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Driel, C. van; Vanhoutte, S.

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ARCHEOLOGIE, MONUMENTEN- & LANDSCHAPSONDERZOEK IN VLAANDEREN

*Change and continuity at the Roman coastal fort at
Oudenburg from the late 2nd until the early 5th century AD*

Volume II: The material culture of the south-west corner site

S. VANHOUTTE (ED.)



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Archeologie, Monumenten- en Landschapsonderzoek in Vlaanderen
Heritage Research in Flanders

Agentschap
Onroerend Erfgoed



**Vlaamse
overheid**

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Oudenburg from the late 2nd until the early 5th century AD**

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with contributions by (in order of appearance):

Sofie Vanhoutte, Wim De Clercq, Johan Deschieter, Robin P.
Symonds, Sonja Willems, Patrick Monsieur, Malcolm Lyne, Vince Van
Thienen, Johan van Heesch, Peter Cosyns, Jan De Beenhouwer, Carol
van Driel-Murray, Tim R. Clerbaut and Sibrecht Reniere

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Tel.: 02/553 16 50
info@onroenderfgoed.be
www.onroenderfgoed.be

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8. The leather finds

Carol van Driel-Murray²²⁰

1. Introduction to the late Roman footwear assemblage from the fort at Oudenburg

The shoes recovered from the excavations at the south-west corner of the fort at Oudenburg give an unprecedented insight into the stylistic and technological changes in footwear occurring during the somewhat obscure period between the mid-3rd and the end of the 4th century. In Oudenburg leather was preserved in four separate contexts, two from fort period 4 (well OS 22926, large waste pit OS 4980: c. AD 260-300) and two from fort period 5 (basin OS 4923, double well OS 2562: c. AD 379/380 – early 5th century), all of which are closely datable (see the Appendix in this volume, Sections 5.3, 5.2, 6.2.2 and 6.2.5 resp.; see Volume I: Appendix 6). Such close definition for late Roman organic remains is extremely rare and the lack of comparative complexes of any size means that, for the present, the finds from Oudenburg must stand alone, as fixed points to which other finds can be related. Furthermore, what limited evidence there is comes primarily from Britain, a province that at this time has a rather different profile from the rest of the Roman Empire. The wider implications and international relationships cannot therefore be explored satisfactorily.

Following an outline focussing on the salient aspects of this assemblage, the finds are presented by context with a more detailed discussion of significant items. Most of the catalogued objects are illustrated on Plates CCCXLI-CCCLXII. Undiagnostic material, as well as sieve residue, is listed in the catalogue (Section 8 of this chapter).

2. The leather assemblage: general aspects

The leather assemblage consists almost entirely of footwear, with over 60 more or less complete shoes or soles. Apart from the deliberate deposition in well 22926 (cat. no. 1), the finds are composed of

re-deposited material and include a large proportion of unrelated decayed fragments. Since the material is so fragmentary, it is difficult to quantify accurately: it must also be assumed that the fills were taken from larger dumps elsewhere, so that the composition of the complexes is unlikely to be entirely representative. Some of the shoes can be reconstructed with reasonable certainty, while other fragments can only be generally classified as to style.

Roman footwear is classified primarily on technological features relating to the construction, since these basic elements have the greatest chance of survival (van Driel-Murray 2001, 347). The main categories present in Oudenburg are:

- simple single piece shoes (*carbatinae*),
- sewn single piece shoes,
- multi-layer constructions joined by hobnails,
- similar constructions joined by sewing (using twine) or thonging (using thin leather strips) (Table 8.1).

In addition, infrequent forms such as mules (cat. nos 95, 96) and fibre soles (cat. nos 60, 109) are also represented.

Where present, uppers can be identified on fastening method and appearance, and are sufficiently standardized to allow styles to be distinguished for ease of comparison. Conventionally, such styles are named after the location where first defined or another significant site (van Driel-Murray 2001, 362ff; Volken 2014)²²¹. The footwear from Oudenburg fills a long-standing gap in the development of footwear in the later Roman period in the northwestern province and charts the shift from nailed, multi-layered constructions to new types of sewn and single piece footwear. Nevertheless, for a period covering some 150 years, the range of footwear styles is curiously restricted. The wide choice of footwear styles of earlier times seems to have withered to variations on just two or three forms specific to

220 I would like to thank Franky Wyffels (†) (Flanders Heritage Agency) who was responsible for cleansing and conservation of the leather, Sylvia Mazereel (Flanders Heritage Agency) for the graphic designs based on my own poor sketches, Graham Sumner for kindly giving permission for the use of his illustration (Fig. 8.2) and Sofie Vanhoutte for the opportunity to study these finds, and her support during the production process.

221 Roman footwear is highly individual and named styles are defined on the basis of repeated occurrences at more than one site, preferably across a wide geographical area. Since complete shoes are infrequent, groups should also be defined on more general characteristics rather than on variable details.

Table 8.1. Shoe constructions (totals) by context. Between brackets, re-deposited material.

	OS 22926	OS 4980	OS 4923	OS 2562
<i>single piece</i>		5	1	12
<i>single piece sewn</i>			5	
<i>nailed soles</i>	2	27	2 (+2)	4
<i>sewn soles</i>				5
<i>slipper</i>				2
<i>varia</i>		2		
Total footwear	2	34	8	23

Table 8.2. Cutting patterns of uppers in the different contexts.

	I-pattern	J-pattern
OS 22926	1	
OS 4980	1	6
OS 4923		
OS 2562		2

each context. It is unclear whether this is a result of limited demand, perhaps due to specific population groups on the site expressing their wishes, or simply due to chance and the unrepresentative nature of the complexes. Most unusually, sandals are not present in any of the find groups from Oudenburg.

Apart from a few shoemaking off cuts the only leather artefact is an archer's wrist-guard from OS 2562 (cat. no. 110, Figure 8.1), evidently an incidental item roughly cut from old leather, and therefore not evidence for an archery unit in the fort. This was clearly made for personal use, perhaps for hunting or fowling. There is none of the military equipment so characteristic of earlier Roman sites: no tents, shield covers or baggage wrappings. The disappearance of leather equipment after the mid-2nd century is a general phenomenon, and is difficult to explain. In part, the changing nature of refuse disposal, poorer preservation conditions in the upper deposits, and perhaps ease of re-cycling in permanent forts could be contributing factors, but it may also be that leather ceased to play such a prominent role, being replaced by textiles.

3. The footwear

3.1 Composite constructions, nailed or sewn

Conventional Roman footwear is composed of an upper and a separate sole unit built up of several layers: an insole, an outer sole and between these a heel stiffener, as well as small packing pieces. These may be thonged to the insole (for example, cat. nos 1, 19, 29) but it is noticeable that in the 3rd century often it is only the seat lamina that is fixed (cat. nos 25, 31, 32). The sole is attached by means of nailing, or less frequently, stitching. The upper is usually whole-cut, as a J- or I-shaped pattern, with the edges joined respectively at

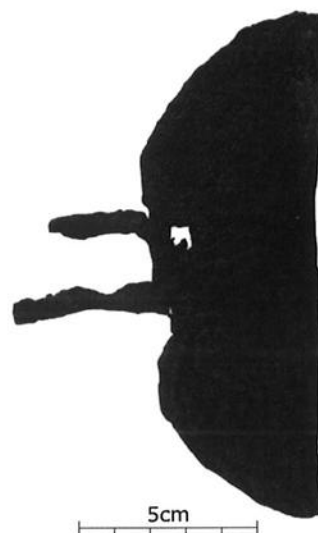


Figure 8.1. A roughly made archer's brace, found in the primary infill of the inner well of OS 2562 (cat. no. 110).

the side or at the toe (Volken 2014, 66-70). The upper is braced over the insole, using twine, but in the 4th century, twine is increasingly replaced by thin leather thong (cat. nos 97-101). Finally, the outer sole was nailed on, but from the early 4th century nailing begins to loose favour with a sharp decline especially apparent in the final quarter of the century. Instead, the outer sole was sewn on with twine or thong tunnel stitches, a construction that had previously been much less common. During the time of transition, the various sole constructions seem to have been used interchangeably, and the same shoe style may appear in a nailed, a sewn or even a single piece version: construction and style are, therefore, independent variables. Although uppers cut to an I-pattern are the norm for the first two centuries, during the 3rd century J-patterns become increasingly common, and dominate later assemblages, as is the case at Oudenburg (Table 8.2). The seam is usually at the medial side. Though this is often double stitched (cat. nos 12, 99), the side seam is evidently a weak point and frequently ripped, requiring additional reinforcements or patches (cat. nos 1, 11, 31). The decorative line of saddle stitches on the vamps of several shoes seems to refer to the earlier I-pattern where the seam produces a pronounced ridge as can be seen on cat. no. 14 (Figure 8.9). Such decorative stitching begins to appear around the mid-3rd century and, as is apparent from the Oudenburg finds, remains popular till the very end of the Roman presence in the region (cat. nos 1, 99, 102).

The most frequent style of footwear with a separate sole at Oudenburg is an ankle boot, laced through two or more pairs of eyelets. The vamp of the Ridley style is often low cut, exposing much of the foot and the shoes usually (cat. no. 10, Figure 8.9), but not always (cat. no. 9) possess integrally cut laces. Eyelets are usually lined inside, and a sewn heel stiffener as well as linings stiffening the lasting margins may also be present. A variant, style Walbrook, has a high vamp and between two and four pairs of latches closing round the leg but lacks the integral lace (cat. no. 1, Figure 8.8). This is a widespread, if infrequent variant and



Figure 8.2. Third-century shoes from two different tombstones. Left: the soldier Ares from Alexandria (British Museum BM1973.0422.1) with Ridley-type shoes. Right: Aurelius Firmus of Legio II Traiana Fortis (Catalan Archaeological Museum, Barcelona) with boots of the style Walbrook or Oudenburg (reproduced by courtesy of G. Sumner ©).

is attested in Dura Europos (Syria) as well as Barland's Farm (UK) (Volken 2014, 376). Small scraps of linings and eyelets suggest other variants of the front laced ankle boot, only one of which can be completed satisfactorily (cat. no. 14, Figure 8.9: a). From this it would seem that boots, tied at the ankle or a little above, were the favoured style of footwear together with occasional low cut shoes. Both shoes and boots could be worn with brightly coloured hose and leg-wrappings, as is depicted on contemporary tombstones, but all occur in a range of sizes and are neither specifically male nor military (Sumner 2009, Fig. 122) (Figure 8.2).

The four contexts at Oudenburg clearly chart the decline of nailed shoe constructions between the 3rd and late 4th centuries (Table 8.1). In the mid/late 3rd century, nailing still predominates, though the patterns tend to be lighter than in the previous century (van Driel-Murray 2001, 351 Fig. 21). The denser arrangements that were common for all sizes in the 2nd and earlier 3rd century (patterns 2 and 3, Figure 8.4: a, and Figure 8.3: 1 resp.) gradually disappear and are replaced by a single line of hobnails around the sole edge and a variety of decorative elements at the tread and seat (pattern 1, cat. nos 10, 20) (Table 8.3). But by the end of the 4th century hobnails appear sporadically, with only a few specimens in contexts OS 2562 and OS 4923. This trend is also evident from the occurrence of hobnails in graves: on the Continent and in Britain, a sharp decline in hobnails can be discerned from the mid-4th century onwards.

Table 8.3. Hobnailed soles.

	light: pattern 1	dense: pattern 2
OS 22926	2	
OS 4980	18	4
OS 4923	1	
OS 2562	1	3

X-ray photographs of iron corrosion reveal some of the complex tendril patterns that are a feature of the 3rd century (Figure 8.3: 2, 3, 5), but in context OS 4980 decoration is much simplified: fourteen of the seventeen soles with hobnails in pattern 1 display an S-shape under the tread (Figure 8.4: b). The effect of the hobnails lies primarily in the imprint left on the ground, and when viewed as a pair it appears that the S is usually (but not always) directed outwards. A regular feature is the appearance of double nails at the waist, sometimes in several sets (e.g. cat. nos 10, 16, 25, 26). Such double nails in combination with heavy nailing first appear at the very end of the 2nd century but are more regularly attested throughout the 3rd century (cat. no. 19).

Some 70 years later, the footwear spectrum has completely changed, and nailed footwear has almost disappeared (Table 8.1). None of the sewn soles of fort level 5 (OS 2562) preserves sufficient of the upper to identify the style, though decorative tunnel stitching down the length of the vamp is common, occurring on shoes in both male and female sizes. Such stitching is a reoccurring element on footwear of the 4th century and continues to be applied into the 5th and even the 6th century (e.g. Portchester c. 330: Ambrose 1975, nos 268, 300-301, 385; Queen Arégonde: Volken 2014, 119, Figs 155-156).

3.2 Single piece shoes

Single piece shoes or *carbatinae* are basically formed out of a single oval of leather, shaped only by a T-shaped back seam and laced over the foot through loops spaced round the edge. There is no separate sole, though damaged areas might be patched. The back seam is sewn with an edge/flesh stitch so that it is invisible from the outside. As is the case with the other constructions, sewing with thin thong becomes increasingly common in the 4th century. Two main styles are represented: style Amcotts exclusively in OS 4980 (cf. Figure 8.5) and style Wijster exclusively in OS 2562 (cf. Figure 8.6.a). An unusual feature of this latter group of shoes is

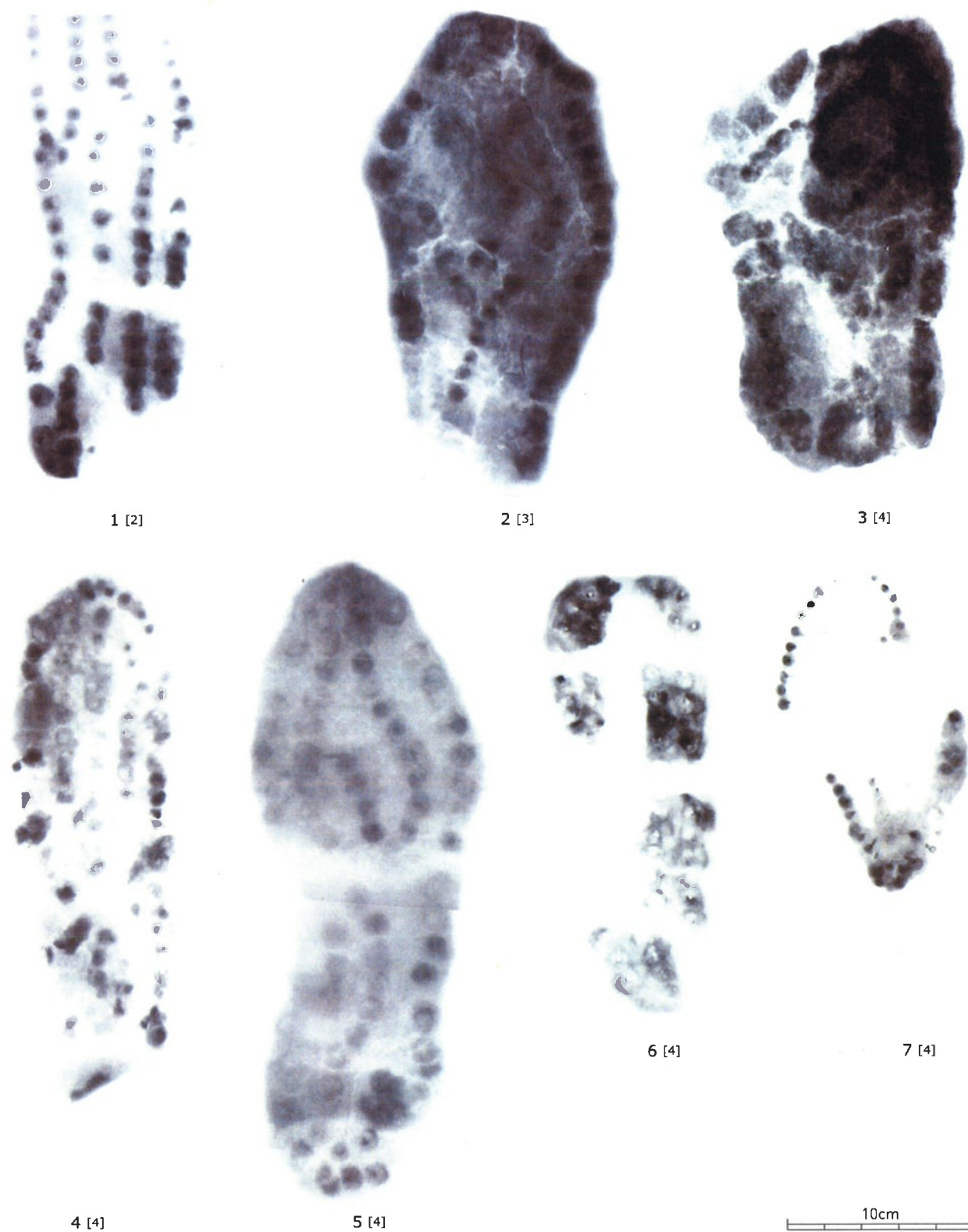


Figure 8.3. Hobnails revealed by the X-ray photography of iron corrosion, from different levels. The fort level for each is indicated.

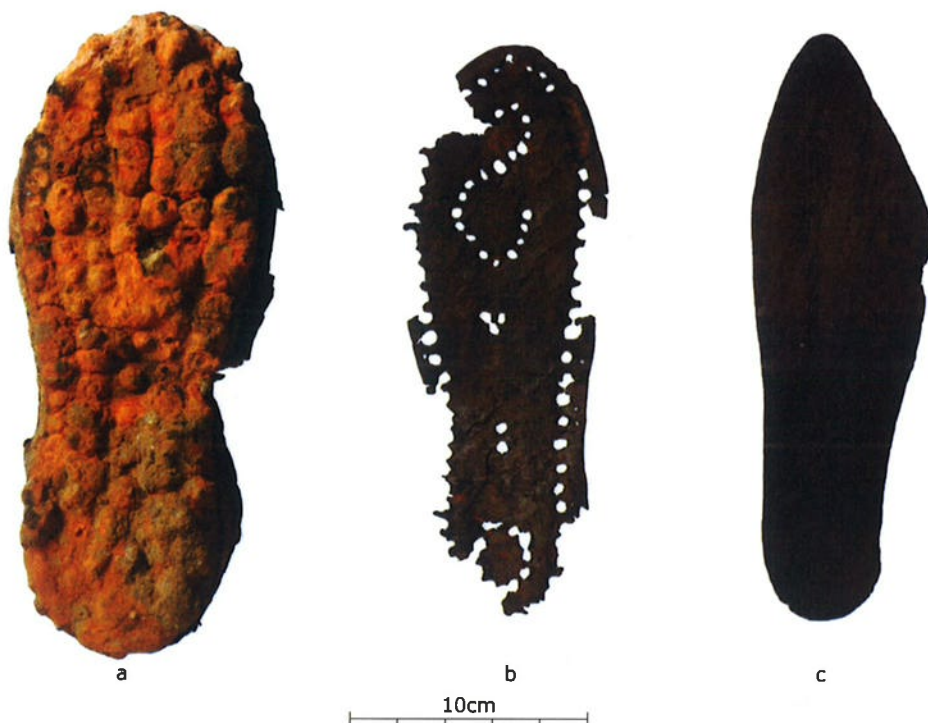


Figure 8.4. Comparative hobnail patterns and sole shapes, cat. nos 28, 8 and 99.

a slit in the quarter, that may be associated with the use of spurs (Figure 8.6; cat. nos 76, 77, 83). Cat. no. 85 also has a small hole at the back that might serve a similar purpose. Some of the shoes from the fort at Cuijk and the settlement at Wijster (NL) also seem

to be modified to take a prick spur, possibly of organic material (van Driel-Murray 2005, Figure 8.9) and a spur was still attached to one of the shoes from Deurne (van Driel-Murray 2000, 298). Although the lack of larger well-dated assemblages of leather on the Continent complicates the identification of regional groupings, the Amcotts style may betray connections with Britain (see below, paragraph 6.2.1), while the Wijster style has clear links with northern Germany (see below, paragraph 6.4.2).



Figure 8.5. Photograph of Amcotts style single piece shoe cat. no. 2, after cleansing.

3.3 Single piece sewn shoes

Shoes cut from a single piece of leather and ingeniously sewn together appear rather suddenly at the start of the 4th century. There are several variations to the basic form but all tend to be very low cut, with a small vamp and some form of lace passing under the foot through small holes in the shoe sides (Figure 8.7; van Driel-Murray 2001, 370-71; Volken 2014, 142). In style Deurne the fastening lace springs from a pronounced quarter, that may be decorated with openwork while in the Cuijk variant the quarter is hardly defined.



Figure 8.6. a: photograph of Wijster type shoe cat. no. 74 after cleansing; b: back part of Wijster style shoe cat. no. 76 with possible 'spur vent'.

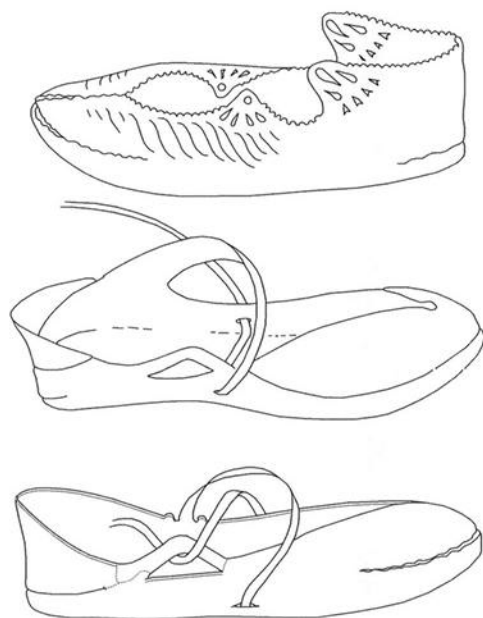


Figure 8.7. The three single piece sewn shoes associated with the deposition of a helmet and other equipment at Deurne with suggested reconstructions (shaded). From top to bottom, style Meyel, style Deurne and style Cuijk (graphic realisation S. Mazereel, Flanders Heritage Agency).

An important association is formed by the shoes, one with attached spur, found at Deurne (NL) together with a helmet in its carrying bag, a sword sheath, a cross bow brooch, textiles and a bivouac tent. A carefully chosen collections of coins gives a *terminus post quem* of c. 320 for this group (van Driel-Murray 2000). A much larger group of similar sewn footwear from the mid-4th century has been recovered from the river Maas at the location of the later Roman fort and bridge at Cuijk, and Oudenburg now extends the range of this shoe style till the end of the 4th century. It is a truly international style and other finds are known from military sites such as Vindolanda (UK) and (possibly) Portchester (UK), with sporadic occurrences at *villae* and other civilian settlements, such as Aquileia (I) showing that this is not an exclusively military style (Ambrose 1975, Fig. 135; van Driel-Murray 2007). It is also attested in children's sizes. Though the vestigial vamps are easily recognizable in late Roman art work, the footlace is only occasionally indicated: the clearest depiction is to be seen on the statue of the Tetrarchs in Venice (van Driel-Murray 2001, Figs 76-77; Volken 2014, Fig. 145). While at Cuijk the variants occur in various sizes and together with single piece shoes of style Wijster, in Oudenburg the shoes of this type occur only in context OS 4923, and all are in adult male sizes (Tables 8.4 and 8.5).

Table 8.4. Late Roman *carbatinae* and single piece sewn shoes from Cuijk and Oudenburg.

	Cuijk	Oudenburg
style Deurne	5	-
style Cuijk	13	5
style Wijster	8	7

3.4 Fibre sandals

Two rather shapeless soles, stitched around the edges are possibly reinforcements for sandals or mules made of fibre (cat. nos 60 and 109). The leather is thin and curled up at the edges in a way that does not accord with use as a repair sole for single piece shoes. Well-preserved thongs on a comparable sole from Cuijk showed that it had been attached to a solid sole layer some 1-2cm thick. This suggests some organic material and invites comparison with woven or coiled reed sandals from Roman Egypt, and more modern examples of reed mules used in Hungary (van Driel-Murray 2001, 359). There is also some evidence from London for fibre soles enclosed in leather strips like cat. no. 66 (Mould 2012, cat. no. 139). These leather soles are crudely made, sometimes of re-used material, and this may have been an expedient attempt to prolong the life of reed sandals in a damp climate.

Related to this type of thick-sole footwear are the two decorated mule tops that were attached to a thick cork/wooden sole (Figure 8.11, cat. nos 95 and 96). This type of closed fronts was previously only known from a single occurrence in Pommeroeul (B), though open fronted cork slippers are attested in civilian and military contexts from the end of the 2nd century onwards (van Driel-Murray 2001, 369-370 and Fig. 37).

4. Shoemaking

Relatively few shoemaking off cuts are present amongst the refuse (for example, cat. nos 67-70). These represent no more than the usual settlement background noise, attesting to some sort of shoemaking or cobbling on site, but not to the presence of workplaces in the immediate environs of the find locations. That shoemakers were active within military communities is evident from the distribution of off cuts in forts such as Valkenburg and Velsen (NL) (van Driel-Murray 1985, Fig. 5) and although not directly relevant for the late Roman situation at Oudenburg, the rather exceptional find of two shoemaker's anvils (IR. C68-70) in a pit at the back of the military hospital of fort level 2 confirms the presence of a workshop here at least in the second quarter of the 3rd century. The iron anvil is a specifically Roman shoemaker's tool, used when hammering in the hobnails. On striking the anvil, the sharp points of the hobnails are bent back into the leather clenching the layers and making the points safe. In contrast, the sewn footwear of the 4th century only requires a wooden shaping last. All the different styles of footwear could have been made by any shoemaker working within normal Roman manufacturing traditions, though the rather restricted choice of footwear and the uniformity of nailing patterns suggests that only a few craftsmen were working here at any one

time. In view of the worn condition of much of the footwear, cobbling was perhaps of more importance than shoemaking. Repairs carried out on cat. nos 1 and 11 especially will have required reconstruction of the sole layers and many other soles display signs of re-nailing. Refurbished shoes like cat. nos 7, 11, 76 and 91 show that considerable effort was put into prolonging the life of footwear. The large off cut cat. no. 44 is a large piece of smoothed hide folded double in order to cut out a pair of *carbatinae*, carefully avoiding several surface blemishes. This is not a particularly thrifty use of a hide, but ensures accurate pairing, and also suggests that shoes were more or less bespoke, not laid out beforehand in economically driven arrangements.

If certain styles such as Wijster indeed reflect the presence of incomers, it is evident that shoemakers were able to adapt to the new demands, for the techniques and the leather used are the same as in other Roman complexes and it is only the style of the shoes that is different. Experimentation is perhaps visible in the light scores on the Wijster shoe cat. no. 75, a first indication of the position of the lace holes that had to be modified after fitting the shoe to the client's foot. A few snippets in OS 4923 suggest that the Cuijk style sewn shoes were also being made here.

5. The inhabitants of the fort

Footwear forms an accurate picture of the living population present in the fort at any one time so it is rather unfortunate that there are relatively few complete, measurable soles to provide convincing graphs for each assemblage. Only a general impression can be given on the basis of size groups formed by comparing the dimensions of complete soles with those of more fragmentary specimens (Table 8.5). Any estimation must also take account of the fact that only the insole registers the true foot size, while single piece shoes are easily adjusted to minor differences in foot length or width. In Roman contexts the division between adult male and adult female lies around size 35 (23 cm), with size 36 forming an overlap between the two. Though the dense nailing pattern 2 is exclusive to the large, male sizes, there is no further correlation between decorative patterns or the style of the shoe uppers and the size of the footwear. The elaborate tendril nailing of cat. no. 61 and the one exposed by the X-ray photograph of iron corrosion (Figure 8.3: 5) occur on large soles, while the Ridley style uppers appear in both male and female sizes.

As is to be expected, male footwear dominates, but there are sufficient shoes in the smaller size ranges to show that women and children formed about one third of the population. This proportion is comparable to that from *vici* and urban settlements, and suggests that the fort sheltered not only soldiers, but also their families (Hoevenberg 1993, 257). The assemblage from OS 4923 stands in stark contrast, being composed exclusively of male footwear. Even the unmeasurable, decayed fragments are clearly derived from large shoes, reinforcing the impression that this group of people is somehow special.

With the necessary caution, the style of the footwear may hint at the origin of the inhabitants of the fort and the nature of the garrison

Table 8.5. Size groups represented in the four assemblages, both measured and estimated.

	OS 22926	OS 4980	OS 4923	OS 2562	TOTAL
<i>child</i> 18-22 cm		2		2	4
<i>female</i> 22-24 cm	1	7		4	12
<i>male</i> 25+ cm		16	8	12	37
TOTAL	1	25	8	18	53

in residence. Sewn shoes of the Cuijk/Deurne styles are widespread throughout the Empire, and also figures on statues, frescos and mosaics: they are very much an international, Roman style of dress and may point to the presence of a mobile unit, operating without dependents (van Driel-Murray 2000, 302, Fig. 7). In contrast, the Wijster style is not attested on Roman sites, other than at Oudenburg in context OS 2562 and in the fort at Cuijk, but it does occur widely outside the Empire, in the northern Netherlands and Jutland (Hald 1972, 54-55; van Driel-Murray 2005). It may therefore be justified to regard these shoes as representative of a Germanic element, although the footwear was made locally, using standard Roman materials and techniques. As at Cuijk, this shoe style may be connected to the presence of Germanic mercenaries serving together with regular Roman forces, as represented by the Cuijk style shoes of OS 4923 (van Driel-Murray 2009, 11-2, Figs 2-3). And if the slits in the Wijster shoes are indeed made for spurs, the unit of fort period 5B (late 4th – early 5th century) would appear to have been mounted. Ethnicity is, however, not clear-cut, a topic that also arose in the analysis of the late Roman Germanic-style pottery (see Chapter 1.C.2 in this volume) (for further discussion on identity: see Volume I, Chapter V.3.4.2).

A different problem is posed by the Amcotts style shoes. The pattern diverges from that current in earlier 3rd-century complexes such as the Saalburg or Valkenburg (Busch 1965; Hoevenberg 1993), but the absence of comparable late 3rd-century assemblages on the Continent makes it difficult to evaluate the significance of the – as yet – exclusively British parallels for the style. Nevertheless, the presence of people from Britain might be considered.

6. The dated assemblages and the development of late Roman footwear styles

6.1 A closure offering: well OS 22926 (felling date AD 260-275)

The virtually complete left shoe (cat. no. 1) from the well OS 22926 is a neatly made but old and patched ankle boot in a woman's size (Figure 8.8; Plate CCCXLI). Both sides of the vamp were ripped apart and no longer fit together, but traces of the side seam are visible at the medial waist, confirming that this is a J-pattern shoe upper with decorative saddle stitch on the vamp, style Wallbrook. Although both sides are damaged it is unlikely that there was

Figure 8.8. Well OS 22926, fort level 4: a. shoe (cat. no. 1) *in situ* at the bottom of the well, in the clay level representing the abandonment of the structure; b: reconstruction (graphic realisation S. Mazereel, Flanders Heritage Agency).



sufficient space for integral laces, and the shoe closely resembles an early-mid 4th century shoe from Barland's Farm (van Driel-Murray 2004, Fig. 4.5.6-7). Nail punctures suggest the S-pattern that is also favoured in OS 4980 and with which this find is pretty well contemporary.

Lying at the base of the final fill, the shoe represents an offering of closure, dating towards the end of the 3rd century. Shoes associated with either the construction or the closure of wells occur with some frequency throughout the Roman period and a regular feature of such deposits is the use of a left shoe, as here (van Driel-Murray 1999). This would seem to be a form of sympathetic magic, but why some wells contain shoes while others do not is unclear. There is no such deposit in the double well OS 2562, and although the two decorated mules are certainly special they are both incomplete (see below, paragraph 6.4).

Another nailed sole was revealed in corroded iron from the later waste infill of the well (Figure 8.3: 5). This is a large (right?) sole with elaborate tendril nailing, very similar in design to cat. no. 61 from OS 4923 which is almost certainly re-deposited from disturbing the top of OS 4980. Elaborate tendrils are especially popular on men's shoes from the 180's till the end of the 3rd century (Figure 8.3: 2-3; van Driel-Murray 2001, 353, Fig. 23).

6.2. The rubbish pit OS 4980 (c. AD 268-275)

This is the largest of the Oudenburg leather complexes with a minimum of 33 shoes, for the most part nailed soles with a small number of single piece *carbatinae* (cat. nos 2-53; Plates CCCXLII-CCCLI). The absence of sandals and sewn soles is remarkable, as both would be expected in a mid-later 3rd century complex. Where preserved the uppers are predominantly Ridley style or variants thereof, while the *carbatinae* are almost all Amcotts style.

6.2.1 Single piece shoes

Five single piece shoes can be classed as Amcotts style²²². The characteristic forward facing loops are ingeniously cut out, using a minimum of slits and resulting in scarcely any waste (Figure 8.5). Each long narrow loop is formed by two oblique slits and is simply pulled up into shape. The quarters are often decorated with openwork, frilling and stamping, and are highly individual in form and arrangement: the front is sometimes cut into tabs that close over the toes, but that does not appear to be the case in Oudenburg. The style is well known in Britain, appearing in several late 3rd – early 4th century contexts (Mould 1990, Fig. 142; van Driel-Murray 2011, Fig. 11.6; unpublished examples from Vindolanda and the Museum of London archive). With the exception of cat. no. 6, the openwork quarters close just above the ankle and all possess rather similar decoration formed of expanded cuts (cat. no. 4), stamped roundels and frilled edges. On cat. no. 2 the open rectangles are individually cut between two stamped roundels. The quarter treatment of cat. no. 6 differs, but the cutting pattern of the oblique loops is the same as the others of this style, showing the variation possible within the same basic form.

A much cruder *carbatina* is represented by several fragments of similar, but not matching, shoes (cat. nos 7-8) with stubby loops and crudely cut rectangles in a low quarter. Cat. no. 7 is thonged to the heel stiffener of an old nailed bottom unit. This combination is an infrequent, if reoccurring phenomenon (see also cat. no. 91). As *carbatinae* are highly flexible, the loops would soon snap if attached to a rigid nailed sole, and these hybrids may in fact have served some special (short-term) purpose. Old nailed soles might, for instance be bound under single piece shoes to provide extra grip in snow or icy conditions.

²²² Named after the shoes worn by a female bog body found in 1747 during peat cutting at Amcotts (UK) (Turner & Rhodes 1992).



Figure 8.9. Reconstruction of shoes cat. no. 14 (a) and cat. no. 9 (b) (graphic realisation S. Mazereel, Flanders Heritage Agency).

6.2.2 Nailed shoes

The rubbish pit is the only context in Oudenburg where the nailed construction dominates (Table 8.1) but the upper of only five of the shoes remains together with some loose fragments from decayed shoes. Cat. no. 10 is a neat Ridley style with a fat integral lace set so far forward that there is only room for a small toe-cap (Figure 8.9: b). Though worn, the shoe is well made with vulnerable points like the lasting margins and the lace holes being reinforced with stitched in linings and the sole is neatly nailed. Cat. no. 9 is an almost identical shoe, but without the integral laces. Traces of an instep loop at the appropriate position suggests cat. no. 15 also belongs in this group, as do some unattached linings (cat. nos 30, 35), making at least five examples of this style. In London, the New Fresh Wharf site offers close parallels and there are several from the later levels at Vindolanda (MacConnoran 1986, 220; van Driel-Murray 2001, Fig. 63). Other kinds of boots are represented by fragments only, such as the eyelets cat. nos 11, 22, or the larger cat. no. 13 that is recognizable as a front-laced ankle boot of an infrequent type also known from 3rd-century Vindolanda, but seemingly becoming more popular in later times, as similar footwear appears on sculpture of the 4th and 5th centuries.

One new style can now be defined and is named 'Oudenburg' (Figure 8.9: a), as it is clear that it is not simply an occasional variant. Cat. no. 14 is a sturdy, close-fitting boot with a laced front opening combined with two or more eyelets in the boot leg. The foot lacing is horizontal, producing a raised comb, that in the case of an incomplete example from Barland's Farm is continued in a line of decorative saddle stitch, resembling the shoes of *Aurelius Firmus* (Figure 8.2). In Oudenburg this is the only upper cut in an I-pattern; elsewhere the boots occur in both I and J-patterns. Early to mid-3rd-century parallels occur at the Saalburg (Busch 1965,

Taf. 15.222) and Vindolanda (unpublished), while the early 4th-century boot from Barland's Farm suggests a much longer life for the style (van Driel-Murray 2004, Fig. 4.5.2).

In contrast to the fragmentary nature of so many of the finds, the pair of children's soles, cat. nos 28 and 29 is notable. The soles are quite strongly constructed with laminae firmly thonged to the insole and large nails holding the construction together. Interestingly, the thonging differs as more small pieces were used to fill cat. no. 29. Several nails had to be replaced along the outer edge of cat. no. 28, unusual for a child's shoe, but less so in the case of the sole cat. no. 19, where much of the front appears to have been re-nailed. Cat. no. 12 is an exceptionally massive shoe. Not only is it heavily nailed, but the upper is made of a double thickness of leather. This may be for a special purpose shoe, or more probably, to cover the poor quality of the inner layer: deep cuts in the poorly cleaned hide used for both cat. nos 11 and 12 were sewn up before the shoes were made, but in the case of cat. no. 11 the many blemishes continued to rip, requiring constant repairs and patches. These shoes and the worn condition of many of the other soles could indicate difficulties of supply, or the footwear belonging to poorer members of the community.

The favoured **nailing pattern** is a single line around the edge and an S under the tread. At the seat there is more variation – a circle, a simple line or a group of four nails while at the waist various combinations of double nails or lines occur: the most common is two nails at the waist area (pattern 1c). Occasionally complex S-patterns or tendrils occur (cat. nos 24, 33 and also 61) but there is little of the exuberant variety seen in earlier 3rd-century find groups (Figure 3: 2). Four soles are heavily nailed (cat. nos 12, 19, 27, 32), in either pattern 2c or 2b (with or without a central nail). These soles are wide, blunt and thick waisted, and represent heavy work

shoes. Though these occur mainly in large, male sizes, decorative nailing is by no means exclusive to smaller foot sizes.

The preponderance of S-nailing patterns aligns this assemblage more to early-mid 3rd-century contexts from the Saalburg, London and Valkenburg (Busch 1965; MacConnoran 1986, 218; Hoevenberg 1993), rather than the late 3rd/early 4th-century complexes from London and Britain in general. Notable is the absence in Oudenburg of hobnails in groups of three: a few soles in OS 4980 display such groups as a variant on the more common double waist nail (cat. nos 11, 20) but not as an independent element. A scattering of triple nails occurs regularly on soles in several late Roman assemblages, including London and Aardenburg, and in consequence of the evidence from Oudenburg, it would therefore seem that such assemblages follow OS 4980 and date to the very end of the 3rd/first half of the 4th century (van Driel-Murray 2001, Fig. 22; 2011, Fig. 11.1).

The two closely dated assemblages OS 22926 and OS 4980 bring certain trends into focus that characterize 3rd century footwear:

- the dominance of pattern 1,
- hobnails in an S-pattern under the tread,
- the occurrence of double nails at the waist,
- the occurrence of pattern 2 with a gap at the waist, sometimes with one or two nails.

The two later assemblages reveal the extent of technological and stylistic changes in the following century.

6.3 A special group, OS 4923: last quarter 4th century – early 5th century

The finds from the water basin OS 4923 display a completely different profile to the other complexes (cat. nos 54-73; Plates CCCLII-CCCLIV). The five Cuijk style sewn single piece shoes and the fragments of a Skeldergate nailed shoe are not represented in any of the other contexts. The waste pit OS 4980 is cut by the construction of the water basin and the **nailed sole** (cat. no. 61) with its elaborate tendril nailing and neatly finished off upper evidently clearly belongs to the earlier complex. Both nailing and the finish of the shoe back are typical of the mid-3rd century, indeed, the tendril nail pattern is almost identical to the X-ray photograph of a sole from the fill of well OS 22926 (Figure 8.3: 5).

Consistent with the late 4th-century date is the very fragmentary cat. no. 62, that is closely comparable to footwear from York and Portchester (MacGregor 1978, Fig. 28; Ambrose 1975, Fig. 133, 266). These **nailed shoes** possess a much-reduced vamp, fastened at the ankle with an integral lace set close to the quarter. Such shoes may also have an underfoot lace, though this is not apparent on these illustrations. But on a fragment of a comparable, poorly preserved nailed shoe from Barland's Farm the hole for a footlace is discernable (van Driel-Murray 2004, Fig. 4.5.10). The upper

and vamp are often decorated with cut openwork and impressed or stamped designs, resembling chip-carving, and similar shoes with sewn soles occur at Cuijk: this is the type of footlace shoe worn by the Tetrarchs on the statue in Venice, and is a forerunner of the sewn Deurne/Cuijk style footlace shoes (van Driel-Murray 2001, 371; 2007, Fig. 4).

The Cuijk style **sewn shoe** cat. no. 54 (Figure 8.10) preserves the fastening loop at the offside and clearly displays the impressions of the lace passing under the foot and through holes at the side of the shoe. The similarity of the shoes with those from Cuijk is remarkable, even to quite specific details, such as the attachment of a raised back piece (cat. no. 58), and the decoration with frilling, punched holes, impressed swags and pricking. What is curious is the lack of any other accompanying styles: at Cuijk this footwear appears together with single piece shoes of style Wijster, as well as sandals and sewn shoes of various types (van Driel-Murray 2007, table 1, Fig. 1). Perhaps indicative of a specific population group is the fact that all the shoes appear to be adult male, in contrast to Cuijk where women and children's sizes are also represented. It seems likely that these shoes are the refuse left by a specific group of male occupants who were clothed in a distinctive fashion. Interestingly, a few offcuts seem to suggest that this shoe style was also being made on site. The similarities with both Deurne and Cuijk would seem to point to a date in the mid- 4th century, though a small peak of coins in the river at c. AD 380 might allow a slightly later date for the finds from Cuijk.

6.4. The double well OS 2562: felling date 379-380, fill late 4th – early 5th century

This complex (cat. nos 74-117: Plates CCCLV-CCCLXII) reveals a marked shift away from nailed shoes to single piece and sewn or thonged constructions, though the aspect of the footwear itself retains familiar features and is still recognizably 'Roman'. Highly unusual is the occurrence of two **leather mules** (backless slippers, cat. nos 95 and 96) both associated with the stitched envelope sheathing over a 10mm thick cork or wood sole, but otherwise incompletely preserved (Figure 8.11). The wood fragments were identified as linden bark (*Tilia* sp.).²²³ The two mules are sophisticated products, made of fine, smoothed deer or thin goatskin, richly decorated and with textile or fur linings. On cat. no. 96 the decoration is still crisp: unusually this was impressed from behind, possibly by being pressed into a mould. The two differ in size, cat. no. 95 is in the female range, while cat. no. 96 is male. These are two very special finds, but there is nothing to suggest they were intentionally deposited: the mules were fragmentary, and were mixed with all the other rubbish in the main body of the fill. The mules may tentatively be associated with the bath house located to the south of the well, but are equally likely to have been used in a domestic setting. Curiously, the sewn sole cat. no. 99 was modified by partially removing the back and inserting a wedge, so that it too could be re-used as a backless slipper. Another unusual form is the reinforcement sole for a **fibre sandal** cat. no. 109.

223 Wood analysis by dr. K. Deforce, Flanders Heritage Agency.



Figure 8.10. Cuijk style single piece sewn shoe cat. no. 54 and reconstruction (graphic realisation S. Mazereel, Flanders Heritage Agency).

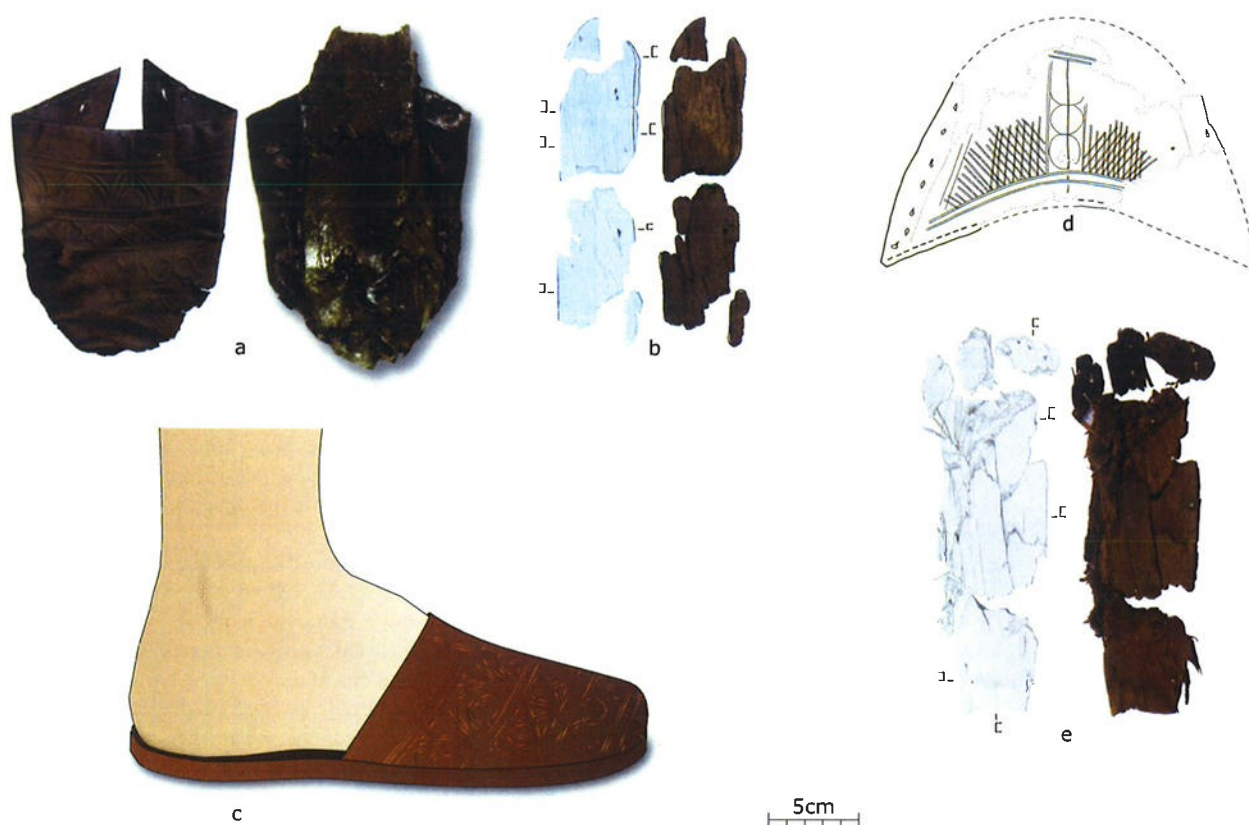


Figure 8.11. a: mule cat. no. 96, leather top as found with wood in place; b: wood following conservation. d: mule cat. no. 95; e: wood following conservation; c: reconstruction of the mule cat. no. 96 (photos H. Denis/F. Wyffels; graphic realisation S. Mazereel, all Flanders Heritage Agency).

6.4.1 Separately soled shoes

As is to be expected at this time, there are few **nailed** soles, most disintegrated and incomplete, still clearly similar in shape to the sewn soles in the complex. The type of upper represented by the fragment of a middle layer associated with cat. no. 91 is unclear as thongs seem to indicate the presence of a side seam, while the scars of a side loop between decorative roundels suggest a Cuijk style fastening. This may be another example of the sort of hybrid modification seen in cat. no. 7, and also represented at other sites such as London New Fresh Wharf (MacConnoran 1986, 220, no. 8.8).

Here composite footwear is most commonly **thonged** together using narrow leather strips, giving a softer, more flexible construction. The individual components – two sole layers, laminae, heel stiffener, separately cut upper with internal lasting margin reinforcements stitched in – remain the same as in the earlier nailed constructions but as the thongs survive, they reveal the construction clearly: the lasting margins whipped to the underside of the insole (cat. nos 97 and 98) with the outer sole attached by tunnel stitching (cat. no. 98). Details such as the starting and finishing knots are also clearly visible (cat. nos 100 and 105). All the soles are rather straight, thick waisted and pointed in shape, contrasting strongly with the sole shapes of the 3rd century in OS 4980, but there is still a clear demarcation between left and right (Figure 8.4). Where preserved the **uppers** are J-pattern, with a side seam that also tends to be thonged rather than stitched (cat. nos 99 and 100). Three vamps display decorative saddle stitching, but no indication of the fastening method survives and the small fragments of upper with cat. nos 98 and 102 are too unspecific for identification or reconstruction. The remnants of the decayed upper cat. no. 103 seems to represent a shoe with very large, open loops, as, perhaps, does the back cat. no. 104. As the leather quality of these fragments differs considerably, it is unlikely that they are associated, though they evidently belong to the same type of footwear. Neither can be paralleled in any Roman assemblage, but they do closely resemble a shoe with a separate, sewn sole found on the Frisian coastal *terp* Finkum (unpublished, but see van Driel-Murray and van der Plicht 2016). This site has produced Roman pottery and coins and several other Roman influenced shoes, as well as local footwear in the style of the *carbatina* cat. no. 85 (see below), and offers an intriguing insight into contacts between the northern coastal region and military sites within the Empire.

6.4.2 Single piece shoes (*carbatinae*)

Seven fragments can be identified as belonging to the style Wijster (Table 8.4; cf. Figure 8.12). The style seems to be influenced by Germanic traditions of strongly asymmetrical cutting patterns (Gräf 2015, Abb. 33), and first appears in Roman military settlements such as Cuijk, in the mid-4th century (van Driel-Murray 2007, Fig. 10) though several examples are known from outside the Empire, including the early 5th-century settlement of Wijster (Hald 1972, 54-55; van Driel-Murray 2005, Fig. 1-2; Gräf 2015, Taf. 20-24). The shoe type may be connected with the presence of Germanic mercenaries and their accompanying families, though the shoes in both Cuijk and Oudenburg were



Figure 8.12. Wijster style *carbatina* reconstruction (based on cat. no. 75) (graphic realisation S. Mazereel, Flanders Heritage Agency).

clearly made using normal Roman shoemaking techniques. The shoes are cut as an asymmetrical oval, with slits on the lateral side allowing the leather to be pulled over the foot as a sort of net that is laced to simple slits cut in the opposite edge. The principle is simple, though remarkably difficult to achieve experimentally. The shoe can be elaborated in various ways (cat. no. 74), and the care with which the expansion slits are arranged varies.

Two of the shoes had been subjected to extreme wear: the back seam of cat. no. 75 had been entirely re-stitched with coarse twined fibre thread using new holes cut roughly into the back and the instep loop appears to have been replaced as well. In much worse condition was cat. no. 76: it had been patched several times, the back seams had been re-stitched and the side may have been drastically modified. On cat. nos 78 and 87 snapped loops were apparently replaced or re-attached with string, knotted through holes punched into the stumps. It looks as though considerable effort was being taken to prolong the life of these shoes. The vertical slit on either side of the back seam of three of the shoes has been discussed above (paragraph 3.2).

The decayed *carbatina* cat. no. 85 (possibly with the fragments cat. no. 86) is even more closely related to the Germanic tradition of footwear with narrow composite loops, as exhibited by shoes from Uetersen and Fallwerd, as well as specimens from Friesland (Gräf 2015, Taf. 8; van Driel Murray & van der Plicht 2016, Fig. 2, 4). Similar shoes are already attested in the early 3rd century on the Roman fort of Saalburg, where they can be associated with Germanic pottery and brooches, revealing the presence of Germanic soldiers and their families (Busch 1965, nos 3, 82, 100-101; van Driel-Murray 2009, 815, Fig. 1). Here too, small holes on either side of the back seam may indicate the presence of spurs. In the context of these Germanic influences, the thong stitching cat. no. 89 is intriguing since it is still interlocked and some remnant of the associated *carbatina* back would be expected. Conceivably this stitching is all that is left of a shoe made in the Germanic tradition with cured skin: unlike vegetable tanned leather, cured

skin decays in damp conditions. Taken together there appears to be strong evidence in OS 2562 for the presence of people with roots beyond the frontier, in the northern Netherlands and northwestern Germany.

7. Conclusion

The footwear from the fort at Oudenburg provides direct evidence for the clothing of the inhabitants and also provides an insight into the nature of the communities concerned. The shoes of women and children in the two largest assemblages, OS 4980 and OS 2562, suggests that families were living within the fort in both periods 4 and 5. In contrast, in OS 4923, an exclusive assemblage of Cuijk style footwear occurring only in male sizes points to a separate group, perhaps the temporary presence of a special military unit, since the style does not appear in the more or less contemporary assemblage of OS 2562.

In times of transition and in multi-ethnic communities, clothing is intimately linked to expressions of personal identity, in a visual demonstration of the cultural links of the wearer. At Oudenburg there is little variety in nailing patterns, that in most military and urban communities formed the favoured medium for personal expression (Busch 1965; Hoevenberg 1993), but instead there are clear choices in the design and technology of footwear, that would be reflected in the gait of the wearer and the drape of other garments. The difference between a person walking in hobnailed boots or someone walking in the soft *carbatinae* of the Amcotts style would be recognizable at a glance. The minimal vamps of the Cuijk style sewn shoes demand a sliding, front-strike gait, in contrast to the heel-strike of thick soled shoes, whether nailed or sewn.

The four assemblages span a time of technological change. While the material in OS 4980 continues traditions of footwear design of the later 2nd and early 3rd century, a new design in *carbatinae*, the Amcotts style, might point to enhanced links with Britain at this time. The footwear of the period 5 fort shows the results of the rapid changes that had taken place during the 4th century. Hobnailed constructions are hardly used and sandals may also have disappeared, thin leather thong replaces twine as a sewing medium, and new forms are introduced – mules, fibre soles, ingeniously sewn soft-soled single piece shoes.

Most significant at Oudenburg is the evidence for the presence of people from outside the Empire, from Friesland or northern Germany, witnessed by their distinctive shoes.

8. Catalogue of the late Roman leather from the Oudenburg fort

I. Context OS 22926, well fort period 4, primary infill

*Tp*q AD 260-275 (felling date of boards framework), infill: c. AD 274-300(+)

Cat. no. 1. Complete shoe (Plate CCCXLI; Figure 8.8).

Complete, though fragmentary left shoe of calfskin (2mm), style Walbrook, with nailed bottom unit, damaged at the front but probably no more than size 33-34. There is a narrow heel stiffener (3.5 cm) and two large laminae are thonged to the insole: lasting margins are braced and partially whipped to the laminae. Only fragments of the outer sole remain, with holes of sparse nailing (1d), with a circle under the seat. The upper is almost complete, though worn and sweat rotted inside, and is now broken into two not quite joining fragments. Back is ankle height with two pairs of latches, reinforced by a whipped-in cord along the edges (visible only where flesh side preserved), the top edge is folded in and whipped down. Medial instep area damaged, but stitching and a depressed line on the grain side of the back section are recognizable, indicating the presence of a double stitched lap seam. On the lateral side, a deep tear has almost separated the vamp from the back: possibly an opened out fleshing cut; it does not extend into the lasting margin and it was repaired with a patch tacked to the outside. High vamp, with a line of saddle stitch raising a ridge 3mm wide, but the flesh is too worn to see whether a tongue or other reinforcements were present. The shoe is heavily worn and creased, and the upper may have torn loose at the tread, where some stitches indicate a further repair. Despite the tearing, there is no suggestion of integral laces neither would there have been room for them. The tie holes are distended by a broad, flat lacc, the upward direction of which seems to indicate that it was wound round the lower leg after crossing to the ankle latches. Insole (19) x 8 cm; surviving upper dimension (38) x (10) cm.

* Delaminated grain surface of a narrow strip of leather. Off cut or lacc end. 6.5 x 0.8 cm.

II. Context OS 4980, large rubbish pit fort period 4, primary infill

*Tp*q AD 267-268 (coin hoard), infill c. AD 268-275

Carbatinae

Cat. no. 2. Almost complete, if decayed and delaminated shoe lacking much of the grain surface (Plate CCCXLII; Figure 8.5).

Most of the loops are detached, and the ankle loops do not actually fit to the main part, though they clearly belong. The loops are formed by simple oblique cuts pulled into shape (style Amcotts), with a drop-shaped loop at the toe and two ankle loops. The back seam is a closely whipped edge/flesh, invisible from the outside and the quarter is decorated with openwork formed by linking circular stamps. Smoothed calfskin. 26 x (19) cm.

Cat. no. 3. Heavily worn, fragmentary shoe, style Amcotts, with obliquely cut raised loops, and openwork around the ankle piece (Plate CCCXLII).

Much of the grain missing and the loops are all snapped, though some are still present. Back seam neat edge/flesh, invisible on the outside. The ends of the grid-like back openwork are formed with a circular stamp, while the loops are simply slit open. Smoothed cow hide 3mm thick, but not of uniform quality, as the one side is denser and the other is thinner and split. (20) x (22) cm.

Cat. no. 4. Back of a small left shoe, style Amcotts, with grid-like openwork quarters, and snapped loops, some separated by roundels (Plate CCCXLII).

Back seam stitched through the entire thickness of 2mm. Seat worn through, cowhide surface scuffed. (17) x (15.5) cm.

Cat. no. 5. Matching quarters of a similar Amcotts style shoe with grid-like openwork and snapped loops (Plate CCCXLII).

Decorative frilling along the top edge and between the ankle loops is formed with a round stamp and a smaller curved implement. The ends of the openwork bars may also be stamped. Neat edge/flesh seam at back. (14) x (8.5) cm.

Cat. no. 6. Back part of a left shoe with elongated and decorated ankle loops style Amcotts, and snapped oblique side loops (Plate CCCXLIII).

Smoothed calf, leather split and separated. Back edge/flesh seam topped by two roundels on either side of a tab. Fine product made with simple cuts joining stamped roundels. The sole is scuffed but only the back of the heel is worn though. (16) x (11) cm.

Cat. no. 7. Curious composite shoe fragment combining the back of a single piece shoe with a re-used nailed sole (Plate CCCXLIII). The back shows crudely cut out rectangles and a seam similar to cat. no. 8, with which it may be associated. The *carbatina* is worn and split and the sole seam appears to have worn away at the base. The shoe was repaired by thonging the piece to an existing nailed sole. No other fragments of this shoe are present. Since the nails do not penetrate the leather of the *carbatina*, it is most likely that this is a crude attempt to lengthen

the life of a shoe by using an old heel section to cobbler the worn *carbatina* (12.5) x (6.5) cm.

Cat. no. 8. Collection of similar fragments of a low rather crudely cut back, similar to cat. no. 7, with which it may be associated (Plate CCCXLIII).

Three fragments have a widely stitched back seam, four pieces show roughly cut out rectangles and there are two stumpy ankle loops. Additional thong slits near the sole suggest repairs and modifications like cat. no. 7. None of the pieces fit to one another or to any other of the soles. Larger fragment of (9) x (5.5) cm.

Nailed shoes

Cat. no. 9. Complete left shoe (Plate CCCXLIV; Figure 8.9.b).

Sole in poor condition, with two laminae thonged to the insole. The goatskin upper is substantially complete (Ridley variant), with a double stitched side seam, two latches at the ankle and two over the foot. There is no room for an integral lace. Whip stitches on the flesh side mark the presence of backings reinforcing the fastenings, and the goatskin lasting margin reinforcements (gr. to the foot) are still in place, running from the narrow heel stiffener to the tip of the toe. The top edge is folded inwards and secured with whip stitches. The vamp is heavily creased but appears to be undecorated. Possibly forms a pair with cat. no. 30. Upper 44 x 13 cm.

Cat. no. 10. Complete left shoe, style Ridley (Plate CCCXLIV).

Neatly nailed 1c with an S under the tread, and larger nails used for the edging (5mm and 7mm), also some repair nails around the outer seat. Thongs on the insole indicate the presence of laminae. Much of the upper together with a heel stiffener and lasting margin reinforcements (gr. to foot) remain in place, though lacking the vamp and much of the medial front. A small fragment of the medial side seam is also present. The eyelets are backed by a reinforcement (fl. to fl.). The top edge is folded in and stitched down, probably leaving a tab centre back. The shoe is very worn, and in places looks to have rotted. Outer sole: 25/9.5/7/6.5 cm, foot c. 24 cm.

Cat. no. 11. Decayed fragments of a shabby and repeatedly repaired shoe (Plate CCCXLV).

The leather is in poor condition, split, abraded and flaking, the sole layers are all separated into thin splits. Outer sole nailed, 1c with an S under the tread and double waist nails, impressions of bracing and whipped lasting margins. Two laminae are thonged to the insole, the heel stiffener is in place with remnants of the upper adhering. A few stitch holes of a side seam remain, but the only indication of the upper type is a fragment of the topmost lace hole (G) with a separate lining whipped to the flesh over which the top edge is folded down and stitched, suggesting a Ramshaw variant. Rips at the side of the shoe have been repaired with patches, some of them to the original poor quality leather to repair blemishes (B, C), others to repair damage or opened cuts (A, D). Placing these repairs must have involved re-nailing part of the sole. The vamp is difficult to interpret as the surface is so abraded that it is unclear whether the loose oval (F) is a repair or a part of a complete layer made of exceptionally thin sheep/goat skin. If the latter, the shoe might have had two layers, like cat. no. 12. Whatever the case, it

seems that a deep score in the leather was first roughly whipped up, then a narrow toe reinforcement (E) was stitched to the inside, and a separate outer layer or repair covered the outside (F). A short length of saddle stitching imitating a vamp seam penetrates all three layers, and all were attached to the sole together. Considerable effort has gone into making poor quality leather suitable for use, but the subsequent opening up of the rips and scores required further repairs so the result can hardly have been satisfactory. Foot length *c.* 26 cm.

Cat. no. 12. Huge right shoe, heavily nailed, with heel stiffener in place together with remnants of a curious upper composed of two layers of goatskin placed fl. to fl. and whipped round the edges (Plate CCCXLVI).

Most of the upper is lost, except for the vamp and the inside waist where a double line of stitching marks a reinforced side seam. The insole is thonged down the length, indicating the presence of laminae. Densely nailed 2a, corrosion has formed an almost solid mass of metal. Heavy, solid shoe. Other than having a front opening there is no indication of the fastening method, though boots in the style of cat. nos 13 and 14 might be considered. Foot *c.* 25.5/26 cm. Outer sole: 28/10/7.5/8 cm; insole partially obscured by the vamp.

Cat. no. 13. Fragment of a front laced boot with the stitching of a side seam indicating a left shoe (Plate CCCXLVI).

Four lace holes remain and the top and front edges are whipped, suggesting a construction similar to the lined shoe cat. no. 12. Creased goatskin, not smoothed and with two small raised warts or parasite bites visible on the grain surface. (13) x (11) cm.

Cat. no. 14. Disintegrated and worn fragments of a front laced boot with four lace holes in the leg and further lace holes punched through the folded edges of the instep opening. The top edge and the instep opening are folded in and stitched down (whip stitch), and whip stitches along the front of the boot indicate the position of a reinforcement cord rather than a backing (Plate CCCXLVI; Figure 8.9.a). A small fragment of the vamp with a toe seam remains, as does a scrap of the opposite side of the instep fastening (14b). (22) x (14.5) cm.

Cat. no. 15. Back of a disintegrated left shoe, probably a Ramshaw variant in view of the remaining eyelet and the height of the surviving thick goatskin upper (Plate CCCXLVII).

The lasting margins are braced over a lamina thonged to the seat of the insole, and there is a narrow heel stiffener. The outer sole is lightly nailed, 1d with a circle at the seat. Outer sole: (14.5)/-/6.2/6 cm.

Nailed soles

Cat. no. 16. Decayed bottom unit with thonging of laminae between the layers forming a dense and compact sole (Plate CCCXLVII).

The sole edges are abraded, but the nail pattern is sparse 1a with an S under the tread. A number of goatskin scraps probably belong to the upper and lasting margins. Insole: (21.5) x (7), foot length *c.* 22/23 cm.

Cat. no. 17. Fragmentary sole, lacking the seat and tread, the insole and the outer sole found in two separate layers (not ill.).

A large lamina extends from waist to seat, and there are impressions of a front lamina, as well as of braced lasting margins, though no thong slits are present on the insole. Close set nailing (1a) around the edge with a large, possibly complex S at the front and rather small nails arranged in a drop shape under the heel. There are double nails at the waist. A scrap of the lasting margin which remains, together with a reinforcement/repair strip, both of goatskin. Large adult in size. (17.5)/9.5/6/- cm.

Cat. no. 18. Small left insole of thick coarsely fleshed cowhide, with deep scores, wrinkled and with much of the fibrous under layer remaining (not ill.).

A long lamina extending from seat to waist is thonged in place with whip stitches from securing the lasting margins, a few scraps of which remain. There are two pairs of thong slits on the insole, but none under the tread. Rather sparsely nailed 1a with a diamond arrangement of four nails at the tread. The front edge of the sole is curled up around the foot, foot length *c.* 23.5. (22.5)/7.4/5.3/5 cm.

Cat. no. 19. Right bottom unit, heavily nailed 2c with paired nails at the waist (Plate CCCXLVII).

Decayed insole with two laminae still thonged in place (a) and some more scraps of waste leather loosely laid on top as extra packing (b) with remnants of the wide lasting margins, sewn to the laminae. A large heel stiffener (17 x 4.5 cm) probably belongs to this sole. Outer sole incomplete but probably a good 29 cm in length. Outer sole: (28)/11/8/- cm.

Cat. no. 20. Decayed left outer sole, mostly flesh flake with a few nails adhering (Plate CCCXLVIII). Neat small nails (6mm) 1d with circle under seat, S under tread and grouped nails between. Some stitch holes may indicate re-stitching of the upper. Edges decayed, original length *c.* 25/25.5 cm.

Cat. no. 21. Fragments of a totally disintegrated nailed shoe comprising flakes of the outer sole, parts of the insole with a thonged lamina and a scrap from the heel stiffener (not drawn). Largest fragment (10) x (5) cm.

Cat. no. 22. Fragments of a totally disintegrated sole, outer sole, insole scrap with thonged lamina (6.5 x 5 cm) and low heel stiffener, as well as a crumpled fragment of the topmost lace hole of a goatskin upper with folded top edge and stitching of an internal lining round the distended eyelet (Plate CCCXLVIII).

Cat. no. 23. Two flesh flakes probably from the same outer sole with decorative nailing and impressions of stitched and braced lasting margins (Plate CCCXLVIII). Pattern similar to other fragments found in the layer in question but do not fit. (10) x (6.5) cm.

Cat. no. 24. Disintegrated right outer sole, worn through at tread, fragments of the thick, poorly fleshed insole (5 mm) remain, with impressions of a wedge at the seat between the layers (Plate CCCXLVIII).

Neat decorative nailing with an elaborate tendril at the tread (nail diam. 5 mm) with larger nails (7 mm) around edge, some of which

may be re-struck (8 mm). Some similarly nailed, but not fitting fragments in the same bag may belong to a pair or to other layers of the same sole. 25/8.5/6.5/6.5 cm.

Cat. no. 25. Left bottom unit with heel stiffener, nailed 1c with double waist nails and S under the tread (Plate CCCXLIX).

A lamina is thonged to the seat, but only flakes of the outer sole remain, together with scraps of the upper. Insole 22.3/7.4/5/4.8 cm.

Cat. no. 26. Left bottom unit nailed 1c with double waist nails and S under tread, heavily corroded at seat (Plate CCCXLIX).

Three large laminae with thong slits remain, but the insole is missing. Sole is of thick, poorly fleshed hide with deep cuts. (22.5)/9.3/6/6.5 cm.

Cat. no. 27. Front of a large right outer sole, heavily nailed, 2c, but most of the nails have fallen out and are stored separately (Plate CCCXLIX). Nail heads 9 mm diam. Some flakes of the insole remain. Associated with cat. no. 40? (22)/11.2/-/- cm.

Cat. no. 28. Forming a pair with cat. No. 29. Small neat right bottom unit with laminae thonged to the insole and a scrap of the upper (Plate CCCXLIX).

The outer sole is decayed, with large corroded nails, some re-struck, 1a. Insole: 18/6.3/4/3.7 cm.

Cat. no. 29. Forming a pair with cat. no. 28 despite some small differences. Small neat left bottom unit (Plate CCCL). A thick lamina is secured with irregular, close thonging to form a compact, stiff layer. Insole of poor quality, flaky cowhide, much of the outer sole missing. Widely spaced, large nails diam. 8 mm, exploded by corrosion. Foot c. 16 cm. (11.5)/6/4.2/- cm.

Cat. no. 30. Possible pair with cat. no. 9? Decayed right (?) insole (in pieces, fit uncertain) with flakes of outer sole and fragments of the lasting margins and laminae in between (Plate CCCL). Laminae thonged to the seat/waist, but under tread simply inserted. Nailed 1a/c with S under tread. Possibly associated are three fragments of a lined goatskin upper. Insole: (25)/8.5/-/5 cm.

Cat. no. 31. Disintegrated left bottom unit, all layers split leaving only thin flakes, though the grain side of the insole is complete (Plate CCCL). Thong slits at the waist and seat only, nail punctures indicate 1c with an S under the tread, and a circle under the seat. The sole is creased from a swivelled gait. The heel stiffener may have been cut down on one side. An oval cut from worn goatskin and whipped round the top is either a repair or the reinforcement of a side seam. No trace of the upper (pair with cat. no. 11?). Insole: 25.2/8.8/5.7/5.2 cm.

Cat. nos 32-35. Mixed collection of three completely disintegrated soles with numerous fragments, including pieces of an upper (35), which may belong to any of them (Plate CCCL).

One insole nailed 2c (32), another has a complicated S under the tread (33), the third a circle at the seat (34).

Footwear fragments

Cat. no. 36. Toe fragment nailed insole (not ill.). 10 x (5.5) cm.

Cat. no. 37. Heel stiffener, nailed and sewn (Plate CCCL). 15 x 3.5 cm.

Cat. no. 38. Fragment of a thick repair sole with paired stitching round edge and surface cuts (a; 7 x 10 cm); a heel stiffener, nailed and stitched (b; 3 x 18 cm); and some small scraps (Plate CCCL).

Cat. no. 39. Decayed and flaked outer sole with scraps of the insole and the heel stiffener, together with a length of sheepskin lasting margin reinforcement stitched along the top and whipped to the sole (not ill.). (10.5) x 3 cm.

Cat. no. 40. Grain flake of a large right outer sole, nailed, with some other sole scraps and a rectangular calf off cut (not ill.). (12) x 10 cm.

Cat. no. 41. Seat of an insole of coarse wrinkled hide (not ill.). (8) x 6.5 cm.

Cat. no. 46. Scrap nailed insole (not drawn). (7) x (5) cm.

Cat. no. 47. Sewn repair wedge (not drawn). (8) x (1.5) cm.

Cat. no. 48. Abraded and delaminated fragments of footwear, including scraps of an insole, lasting margins, lamina, some nails (not drawn)

Off cuts, varia

Cat. no. 42. Delaminated and split semi-circular off cut, removal of a damaged and abraded area of cow/calf skin, possibly rotted (not ill.). 16 x (7.5) cm.

Cat. no. 43. Off cut with two stretch holes, sheep/goat (Plate CCCL). 9 x 7 cm.

Cat. no. 44. Two pieces (C + D) fitting to form a folded off cut of smoothed calfskin with a roundel projecting from a curved edge (Plate CCCL). The other edge is cut straight and along the fold the surface is decayed and cracked. Elsewhere blemishes – rotting? – may show the cause for discarding such a large piece. A similar smaller off cut is associated. Off cut or slipper rough out? 21 x 24.5 cm, 8 x 5 cm.

Cat. no. 45. Oval of roughly cut cow hide with edge chamfered to flesh side – broken remnants of a heel stiffener? (not ill.). 10 x 4 cm.

Cat. no. 49. Triangular off cut, delaminated (not drawn). 10 x 7 cm.

Cat. no. 50. Narrow cow hide trimming (not drawn). 9 x 0.7 cm.

Cat. no. 51. Some dozens of tiny flakes of leather residues (not drawn).

Cat. no. 52. Four smallish off cuts, coarse goatskin, three of them folded double (not drawn). Largest 8 x 3 cm.

Cat. no. 53. Calfskin off cut (not drawn). 11.5 x 3 cm.

III. Context OS 4923, large waterbasin fort period 5(B), primary infill

Construction: last quarter 4th century, infill: end 4th – early 5th century

Carbatinae

Cat. no. 54. Virtually complete right shoe, style Cuijk, partially cut up (Plate CCCLII; Figure 8.10).

The butted seams at the front and back, (edge/grain overstitch) are raised c. 15 mm from the ground. There is a single side loop with the stump of the integrally cut fastening lace opposite, and holes at either side of the waist for the passage of the thong under the foot. Impressions of the thong are visible on the outside (grain), passing to the flesh side underfoot. A scrap of the repaired, knotted lace remains. Slightly smoothed cow/calf skin, with extensive, lightly impressed decorative hatching, swags and meanders. Where preserved the vamp edge is frilled. Much of the vamp has been removed and it is not clear whether there was a vamp seam or whether the front has the hooked construction of De Peel type shoes. One side of the vamp seems to be cut to a tab or stump and stitch holes suggest modifications of the construction here. Unrelated slashes on the shoe surface may indicate it was used as a cutting platform. 31 x (22) cm. Foot length 28 cm.

Cat. no. 55. Two fragments of unsmoothed, thick cow hide (4 mm) forming the side and back of a style Cuijk shoe with the stump of the fastening lace (Plate CCCLIII).

There is a hole at the instep with impressions of the lace on the outside (grain) passing to the flesh side underfoot. Back and sole seam stitched edge/grain, with continuous impressions on the grain side. The surface is covered with impressed lines and swags. (24) x (9.5) cm.

Cat. no. 56. Three fragments of a small style Cuijk shoe with single side loop, the instep slit just visible below it (Plate CCCLIII).

Thick tough leather only perfunctorily smoothed to take the extensive impressed and pricked decoration. The vamp top is frilled, with a defining line of small stamped holes. Back seam edge/grain. (21) x (6) cm.

Cat. no. 57. Grain split only of wrinkled calf skin back with large oval stitch holes of the seam and simple slit-and-pulled up loops (Plate CCCLIII). (12) x (6) cm.

Cat. no. 58. Fastening loop surrounded by cut outs and cusps, with a back extension with edge/gr stitching for the sole seam, and along the top, edge/flesh stitching to attach a raised back piece (style Cuijk) (Plate CCCLIII).

Thick cowhide, 3 mm, split but not separated. Other smaller scraps probably belong, including one with an instep lace hole and the stitching of the vamp sole seam (11) x (3.5) cm.

Cat. no. 59. Two delaminated grain flakes, probably from the back of the same shoe bearing lightly impressed geometric decoration and with angular, roughly cut, tie holes (Plate CCCLIII).

Only the scalloped edge of the back seam remains. The inside surface has a cracked and slightly glossy surface, suggestive of decay products at the junctions of grain/flesh – poor tanning or untanned? Calf? (11.5) x (5.6) cm.

Cat. no. 60. Grain flake of a shapeless sole with thong holes round edge: this is either the repair sole for a *carbatina*, or the reinforcement for a fibre sandal (Plate CCCLIII).

Heavily ribbed hide, worn over the entire surface. 25 x 10.7 cm.

Nailed shoes

Cat. no. 61. Disintegrated nailed shoe, both insole and outer sole reduced to delaminated flakes with a lamina under the seat and impressions of another at the front (Plate CCCLIV).

Fragments of a heel stiffener remain together with the grain split of the shaped back of the upper (drawn as though from the flesh). This is 7 cm high, with a stitched down top edge. Elaborate tendril nailing. Sole: (26) x (8) cm, upper: (21) x (7.5) cm.

Cat. no. 62. Disintegrated nailed shoe including fragments of the nailed outer sole, an insole with thonged lamina and a heel stiffener, with scraps of the upper, none fitting to form larger pieces (Plate CCCLIV).

The surviving part of the upper forms the quarter with openwork triangles and an integral lace or latchet and the lasting margin has both nail and stitch holes: no side or back seam is preserved. Somehow associated is a small fragment with stumps of triangular openwork and a multi-tailed thong carefully threaded through the tab end. These tails are stitched down at the back. The leather is severely decayed. (12.5) x (7.5) cm.

Cat. no. 63. Scraps of nailed insoles with thonged lamina, possibly all associated (Plate CCCLIV). (8) x (4) cm.

Cat. no. 64. Insole fragment with nail punctures, remnants of a thonged lamina (not ill.). (7.5) x 8 cm.

Cat. no. 65. Scrap of an upper with lace holes from a front-laced boot, presumably belonging to one of the soles in this context, though the leather differs in quality from cat. no. 61 (Plate CCCLIV). (5) x (5) cm.

Varia

Cat. no. 66. Fragment of the leather envelope from a cork or wooden sole c. 15mm thick (Plate CCCLIV).

Fine smooth deerskin. Quite unrelated in nature and quality to the other finds in this context. Rather compatible with finds from context OS 2562, like cat. no. 95. (12.5) x 3.5 cm.

Off cuts

Cat. no. 67. Several small flaked and delaminated off cuts, flabby skin edges, all with cracked inside surfaces as though decayed in the centre (Plate CCCLIV).

Cat. no. 68. Collection of small off cuts and scraps, together with a large piece of a well-fungus (Plate CCCLIV). One off cut is deerskin, and the two largest primary off cuts (14 x 9.5 cm and 13 x 13 cm) are sheep/goat.

Cat. no. 69. Triangle, calf (Plate CCCLIV). 4 x 4 cm.

Cat. no. 70. Thick cow hide off cut (4-5 mm), wrinkled and rough, left after cutting out at least two shoes, and perhaps being prepared for use as a repair sole (Plate CCCLIV). 25 x 13 cm.

Cat. no. 71. Brittle cracked primary off cut, sheep/goat (not drawn). 13 x 13 cm.

Cat. no. 72. Triangular off cut, cow/calf (not drawn). 6 x 10 cm.

Cat. no. 73. Large quantity of disintegrated fragments of coarse wrinkled hide, 180 gr, apparently neck and belly off cuts. Included amongst these was the incongruous fragment of a cork slipper, cat. no. 66.

IV. Context OS 2562, double well fort period 5 (final phase), bottom of shaft in-between and primary infill inner well

*Tp*q AD 379-380 (felling date of boards inner framework), infill: c. AD 390- early 5th century

Single piece footwear

Cat. no. 74. Back fragment of a left shoe, style Wijster, with decorated instep fastening and remnant of expanded openwork loops over the foot (Plate CCCLV; Figure 8.6.a). Smoothed cowhide, c. 4 mm thick, with lightly impressed lines on the scuffed grain surface. The back seam is still stitched together by means of two thin thongs, sewn from the outside (edge/grain). This forms a marked welt on the outside, though the sole seam is well closed and almost invisible (edge/flesh). The shoe is severely worn and in places delaminated, much of the flesh surface abraded and, at the seat worn though entirely. Here, thick flat thongs, which contrast with the thin thong/gut of the original sewing, mark the attachment of a now missing repair sole. (21) x 20.5 cm.

Cat. no. 75. Back of a small left shoe, style Wijster, of coarse, creased cow-hide, heavily worn (Plate CCCLV; Figure 8.12). Remains of an angular quarter tie and two simple cut-and-raised loops on either side, with below them scores on the flesh side from an initial marking out. One side appears to have been cut and modified, leaving only a stump with a large thong (repair?) hole. The back seam is coarsely and very visibly sewn with two strands of

thick, twined fibre, tufts of which remain, passing horizontally on the outside and vertically inside. The shoe is crudely made, using poor quality materials. (19) x 15 cm.

Cat. no. 76. Three larger fragments and a number of flakes from a decayed shoe, style Wijster, probably right, delaminated and split cow hide, c. 2-3 mm thick and unsmoothed (Plate CCCLVI; Figure 8.6.b).

The back is firmer, and has two 'spur vents' cut in: the area between is slightly depressed. Remnants of two simple slit loops with an angular quarter tie. Much of the thong at the sole edge/flesh seam remains *in situ* and more was recovered during sieving. The back seam was stitched from the outside, possibly with twine, leaving large round holes right through the leather and raising a welt. Two repair patches, now delaminated and split, were attached with thong to the worn sole, but due to extreme wear and the decay of the stitching twine/gut, their positions are not entirely clear. (24) x 18 cm, small adult. 24904.1-4 + 24907 (grain split)

Cat. no. 77. Three decayed fragments belonging to a simple left(?) shoe, similar to cat. no. 76 and also with a 'spur vent' at the back (Plate CCCLVI).

The worn and flaked leather is entirely split into grain and flesh surfaces. Front fragment (8) x (11) cm.

Cat. no. 78. Two sides of a shoe back, joined with leather thong (edge/grain) sewn from the outside and raising a welt: the sole seam is edge/flesh (Plate CCCLVI).

Two thong holes mark the re-sewing of the snapped quarter tie. Cow hide, 4 mm thick, slightly smoothed with lightly impressed decorative lines remaining on the lateral side. The leather is delaminated and in places entirely split. Surface wear and abrasion suggest a right shoe. Cat. no. 87 of similar leather quality is possibly associated. (17.5) x (9.5) cm.

Cat. no. 79. Two sides of a delaminated quarter with roughly cut angular tie loops. Rough, creased cow hide and poor quality, hasty work with deep knife slips and irregular edges (Plate CCCLVI).

Cat. no. 80. Fragmentary back of 3mm thick cow/calf skin, scuffed and worn but originally smoothed, still joined by thick leather thong stitched from the outside (edge/gr: cf. cat. no. 74) (Plate CCCLVI). Faint impressed lines.

Cat. no. 81. Two sides of a back still joined by thin leather thong closely stitched from the outside, making a raised welt (top seam) (not ill. in the catalogue). Grain split only, smooth calfskin. (7) x (4.5) cm.

Cat. nos 82-84. Delaminated fragments from footwear similar to cat. no. 76, among them: one back with 'spur slit' (cat. no. 83) and remains of loops (cat. no. 84) (Plate CCCLVI). Worn and flaked cow-hide.

Cat. no. 85. Decayed scraps of the back of a shoe with the remains of four long, narrow loops (gr. flakes only) with cusps between the loop positions (Plate CCCLVII).

Leather delaminated and split, with lightly impressed lines visible on remaining gr. surfaces. A flake of the seat seam is tightly sewn, with large holes of the stitching of a repair sole. Two apparently intentional slits in the lower quarters may indicate the position of a spur. Quarter: (14) x 7 cm.

Cat. no. 86. A collection of small flakes and fragmentary loops, perhaps associated with cat. no. 85 or a similar style: includes loops with impressions of wide, flat lacing, perforated tabs and a group of narrow, slit tabs belonging to the front of a shoe (Plate CCCLVIII). Small fragments of similar long loops, together with pieces of narrow thong used to stitch a back seam, which are present in the sieve residue from the same layer are probably associated.

Single piece, varia and scrap

Cat. no. 87. Ripped and repaired fragment with remnants of expanded openwork, probably from the front of a shoe like cat. no. 74, and perhaps belonging to cat. no. 78 (Plate CCCLVII). (9) x (5) cm.

Cat. no. 88. Scrap of cut and expanded leather, flesh split only (Plate CCCLVII). The slits are too small to belong to a Wijster style construction, and this may represent a decorative panel (see cat. no. 62). (5) x (3) cm.

Cat. no. 89. Piece of intertwined leather thong, from a disintegrated shoe back (Plate CCCLVII). Other such scraps remain in the various sieve residues.

Cat. no. 90. Seven small bags of sieve residue, and four bags with disintegrated scraps containing small remnants probably deriving from other shoes in this group, as well as some decayed fragments belonging to *carbatinae*. Other bags of very small residues not examined.

Nailed shoes

Cat. no. 91. Disintegrated nailed right shoe, consisting of an insole and two fragments of a middle layer cut in one with the upper, a strip of which remains (Plate CCCLVII).

Insole substantially complete, cow hide ca. 2-3 mm thick, mildly pointed shape with dense nail punctures revealing some sort of pattern under the fore foot. Some long narrow thong slits along the outer sole edge indicate repairs to the construction. Surface worn, with deep foot impression, c. 26.5-27 cm long. The middle layer is flaked and decayed, with large nail holes and some traces of iron corrosion. This was attached to the insole by tunnel stitching. The strip belonging to the upper bears the scar of a ripped loop position flanked by upstanding roundels and ending in a tab. This is probably the side seam, secured with thick leather thong (for a similar overlap see cat. no. 100. Some other scraps in this number with similar roundels are probably associated, but there is no further indication as to the form of the shoe. There is no trace of the nailed outer sole. The construction is reminiscent of the composite nailed sole/*carbatina* cat. no. 7. Insole: 28/9.5/5.5/6 cm.

Cat. no. 92. Collection of fragments of several totally disintegrated nailed soles found close together, in very poor condition (Plate CCCLVII).

The group includes fragments of an insole (a: (11) x 6.5 cm), small scraps of a neatly nailed outer sole and a piece of the heel stiffener which may be associated. This sole has a narrow, slightly pointed elegant shape. Other fragments, including a lamina and a small insole with thong slits at the waist (b: (10) x 6 cm) are larger and of rougher cow hide, suggesting that at least two broken up soles are represented.

Cat. no. 93. Decayed fore fragment of an outer sole with random nailing pattern (not ill. in the catalogue).

The thick leather sole has flaked into three thin layers: a few corroded iron nail heads adhere to the outer of these flakes. (11.5) x (9.5) cm.

Cat. no. 94. Fragments of a delaminated inner and outer sole with some corroded iron nails still present (Plate CCCLVII).

Two pear shaped lamina (making use of shoemaking off cuts), and a strip of the lasting margin (whipped to the insole) are in position. Various other fragments of nailed soles could belong to the rest of the sole or to another decayed sole in the context. (11.5) x (10) cm.

Sewn/thonged constructions

Slippers

Cat. no. 95. Fragments of a backless slipper made of thin smoothed deerskin (Plate CCCLVIII); Figure 8.11.d).

The D-shaped, closed front has small stitches without impressions along the top opening, indicating the presence of a binding or, more probably, a textile lining, and is covered with irregular hatching flanking a central panel with five circles. These designs are lightly pressed in from the back. Three pieces of the associated envelope covering a cork or wooden sole remain. These are made of left-over scraps of slightly rougher deerskin, braced over a solid sole c. 9-10 mm thick, to which the vamp is sewn with tunnel stitching. Remains of a wood/bark sole are probably associated (Figure 8.11.e). The front is severely damaged, but the original length would have been c. 10-11 cm (small adult in size). 20 x (10) cm.

Cat. no. 96. Fragments of a backless cork slipper, with remnants of the wooden sole (linden bark or *Tillia* sp.) as well as the leather envelope covering (Plate CCCLVIII; Figure 8.11.a, b, c).

The outer surface is worn, partially effacing the elaborate decoration of lines, swags, dots and hatching which was impressed from behind. The four pairs of cross lines were laid out first with a central line superimposed and filled with less deeply impressed designs. The top is attached to the leather-covered wooden sole with tunnel stitches, and small stitches without impressions along the top opening suggest the presence of a textile lining. Where protected, the thin, compact skin is smoothed and glossy, but the rather coarse grain suggests goat rather than deerskin. The front is damaged, but the original length would have been c. 13 cm (adult). 26 x (15) cm.

Soles and upper fragments

Cat. no. 97. Left bottom unit broken in two pieces and composed of an insole with braced lasting margins and remnants of the outer sole (Plate CCCLIX).

The flat leather thong used for the bracing is still largely present, so that the original foot length can be estimated from the impressions. The outer sole has disintegrated and split, but a small fragment is still attached by tunnel stitch at the front. The insole is of poor quality cow hide with deep impressions of the foot and toes, as well as marks of the underlying bracing zigzagging across the sole. The lasting margins are also of cow hide, but there is no indication of the upper itself. At the front, a small wedge was inserted between the two sole layers. Insole: *c.* 23.5 cm long, foot *c.* 23 cm.

Cat. no. 98. Child's left shoe, inner and outer sole joined by tunnel stitch (Plate CCCLIX).

Insole of coarse, wrinkled cow hide, with a large heel stiffener attached with thin thongs. Outer sole decayed and worn, exposing the tunnels on the outer side and sewn to the upper/insole with wide, flat thong. On the inner surface, some remnants of the lasting margins are still in place, the edges whipped to the insole with thin thong, and there are additional impressions of bracing across the sole. A scrap of the calfskin upper with faint impressed decorative lines has a folded edge interrupted by small holes – unclear whether decorative or functional – with above this projecting roundels and the scar of a ripped loop. This would appear to be the ankle/instep area. Other small scraps of the shoe are also present. Insole: (15.5)/5/4/4.5 cm.

Cat. no. 99. Worn right shoe, composed of two sole layers joined by tunnel stitch, with much of the lasting margins and the front part of the upper in place (Plate CCCLX).

The outer sole was originally of thick cow hide, but except for an area under the instep the grain split is entirely lost, exposing the thong of the tunnel stitching. The insole is of thick, creased, cow hide, with strongly chamfered edges, of a straight pointed shape. The lasting margins were carefully pleated around the toe and were lightly whipped to the insole, just sufficient to hold them in place. Impressions of the twine are clearly visible. It is possible that there was a separate heel stiffener, but the back has been modified to incorporate a repair wedge between lasting margins and the outer sole, and it is possible that the back was either cut away entirely or trodden down to from a backless slipper. The upper is of thinner cow hide, single piece with a side seam, for the most part ripped or, in places, cut away leaving only part of the vamp. There is no trace of the fastening method, but the vamp is decorated with a blind seam (saddle stitch). A thin thong is threaded through the insole at the waist, possibly to attach a pair of shoes for sale. Insole: 24.3/7.8/5.3/5 cm, foot *c.* 24 cm.

Cat. no. 100. Disintegrated fragments of a bottom unit similar to cat. no. 99 and perhaps its pair (Plate CCCLXI).

The outer sole is reduced to the flesh flake, with edge tunnel stitching attaching the sole to the lasting margins: some of the twisted leather thongs remain. A small segment of the poor quality cow hide insole remains together with some fragments of the lasting margins, with the starting knot of the flat thong used to whip the margins to the

insole. Another fragment (poor quality, pitted calfskin) preserves the overlapping side seam, sewn with wide-spaced, flat very thin leather thong passed through thin slits. The vamp fragments of cat. no. 102 may belong here. Outer sole: (16.5)/8.5/-/- cm.

Cat. no. 101. Seat of a small sewn sole, of two layers with a thick wedge between them, enclosed by the lasting margins which are tightly sewn with thong (Plate CCCLXI).

A large goatskin heel stiffener is sewn to the upper. In addition, a small fragment of the toe of the slightly pointed insole remains. Like cat. no. 99, a thong is threaded through the insole at the waist, possibly to attach the pair of shoes for sale. Insole: 9 x 3.5 cm.

Footwear varia – uppers

Cat. no. 102. Collective number containing scraps of uppers belonging to other soles in this context (Plate CCCLXI).

Two scraps from vamps with decorative saddle stitching, a folded top edge, and a possible vamp seam stitched with tiny stitches using thin leather thong. Largest fragment (10) x (5) cm.

Cat. no. 103. Three scraps from the same upper with the stumps of torn loops, each with an openwork triangle stamped at the base (Plate CCCLXI).

Lightly impressed swags on the grain side. It is unclear whether a *carbatina* or a separately soled shoe is concerned. Worn and flaked cow hide, *c.* 3 mm thick. (12) x (5) cm.

Cat. no. 104. Back and ankle loop of a sturdy sandal or boot, of 3 mm thick cowhide, smoothed, with faint vertical impressions (Plate CCCLXII).

Does not appear to belong to any other shoe in the collection. (7.5) x (11) cm.

Footwear varia – soles

Cat. no. 105. Disintegrated fragments of broken up thonged soles, including a) blunt nosed front of an insole with scraps of outer tunnel stitched together with a small wedge between, b) decayed scrap of cow(?) hide upper attached to the thonged lasting margin and pieces of leather thong (Plate CCCLXII).

Some of these fragments may form the outer sole to cat. no. 103. Sole: (12) x 8 cm.

Cat. no. 106. Seven scraps from a disintegrated sole, not fitting, with a narrow strip thonged to the outer edge forming a sort of frame (not ill.).

Cat. no. 107. Four coarse cow hide off cuts thonged together to form some kind of multi-layer sole (sandal?) or packing (Plate CCCLXII). (9) x (4) cm.

Cat. no. 108. Fragments of a large insole with wrinkled edges, suggesting an inlay sole (not ill.). No signs of either stitching or nailing. (10.5) x (9.5) cm.

Cat. no. 109. Thonged repair sole, probably for a single piece shoe, or the reinforcement for a fibre sandal (Plate CCCLXII). (14.4) x (8.5) cm.

Non footwear

Cat. no. 110. Archer's brace, crudely cut from waste cowhide, thick, irregular and delaminated (Plate CCCLXII; Figure 8.1)). The two straps are ripped, but it seems that the grain was intentionally removed here perhaps to make a better fit. 17 x 16 cm.

Off cuts, waste, residues

Cat. no. 111. Coarse cow-hide off cuts, gr. rough and flaking, poor quality discarded leather (Plate CCCLXII). (12) x 10.5 cm.

Cat. no. 112. Delaminated and split calf skin, secondary off cut (not drawn). (12) x (8) cm.

Cat. no. 113. Totally disintegrated and split flakes of wrinkled cow hide, probably a crumpled up primary off cut (not drawn).

Cat. no. 114. Delaminated and split scraps of cow hide probably belonging to the same item, a large off cut (not drawn).

Cat. no. 115. Right at the bottom of the well: minute fragments of leather, some of them narrow loops from shoes, and scraps from a nailed shoe (not drawn).

Cat. no. 116. Numerous small fragments from disintegrated multi-layer thonged soles, some belonging to other larger fragments, as well as other decayed fragments of unidentifiable footwear (not drawn).

Cat. no. 117. Sieve residue containing small fragments probably from lasting margins (not drawn).

**Change and continuity at the Roman coastal fort at
Oudenburg from the late 2nd until the early 5th century AD**

Volume III: Plates

—
S. VANHOUTTE (ED.)

COLOFON

Relicta Monografieën 19

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Beleidsdomein Omgeving

Herman Teirlinckgebouw, Havenlaan 88 bus 5, 1000 Brussel

Tel.: (+32) 02/553 16 50

info@onroenderfgoed.be

www.onroenderfgoed.be

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Notes on the plates

All ceramics are presented 1:3, except for details such as stamps, roller stamps, graffiti, ... which are added 1:1. The samian stamps are repeated on Plates LXXXVIII-XCII on scale 2:1. Light grey areas indicate burnishing; dark grey areas represent black coating. The reddish slip of the Pompeian red wares (Plates CXXXVIII-CXXXIX) is marked greyish. Copper alloy and lead/pewter finds are generally illustrated 2:3, except for very large items which are presented 1:3. Iron finds are generally illustrated 1:2, except again for very large objects (then 1:3). Items in glass, worked bone/antler/horn/ivory, jet and jet-like material and the figurines are all presented 2:3, as also the wooden finds (except for large items, then 1:3). Whetstones and other stone implements are illustrated 1:3; querns and mills are presented 1:6. Polished areas on the stone implements are indicated in reddish. Scale indications are added as reference for the e-publication.

All digitization and all plate compositions were made by archaeological illustrator Sylvia Mazereel (Flanders Heritage Agency), as well as most of the original drawings. All site photos were taken by Sofie Vanhoutte, all find photos by photographer Hans Denis (Flanders Heritage Agency). Others were involved in the following plates:

- Plates CXXXVIII-CXXXIX: original drawings by dr. Sonja Willems
- Plates CCCXXIX-CCCXXX: original drawings of windowpane fragments by dr. Peter Cosyns
- Plate CCCXXXIX: photo composition by dr. Jan De Beenhouwer.
- Plates CCCXLI-CCCLXII: original drawings mainly by dr. Carol van Driel-Murray and some by Franky Wyffels (†)
- Plates CCCLXIII-CCCLXXIII: original drawings by Sylvia Mazereel and dr. Sibrecht Reniere
- Plates CCCLXXIV-CCCLXXVII: original drawings by dr. Sibrecht Reniere, Ghent University students and Sylvia Mazereel
- Plate CCCLXXVIII-CCCLXXX: original drawings by dr. Sibrecht Reniere and Sylvia Mazereel.

The maps represented on Plates CDLIV-CDXCVI are extracts of the overview maps of Plates XXI-XXIX and show the same layout. For the legenda: see the respective overview maps (except: stone (in dark grey); burnt/charcoal layer (in black); tile (in red)). It is chosen to leave the sections blank and to mark the general phasing following the legenda on Plate I (cf. the different colours for the respective fort levels).

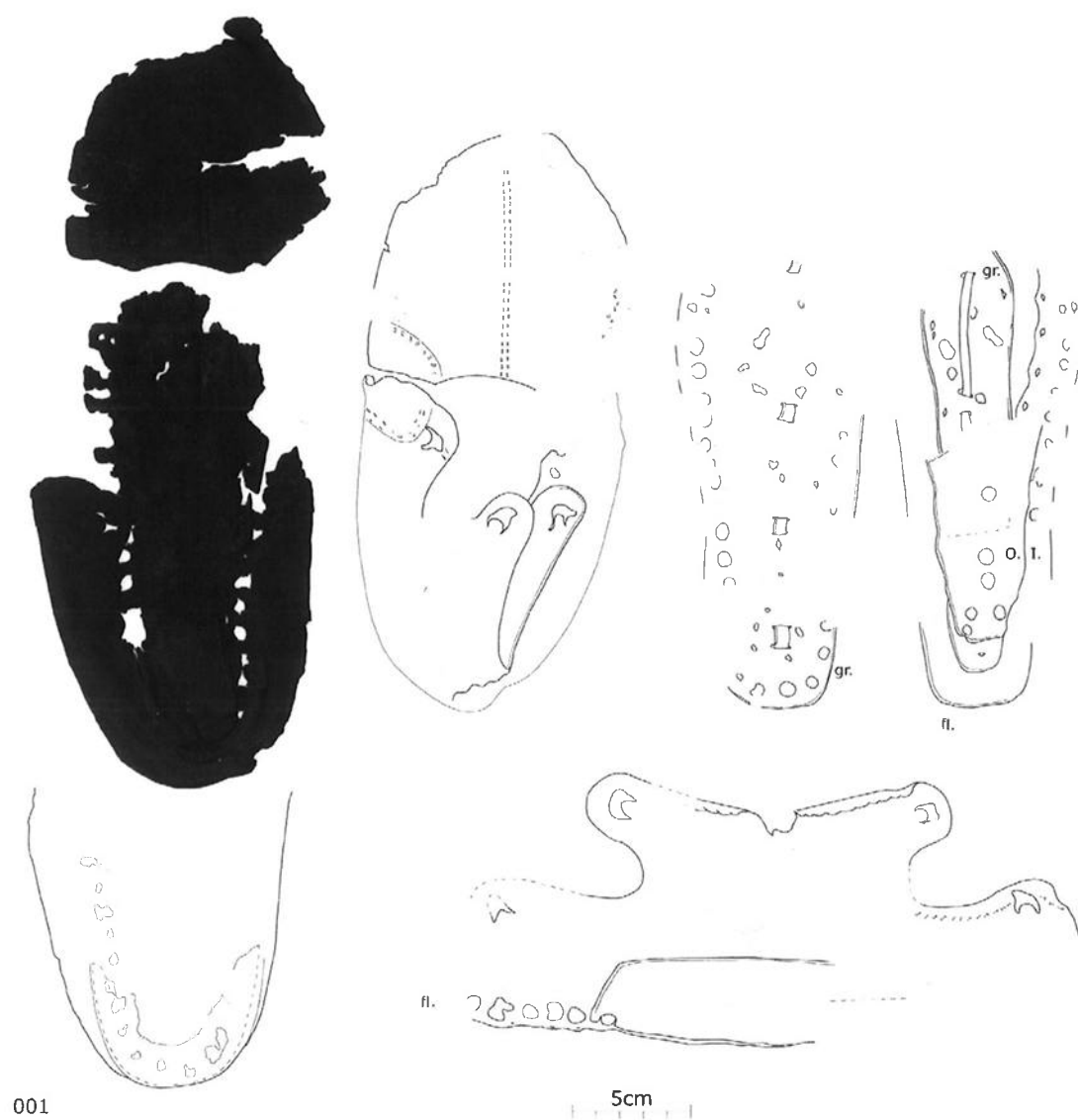


Plate CCCXLI: Leather finds at the south-west corner site. Shoe cat. no. 1. (fl.: flesh; gr.: grain).



Plate CCCXLII: Leather finds at the south-west corner site. Shoes and shoe fragments cat. nos 2, 3, 4 and 5.

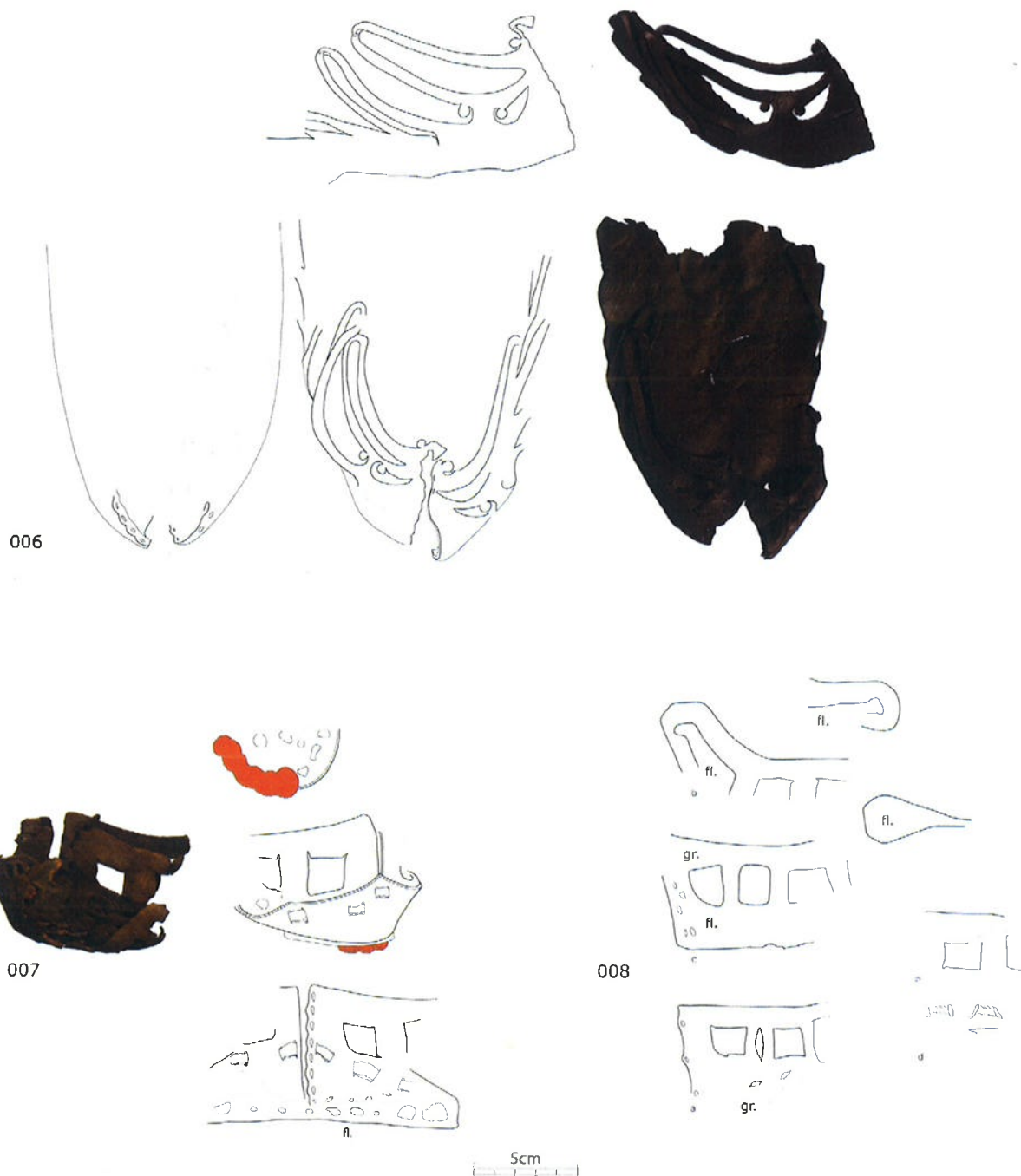


Plate CCCXLIII: Leather finds at the south-west corner site. Shoe fragments cat. nos 6, 7 and 8.



Plate CCCXLIV: Leather finds at the south-west corner site. Shoe fragment cat. no. 9 and shoe cat. no. 10.

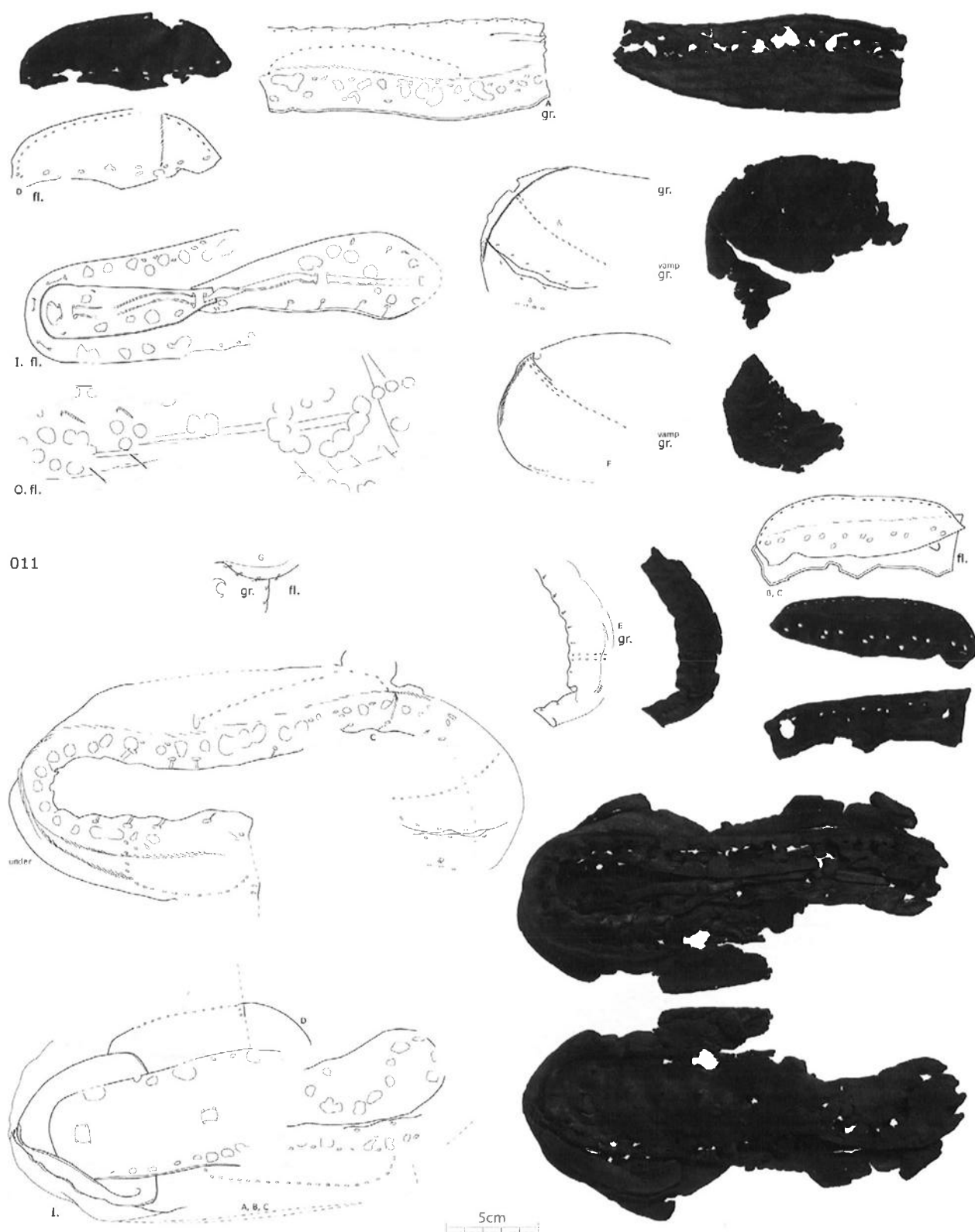


Plate CCCXLV: Leather finds at the south-west corner site. Shoe cat. no. 11. (I: inside; O: outside).

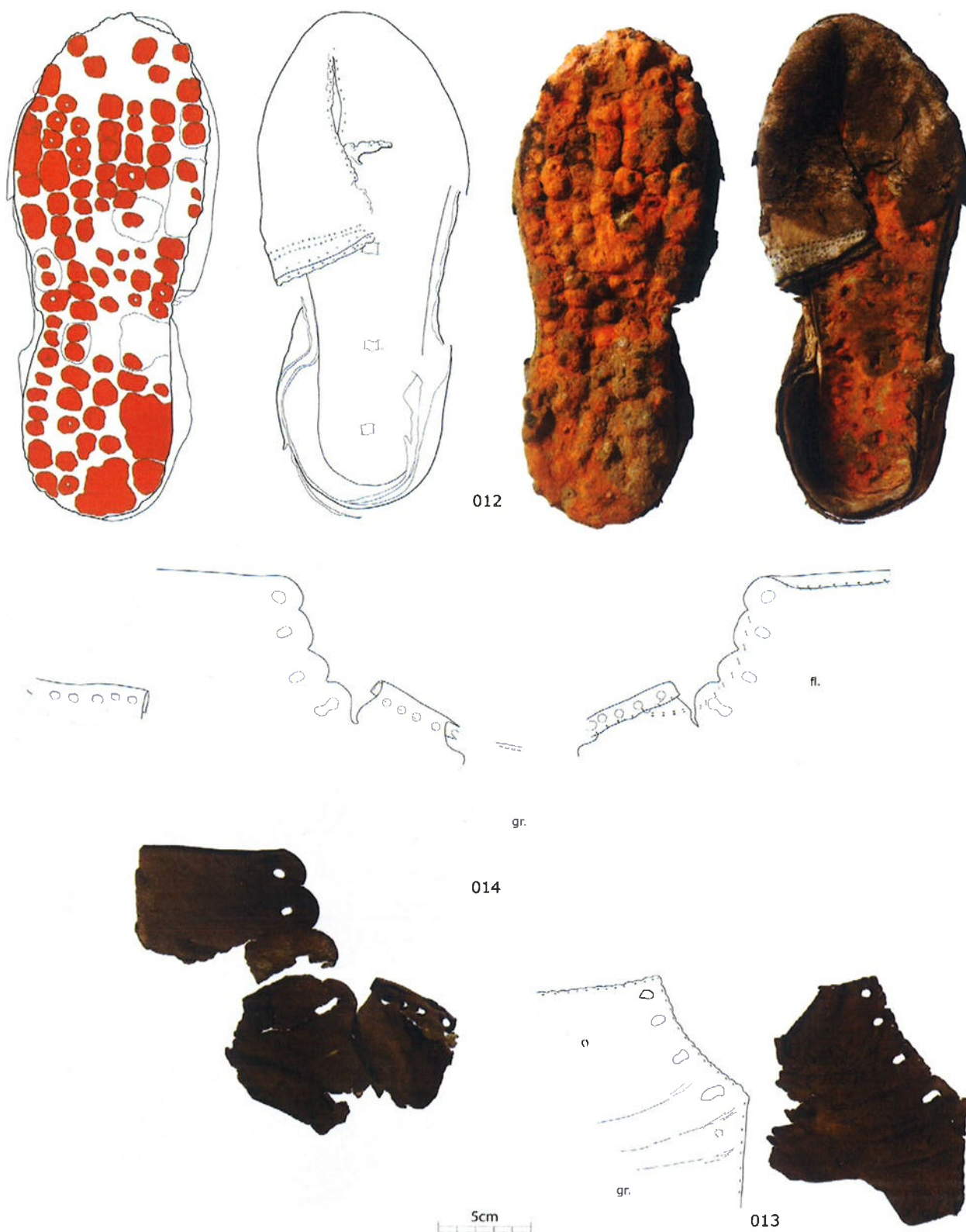


Plate CCCXLVI: Leather finds at the south-west corner site. Shoe cat. no. 12 and shoe fragments cat. nos 13 and 14.



Plate CCCXLVII: Leather finds at the south-west corner site. Shoe fragments cat. nos 15, 16 and 19.

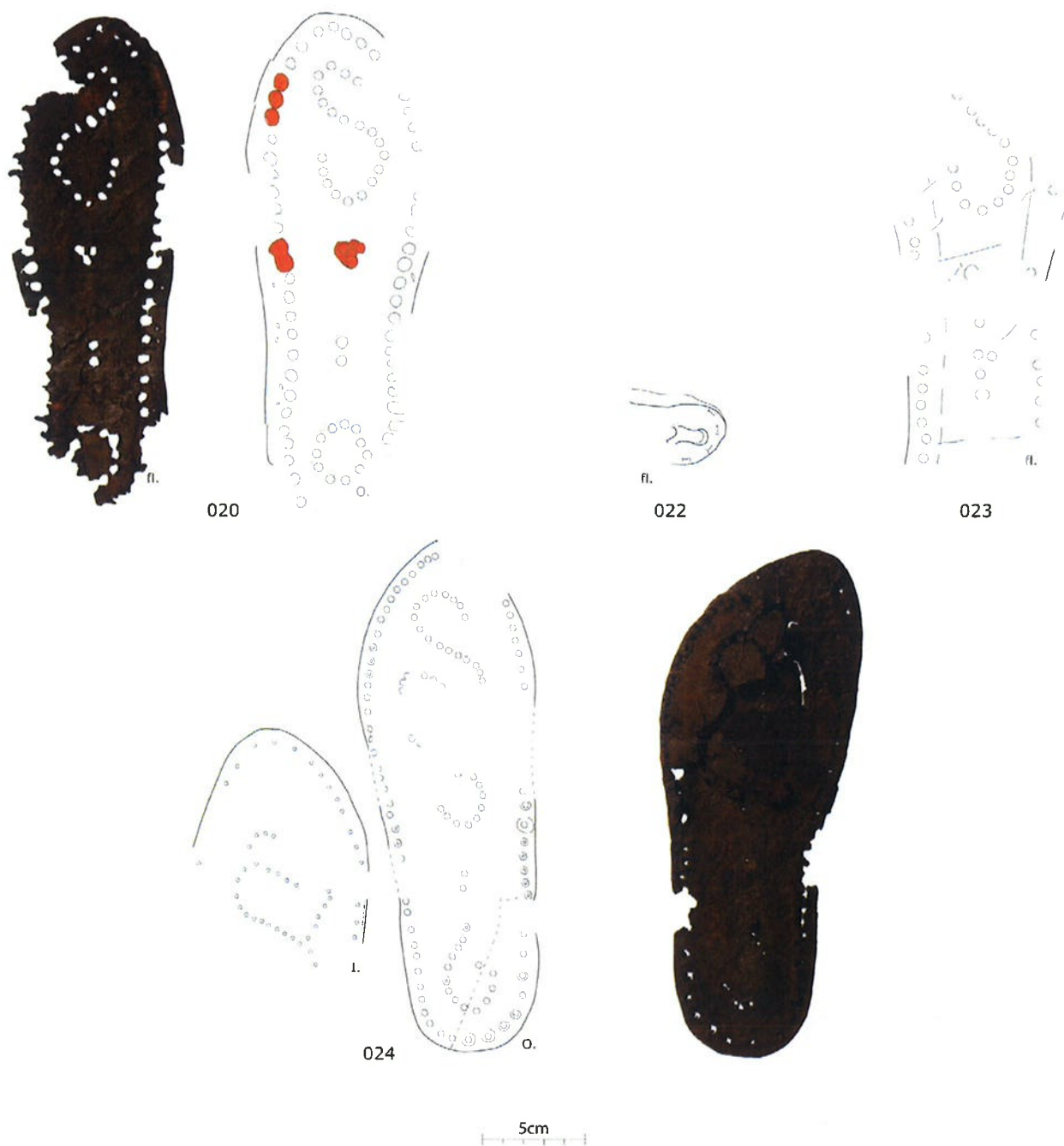
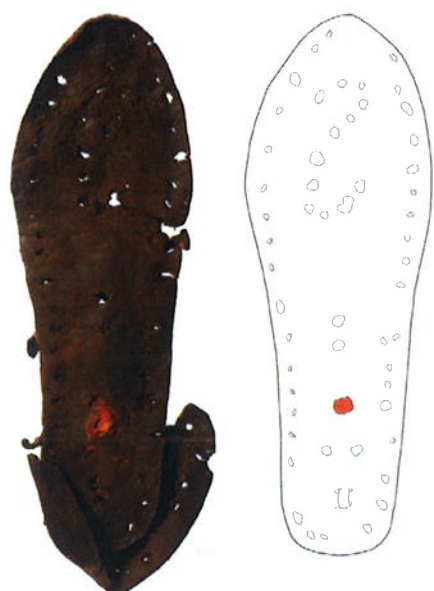
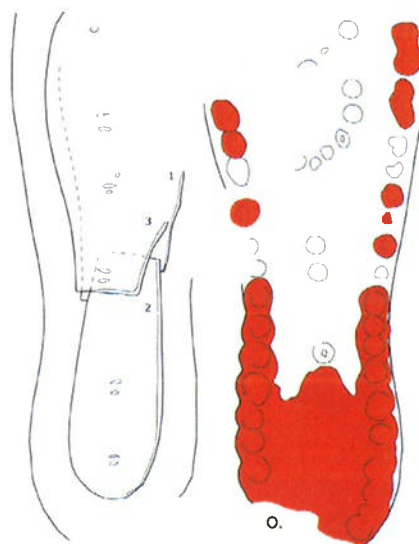


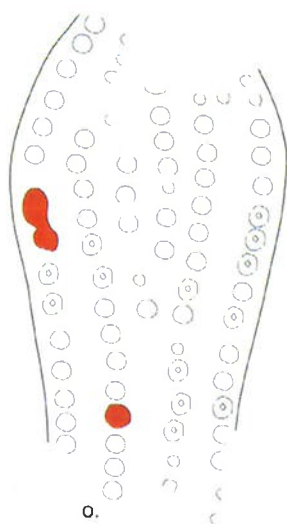
Plate CCCXLVIII: *Leather finds at the south-west corner site. Shoe fragments cat. nos 20, 22, 23 and 24.*



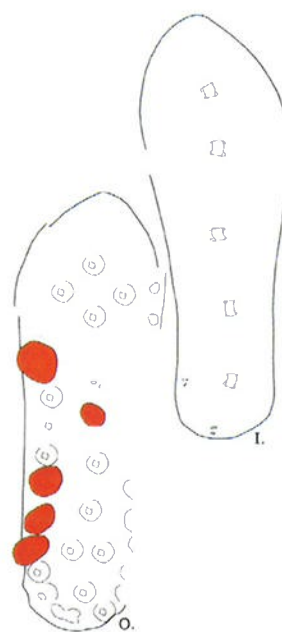
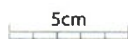
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Plate CCCXLIX: Leather finds at the south-west corner site. Shoe fragments cat. nos 25, 26, 27 and 28.

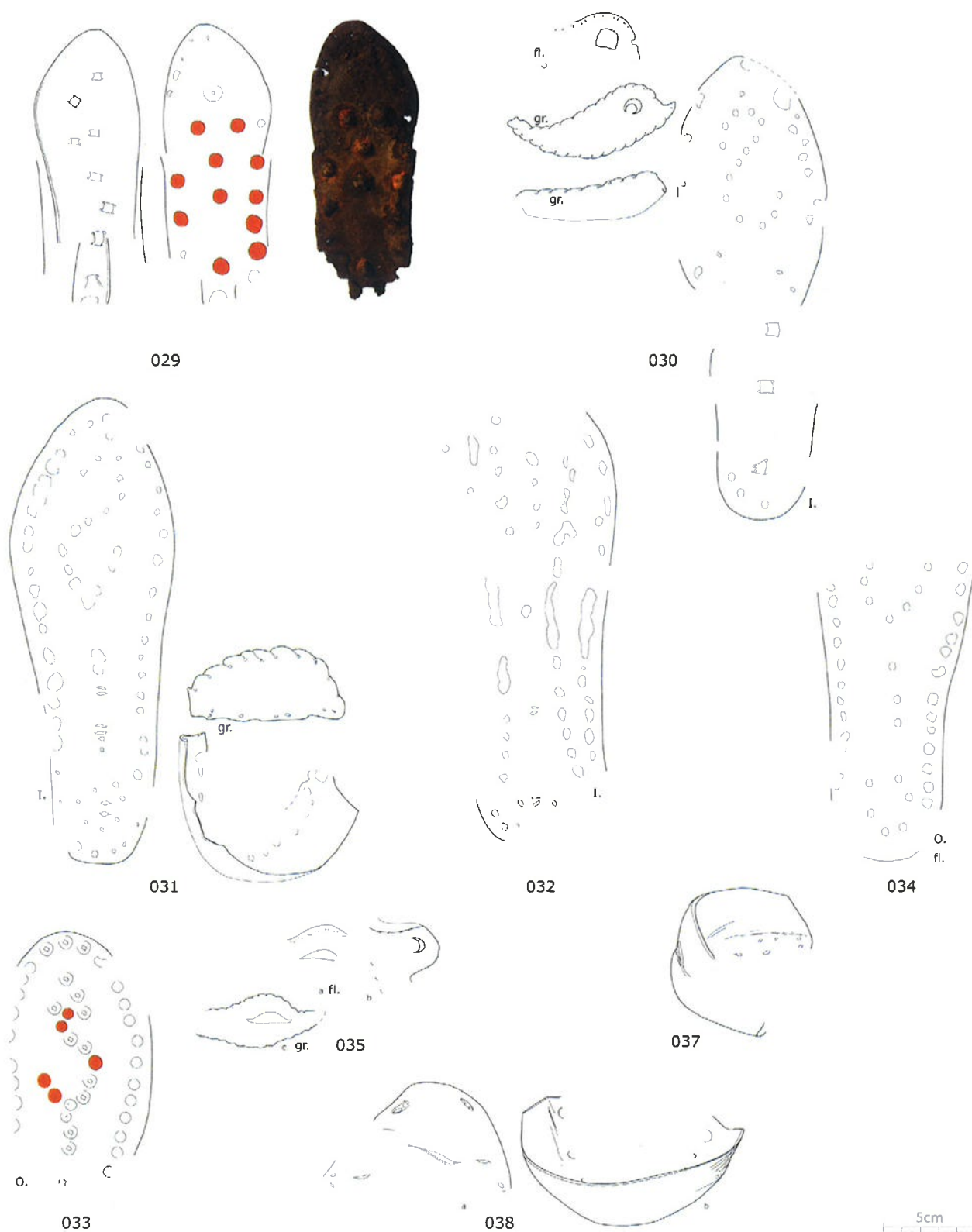


Plate CCCL: Leather finds at the south-west corner site. Shoe fragments cat. nos 29, 30, 31, 32, 33, 34, 35, 37, 38.

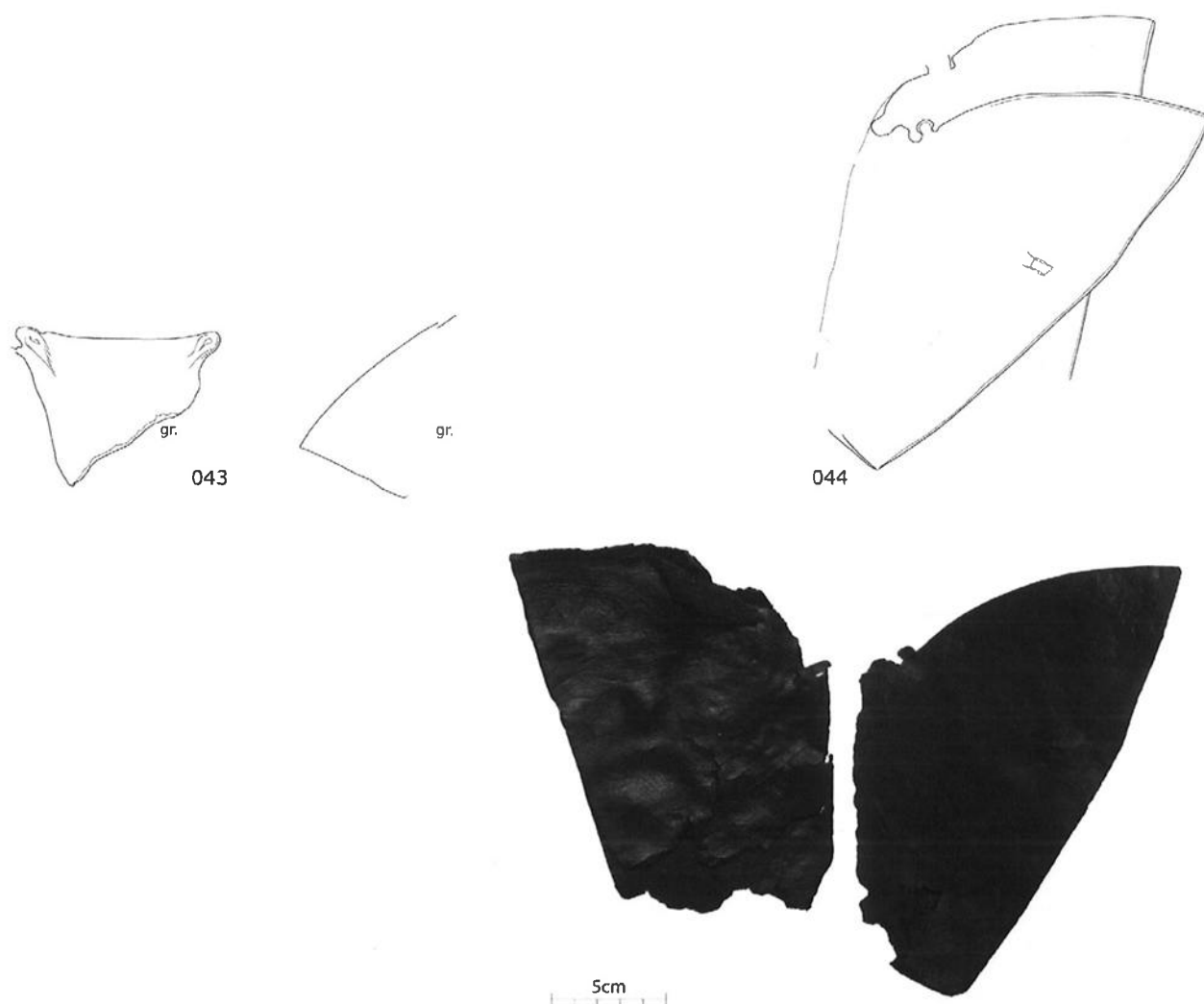


Plate CCCLI: *Leather finds at the south-west corner site. Off cut cat. no. 43. Off cut or slipper rough out cat. no. 44.*

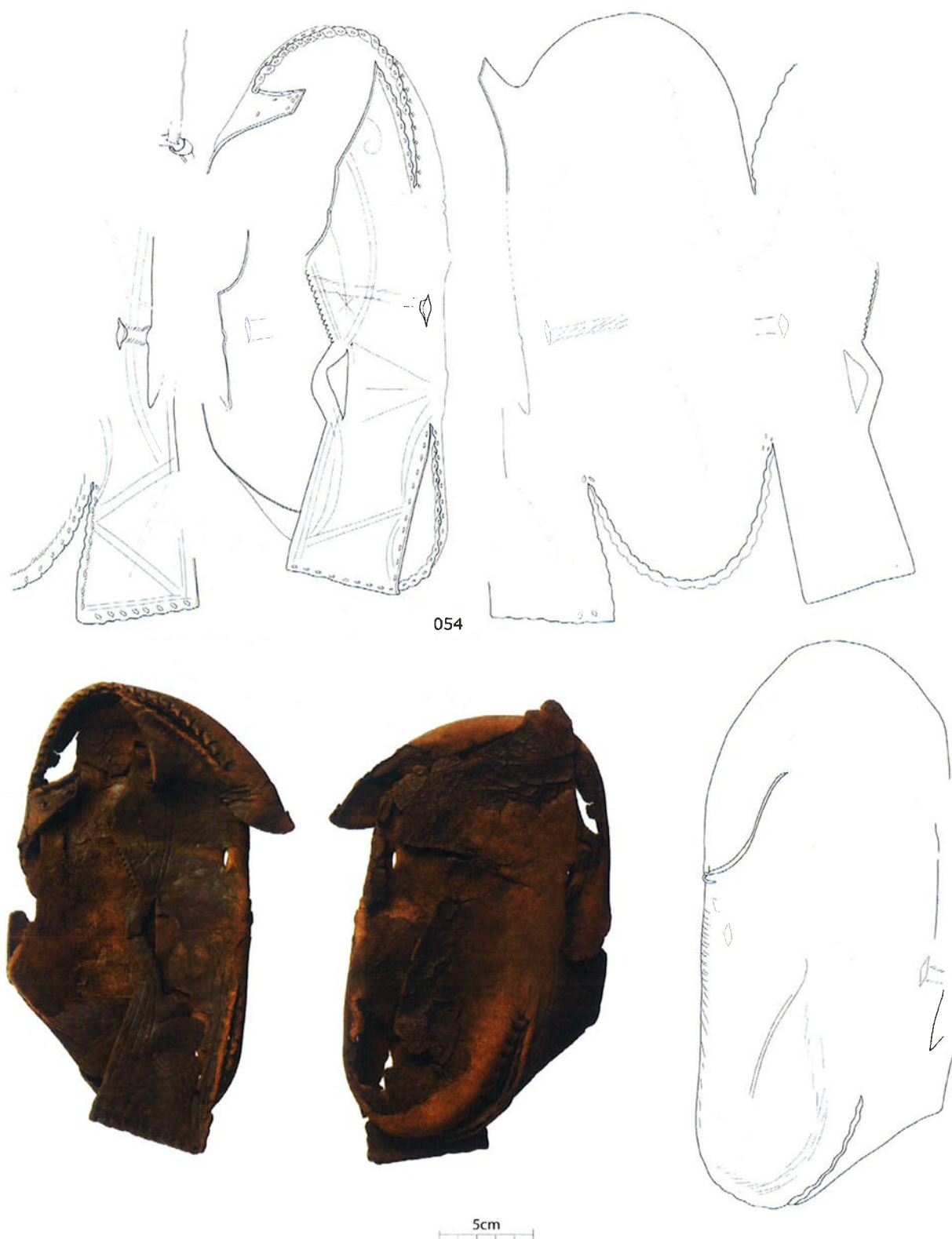
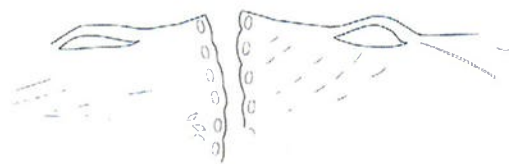


Plate CCCLII: *Leather finds at the south-west corner site. Shoe cat. no. 54.*



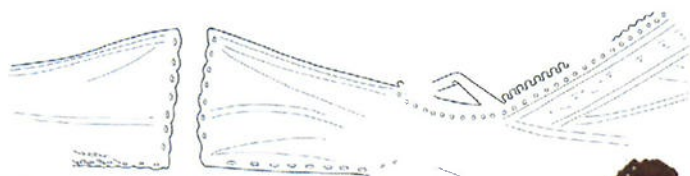
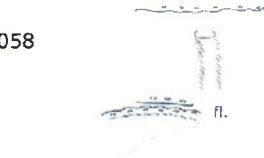
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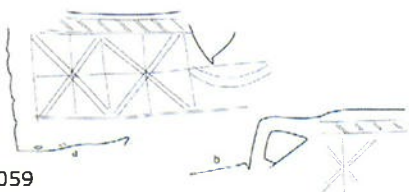
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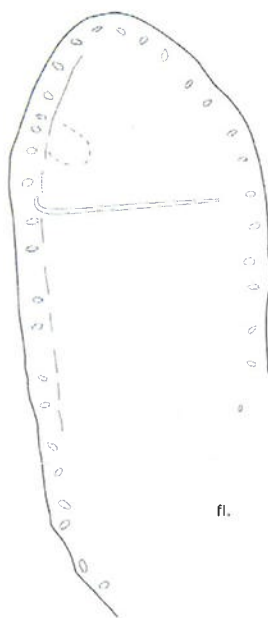
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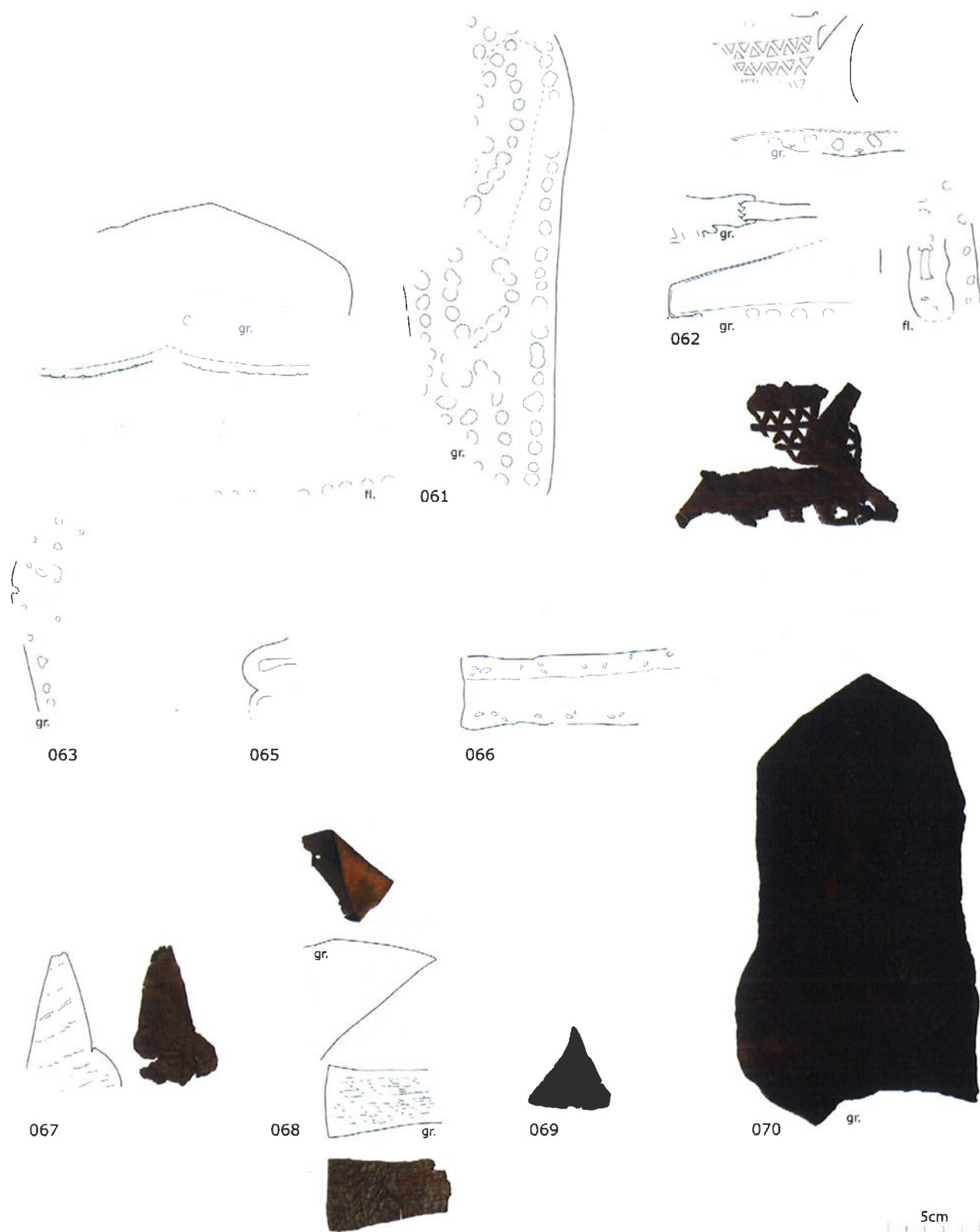


Plate CCCLIV: Leather finds at the south-west corner site. Shoe fragments cat. nos 61, 62, 63, 65, 66, and offcuts cat. nos 67, 68, 69 and 70.

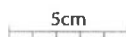
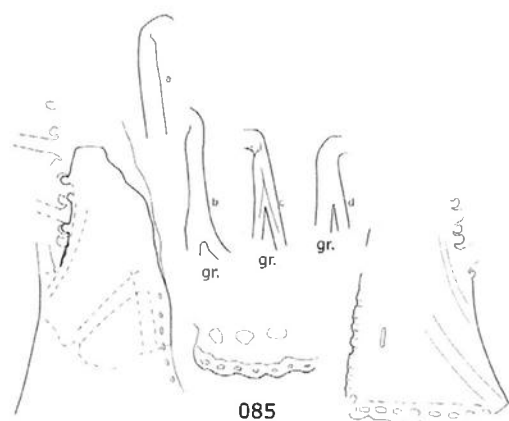


Plate CCCLVII: Leather finds at the south-west corner site. Shoe fragments cat. nos 85, 86, 87, 88, 89, 91, 92 and 94.

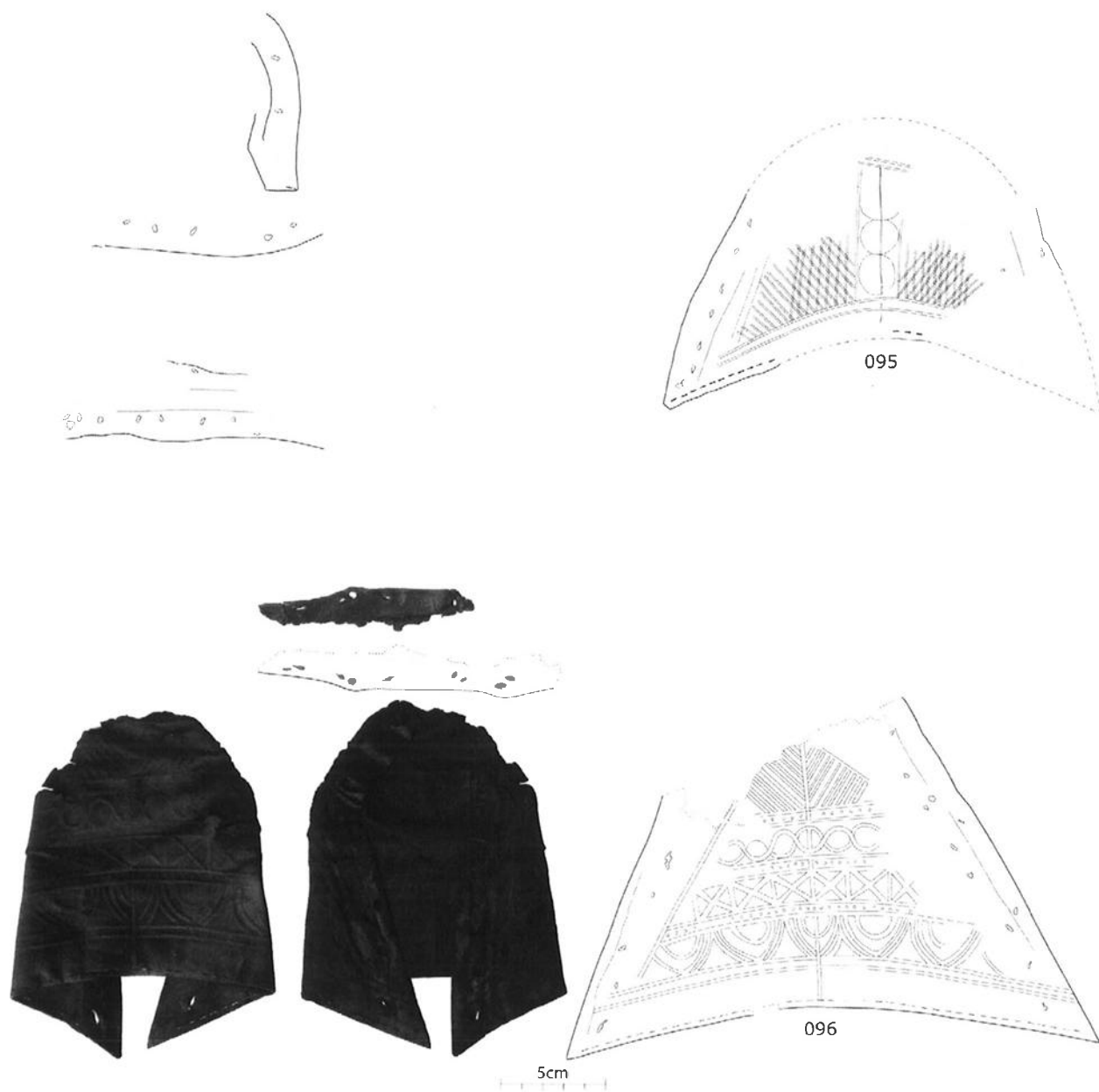


Plate CCCLVIII: *Leather finds at the south-west corner site. Parts of two slippers: cat. nos 95 and 96.*

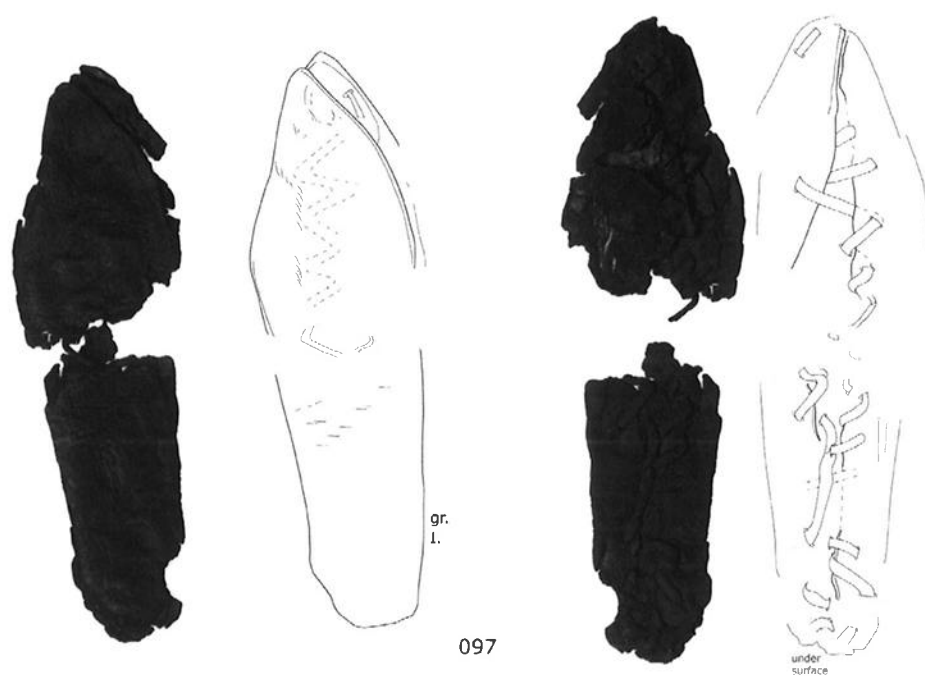


Plate CCCLIX: Leather finds at the south-west corner site. Shoe fragments cat. nos 97 and 98.

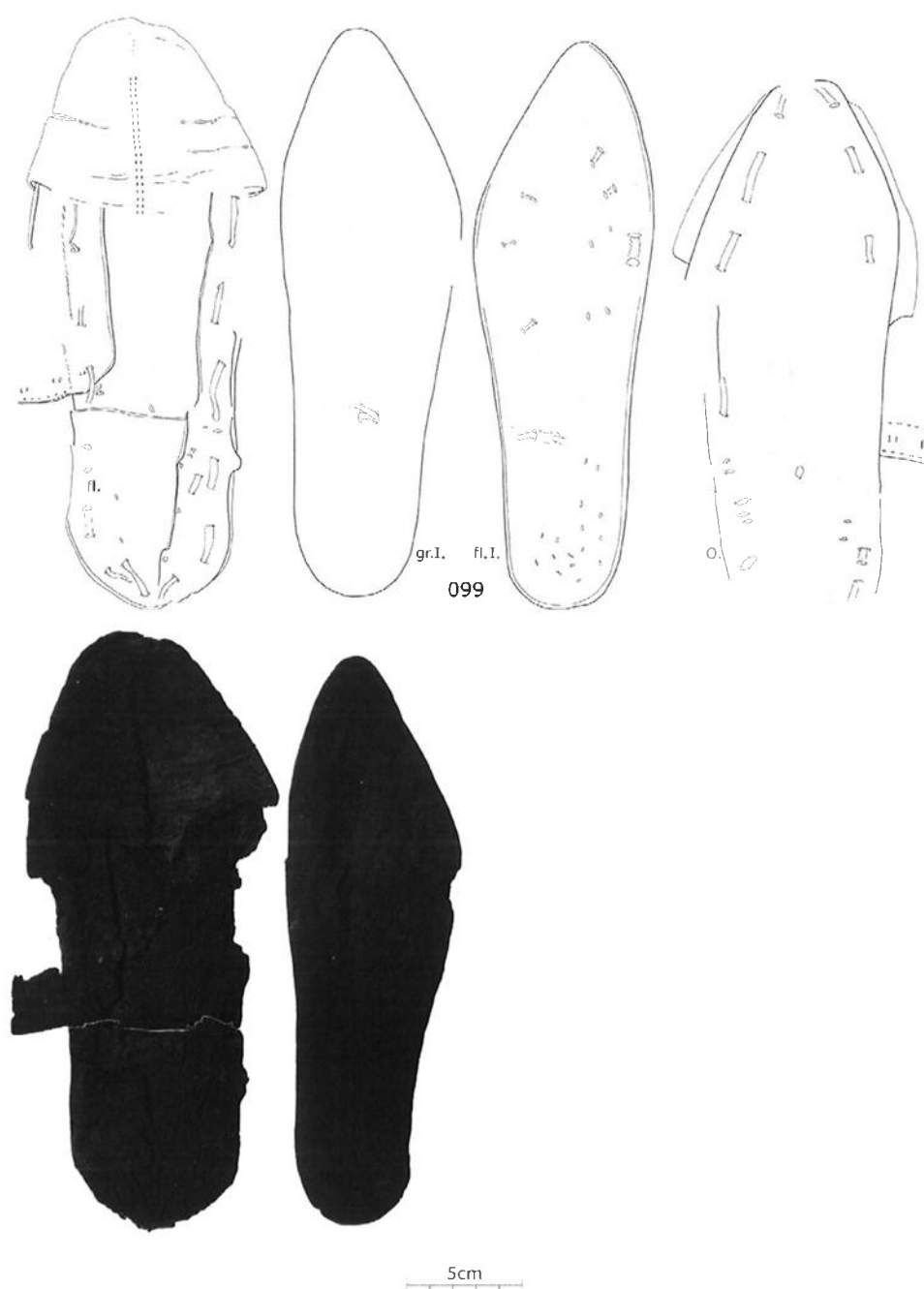


Plate CCCLX: Leather finds at the south-west corner site. Shoe cat. no. 99.

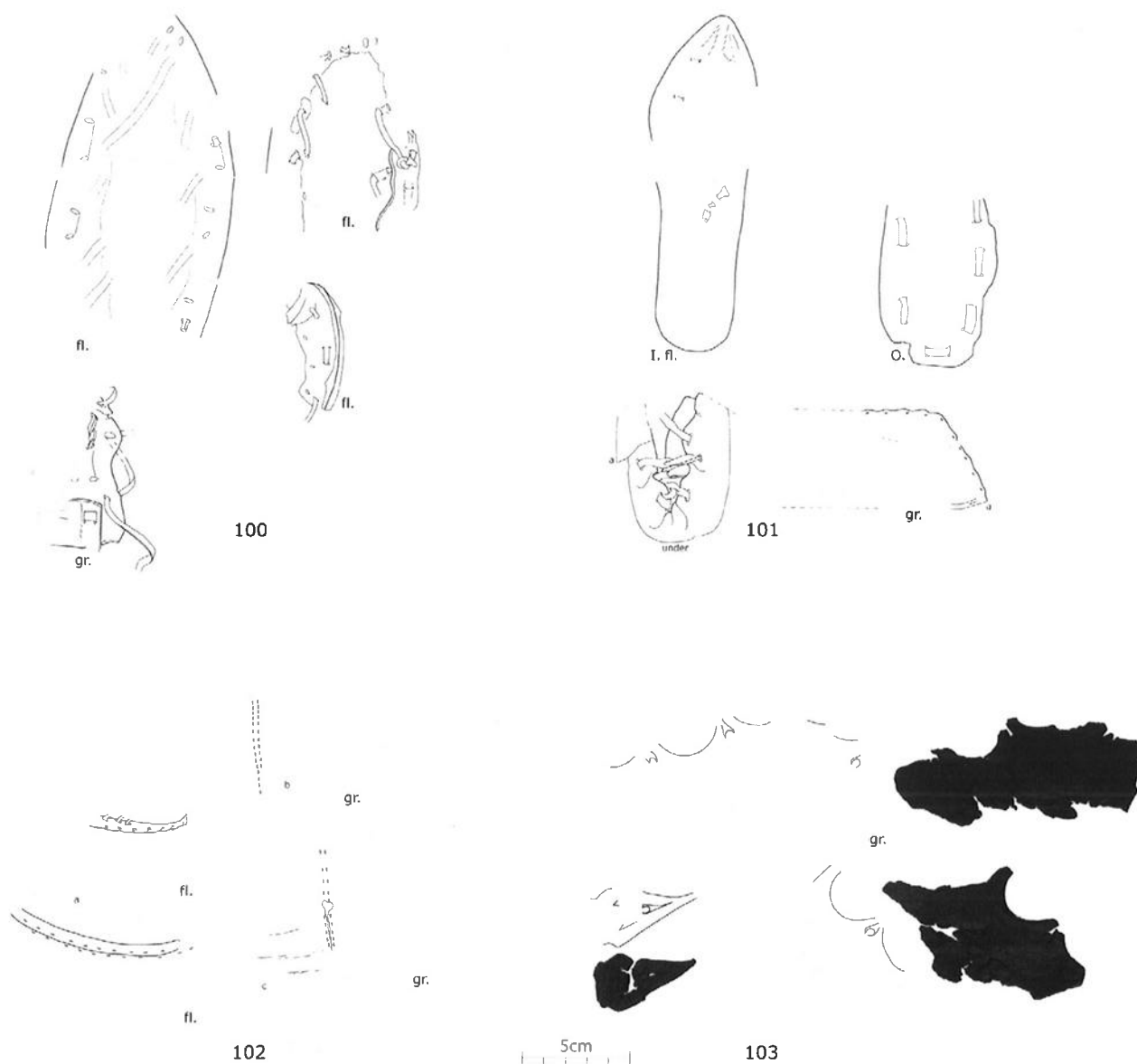


Plate CCCLXI: Leather finds at the south-west corner site. Shoe fragments cat. nos 100, 101, 102 and 103.

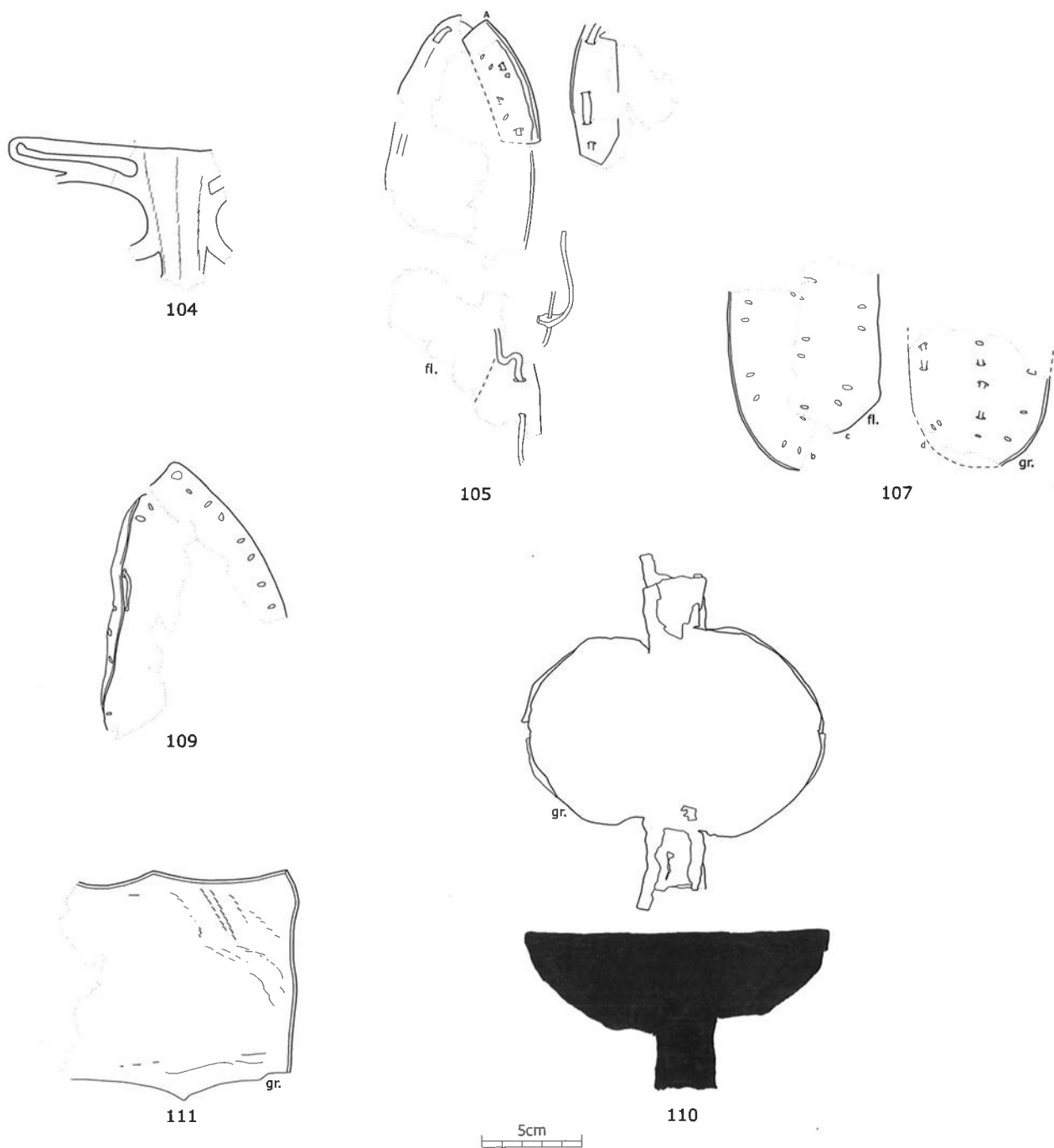


Plate CCCLXII: *Leather finds at the south-west corner site. Shoe fragments cat. nos 104, 105, 107 and 109, archer's brace cat. no. 110 and off cut cat. no. 111.*

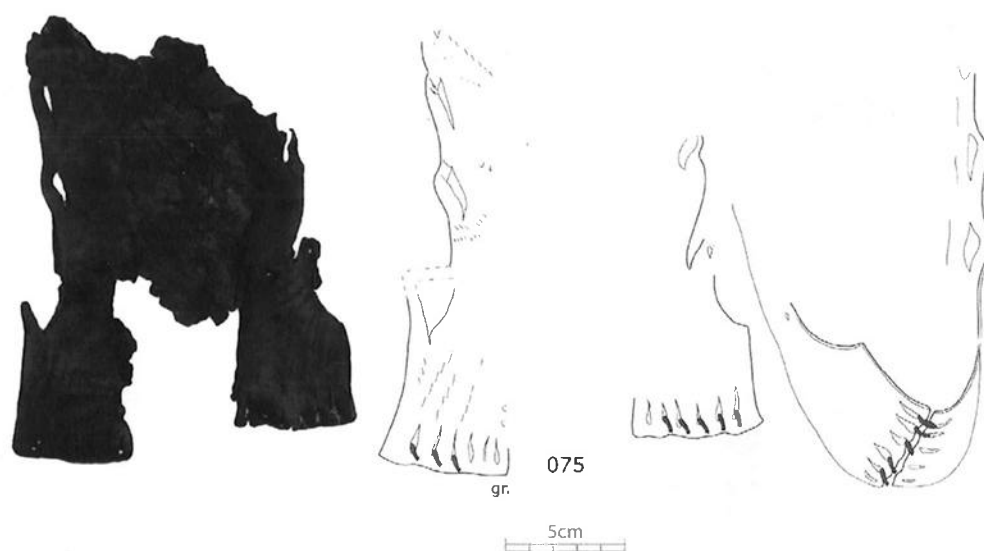
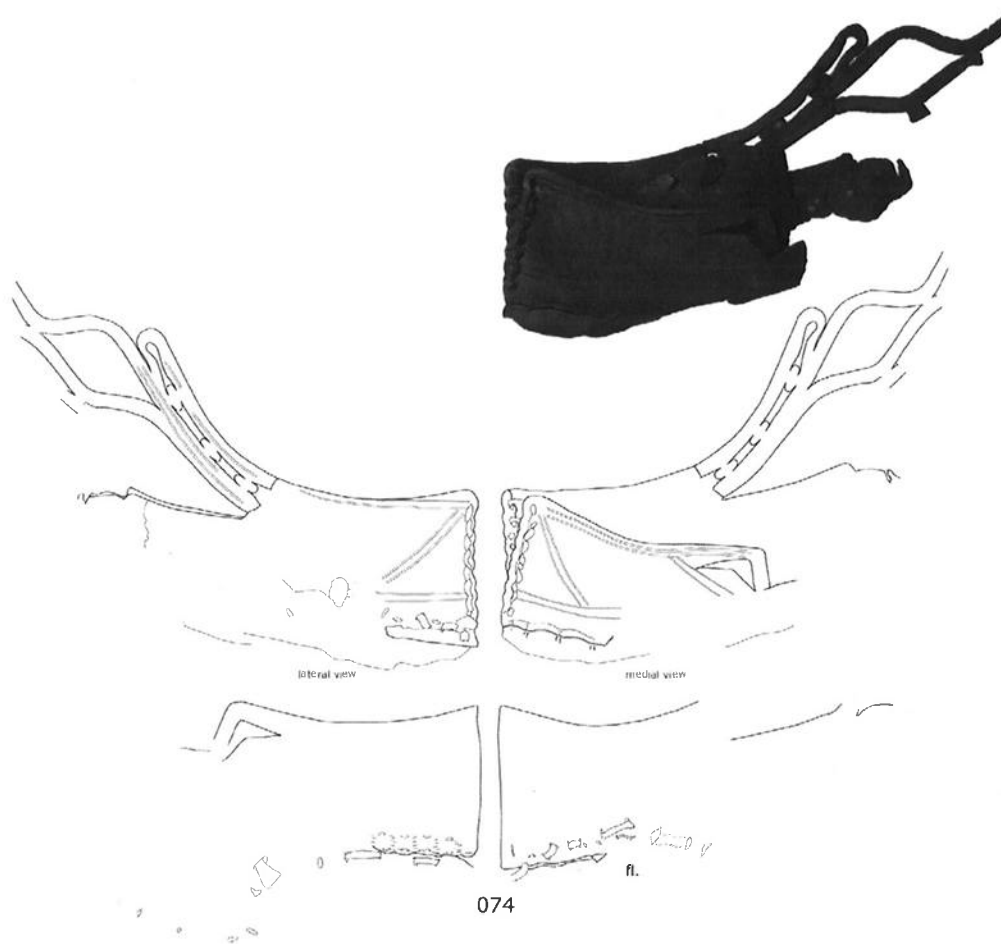


Plate CCCLV: Leather finds at the south-west corner site. Shoe fragments cat. nos 74 and 75.



Plate CCCLVI: Leather finds at the south-west corner site. Shoe fragments cat. nos 76, 77, 78, 80, 83 and 84.