar in dark grey calcite-gritted fabric of 'Huntcliff type' cf Huntcliff (Hornsby and Stanton 1912) no 16. Mid to late 4th century.

707. Jar in mid grey fabric.

708 Jar in mid grey fabric.

709. Jar in light orange fabric sooted on the rim.

710. Abraded sherd of a bowl in light orange fabric. There is slight evidence of red colour-coat. An Oxfordshire product cf Young 1977, C51 (c AD 240-400+). The context also yielded a rim chip of the same or a similar vessel in markedly less abraded condition.

711. Beaded and flanged bowl in Black-burnished ware cf Gillam 1976, no 49 (early to mid 4th century).

712. Flanged and beaded bowl in Black-burnished ware cf Gillam 1976, no 46.

713. Flanged and beaded bowl in Black-burnished ware cf Gillam 1976, no 46 (late 3rd to early 4th century).

714. Lid in light grey fabric with a mid grey surface.

Context 1550

715. Jar in Black-Burnished ware; probably similar to Gillam 1976 no 11 (late 3rd to early 4th century). With a fragment of Black-Burnished ware bowl.

Context 1588

716. (Not illustrated) Bowl in orange-brown shell-tempered fabric with a grey core. Cf Great Casterton (Corder 1951) Fig 9, no 33. Mid to late 4th century.

717. Jar in light grey shell-tempered fabric with orange surface. See pp 290-2. Mid to late 4th century.

718. Flanged and beaded bowl in Black-Burnished ware cf Gillam 1976, no 46.

Context 1654

719. Virtually complete jar in Black-Burnished ware cf Gillam 1976, nos 11-12 (late 3rd to early 4th century).

Context 2003

720. Rim of a beaker in light red fabric with a dark colour-coat. An Oxfordshire product.

721. Jar in light pink-buff fabric.

722. Jar in grey fabric. Despite the brush marks internally this does not appear to be a Black-Burnished ware product but does appear to be a deliberate imitation. The sharply flaring rim would suggest a 4th-century date.

723. Jar in Black-Burnished ware cf Gillam 1976, no 13 (early to mid 4th century).

724. Jar in Black-Burnished ware of the same general type as no 723 above.

725. Flanged and beaded bowl in Black-Burnished ware cf Gillam 1976, no 46 (early to mid 4th century).

Context 2032

726. Everted rim jar in pink-buff fabric. Residual in this context.

727. Jar in Black-Burnished ware cf Gillam 1976, nos 10-12 Gate 3rd to 4th century).

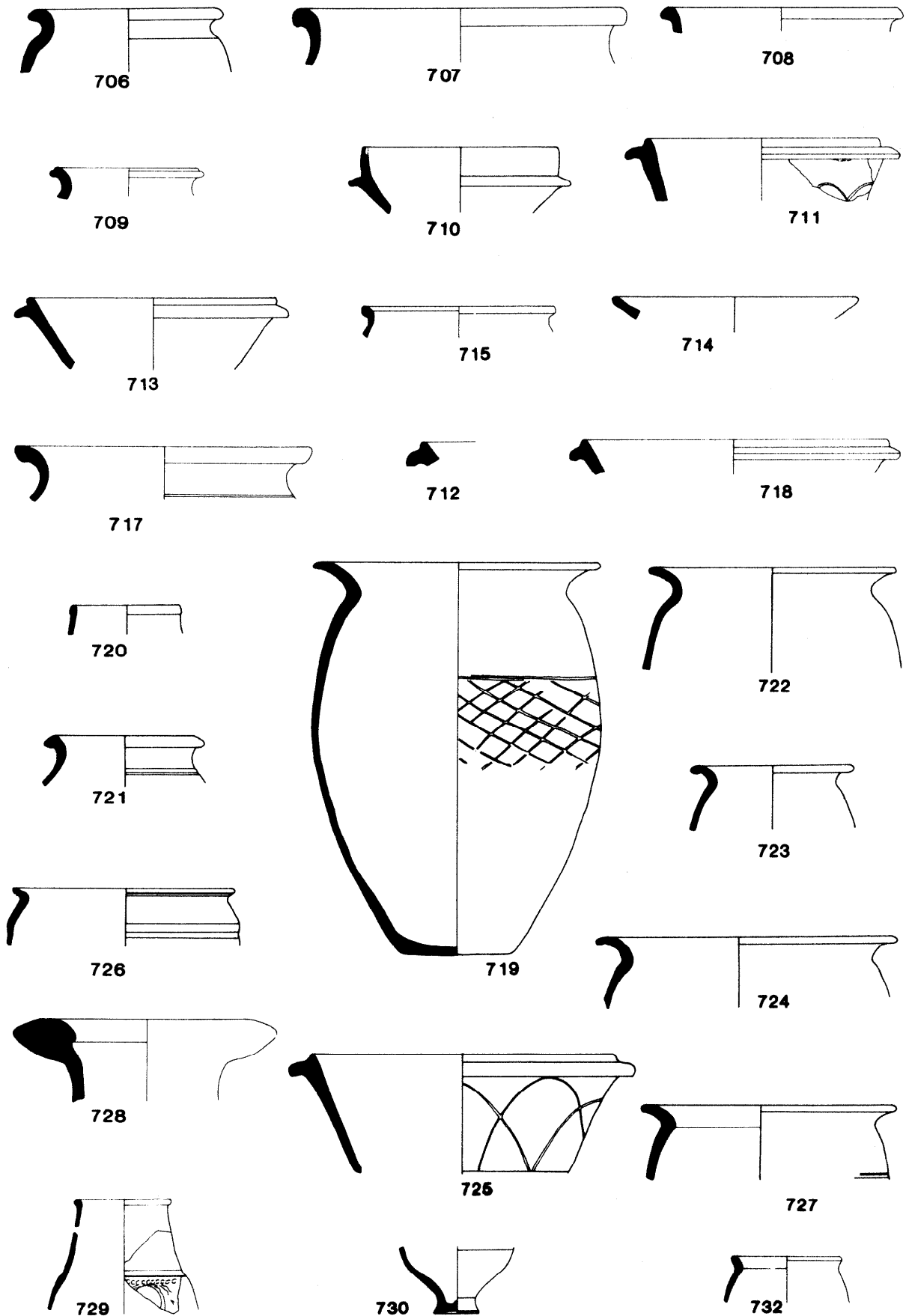


Figure 17.24 Coarse ware.

Period 10A: drain 2000 and related features

Period 10A is dominated by a single feature, the channel 2000 and its fills. Ceramically 10A is very similar to 10 but the proportion of wares which must belong to the late 4th century is higher. Indeed, the immense quantity of late 4th century pottery from 10A presents a particular problem. All is listed and described in the archive, but this would be very repetitive to publish in full. To overcome this problem we have published 2000 itself in full (with the exception of a few clearly residual pieces). The remaining contexts have been treated more summarily; vessel types not previously noted from 10A have been published; other vessels are listed by reference to published examples. The result is, we hope, a complete typology for 10A arranged in such a way that the assemblage from any individual context can be worked out reasonably simply.

Sources are as for Period 10. Ten examples of Severn Valley ware, three Huntcliff jars, twelve examples of Nene Valley colour-coated ware and a single Crambeck vessel were noted. Many of these appear in the catalogue below. A full list will appear in the archive. The Black-Burnished 2 vessel no 813 from Context 334A is unusual.

Context 2000

728, Amphora; Dressel type 20, South Spanish oil amphora.

729. Beaker in light orange fabric with a red-brown colour coat and applied decoration (apparently below the slip; probably an Oxfordshire product; cf Young 1977, C27 (c AD 270-400+). The context also contained bases of two other beakers of probable Oxfordshire origin.

730. Beaker base in orange fabric with dark grey-brown colour-coat both inside and out.

731. (Not illustrated) Jar in granular orange fabric.

732. Jar in light orange-buff fabric; the globular shape and rim form suggest that this is residual.

733. Jar in light orange-buff fabric.

734. Jar in light orange-buff fabric; probably Severn Valley Ware, cf Webster 1976 no 11 (3rd-4th century).

735. (Not illustrated) Vessel in smooth orange-buff fabric; possibly a very small wide mouthed jar of Severn Valley origin see Webster 1976, no 31 for the general form. Probably 4th century.

736. Jar in light grey fabric with a darker exterior,

737. Jar or large beaker in light grey fabric with a darker exterior burnished on the *exterior*. Clearly reminiscent of Black-Burnished beakers of the 2nd century, cf Gillam 1976, nos 24-9.

Nos 738-9 and 740-7 are all jars in Black-Burnished ware. They are represented by large fragments with many wall sherds also present. There is no reason to suppose that they are not contemporary with the shell-tempered ware jars and the dates given in parentheses may, therefore, require some amendment, see discussion p 254.

738. Jar in Black-Burnished ware cf Gillam 1976, nos 11 and 13 (early to mid 4th century).

739. Jar in Black-Burnished ware cf Gillam 1976, no 12 (early 4th century).

740. Jar in Black-Burnished ware; probably of related type and date to Gillam 1976, no 11 (late 3rd to early 4th century).

741. Jar in Black-Burnished ware; cf Gillam 1976 no 14 (mid 4th century).

742. Jar in Black-Burnished ware cf Gillam 1976, no 13 (early to mid 4th century).

743. Jar in Black-Burnished ware.

744. Jar in Black-Burnished ware; cf Gillam 1976, no 13 (early to mid 4th century). With rivet hole.

745. Jar in Black-Burnished ware.

746. Jar in Black-Burnished ware; cf Gillam 1976, no 14 (mid 4th century).

Nos 748-61 are all examples of shell-tempered jars of Midland origin. The fabric is discussed elsewhere. It appears in North Wales from about the mid 4th century and is characteristic of the last period at Segontium. The suggested date is mid to late 4th century. The vessels illustrated represent the minimum number likely to be present in this deposit.

748. Jar in grey shell-tempered fabric discoloured light brown in places.

749. Jar in dark grey shell-tempered fabric with mid grey surface.

750. Jar in dark grey shell-tempered fabric with mid grey surface.

751. Jar in dark grey shell-tempered fabric discoloured light brown internally.

752. Jar in dark grey shell-tempered fabric with a surface which is brown in places.

753. Jar in dark grey shell-tempered fabric with a surface which is brown in places.

754. Jar in dark grey shell-tempered fabric with a surface which is brown in places.

755. Jar in dark grey shell-tempered fabric discoloured light brown internally.

756. Jar in grey shell-tempered fabric discoloured light brown in places.

757. Jar in grey shell-tempered fabric discoloured light brown in places.

758. Jar in dark grey shell-tempered fabric discoloured light brown internally.

759. Jar in dark grey shell-tempered fabric.

760. Jar in mid to dark grey shell-tempered fabric.

761. Jar in dark grey shell-tempered fabric.

762. Flanged bowl in light orange fabric with a red-brown colour-coat; an Oxfordshire product cf Young 1977, C51 (c AD 240-400+). With fragments of at least five other bowls of this general type in Oxfordshire fabric.

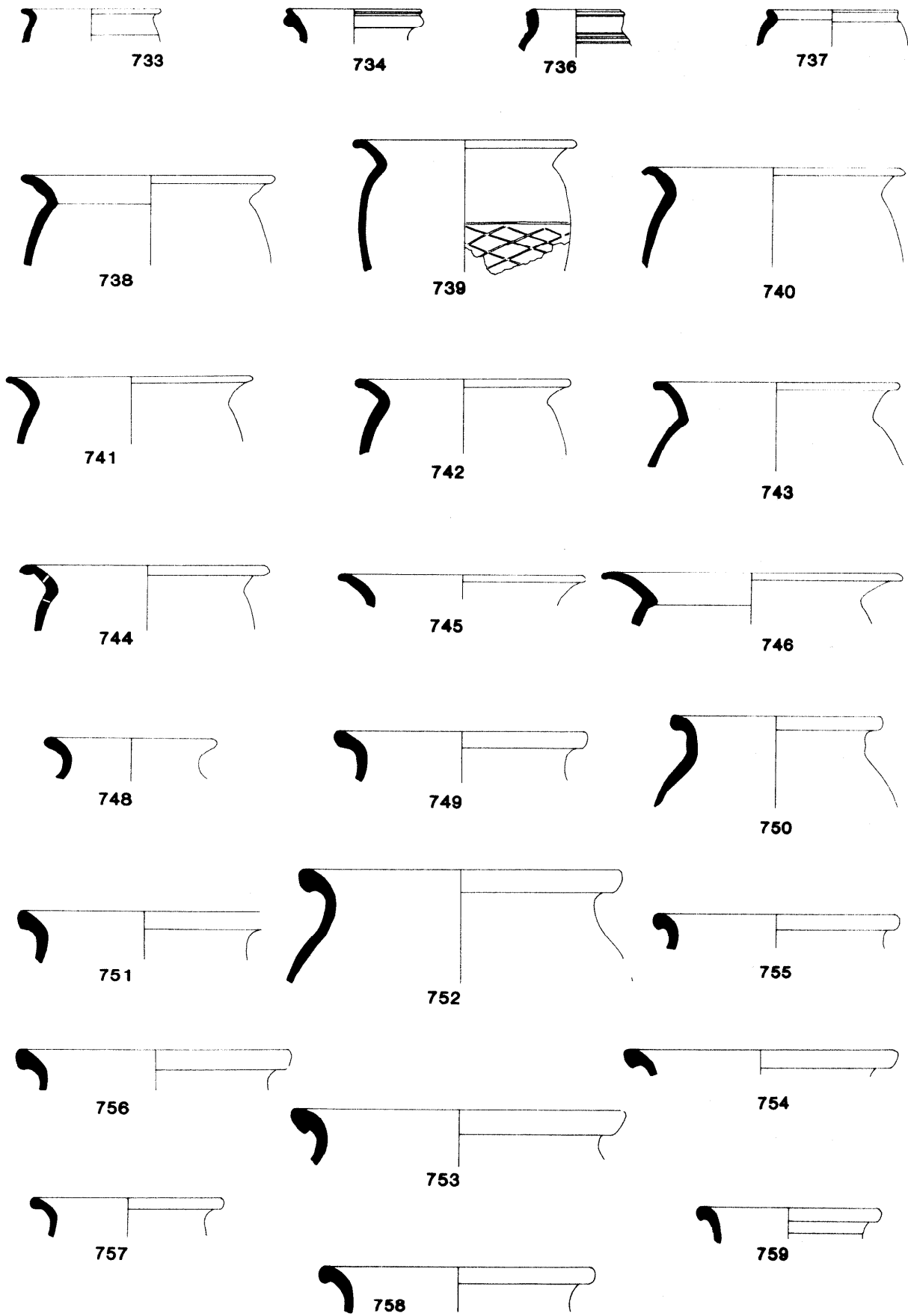


Figure 17.25 Course ware.

763. Bowl in buff fabric with a red colour-coat; an Oxfordshire product, cf Young 1977, C55 (c AD 240-400+).

764. Wall-sided mortarium in light orange fabric with a red colour-coat; an Oxfordshire product cf Young 1977, C97 (c AD 240-400+).

765. Wall-sided mortarium in orange-buff fabric with traces of a red colour-coat; an Oxfordshire product, cf no 764 above. There were fragments from at least five other similar mortaria from this context.

766. Small cup in light orange fabric with traces of a red colour coat; an Oxfordshire product, cf Young 1977, C110 (4th century).

767. Bowl in light orange-buff fabric with extremely faint indications of a red colour-coat. An Oxfordshire product of Young 1977, C46 (c AD 340-400+). With a fragment from a similar or the same vessel.

768. Bowl in light orange fabric with a deep red colour-coat; an Oxfordshire product, cf Young 1977, C4S (c AD 270-400+).

769. Lower part of a bowl in light orange fabric. A vessel reminiscent of the samian form 38 and its colour-coated derivatives seems likely.

770. Flanged bowl in orange-buff fabric with traces of mica-dusting externally. One of the later 1st- to early 2nd-century series.

771. Bowl in fawn fabric; the surface is missing but this is almost certainly an abraded (and burnt?) example of an Oxfordshire colour-coated bowl approximately as Young 1977, C50 (c AD 350-400+).

772. Flanged bowl in peach coloured fabric with a maroon colour-coat. Probably a Nene Valley product cf Howe *et al* 1980, no 79,

Nos 773-80 are all examples of beaded and flanged bowls in Black-Burnished ware. Where relevant, parallels in Gillam 1976 are quoted along with the dates suggested there. It may be noted, however, that there is no reason why this series should not substantially overlap the shell-tempered ware jar series illustrated above and a number of the dates ought, therefore, to be extended into the mid or late 4th century.

773. Flanged and beaded bowl in Black-Burnished ware; cf Gillam 1976, no 46 (late 3rd to early 4th century).

774. (Not illustrated) Flanged and beaded bowl in Black-Burnished ware.

775. Flanged and beaded bowl in Black-Burnished ware, burnt.

776. Flanged and beaded bowl in Black-Burnished ware, cf Gillam 1976, nos 47-9 (early to mid 4th century).

777. Flanged and beaded bowl in Black-Burnished ware.

778. Flanged and beaded bowl in Black-Burnished ware.

779. Flanged and beaded bowl in Black-Burnished ware.

780. Flanged and beaded bowl in Black-Burnished ware.

The context also contained fragments of at least two other similar bowls and one flanged bowl of 2nd century date.

781. Flanged bowl in dark grey shell-tempered fabric cf Great Casterton (Corder 1951) Fig 9 no 33 (mid to late 4th century).

782. Flanged bowl in grey fabric; one of the Flavian to Trajanic

series and residual in this context.

783. (Not illustrated) Flanged bowl in light grey fabric; probably from a flanged and carinated bowl of similar date to no 782 above.

784. Dish in Black-Burnished ware burnt light buff on the surface.

785. (Not illustrated) Fragment in grey-buff fabric with painted decoration. Probably the flange from a Crambeck bowl such as Corder 1937, type 5b. 4th century.

Nos 786-91 are a representative selection of dishes in Black-Burnished ware. In all about 17 such vessels were present in this context.

786. Dish in Black-Burnished ware.

787. Dish in Black-Burnished ware.

788. Dish in Black-Burnished ware. The surface has been burnt orange-grey in places. There is a rivet hole.

789. Dish in Black-Burnished ware.

790. Dish in Black-Burnished ware.

791. Dish in Black-Burnished ware.

Other contexts associated with the fill of feature 2000 are substantially similar to the assemblage published above. To avoid repetition, but at the same time allow for quantification and to provide individual details for all contexts, we have summarised the contents of other contexts according to the criteria described in the introduction to this period.

Context 53

Examples similar to nos 741 and 773 above; also a ceramic pipe fragment and:

792. Bowl in orange fabric with orange-red colour-coat. An Oxfordshire product cf Young 1977, C78.5 for the rim form although the general form need not have been exactly like this example. Probably 4th century.

Context 62

793. Jar in orange granular fabric with a buff core.

794. Flanged and beaded bowl in Black-Burnished ware cf Gillam 1976, No 46 (late 3rd to early 4th century).

Context 75

Examples similar to nos 786, 738, 742, 740, 739, 746, 750, 762, 789 (2), 787, 786, a ceramic pipe neck and:

795. Small beaker in light orange fabric.

796. Jar in orange-buff Severn Valley ware with a grey core; cf Webster 1976, No 9 (3rd-4th century).

797. Jar in smooth buff fabric with a grey core, probably Severn Valley ware, cf Webster 1976, Nos 9-10 (3rd-4th century).

798. Jar in Black-Burnished ware.

799. Jar in dark grey shell-tempered fabric. Mid to late 4th century.

800. Flanged bowl in orange fabric with a grey core and traces of an orange-red colour-coat. An Oxfordshire product. Young (1977) does not illustrate any vessels with rims bent back on themselves as this example but cf *ibid* C51-2 for the general type (c AD 240-400+).

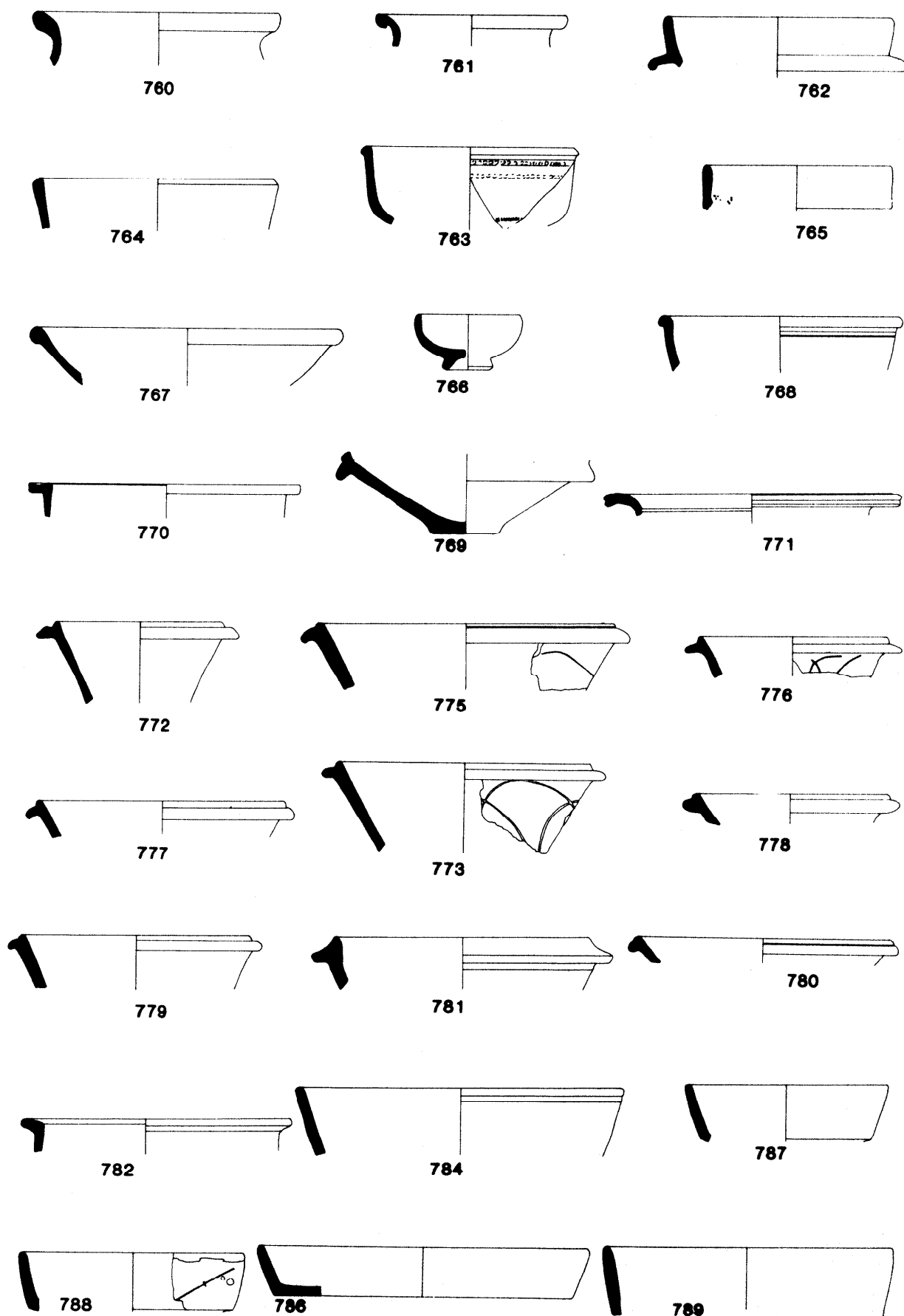


Figure 17.26 Coarse ware.

801. Bowl rim in white fabric with an orange clour-coat. A Nene Valley product probably from a vessel intended to be reminiscent of the samian form 31 and its colour-coated derivatives. The most likely date for this type of coarse fairly plain ware is 4th century,

802. Flanged bowl in grey fabric with burnished decoration.

803. Flanged bowl in micaceous grey fabric with impressed decoration on the flange.

804. Dish in calcite-gritted fabric.

805. Probably a lid in orange-buff fabric.

Context 92

Examples similar to nos 733, 743, 745, 745, 788 and:

806. Jar in mid grey fabric with a dark grey smoothed surface.

807. Jar in Black-Burnished ware cf Gillam 1976, Nos 12-14 (early to mid 4th century).

808. Jar in fawn fabric with traces of a darker smooth surface.

809. Flanged and beaded bowl in Black-Burnished ware cf Gillam 1976, No 46 (late 3rd to early 4th century). One of two similar bowls.

Context 334A

Examples similar to nos 758-9, 753,777(2),773,775 and:

810. (Not illustrated). Sherd from a beaker in white fabric with rouletted decoration and grey-brown colour-coat. Probably a Nene Valley product. Perhaps from a beaker such as Howe et al 1980, nos 65-7 (4th century).

811. Jar in Black-Burnished ware cf Gillam 1976 no 11 (late 3rd to early 4th century).

812. Jar in Black-Burnished ware, cf Gillam 1976, no 12 (early 4th century).

813. Jar in a dark grey burnished fabric with clear evidence internally of it having been made on a wheel. The vessel is certainly within the BB2 tradition but its similarity to late 3rd-4th century vessels in BBI suggests a date range rather later than that common for such a fabric out of South-East England.

814. Jar in orange-buff fabric with a grey core. The external surface is missing below the neck. This appears to be a Severn Valley product; cf Webster 1976, no 31. The context also yields a basal fragment from a further vessel (jar or wide-mouthed jar) in Severn Valley Ware.

815. Bowl in orange fabric with a grey core and red-brown colour-coat. An Oxfordshire product; cf Young 1977 C48 (c AD 270-400+).

816. Flanged and beaded bowl in Black-Burnished ware. Of the same general type as Gillam 1976, no 46 (late 3rd to early 4th century).

817. Dish in Black-Burnished ware with traces of an internal burnished decoration cf Gillam 1976, no 78. Although the date suggested by Cillam for the latter piece is not impossible in the present context as residual pieces are present, a 4th century date is more likely, presumably indicating the longevity of the internal decoration.

Context 342. Room 3A

Three Oxford colour-coated beaker fragments, a Nene Valley beaker sherd, examples similar to numbers 738, 778, 777 and:

818. Bowl in white fabric with maroon colour-coat. This appears

to be a Nene Valley version of a bowl form more common in Oxfordshire colour-coated ware (cf Young 1977, C75-80) and dated there mid to the late 4th century.

Context 342. Room 3B

819. Jar in granular light grey fabric. The fabric contains gravel-like inclusions, some white and calcitic in appearance, some quartz-like and some dark grey.

820. Jar in Black-Burnished ware cf Gillam 1976, no 11 (late 3rd to early 4th century). The context also yielded a rim of a similar but separate jar.

Context 362

Example similar to no 777.

Context 1506

Examples similar to nos 739, 742, 750, 759 (2), 753, 762 (2), 765, 773, 777, 789 (2), 738, 756 and:

821. Flagon neck in light orange-buff fabric with traces of dark red slip. An Oxfordshire product. Young illustrates a number of rim variants (1977, C8-10) although none exactly match this piece, c AD 240-400+.

822. Beaker neck. The fabric has probably been burnt and appears as grey-fawn with a dark colour-coat externally. Probably an Oxfordshire product.

823. Jar in Black-burnished ware, possibly from a vessel such as Gillam 1976, no 13.

824. Jar in Black-burnished ware. The way in which the body is slim and the rim oversails the girth suggests a 4th century piece.

825. Jar in brown shell-tempered fabric with a dark grey rim.

826. Jar in dark grey shell-tempered fabric.

Context 1528

Example similar to no 758 and:

827. Rim probably of a bowl in light orange fabric with orange-red colour coat cf Young 1977, C68 (c AD 300-400+). With a rim chip of one other Oxford colour coated bowl.

Context 1534

Examples similar to nos 756, 753, 752, 765, 763, 773 and:

828. Jar in Black-Burnished ware. A variant of Gillam 1976, no 11 (late 3rd to early 4th century).

829. Jar in calcite-gritted fabric of 'Huntcliff' type. Cf Gillam 1970, no 161 (c AD 300-70). Dark grey fabric with burnt orange-brown surface.

830. Jar in dark grey shell-tempered fabric.

831. Jar in dark grey shell-tempered fabric.

832. Jar in dark grey somewhat granular fabric possibly from a vessel such as Gillam 1970 nos 157 or 158 (3rd to mid 4th century).

Context 1803

Examples similar to nos 742, 762, 789 and:

833. Base of a dish in Black-Burnished ware. Illustrated is (above) the decoration on the upper surface of the base and (below) that on its lower surface. Gillam (1976, Figs 5 and 6) illustrates a number of interior designs but none such as this.

Context 1805

Examples similar to nos 739, 745, 752, 756, 758, 738, 754, 751, 777 and:

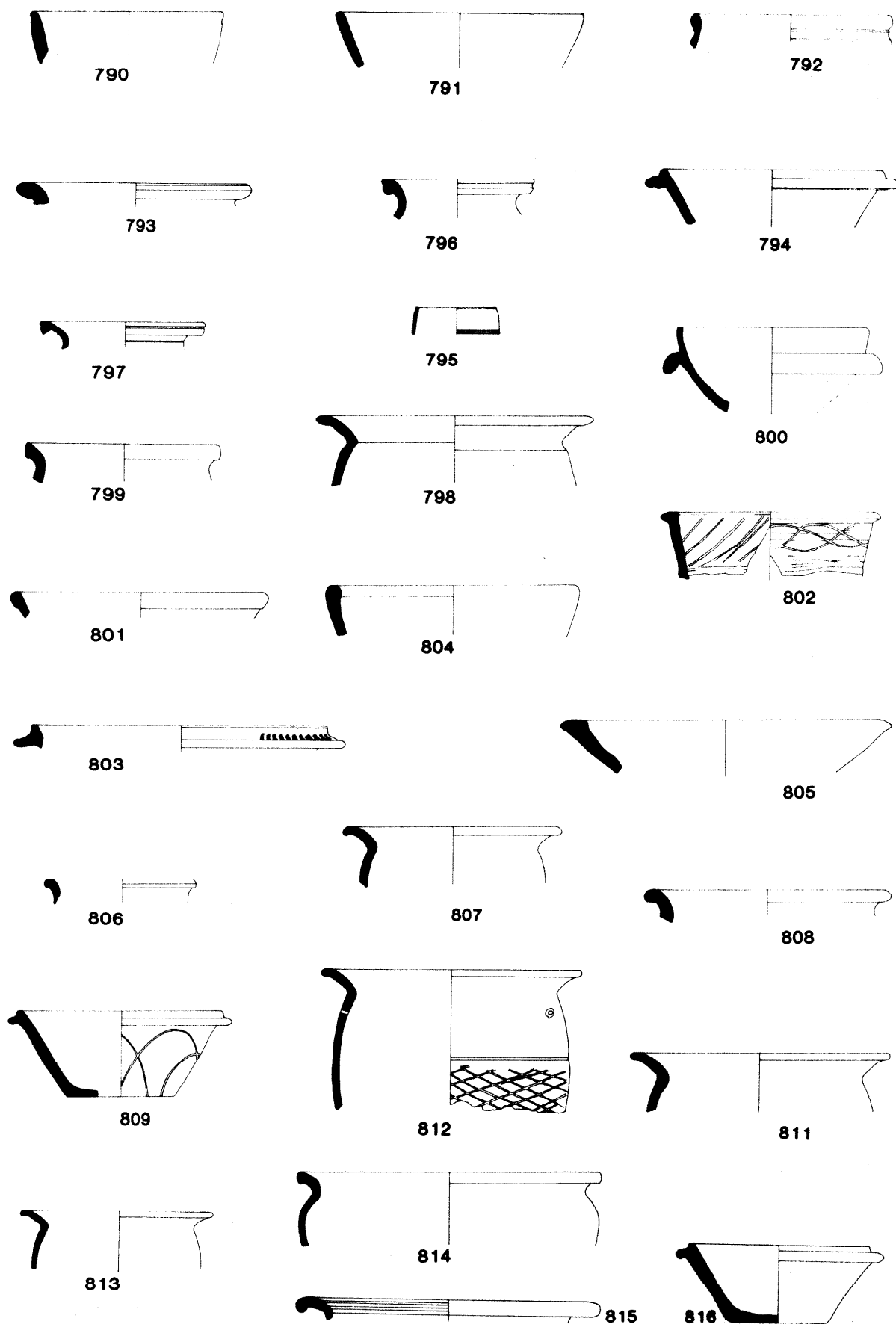


Figure 17.27 Coarse ware.

834. Jar in grey to dark grey calcite-gritted fabric of 'Huntcliff' type cf Gillam 1970, no 163. Mid to late 4th century.

835. (Not illustrated) Flanged and beaded bowl in Black Burnished ware.

836. Flanged and beaded bowl in Black-Burnished ware burnt light grey to light orange.

837. Flanged bowl in dark grey shell-tempered fabric.

Context 2000A

Examples similar to nos 767, 775, 786, 787 and:

838. Jar in Black-Burnished ware probably from a vessel such as Gillam 1976, no 14 (mid 4th century).

839. Substantial fragments of a jar in light orange fabric probably with dried or fired clay filler.

Context 312

Examples similar to nos 751, 757, 749, 758, 746, 789, 742, 752, 775 and:

840. Jar in light grey fabric with a smoothed surface. The angle of the rim suggests a date in the later Roman period.

Context 316

Example similar to no 752.

Context 334

Examples similar to nos 738, 739, 767, 776, 772 and:

841. Jar in hard orange-buff fabric with a grey core. Possibly of Severn Valley origin.

842. Jar in light grey fabric with traces of a mid-grey surface.

843. Three large sherds (two joining) of a jar in Black-Burnished ware burnt light grey. Cf Gillam 1976, no 13 (early to mid 4th century).

844. Flanged and beaded bowl in Black-Burnished ware cf Gillam 1976, nos 46-49. 4th century.

Context 336

Examples similar to nos 738 (2), 739, 745, 767 (2), 788 (2), 787 and:

845. Jar in brown to dark grey shell-tempered fabric cf Great Casterton Barn (Corder 1951) fig 8, no 20. Later 4th century.

846. Bowl in light orange fabric with an orange-red slip and traces of white painted decoration on the upper rim. An Oxfordshire product, cf Young 1977, C48 (c AD 270-400+).

847. Bowl in dark grey granular fabric with a wavy line combed decoration. A vessel reminiscent of the Samian form 37 is perhaps intended and a date in the late 1st or 2nd century is possible.

848. Rim in light cream fabric with a dull pink colour-coat internally and maroon externally. Probably the rim of a lid section of a 'castor box' see comments under Howe *et al* 1980, no 89.

Context 340

Examples similar to nos 738, 745, 777 and:

849. Jar in light grey fabric with a mid to dark grey surface. The slight neck and flared rim are similar to late vessels encountered in South Wales and suggest that the vessel should be placed with the other late 3rd- to 4th-century pieces from this context.

Context 375

Examples similar to nos 746, 753, 773, the end of a ceramic pipe

850. Flanged and beaded bowl in Black-Burnished ware cf Gillam 1976, no 48 (early to mid 4th century).

Context 379

Examples similar to nos 740, 744, 738, 777, 789, 787, 821, 753, 761 and:

851. Handled dish in Black-Burnished ware cf Gillam 1976, nos 85 and 87 (3rd-4th century).

852. Mortar-like bowl in off white fabric with traces of a red-brown colour-coat cf Great Casterton (Corder 1951) Fig 9, no 37 (mid-late 4th century).

Context 460

Examples similar to nos 759, 757 (2), 754 and:

853. Beaker in white fabric with a light brown colour-coat; a Nene Valley product; for the likely general form see Howe *et al* 1980, no 50 (3rd century).

854. Bowl in light red fabric with red colour-coat; an Oxfordshire product cf Young 1977, no C55.5 (c AD 240-400+).

Context 461

Example similar to no 733.

Context 1512

Examples similar to nos 742, 824, 767 (2), 788, 789 and:

855. Flanged and beaded bowl in fawn-buff fabric. The general form suggests a 4th century date.

Period 11 and U/S: post-Roman

A full list of pottery from Period 11 and from unstratified levels will appear in the site archive. The vast majority of pieces from Period 11 can be paralleled elsewhere in this report and only a small number of pieces have been selected here for publication on the grounds of intrinsic interest.

In general, there was little medieval or post-medieval pottery from the site and little ceramically to indicate any activity on the site between the end of the Roman occupation and the eighteenth or nineteenth centuries. A short note on a few of the post-medieval pieces will be placed in *Medieval and Later Pottery in Wales*.

Context 304

856. Four fragments (one illustrated) probably all from a Castor Box in off-white fabric with brown to grey-brown colour-coat. The type is briefly discussed by Howe *et al* (1980, no 89). Illustrated is a portion of the lower part of the box. A basal section is also present as are portions of a rounded vessel, probably the top and what may be the base of the handle.

857. Jar in light grey fabric with a burnished surface. Of East Yorkshire origin and probably from a vessel such as Corder 1937 no 3a (from Langton).

858. Four fragments of a rouletted beaker (two joining) in light orange fabric with an orange-brown colour-coat which is patchy internally. An Oxfordshire product probably from a vessel such as Young 1977, C23, c AD 270-400+.

859. Jar in grey calcite-gritted fabric cf 'Huntcliff' type with darker grey surface discoloured light brown on the rim. Cf

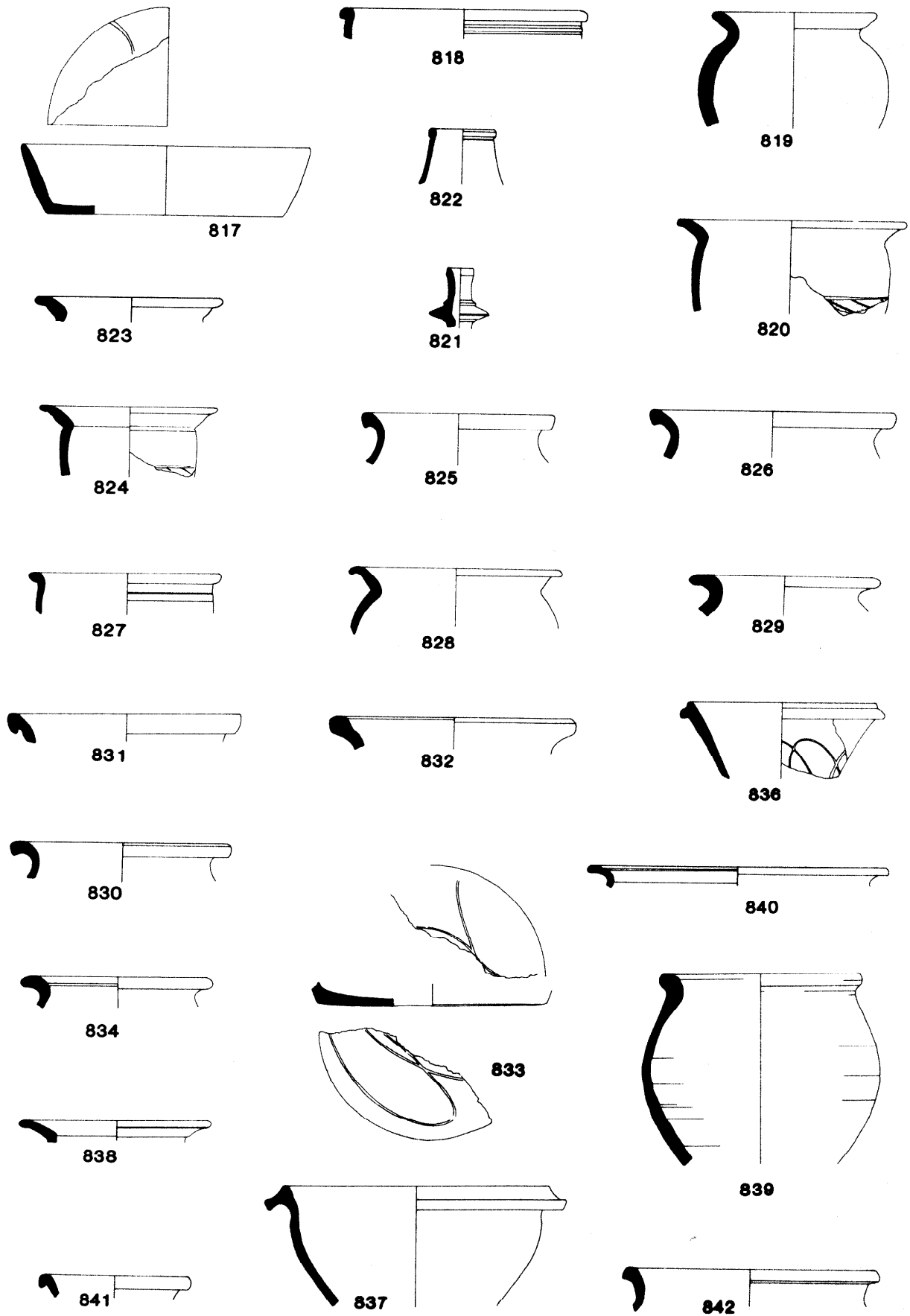


Figure 17.28

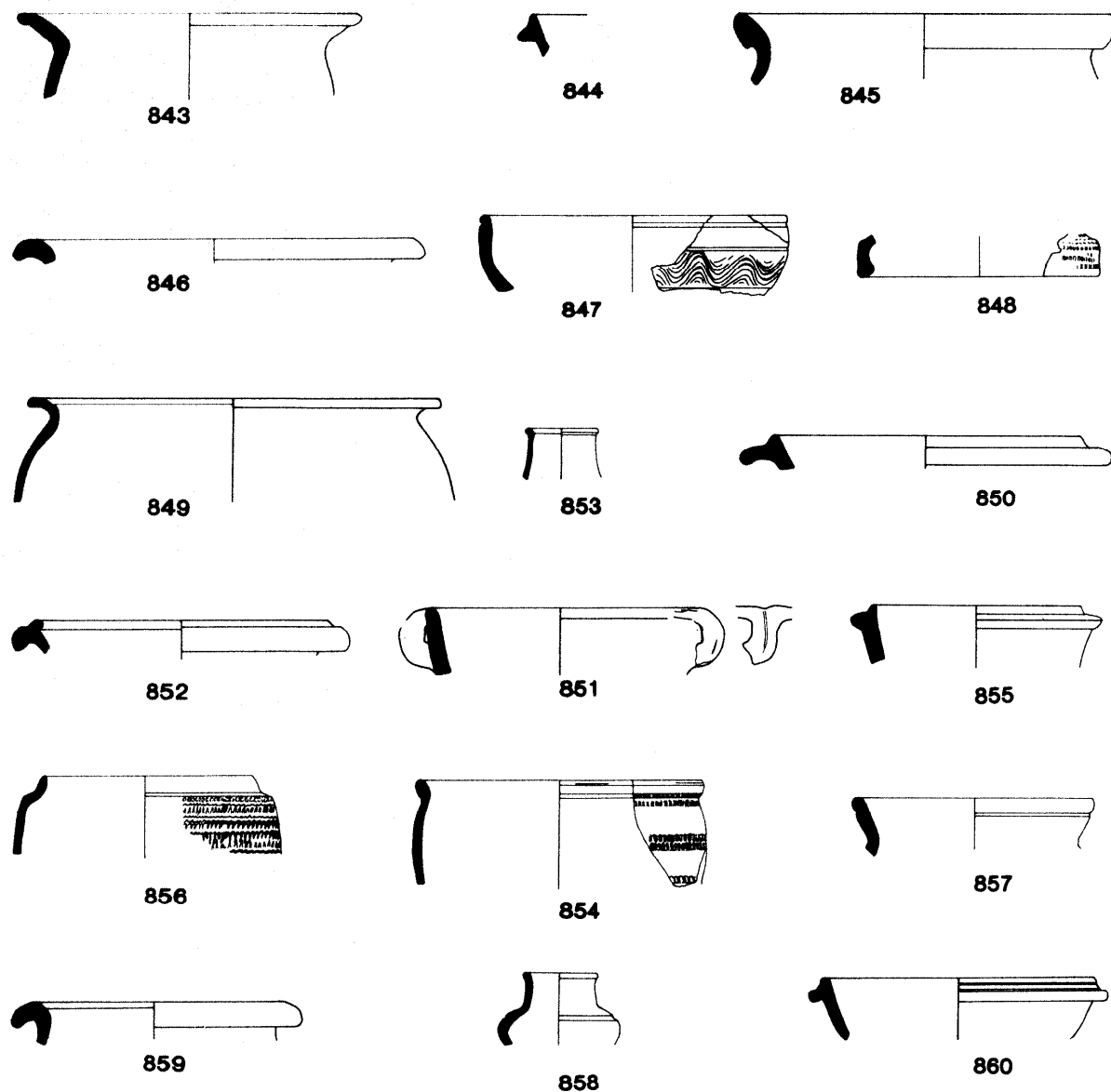


Figure 17.29 Coarse ware.

Gillam 1970, no 163 (c AD 360-400).

860. Bowl in buff fabric. Cf Dinorben (Gardner and Savory 1964, nos 15-16). In a report on the Roman pottery from Graeme Guilbert's more recent Dinorben excavations I have argued for a later Roman date for these pieces (forthcoming). Mid to late 4th century.

Functional trends in the ceramics (Table 17.4)

A functional analysis of all pottery by Periods (including samian and mortaria) by minimum number of rims, shows that there are a number of trends over time, though none very marked. Most of the changes begin in Period 7B. This is no doubt partly an effect of the large quantity of residual

material in Periods 6 and 7 masking any earlier changes.

The proportion of lids in the assemblage is lower from Period 7B onwards whilst there seems to be a general increase in the numbers of jars. The percentage of cups/beakers falls from Period 8 onwards, whilst the proportion of dishes seems to fall from Period 7A, compensated for by a rise in the proportion of bowls from Period 6A.

The pattern of the trends is interesting when compared with those from other sites. In comparison with 2nd- to 4th-century sites in northern England, studied by J Evans, the number of lids is high, although the pattern of a falling proportion of them in the later Roman period is typical. A rise in the number of jars throughout the 4th century is

also similar to the northern pattern. The rise in bowls is dissimilar, with these being stronger in earlier periods in the north; the later decline in dishes is not usual in the north. The decline in cups/beakers in the 4th century is similar to the northern trend.

The increased number of jars, mainly in Black-Burnished 1 and shell-tempered fabrics in the 4th century must suggest an increased use of these as cooking vessels, which may imply a change in cooking arrangements from a more communal organisation based on the *contubernium* and century in the early periods.

A comparison of the Segontium ceramic range with that of southern towns (Millet 1979) shows a reverse trend in the proportions of bowls and jars. In contrast, northern towns (Evans 1985), which probably derived their pottery from sources geared to a military market, share the trend demonstrated by the Segontium assemblage and those of forts in the north.

The mortaria (Figs 17.30-32) by K F Hartley

The mortaria from Segontium have all been individually described and a full catalogue is deposited in the excavation archive. The incidence of the forms in stratified contexts is stated together with the quantities of the various fabrics from the site. This report comprises a type series of the forms within each fabric type and a full description of the fabrics, which were defined on the grounds of visible inclusions and texture with the aid of x10 magnification. A discussion of the sample provided by this excavation is included.

The type series of forms

1. Verulamium region mortarium (Fabric 8), AD 60-90; type specimen heavily burnt and worn; concentric scoring on internal surface.

2. Verulamium region mortarium (Fabric 8), undecorated, AD 60-90, type specimen heavily burnt; concentric scoring on internal surface.

3. Verulamium region mortarium (Fabric 8). AD 60-90, burnt; concentric scoring on internal surface.

4. Verulamium region mortarium, incomplete rim (Fabric 8) stamped ALBINVS (Die as Frere 1972, fig 145, no 11; see S1 below).

5. Verulamium region mortarium (Fabric 8), type specimen burnt and worn, stamped SOLLVS (Die as Frere 1972, fig 146, no 38; see S2 below).

6. Verulamium region mortarium (Fabric 8), concentric scoring on internal surface, AD 60-90, type specimen slightly burnt after fracture and heavily worn.

7. North Gallic mortarium perhaps made in the Pas de Calais. (Fabric 13); concentric scoring on flange and internal surface, AD 70-100, Gillam type 238.

8. Central Gallic mortarium (Fabric 12), concentric scoring on internal surface, AD 50-120.

9. Gallic mortarium (Fabric 14), AD 80-150 (Bushe-Fox 1913, fig 19, nos 26-30).

10. North Welsh mortarium (Fabric 21), AD 70-110, similar to rim profiles made by the Sextii Valerii of Colchester and the Atisii of Aoste.

11. North Welsh mortarium (Fabric 21A), AD 90-130, probably made in North Wales rather than at Chester.

12. North Welsh mortarium (Fabric 21), AD 100-40.

13. Holt(?) mortarium (Fabric 18), AD 100-30.

14. Holt(?) mortarium (Fabric 17), AD 100-40. Worn.

15. North Welsh mortarium (Fabric 21), AD 100-40.

16. Holt(?) mortarium (Fabric 18A), AD 100-40.

17. North Welsh(?) mortarium (Fabric 19), AD 100-30.

17A. Midlands mortarium (Fabric 24), AD 100-40, type specimen well worn and stamped (see S3 below).

18. Wroxeter(?) Raetian mortarium with lug handle (Fabric 6), AD 140-70, type specimen burnt.

19. Wroxeter(?) Raetian mortarium (Fabric 5), AD 150-90.

20. Unusual Cantley(?) mortarium (Fabric 10), AD 250-400.

21. Mancetter-Hartshill mortarium (Fabric 4), AD 200-250?, the type is uncommon in this assemblage.

22. Mancetter-Hartshill mortarium with reeded rim and upright bead (Fabric 3), c AD 230-320; type specimen decorated with diagonal bars of red-brown paint across the rim.

23. Mancetter-Hartshill reeded hammerhead mortarium with bead faintly upright, (Fabric 4), AD 210-60+.

24. Mancetter-Hartshill reeded hammerhead mortarium (Fabric 4), AD 230-330.

25. Mancetter-Hartshill collared mortarium (Fabric 4), AD 230-300; type specimen burnt.

26. Mancetter-Hartshill smooth collared mortarium (Fabric 4), later than c AD 220; surface of type specimen exfoliated.

27. Mancetter-Hartshill hammerhead mortarium (Fabric 4), c AD 230-320; rim decorated with red-brown paint.

28. Mancetter-Hartshill smooth hammerhead mortarium with demarcated bead (Fabric 4), AD 250-350.

29. Mancetter-Hartshill hammerhead mortarium (Fabric 4), AD 260-370.

30. Mancetter-Hartshill hammerhead mortarium (Fabric 4), AD 230-340.

31. Mancetter-Hartshill hammerhead mortarium (Fabric 4), c AD 220-80.

32. Mancetter-Hartshill reeded hammerhead mortarium (Fabric 4), AD 240-350, type specimen burnt and has a round rivet hole in the upper body of the vessel,

33. Mancetter-Hartshill reeded hammerhead mortarium (Fabric 4), AD 250-350.

34. Mancetter-Hartshill collared mortarium (Fabric 4), AD 250-350.

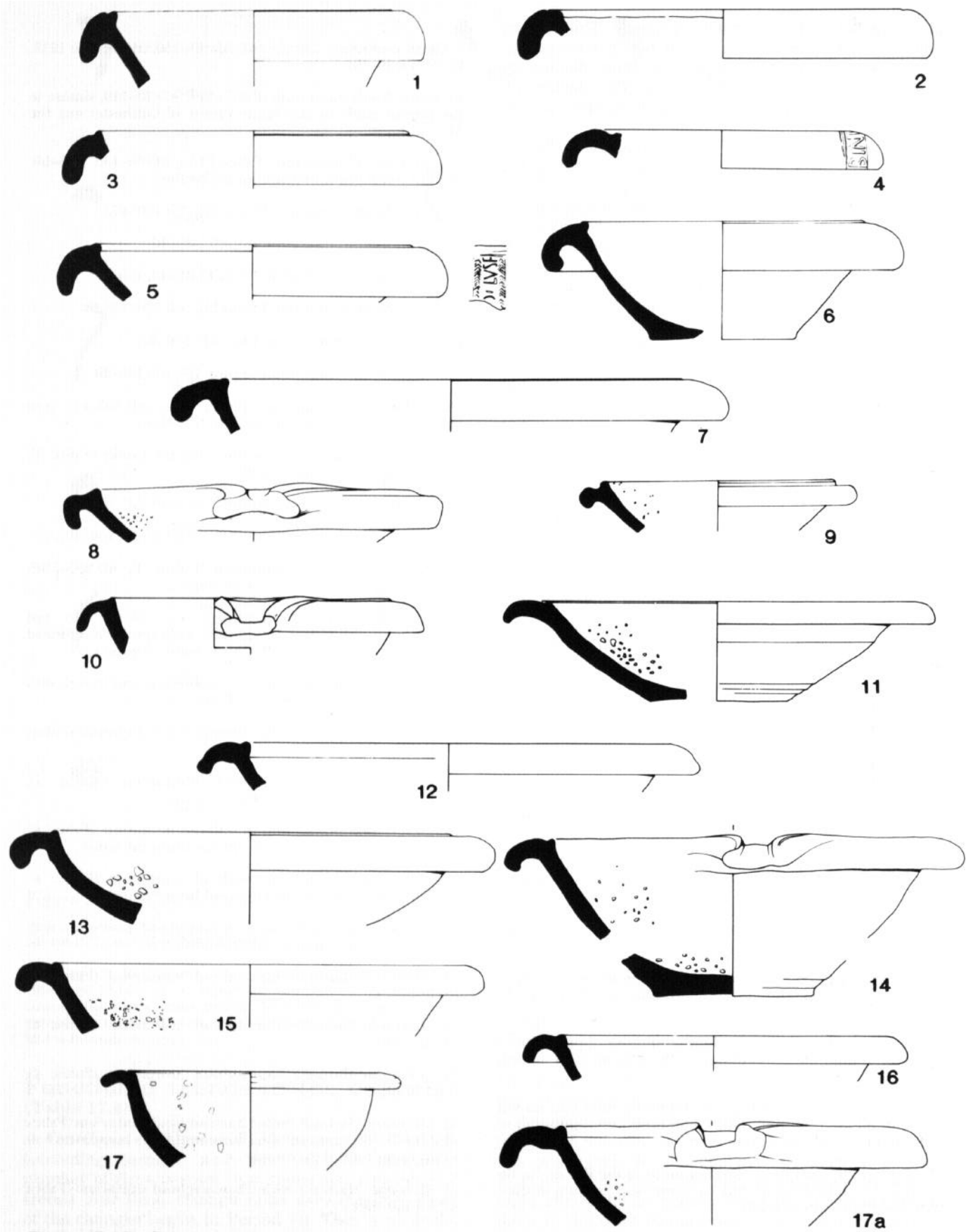


Figure 17.30 Coarse ware: mortaria.

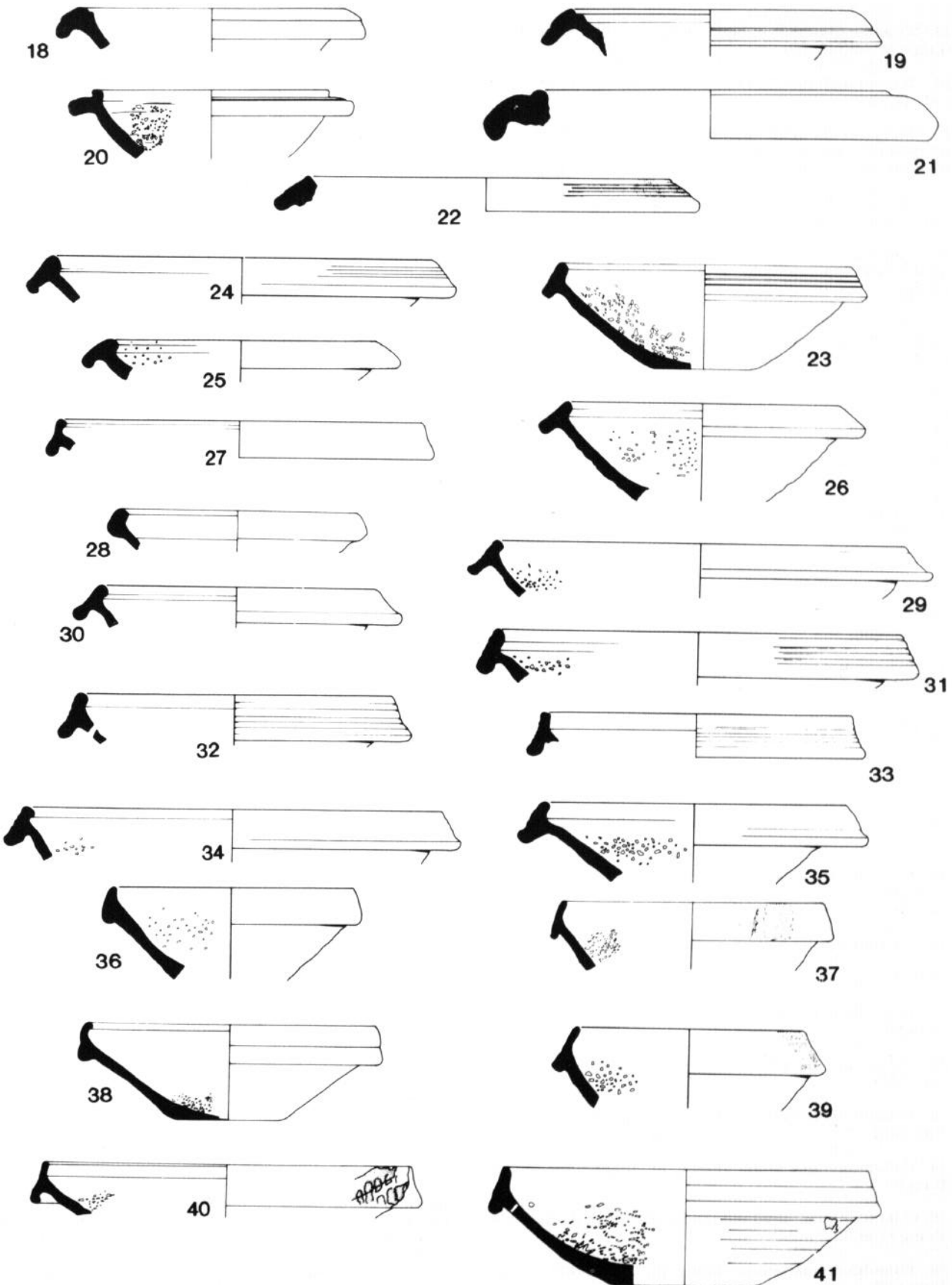


Figure 17.31 Coarse ware: mortaria.

35. Mancetter-Hartshill collared mortarium of unusual form (Fabric 4), AD 240-350.
36. Mancetter-Hartshill wall-sided mortarium (Fabric 4?), c AD 200-370.
37. Mancetter-Hartshill wall-sided mortarium (Fabric 4), AD 240-370, type specimen decorated with vertical bands of red-brown paint on the rim.
38. Mancetter-Hartshill wall-sided mortarium (Fabric 4), c AD 250-370, type specimen heavily burnt throughout.
39. Mancetter-Hartshill wall-sided mortarium (Fabric 4), AD 240-370, type specimen decorated with red-brown paint splodges on the rim, slightly burnt.
40. Mancetter-Hartshill wall-sided mortarium, Fabric 4), AD 250-370, type specimen decorated with red-brown sloping bands of paint on the rim.
41. Mancetter-Hartshill collared mortarium (Fabric 4), AD 240-370, type specimen decorated with red-brown paint, it has a lead rivet in place in the upper body and another rivet hole in a similar position, with two W-shaped cuts for a lead clamp further down.
42. Mancetter-Hartshill wall-sided mortarium (Fabric 4), AD 250-370+, type specimen decorated with red-brown painted running hook motif on the rim, burnt.
43. Nene Valley reeded rim mortarium (Fabric 9), c AD 270-400; surface of type specimen exfoliated.
44. Nene Valley mortarium with reeded wall-side, (Fabric 9), AD 270-400.
45. Oxfordshire mortarium (Fabric 1), AD 240-300, Young Form M18.
46. Oxfordshire mortarium (Fabric 1), AD 240-300/400, Young Form M18?.
47. Oxfordshire mortarium (Fabric 1), AD 240-300, Young Form 18.
48. Oxfordshire mortarium (Fabric 1), AD 240-400, Young Form M22.
49. Oxfordshire mortarium (Fabric 1), AD 240-400, Young Form M22; type specimen burnt; half of three circular rivet holes survive and half of another partially drilled.
50. Oxfordshire mortarium (Fabric 1), AD 240-400, type specimen unusual in having spout picked out in red-brown paint, Young Form M18/M22.
51. Oxfordshire mortarium (Fabric 1), AD 240-400, Young Form M22.
52. Oxfordshire mortarium (Fabric 1), AD 240-400, Young Form M22.
53. Oxfordshire mortarium (Fabric 1), AD 240-400, Young Form M22.
54. Oxfordshire mortarium (Fabric 2), AD 240-400, Young Form WC7.
55. Oxfordshire wall-sided mortarium (Fabric 3), AD 240-400, Young Form C97; worn.
56. Oxfordshire mortarium (Fabric 3), AD 240-400, Young Form C97.

57. Oxfordshire mortarium (Fabric 3), AD 300-400; the complete type specimen provides evidence that this form did not always have a spout; very heavily worn and slightly burnt, Young Form C100.

58. Oxfordshire mortarium (Fabric 3), AD 300-400, type specimen burnt and with the remains of two rivet holes, Young Form C100.

59. Oxfordshire mortarium (Fabric 3), AD 300-400, Young Form C100.

60. Oxfordshire mortarium (Fabric 3), AD 300-400, type specimen burnt and eroded, Young Form C100.

61. Oxfordshire mortarium (Fabric 3), AD 300-400, Young Form C100.

62. Oxfordshire mortarium (Fabric 3), AD 300-400, Young Form C100.

63. Oxfordshire mortarium (Fabric 3), AD 300-400, Young Form C100.

Segontium mortarium fabrics

Fabric 1 Cowley, Headington, Sandford etc, Oxford (Young 1977). Fairly fine-textured, cream to brownish-cream fabric, sometimes with pink core; some tiny inclusions of haematite-stained quartz and rarely of black and red-brown material. Trituration grit consists entirely of transparent, and translucent pink and brown quartz.

Fabric 2 Baldon, Cowley, Dorchester, Sandford etc, Oxford (Young 1977). Fine-textured, micaceous, red-brown fabric, sometimes with grey core; some tiny quartz and sparse red-brown inclusions. Trituration grit as in Fabric 1. The fabric is distinguished from fabric 3 by having a thin white slip.

Fabric 3 Baldon, Cowley, Dorchester, Sandford etc, Oxford (Young 1977). This is substantially the same fabric as Fabric 2, differing only in having a samian-like red-brown slip.

Fabric 4 Mancetter-Hartshill potteries, Warwickshire. Usually fine-textured, creamy white fabric, varying in hardness, and sometimes with pink core; moderate inclusions including fairly well-sorted quartz, sparse red-brown and occasionally white fragments. Trituration grit consists of hard red-brown or/and blackish, re-fired pottery fragments, with only very rare quartz fragments in mortaria later than AD 140.

Fabric 5 A workshop producing Haetian mortaria, probably at Wroxeter. Very fine-textured, red-brown fabric, Munsell 5YR 5/6, sometimes with drab beige core and very few, tiny quartz and red-brown inclusions. The trituration grit is fairly uniform in size (2mm), and consists of mixed red-brown sandstone, opaque white and coloured quartz, and black igneous fragments. The mortaria are self-coloured except for a broad band of samian-like slip covering the top of the flange and the concave zone immediately below the bead. This is typical of mortaria made in the Raetian tradition. There were several workshops in Britain making what are termed Raetian mortaria and these Segontium examples would best fit one known to have existed at Wroxeter though no details of it are preserved. (a body fragment differs only in having some slip on the outside, which was a very rare occurrence, though accidental patches may be found like the one under the flange of Type 19.)

Fabric 6 A workshop producing Raetian and non-Raetian mortaria, perhaps at Wroxeter. Rather coarse-textured red-brown fabric, Munsell 5YR 6/6, sometimes with drab core; moderate fairly well-sorted inclusions of sub-rounded quartz with occasional red-brown fragments (up to 2mm). The trituration grit (3mm) is probably similar to that of Fabric 5 (Type 18 is of Raetian form though no slip survives; a second example has

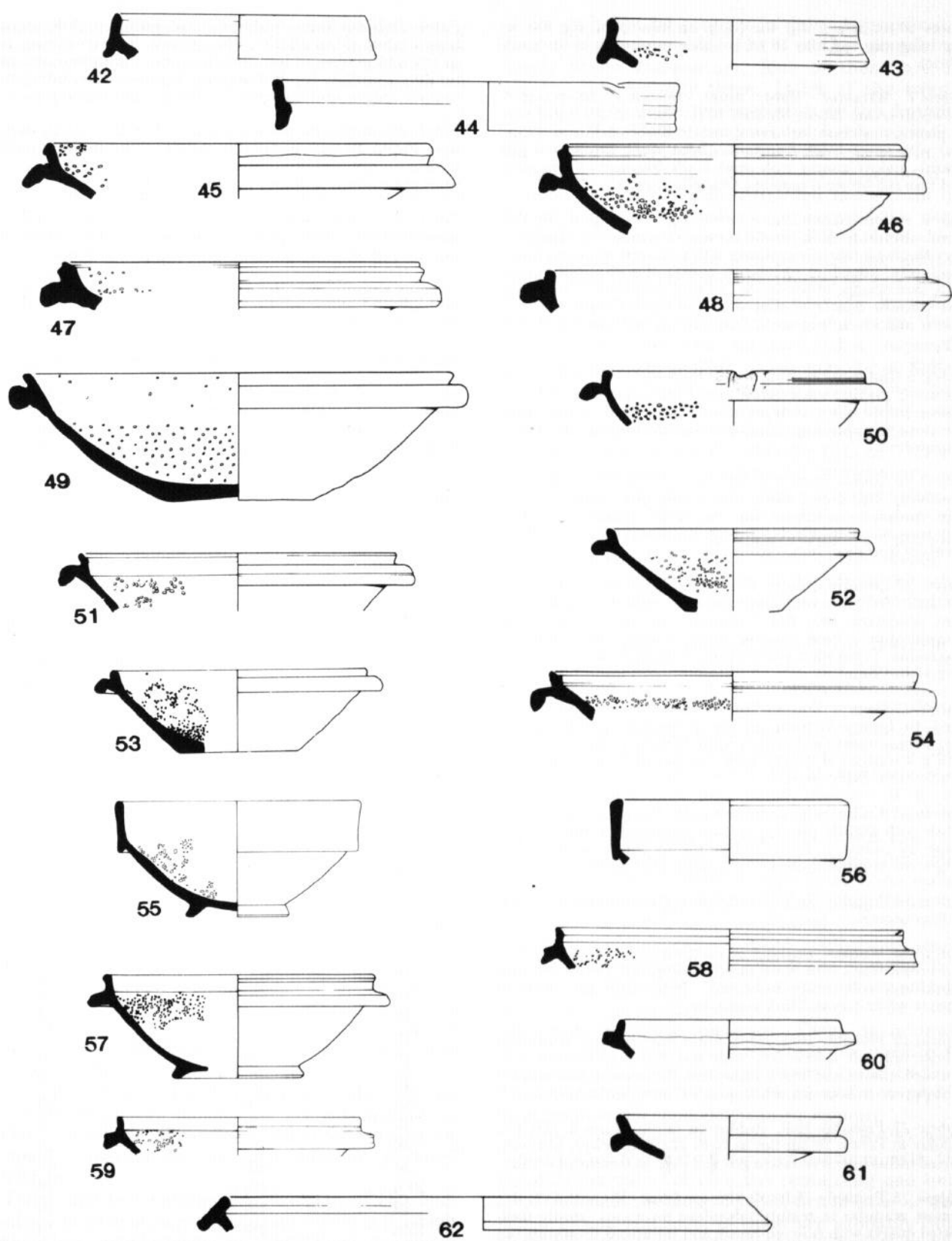


Figure 17.32 Coarse ware: mortaria.

traces of red-brown slip surviving; an incomplete rim has no surviving slip and may be an ordinary mortarium in the same fabric),

Fabric 7 Wroxeter. Hard, dense, relatively fine-textured, brownish-cream fabric, Munsell 10YR 8/6, with drab grey core in places; moderate inclusions, mostly ill-sorted quartz (up to 2m) with some black fragments (?iron slag). Trituration grit (2mm), mainly quartz with some black fragments (?iron slag) and rare red-brown fragments. Orange-brown slip.

Fabric 8 Verulamium region (including workshops at Bricket Wood, Brockley Hill, Radlett and Verulamium). Granular, greyish-cream fabric, sometimes with pink core, sometimes with black core; abundant inclusions, mostly of well-sorted quartz, with rare orange-brown, black and flint fragments. Trituration grit consists mostly of flint with some quartz and rare red-brown and black fragments. May have a self-coloured or buff slip.

Fabric 9 Castor-Stibbington area of the lower Nene valley. Fine-textured, greyish-white fabric with occasional ill-sorted red-brown and/or black inclusions; may have pink or grey core; ironstone trituration grit. It may be self-coloured or may have a brownish slip.

Fabric 10 Source uncertain, but Cantley, near Doncaster is a possibility. Bed-brown fabric with a very thick dark blue-grey core; moderate inclusions, tiny, well-sorted quartz. Trituration grit consists of mostly black with occasional red-brown fragments of iron slag (3mm). White slip.

Fabric 11 Crambeck. Fairly fine-textured, greyish-cream fabric, Munsell 10YR 8/4, with greyer core or occasionally a blackish core; abundant, very fine inclusions but few visible at $\times 10$ magnification: these include mica, quartz and red-brown fragments. Trituration grit consists of abundant black iron slag fragments (2mm).

Fabric 12 Central France. Fine-textured, pinkish-brown fabric fired to brownish-cream at the surface; few inclusions of translucent quartz and opaque white feldspar (1.5mm). Trituration grit consists of quartz, some feldspar and occasional flecks of gold mica. Self-coloured.

Fabric 13 Gallia Belgica, probably the Pas de Calais. Cream fabric with slightly powdery surface, sometimes with pink core; some inclusions of fairly well-sorted quartz with occasional larger red-brown fragments. Trituration grit, quartz and flint.

Fabric 14 Probably Gaul. Cream fabric, similar to Fabric 13 but of finer texture.

Fabric 15 Western England or perhaps Wales. Fine-textured, red-brown fabric with some, mostly well-sorted, quartz and rare black and soft white inclusions. Trituration grit included opaque white quartz. Thick white slip.

Fabric 16 Probably Holt. Hard, fairly fine-textured, red-brown fabric, Munsell 2.5YR 5/8, with few fairly well-sorted sub-rounded quartz and black inclusions. Trituration grit entirely translucent and opaque, white quartz (3mm). Self-coloured.

Fabric 17 Probably Holt. Bed-brown fabric, Munsell 5YB 6/8, similar to Fabric 16 but not as hard and with fewer, less well-sorted inclusions; trituration grit and surface treatment similar.

Fabric 18 Probably Holt. Bed-brown fabric, Munsell 5YB 6/6, almost granular in texture; abundant inclusions, mostly well-sorted quartz with rare red-brown and calcareous fragments (up to 7mm). Trituration grit is entirely translucent and opaque white quartz (up to 10mm). Self-coloured surface.

Fabric 18A Probably Holt. As Fabric 18 but with a thin white slip,

Fabric 19 North Wales, perhaps a local workshop. Soft, orange-brown fabric (Munsell 5YR 7/8), with a drab grey core; few quartz and red-brown inclusions but grey, red-brown and pale brown clay pellets (up to 4mm), are common. Trituration grit, entirely opaque white quartz (up to 5mm). Thin cream slip.

Fabric 20 Possibly the same source as Fabric 19. Slightly darker than Fabric 19 but similar clay pellets in the tempering. The trituration grit differs in being mainly fine quartz (1mm), with some sandstone and black fragments. Cream slip.

Fabric 21 North Wales. Bed-brown fabric, Munsell 5YR 5/8, sometimes with drab grey core; made coarse by the addition of a fair amount of ill-sorted quartz with larger fragments (up to 1mm) of white calcite?, red-brown sandstone and black mudstone or igneous rock. Trituration grit consists of translucent and opaque white quartz mixed with red-brown sandstone. Thick white slip.

Fabric 21A North Wales. As Fabric 21 but self-coloured.

Fabric 22 North Wales. Bather coarse-textured, red-brown fabric, Munsell 5YB 5/8, with moderate ill-sorted inclusions, mainly sub-rounded quartz with occasional red-brown and black fragments. Trituration grit (2mm), mainly red-brown sandstone with some quartz. Self-coloured.

Fabric 22A North Wales. As Fabric 22 but with cream slip.

Fabric 23 North Wales. A micaceous, pink fabric, Munsell 7.5YR 8/6 with slightly abrasive surface; moderate, ill-sorted inclusions, mostly quartz with some red-brown and black fragments. Trituration grit (2mm), mainly translucent quartz with some sandstone and black slag-like material. Self-coloured.

Fabric	% by minimum number of rims	% by minimum number of vessels
1	18%	16%
2	1%	2%
3	15%	13%
4	42%	35%
5	1%	1%
6	2%	1%
7	—	1%
8	4%	6%
9	2%	2%
10	1%	1%
11	—	2%
12	1%	1%
13	2%	1%
14	1%	1%
15	—	1%
16	—	2%
17	1%	1%
18	2%	1%
18A	3%	2%
19	1%	1%
20	—	1%
21	4%	4%
21A	1%	1%
22	1%	1%
22A	1%	1%
23	—	1%
24	1%	1%
	n=115	n=140

Fabric 24 The Midlands Cream fabric with moderate, fairly well-sorted quartz, less frequent red-brown and rare black inclusions; buff-brown slip. Trituration grits included hard cream and red-brown and blackish material, occasional flint and almost certainly quartz.

Comments

- a Joining fragments from the same context are treated as one fragment.
- b Body fragments, flange fragments etc are only counted as individual vessels if no other example of the fabric survives.
- c For the purposes of the discussion below, mortaria dated, for example AD 70-110, AD 80-150, AD 180-230 have been treated as more likely to belong to the 1st, 2nd and 3rd century respectively. They are few in number and there is no reason to believe that doing this invalidates the conclusions.

Approximately 274 fragments were examined, from a total of at least 141 different mortaria. In date they range from the Flavian period to the 4th century but there are distinct variations in the quantities attributed to different periods. Four of the mortaria (2.8%) were imported, probably all from Gaul; two of these are certainly Flavian and none could be later than AD 150.

The potteries in the Verulamium region supplied nine mortaria (6.4%); only one of these could be later than AD 110. On sites near to the coast the imports often outnumber Verulamium region mortaria but Segontium may have obtained most of its supplies overland rather than by coastal traffic. The relatively low number of imports undoubtedly suggests that the Verulamium region potters were the more important supplier of mortaria to Segontium in the 1st century.

At Segontium and probably elsewhere in north Wales, the potteries in the Verulamium region were clearly superseded in the early 2nd century by local workshops and the potteries at Wroxeter. At least three of the mortaria (2.1%) are fairly certainly from Wroxeter; archive no 188 is likely to have been made in the first half of the 2nd century but the other two were made within the period AD 140-90. One 2nd-century mortarium (archive no 185/179, AD 100-40) is from an uncertain source in the Midlands and there is a possibility that two other 2nd-century mortaria were made in the west of England rather than in Wales. Wroxeter mortaria made AD 100-60 are not uncommon in Wales and are under-represented in this sample, probably because of the high number of 'local' products.

There are two outstanding features of the 2nd-century mortaria from Segontium. First is the high proportion attributable to workshops in north Wales, and the second, the very small proportion essentially later than AD 140.

At least twenty mortaria, 14.2% of the total sample, are from sources in north Wales, two of

them probably 1st-century in date. Approximately twenty-seven mortaria, 19.1% of the sample, are likely to be 2nd-century; four of these are not closely datable; only three, 11.1% of the twenty-seven, can be dated with certainty to the Antonine period. The Welsh products probably make up 66.6% of the 2nd century coarse-ware mortaria.

Fabrics 18-21 and 16-23 are attributed to sources in north Wales. Although more than one fabric may well have been produced in a single workshop, these must still represent more than one source. Some may well be from the military pottery at Holt but none is typical of the known Holt mortaria; some will probably be from local workshops at Segontium. Many of the north Wales products may be from military kilns, especially perhaps archive no 206 which may be a Gillam 237, a form common on military sites; but there may also be some from civilian workshops and there is no obvious way of distinguishing these.

Three, (archive nos 77; 274+20; 121) or 11.1% of the mortaria firmly dated to the 2nd century, are likely to be Antonine and these are probably all from Wroxeter. Two of the twenty-seven are too fragmentary for close dating but these are attributable to north Wales and there is no reason to suppose that they will differ in date from the other mortaria in the sample which are from these sources.

These figures indicate heavy usage of mortaria at some point in the first half of the 2nd century; this coincided with production at more than one, and perhaps at several workshops in north Wales. There is, of course, some possibility of kiln waste being present but it is not obviously so. The date-ranges given to the north Wales mortaria vary between thirty and fifty years because it is not possible to date them more closely. There is, however, a degree of homogeneity about the 2nd-century ones, and the period of production could have been quite limited. It must have been linked to providing supplies for either Segontium in particular or north Wales in general.

This sample suggests a much diminished usage of mortaria in the second half of the century. It is worth noting that there are no essentially Antonine mortaria among those from the Mancetter-Hartshill potteries. There is no indication that Chester was important for mortarium supplies in the 2nd century; several could be from Holt but the mortaria concerned are not typical Holt products so some doubt must remain.

Forty of the mortaria in the sample (28.4%), were made before the end of the 2nd century; with the possible exception of two, the remaining one hundred and one mortaria (71.6%), are of 3rd- or 4th-century date and most of them are probably later than AD 240. A complete change in suppliers also took place if for no other reason than that none of the earlier potteries and workshops were still in production. The 2nd century saw a vast increase in small producers of mortaria all over Britain but

very few survived the end of the century. Most parts of Britain now obtained mortaria from one or other of the giant suppliers in Oxfordshire and Warwickshire. Segontium was no exception.

3rd- and 4th-century mortaria are almost always difficult to date closely but this sample shows some very unusual and interesting features. Of the one hundred and one mortaria concerned, fifty or 35.5% are from the Mancetter-Hartshill potteries in Warwickshire; forty-four or 31.2% are from the potteries near Oxford; three, or 2.1%, are from potteries in the Castor-Stibbington area of the lower Nene valley, an equal number from the east Yorkshire pottery at Crambeck, and one could be from the kilns at Cantley, near Doncaster or perhaps less probably from Swanpool, near Lincoln.

It is unusual for mortaria made in the Oxford and Mancetter-Hartshill potteries to be found in anything like equal quantities: at Wroxeter, the Warwickshire mortaria would probably be in a much higher proportion; at Chester, Oxford mortaria would be in fairly minimal numbers and in south Wales the opposite would be the case. Although their markets overlapped, they were to a large extent mutually exclusive.

Moreover, many of the Segontium mortaria from these two sources appear to be contemporary. There are a large number of Mancetter mortaria which, though given a wide date range, are almost certainly 4th-century and likely to be as late as any mortaria made there. The date when this pottery ceased production is uncertain but it was between AD 350 and AD 400.

The Mancetter mortaria at Segontium themselves form a most unusual group. Only one rim fragment and a tiny flange fragment survive from any flanged mortaria; this is a quite exceptionally small proportion for a group as large as this. Both of these vessels were made after the practice of stamping had ceased. The earliest unstamped mortaria from this pottery were closely similar to the latest ones being stamped about AD 170 to 180. These two examples are of a type never stamped. It is not possible to assert that they could not be as early as AD 180 but the lack of any other flanged mortaria, and also the lack of other forms which could be as early as AD 180 makes an early 3rd-century date the more likely. That is to say that the Mancetter mortaria as a whole suggest that this pottery began supplying Segontium in the 3rd century rather than in the late 2nd century. Flanged mortaria were still being made in quite large numbers in these potteries during the 3rd if not the early 4th century, so that the presence of only two, in itself, suggests a later rather than an earlier date for the whole group. The other curious feature of the group is the very high proportion, at

least 30%, of thin, wall-sided types which are not common and which are very likely to be 4th-century despite the wider range allotted to them.

Of the forty-four mortaria from the Oxford potteries only three are forms dated AD 240-300, ten are of form Cl00 which is dated to the 4th century, while the remaining twenty-two can only be dated AD 240 and 400. Comparison of the incidence of purely 3rd-century forms with such a site as Gorhambury which has a high 3rd-century occupation can only indicate that Segontium started to provide a market for the Oxford potteries towards the end of the 3rd century and that the bulk of the trade was in the 4th century.

Of the seven mortaria of AD 230-400, which are not from Mancetter or Oxford, the three from Crambeck, a rather unlikely source, are certainly 4th-century. The small number from the lower Nene valley is normal; these are found in large numbers only in an area local to the kilns and in some of the Saxon Shore forts.

Although there may be some inexplicable factors in the supply of 3rd- and 4th-century mortaria, they clearly indicate a considerable or prolonged occupation in the 4th century.

Stamped mortaria from Segontium

S1. The incomplete stamp of Albinus is from the same die as one from Verulamium (Frere 1972, fig 145, number 11). Albinus was by far the most prolific producer of stamped mortaria in Roman Britain. Well over three hundred and sixty of his mortaria are known from sites throughout Britain, including at least ten from Wales, three of which are from Segontium. His mainly Flavian date is not in doubt; but a stamp from a context dated AD 55-61 at Verulamium shows that he began working in the Neronian period (Richardson 1944, 123, number 4); AD 60-90 should cover his activity. His kilns are known but the fabric used was that produced in the extensive potteries situated in the vicinity of Watling Street, between Verulamium and Brockley Hill, where his son Matugenus is known to have worked. For further discussion of Albinus see Frere 1972, 371-2, numbers 2-11 and Frere 1984, 281-2, numbers 55-61.

Type vessel 4, Context 1004, Period 5B, SF 1057. Dr 260mm. Fabric 8.

S2. A worn and burnt mortarium with a broken and worn stamp of Sollus, (see Frere 1972, fig 146, number 38 for a stamp from the same die). More than a hundred of his mortaria are known (including four from Brockley Hill where he may have worked), four from Scotland and three from Wales. The rim-forms made by him are consistently early and a date within the period AD 60-100 is reasonably certain.

Type vessel 5, Context 1047, Period 5, SF 1065. Dr 315mm. Fabric 8.

S3. A heavily worn mortarium of Type 17A, with badly eroded surface. It has been stamped twice, close together to each side of the spout but all the impressions are badly eroded. Just enough of the letters and border survive,O.F., to suggest that it is from the same die as an unpublished stamp from Leicester. A midland origin is not in doubt and the rim-profiles indicate a date in the period AD 100-40.

Type vessel 17A, Context 939, Period 6 - joining no 179, Context 868, Period 7. Dr 340mm. Fabric 24.

18 Architectural reconstructions

K Wilson

Before looking at the proposed reconstructions, I cannot over-emphasize the problems inherent in an architectural reconstruction of this kind. The available information from the excavation is wholly from the ground floor plans, foundations and the associated construction material. The further that we try to define architectural features above ground floor level, the more speculative the exercise becomes. At roof level the roof-line and construction techniques are all conjecture, the only guide being the position of the rainwater gullies at ground level. It is therefore essential that we fulfil some basic criteria. Three of the most obvious are:

1. Is this theoretically practical? Would the proposed hypothetical building stand up?
2. Is the final reconstruction consistent with the excavated evidence where available?
3. Is it consistent with the known technological expertise of the period we are considering?

Courtyard building

Courtyard buildings such as this are known throughout the Roman empire. A typically inward-looking plan designed initially to combat the intensity of the Mediterranean sun but, in this case, and in many others all over Britain, to keep out those cold northerly winds. Here we have only three of the four ranges and would assume a northern fourth range with the main entrance into the building opening onto the *via principalis*.

The evidence is restricted to the basic ground floor plan. In some cases we have quite substantial foundations and walls, particularly in the southern range. This is the best preserved portion of the outer wall and as such is taken as the form for both the west and east ranges, where at best we have some wall surviving in small sections, and at worst only the river-cobble foundations. The inner walls facing the courtyard were also heavily robbed, but there is enough surviving, particularly in the southern range, for us to be familiar with their width and construction.

Although any major building like this would rely on the quality of the mortar used, the walls are substantial enough to have taken a two-storey building in stone. This is greatly helped by the fact that the design employs inherent stability from the bracing of the partition walls, though an upper storey of timber-frame construction would have been just as feasible.

From some of the sections of wall standing above floor level there were traces of a fine painted wall-plaster or stucco. This was finished to the *opus*

signinum floors with a quarter round moulding, very typical detailing for a building of this calibre. There were no clues to the type or distribution of the windows or doors. I have assumed doors to each individual room from the courtyard, as this layout is known from other examples. I have also proposed windows on the ground floor with timber frames and lintels and wooden shutters, and on the first floor smaller windows with single stone lintels. Both are equally as valid. Access to the upper floors would have required a number of stairs, and I have proposed using the obviously smaller almost corridor-like rooms IV and X, as their size and shape restrict their use for any other purpose.

The verandah which faces the courtyard on all three ranges was defined by an unmortared stone stylobate and gully. There was no evidence for stone or timber columns, but the gully evidence points quite clearly to there having been a roof which would have required support along the stylobate wall.

There was no structural evidence for either the roof of the verandah or the main roof of the building. The only clue came from the position at ground level or rainwater gullies, both within the courtyard, in association with the stylobate wall, and running along the outer eastern range. There was no evidence for gullies on the outer southern and eastern ranges. Perhaps the building's outer rainwater gullies were of timber and have not survived or, as has been suggested, the main roof was of a single pitch inclined towards the courtyard, and not a gable roof as I have proposed. This I find it difficult to come to terms with over a span of 6.5m, as it would mean an outer wall height of 9.1 to 10m to allow for a pitch of 30° to 35°, somewhat unfeasible I think, and not at all attractive in appearance. I have therefore proposed a gable roof of timber, and suggest a simple king-post truss at a pitch of 30° to 35° to take the roofing of *tegula* and *imbrices* (Vitruvius suggests 30° and present-day roofs using *tegula* and *imbrex* prefer a pitch of 20° to 35°). Though other roof coverings are known from Roman sites in Britain, i.e. stone or wooden shingles, and would be just as viable here, the choice of tile is entirely due to its suitability in covering a prestigious structure of this kind and its presence on the site.

Bath-house

The bath-house can be found throughout the Roman empire, fulfilling a Roman passion for bathing. No other building displays such an

infinite variety of layouts. A basic sequence of rooms, *frigidarium*, *tepidarium* and *caldarium*, can be anticipated, along with the essential constructional elements of heating and hydraulic installations. Bath-house typology and technology has been studied in great detail, which makes architectural reconstruction comparatively simple.

Here we have a small private bath-house attached to the Periods 6 and 7 courtyard building. Originally excavated in 1846, there was still a substantial amount of structural detail remaining to attempt a reconstruction. The basic layout is easily appreciated; the *tepidarium* and the *caldarium* are clearly the two most southerly rooms with traces of the tiling *pilae* to support the underfloor heating system. The cobble platform to the east appears to be an extension to the *tepidarium*, but the evidence for this comes principally from the 1846 description. Another further suggestion is that this platform held a water tank feeding the adjacent cold bath in the *frigidarium*. The internal walls had been severely robbed but one or possibly two flues would have been allowed for the circulation of hot air from the *caldarium* to the *tepidarium*. The very small room south of the *caldarium* is presumably the hot plunge bath, the water heated directly from the flue. The substantial walls in this area were essential to cope with the intense heat, and contain a central flue to the stoke-hole with the drain from the hot bath running under the flue to join the main ring drain to the south of the building. The walls of the stoke hole area were badly robbed and harder to define, but some form of shelter would have been required to keep the fuel dry. Adjacent to this, a stone platform was added in Period 7 and may well have been the base for a cold-water tank supplying the bath-house.

The bather would have entered the bath-house at the northern end and directly into the *frigidarium*. The apse to the east was clearly meant as a cold plunge bath. A central drain leaves the apse and connects to the main north-south drain to the east of the building. The northern apse was more difficult to define. There is no trace of any drainage facility, so presumably this was not intended to be a bath. There is also some doubt as to whether this was ever built. If it was, the suggestion is that it formed part of the *frigidarium*, and functioned as an *apodyterium* or changing room.

The reconstruction shows a painted and plaster finish to the box-tile walls in the *tepidarium* and *caldarium*. This, along with the vaulted roof, are conjecture. Some means of wall flue would have been needed as would the chimneys, and there are many and varied examples of these throughout Britain. Though there was no archaeological evidence here, vaults of concrete were ideally suited to bath-house construction, requiring resistance to both heat and condensation. A variety of construction-techniques were used, with or without roof lights. Examples are known in Britain (Chesters, Ribchester, Beauport Park and of course Vitruvius VII, iii). The only addition to this would be the use of a further pitched tile roof over and above the concrete vault.

The provision of models and reconstructions of this kind should, I hope, be used to stimulate further discussion, and be open to modification in the light of new ideas and data. This is by no means the only possible reconstruction from the available evidence, and should be viewed as only one example of what could have been built.

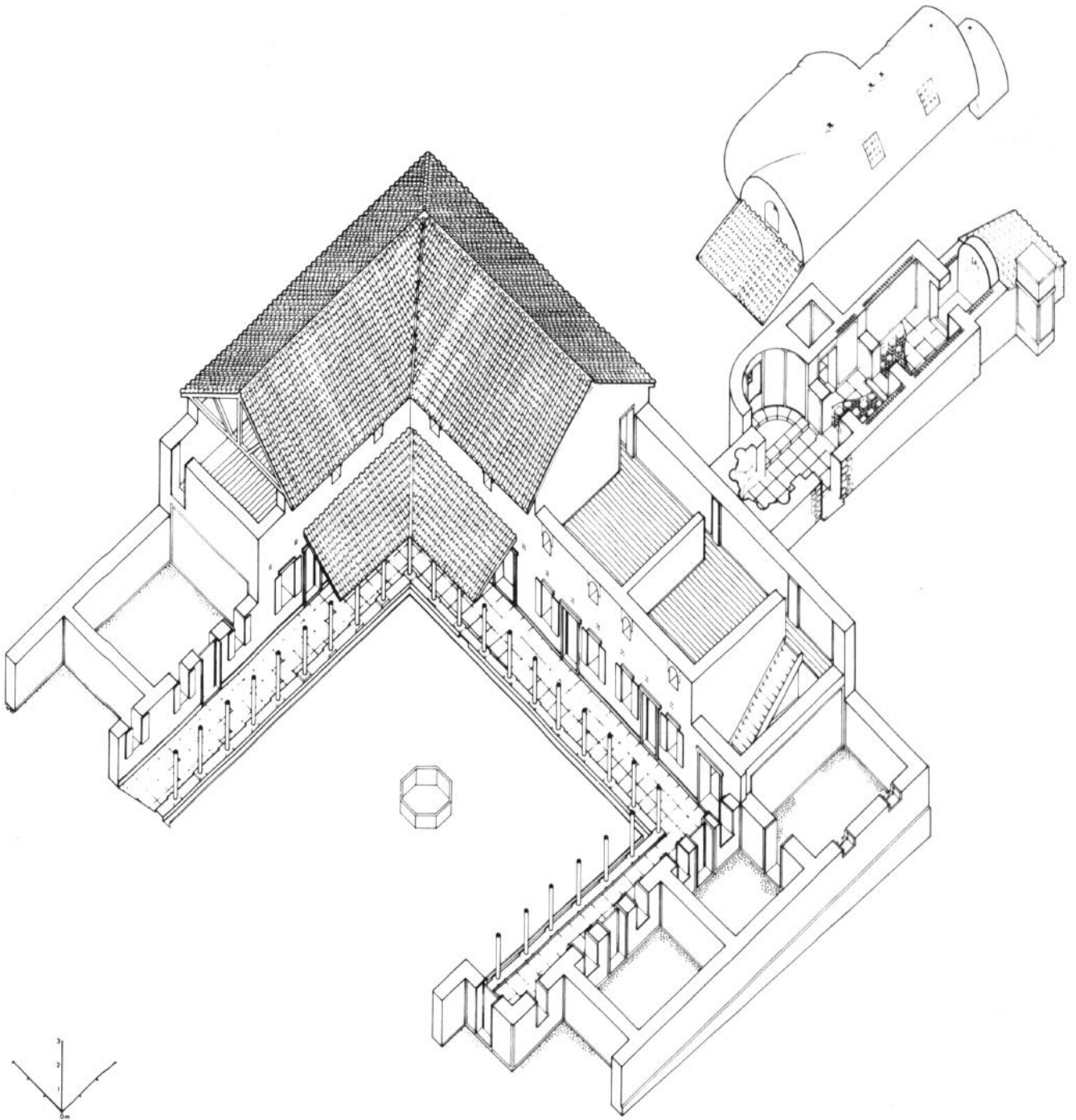


Figure 18.1 Reconstruction drawings of the courtyard building and bath-house.

19 List of finds by context

Context	Coin no	Small find no	Glass no	Graffiti no	Samian no	Coarse ware no
1		97, 135, 199, 486	61			
2		45, 66, 170, 211, 241, 355, 378, 424, 434, 453, 491				
2A		216	3			
3		204, 252				
3A		58, 146, 212				442
7		325, 327, 520				
9						304-5
11		106				
12		459				
15			62			
19	49					476-9
23		478				
27						425-8
34	19					364
35						222-4
39						225-8
47						365-6
53	66, 192, 236, 244, 288, 382, 385, 400	178				792
54	142, 151, 340, 409, 410	56	48			598-602
62						793-4
70	149	481, 494				398-402
71	33, 47, 77, 122, 133, 406, 411, 420	208, 255, 348, 481, 494, 495				398-416
72						481-2
74		21, 221, 285				429
75	76, 175, 178, 180, 188, 208, 209, 225, 272, 304, 306, 348, 357, 361	114, 219, 258, 300, 313, 331, 354, 356, 401, 408, 426, 496	37			795-805
76	28	13, 36, 91, 107, 262, 306, 360, 429, 507	53			483-98
82	67, 91					
84	21	117, 206				430-6
86	73	136				
87						417-19
90		48				603-4
91	102, 134, 181, 289	163, 461?, 471?	26			605-7
92		222, 351, 467, 475				806-9
93	60, 164, 185, 193, 238, 328	377				
96	13					
97		78				
99		372				
100	92					
109	17, 25, 56, 71, 78, 103, 153, 159, 375	24, 189, 193, 223, 226, 305, 477, 502, 504	34			608-37
110	214, 412	67, 69, 286, 299, 409, 412, 505			S11	638-44

Context	Coin no	Small find no	Glass no	Graffiti no	Samian no	Coarse ware no
111		11, 65, 260, 284, 373, 463, 511				
118		483			D15	
119	14	400, 506				367-9
125		28, 224, 225, 519				
128						645-9
132		15				
140		358, 359				650
142						420-3
142A		484				
148		290				437-8
153						306-7
154	368					651-3
155		101, 180, 383, 446, 476				
158						308-11
160						372
161	15		20, 21, 23			188-91
164						312
171						229
175	105, 270, 345	246				424
177						373-4
178		340,469				313-17
186					D6	
188						192
192		125, 396				230
199		159				318-19
202						320
210		513				
212						375-6
223		303				
227		76				
229		93, 127				654
237		487				
240						193
243		385				
245		247			D19, D20	83-6
246		456				321-2
248		200, 423				
255						28
256		88				377
270						194
274		132				87
276					D20	
277			22		D12	39-41
281						378
291						195
301		26, 96, 118, 490				
302		25, 37, 62, 87, 282, 292, 329, 421, 435, 509, 516, 517	52			
303	199					
304	50, 63, 113, 174, 229, 232, 240, 245, 246, 271, 315, 354, 356, 374, 379, 391	20, 38, 54, 205, 215?, 242, 244, 277, 288, 322, 333, 395, 420, 443, 500				856-60
B304		28, 49, 50				
306	130, 195	392				
310	139, 253	253, 321, 380 444				
311		111, 210, 450				
312	330, 399	39				840
313	144					
314		3, 442	67			
315	26, 51, 80, 93, 111, 140, 146, 251, 336, 342, 346, 366	40, 60, 115, 120, 123, 186, 209, 213, 214, 233, 234, 235, 251, 269, 307, 479			D6	

Context	Coin no	Small find no	Glass no	Graffiti no	Samian no	Coarse ware no
317	327, 334, 367	94, 114, 156, 295, 308, 311, 319, 325,	521	47		
318			54			
321			36			
325		41, 171				
330		9				
331	75, 81	310, 311, 379, 470				439-41
333	24					
334	53, 68, 85, 141	172, 319, 334, 428	7			841-4
334A	46	410, 411, 458				810-17
336	30, 40, 95, 115, 196, 200, 281, 285, 347, 349, 407	29, 30, 119, 328, 367, 431, 499	63e			845-8
337	37	104				
340		347				849
342	96, 218	6, 407	38, 56			818-20
346	97					
347		4, 293				
348	29, 52, 190, 212, 217, 283, 290, 307, 322	17, 236, 452, 464, 466, 493			S8	499-509
350	109, 118	364		4		510
352		190	63d			
356	98, 124	10, 14, 381				511-14
357						515
358						442
362					D14	
369						443
375	69, 99	238				850
376	305	165				
379	250	27, 32, 270				851-2
384	274					516-17
386	203					655-61
392	32	474				
395						518-28
396		405, 492			S10	445
397	70, 87	49, 432				529-31
398	324					532-3
406	501					
407						444
425	129	436				446-9
432		390, 393, 515				451
437		287, 468				534-5
442	110	376				662-8
446		503				
448		152				
451		425				
452						536-8
453		64, 92				539
454	42	263				
455		264				540-2
457		161				543-5
460	381, 393	332				853-4
464		362			D5	
467						546
468						547-9
468A		445				
488						452
801			63f			
802		81, 330, 417			D6	
803	278	70			D6	323-5
805			63b			
807		237				
810		323				

Context	Coin no	Small find no	Glass no	Graffiti no	Samian no	Coarse ware no
811		218, 403, 418, 433, 437	9			
812		497				551-3
816		175				
819		335, 398				
825					S9, D6	554-60
826		109				
828		18				
830		187				
831		352				
835			30, 43			
837		82				
842						669
848					D5, D6	561-5
849		243				379-80
852		31				
854		460			D6	670-4
867		339				
868		82, 198, 272			D5	
868B		2	10, 11, 12, 13, 14, 15, 40, 41			326-7
897	165, 197, 293, 299, 302, 309, 343	5, 192, 195, 227, 294, 382				675-80
912	269					
924						381
930						231
932	427	427	64		S4, D6	328-40
933						341
939						196-200
940					D6	
947						566-7
948						88-9
951						568-9
952						232
954					D17	90
956		113, 197			D13	42-3
957						233-7
959			35c			
964					D5	91-4
969						238-44
974						123-6
976						127-34
978		207				
979						44
980			1c			201-4
981			1b		D6	382-5
984		167	31			
988						245
1000		90				246
1000A						247
1003						135
1008					S6	136-9
1010		438				
1013		27			D3	
1020						386
1021		196			D6	
1022		83			D6	387
1023	10				D6	
1025		281				
1031					D6	
1032					D10	140-4
1041			24, 46			
1042			42			
1044					D2	
1051		203				
1058		126				
1067		439, 489			D8	145-9

Context	Coin no	Small find no	Glass no	Graffiti no	Samian no	Coarse ware no
1070	4				D6	
1071						
1074						150
1075		265				95
1079	6					151
1080		51, 61, 191, 231, 250			S3, D10	45-54
1081		184, 440			D3	152-67
1082						168
1083	1086B					169
1088					D10	55
1091		22, 52	25		D2	388-9
1094						248-56
1101						342-7
1102						96-100
1106		338				101-4
1108						257-61
1109	9					262-3
1110						56
1112						1
1129			1a	6		57-60
1130		157				61-6
1131						29
1132		185, 386, 448				30
1133					D8	
1139		23	35a		S1,D3	10-11
1141						205-9
1145						264-9
1148			35b		D17	170-9
1150						67
1162						270-7
1164		232				
1165		488			S5	
1170						12-16
1173					D5	
1213			17			
1214			45			
1220		154				278-80
1221						180
1224						181-2
1225		296, 297				183
1227						281-2
1228					D2	2-4
1229						283
1252						68
1256						17-18
1259					D2	
1262						69
1264					D5	19-22
1269					D2	
1271		80			D14	
1277						23
1283		451				
1283D		457				
1292			2			70-4
1320		278				
1333						24
1340						25
1348						26
1366			4, 5			
1377	3				D1	
1502		42, 89, 99, 103, 147, 166, 169, 174, 177, 201, 256, 295, 349, 363, 368, 422, 462, 518	58, 59	2		
1503		217, 510				
1506		43, 154, 198, 1, 7, 19, 55, 345,	63c			821-6

Context	Coin no	Small find no	Glass no	Graffiti no	Samian no	Coarse ware no
1506A	204, 210, 230, 313	485				681
1509	294					
1510	64, 227	122			D2	682-9
1511	101, 403	79, 314				453-4
1512	243, 279, 286, 314	33, 43, 276	66			855
1513	44, 59, 86, 107, 160, 161, 168, 176	59, 71, 150, 151, 220, 271, 298, 302, 346?, 353, 369, 388, 389, 480, 508	6, 51			690-714
1515	173, 231, 265, 341	63, 105, 176, 257				570
1516	62, 152, 155, 287, 337	8, 240, 361, 371, 399, 473				571-4
1517	184, 205, 282, 317, 371	472				
1520		239				
1523	38, 61, 116	44				
1528						827
1534	132, 268, 292, 297, 300, 378, 398	254, 402				828-32
1541		72				
1544		308, 430				
1547	31, 170, 331	98, 291, 326	63a			575-91
1548						592-4
1549		50				
1550						715
1551	128					455-6
1562		110, 512				
1568		68, 102, 304, 391			D6	457-67
1569					D2	468-9
1584		46				391-2
1585	39	228, 245, 375				393
1587		94, 406				471-3
1588						716-18
1603		75				
1613				1		348-52
1614						353-4
1615					D6	
1618			33			
1622		160				
1630		384				
1631						394
1643	41	129				
1647					D17	
1654		350				719
1662		455				
1663			1			
1666			16			355-60
1668					D2	
1671						395
1671B		182				396
1673						361-2
1697		441				
1802		289				
1803						833
1804	266					
1805	171, 187, 228, 256, 257, 262, 390	116, 143, 259, 357, 374				834-7
2000	120, 157, 206, 211, 248, 316	12, 53, 261, 275, 283, 315, 316, 414, 454, 522				728-91
2000A	5, 23, 108, 147, 148, 167, 172, 201, 237,	47, 57, 84, 108, 128, 148, 149, 301, 320, 387, 404, 419	23, 49			838-9

Context	Coin no	Small find no	Glass no	Graffiti no	Samian no	Coarse ware no
	252, 291, 360					
2000E		317				
2003		344, 413, 498			D10	720-5
2006		514				
2011		324, 336, 337	32			
2011A						184
2012					S7	
2017			39			210-12
2018		131				284-5
2019		95, 153, 156				105
2022						286
2024		183				
2026						75-6
2027		130, 134?, 137, 138,				
		139				
2032		482				726-7
2033		144, 447				106
2034						213-15
2038						107
2039		465			D21	
2040						216-17
2041						108
2043						218
2044		140				109
2046						31
2047						287-91
2051					D15	110-11
2052		181			S2, D18	112-17
2054		86				32
2063						397
2065						363
2067						292-5
2068						296
2081		366				
2088				5		
2092						33
2093						5-7
2094		164, 341				185-6
2097						297-301
2100	1	194				118
2106	338					77
2111						
2128						78
2148		112, 141, 202, 266,				
		267, 370				
2151		145				
2155	8					
2156		100				
2161		248				
2172		35, 85,				302-3
		168, 229, 230,				
		273,				
		397, 415				
2174		142, 268, 342			D7	
2179		155, 158, 249				
2193						79
2195						187
2196						119-20
2199		34, 133				
2201						121
2204		188				80
2208					D5	
2209						34
2210					D9	
2221						8
2222						9
2244						34-6
2256					D7	
2279		74, 279, 280, 318,				37

Context	Coin no	Small find no	Glass no	Graffiti no	Samian no	Coarse ware no
2309		343				
2332			18			81-2
2333					D16	
2336			55			122
2349		162				
2355						27
2361		73				
2364		449				220-1
2369		416				38
2390					D7	
2394					D11	
3006A	186					595-6
3007						597
3008		16				
3010						474
3010A	121					
3014			44			475
U/S	2, 7, 11, 12, 16, 18, 20, 22, 27, 34, 35, 36, 45, 48, 54, 55, 57, 58, 65, 72, 74, 79, 77, 121, 124, 173, 179, 312, 365	19, 57, 65, 82, 83, 84, 88, 89, 90, 100, 104, 106, 112, 117, 119, 123, 125, 126, 127, 131, 135, 136, 137, 138, 143, 145, 150, 158, 162, 163, 166, 169, 177, 179, 182, 183, 189, 191, 194, 202, 207, 213, 215, 216, 219, 220, 221, 222, 223, 224, 226, 233, 234, 235, 239, 241, 242, 247, 249, 254, 255, 258, 259, 260, 261, 263, 264, 267, 273, 275, 276, 277, 280, 284, 296, 298, 301, 303, 310, 312, 318, 320, 321, 323, 326, 329, 332, 333, 335, 339, 344, 350, 351, 352, 353, 355, 358, 359, 362, 363, 364, 365, 369, 370, 372, 373, 376, 377, 380, 383, 384, 386, 387, 388, 389, 392, 394, 395, 396, 397, 401, 402, 404, 405, 408, 413, 414, 415, 416, 417, 418, 419, 421		3		

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