Chapter 5: Coins and Non-Ceramic Finds

COINS

by Peter Guest

Introduction

The excavations at Westhawk Farm produced 237 coins in total, the overwhelming majority of which being Roman bronze denominations struck between the 1st and early 3rd centuries AD. A further 89 coins, including the single Iron Age coin from the site, were recovered during a metal-detector survey undertaken prior to excavation. The site also produced ten post-Roman coins (nine from the excavations and one from the metal-detector survey). The full list of excavated coins from Westhawk Farm is contained in Table 5.5, while the coins recovered by metal detector are listed in Table 5.6. Summaries of these two groups of coins are presented in Tables 5.1 and 5.2 respectively. Generally the coins from Westhawk Farm were rather worn, although in most cases the soil conditions had caused considerable corrosion and decay.

Coins

The Iron Age coin is a gold quarter-stater, struck at the beginning of the 1st century AD in the name of Eppilus, with the inscription COM.F on the obverse and a horse and flower below IPPI on the reverse (metal detector find SF150; Plate 5.1). Analysis at Cardiff University indicated that the metal from which this coin was struck was a heavily debased gold-silver alloy.

Of the 227 excavated Roman coins, 126 could be identified to individual emperors' reigns. The summary tables clearly show that most of these coins were produced during the 1st, 2nd and early 3rd centuries, with a particular concentration of coins from the 2nd century. Most of these coins are bronze denominations (*sestertii*, *dupondii* and *asses*), although the assemblage also included a number of smaller *semisses*. Only ten silver *denarii* were recovered, although this preponderance of bronze coinage is typical of site-finds from Romano-British settlements. The remaining 101 coins could only be described in more vague terms - 'early Roman', that is from the 1st to early-mid 3rd centuries.

The earliest Roman coin is a very worn *denarius* of the later 2nd century BC, showing the head of Roma on the obverse and a *quadriga* on the reverse (SF1141). The three coins of Augustus include a *dupondius* from Pergamum, struck between 28 and 15 BC (SF1224), and an *as* from Nimes (SF983).

The main concentration of coins from Westhawk Farm, however, extends from the Flavian period until the reign of Commodus at the end of the 2nd century (representing 83% of identifiable coins). At first the smaller *dupondii* and *asses* were almost as common as the larger *sestertius*, but by the end of the 2nd century this latter denomination was by far the most common. The Severan period (AD 193-235) is represented by seven coins, including a *denarius* of Caracalla as Caesar from Laodicea (SF1271) and a most unusual Roman provincial bronze denomination struck by the city of Cius in Bythinia for Elagabalus, showing two rearing goats and a large amphora on the reverse (SF167; Plate 5.2). Although bronze coins from the eastern provinces of the Roman Empire do turn up in Britain, they do so in very small numbers (Walker 1988). The Westhawk coin's size and weight suggest that it could have circulated at the equivalent value of a western *as*.

Only ten coins from the Westhawk Farm excavations post-date AD 235, a most unusual situation for a Romano-British settlement. These included three *asses* of Gordian III and Philip I, six radiates of the middle and later 3rd century (of which three were barbarous copies), and a single 4th-century coin struck in AD 316. The metal-detector survey produced a further six 4th-century coins, suggesting that some form of occupation might have continued to the east of the excavated area in the 4th century, although certainly not at the same intensity as in the early Roman period. The absence of usually common bronze coins from the second half of the 4th century, such as the *Fel Temp Reparatio* or Valentinianic issues, suggests that the settlement at Westhawk Farm was abandoned by AD 350 at the latest (and probably some years earlier).

Coins as site-finds

The Westhawk Farm coins are perhaps most intriguing and informative as an assemblage. Table 5.1 shows quite clearly that these coins, as a group, are dominated by the large bronze denominations of the early Roman period. Our understanding of site-finds indicates that this situation is unusual for Roman Britain, where most settlements produce significantly greater quantities of 3rd-century radiates and small 4th-century bronzes than these early-Roman coins.

Fortunately a methodology has been developed in the past few years that allows us to compare quantitatively coins from any sites against the background of coin-supply to Britain, and thereby see when and how they deviate from the notionally average Romano-British site (Reece 1995a). The calculations required for this approach are presented on Table 5.3. First, the coins must be converted into 'coins per thousand' values and then added cumulatively. Then these figures

Table 5.1 Coins: Summary list of coins from excavated contexts (for detailed list see Table 5.5).

Up to AD 296	Den	Ant	Ses	Dup/as	Dup	As	Sem	others	Total
Republic	1								1
Augustus					1	1	1		3
Nero			1						1
Vespasian	1		2			1			4
Domitian	1		1	1		1			4
Nerva	2								2
Trajan			5		3	2		1 (AE frag)	11
Hadrian			*6*	*1*	*2*	*3*			*12*
Sabina			*1*						*1*
Hadrian, total			7	1	2	3			13
Antoninus Pius	*1*		*6*	*1*		*5*		*1 (AE copy)*	*14*
Faustina I	*1*		*6*	*1*					*8*
Marcus Caesar			*2*	*1*					*3*
Faustina II			*1*	*1*					*2*
Antoninus, total	2		15	4		5		1	27
Marcus Aurelius			*18*						*18*
Lucius Verus			*1*						*1*
Faustina II			*7*			*1*			*8*
Lucilla			*5*						*5*
Marcus, total			31			1			32
Commodus			8					1 (plated)	9
Caracalla Caesar	*2*								*2*
Julia Domna			*1*						*1*
Plautilla	*1*								*1*
uncertain empress			*1*						*1*
Severus, total	3		2						5
Elagabalus								1	1
Alex Severus			1						1
Gordian III						1			1
Philp I		*1*				*1*			*2*
Otacilia Severa						*1*			*1*
Philip I, total		1				2			3
Gallienus		1							1
Claudius II		1							1
as Tetricus I		*1*							*1*
as uncertain emp		*2*							*2*
Barb radiates, total		3							3

Uncertain coins up to AwD 296	Den	Dup/as	Semis	AE1	AE2	Copies	Total
Flavian					1	1	2
Antonine empress		4					4
'early Roman'	1		1	48	48		98

Fourth century bronze coin

	Trier
313-318	1

Post-Roman Coins	Groat	Penny	Halfpenny	Farthing	Jeton	Total
Edward III	1					1
George III			2			2
George IV			1			1
Victoria		1	1			2
George VI			1			1
12th-13thC				1 cut		1
17thC					1	1

Table 5.2 Coins: Summary list of coins recovered by pre-excavation metal-detector survey (for detailed list see Table 5.6).

Iron Age coin							
	AU ¼ stater						
Eppilus	1						

Up to AD 296	Den	Ant	Ses	Dup/as	Dup	As	Total
Republic	1						1
Claudius	1						1
Vespasian						1	1
Trajan	1		1	1			3
Hadrian	1		1				2
Faustina I	*1*						*1*
Antoninus, total	1						1
Marcus Aurelius			*2*				*2*
Lucius Verus			*1*				*1*
Marcus, total			3				3
Gallienus		1					1
Postumus		*1*					1
as Tetricus I		*1*					*1*
as uncertain emp		1					*1*
Barb radiates, total		2					2

Uncertain coins up to AD 296	Den	Sestertius	Dp/as	AE1	AE2	Copies	Total
Antonine emperor				3	3		6
Faustina II	2	1	1				4
'early Roman'	3			21	26		50

Fourth-century bronze coins	uncertain mint
313-18	1
324-30	2
335-41	2
350-53	1

Uncertain Roman bronze coins	AE3
late 3rd-4thC	2
Roman	3

Post-Roman Coin	Jeton
17thC	1

Plate 5.1 Late Iron Age gold quarter-stater of Eppillus, showing (a) obverse and (b) reverse.

Plate 5.2 Bronze as of Elagabalus, showing (a) obverse and (b) reverse.

Table 5.3 Coins: Chronological distribution of excavated Roman coins from Westhawk Farm by Issue Period.

Issue Period	Date	No. of coins	Coins per 1000	Cumulative values	AWF minus Brit
I	up to AD 41	4	31.7	31.7	25.2
II	41-54			31.7	13.5
III	54-68	1	7.9	39.7	15.6
IV	69-96	10	79.4	119.0	64.0
V	96-117	13	103.2	222.2	147.4
VI	117-138	13	103.2	325.4	234.8
VII	138-161	27	214.3	539.7	430.4
VIII	161-180	32	254.0	793.7	672.9
IX	180-192	9	71.4	865.1	739.6
X	193-222	5	39.7	904.8	764.1
XI	222-235	2	15.9	920.6	772.6
XII	235-260	4	31.7	952.4	796.4
XIII	260-275	2	15.9	968.3	668.0
XIV	275-296	3	23.8	992.1	570.5
XV	296-318	1	7.9	1000	560.9
XVI	318-330		0	1000	516.8
XVII	330-348		0	1000	271.3
XVIII	348-364		0	1000	173.0
IXX	364-378		0	1000	55.0
XX	378-388		0	1000	50.2
XXI	388-402		0	1000	0
		126	1000		

are deducted from the Romano-British mean (an average of the coins from 140 sites) to produce a sequence of numbers that shows, generally speaking, when and to what extent the Westhawk Farm coins deviate from this mean.

Figure 5.1 plots the same data as a graph (the x-axis representing the Romano-British background) and the strong bias of coins from the Flavian to Severan periods is obvious, as is the sharp decline from the middle of the 3rd century onwards. That the Westhawk Farm coins are always above the x-axis is due to the fact that the site produced significantly more early coins (and significantly fewer later 3rd- and 4th-century coins), than is normal for a settlement in Roman Britain.

The great advantage of this methodology is that it allows sites to be compared with each other, so that groups of similar site-find assemblages can be identified. Figure 5.2 shows the sites with which Westhawk Farm's pattern of coin loss is most similar. These include two groups of coins from London, the forts at Brecon and Ribchester, the early *Classis Britannica* forts at Dover, the large early villa at Fishbourne, and the watery deposits at Bath and Coventina's Well. All of these assemblages produce the same peak of

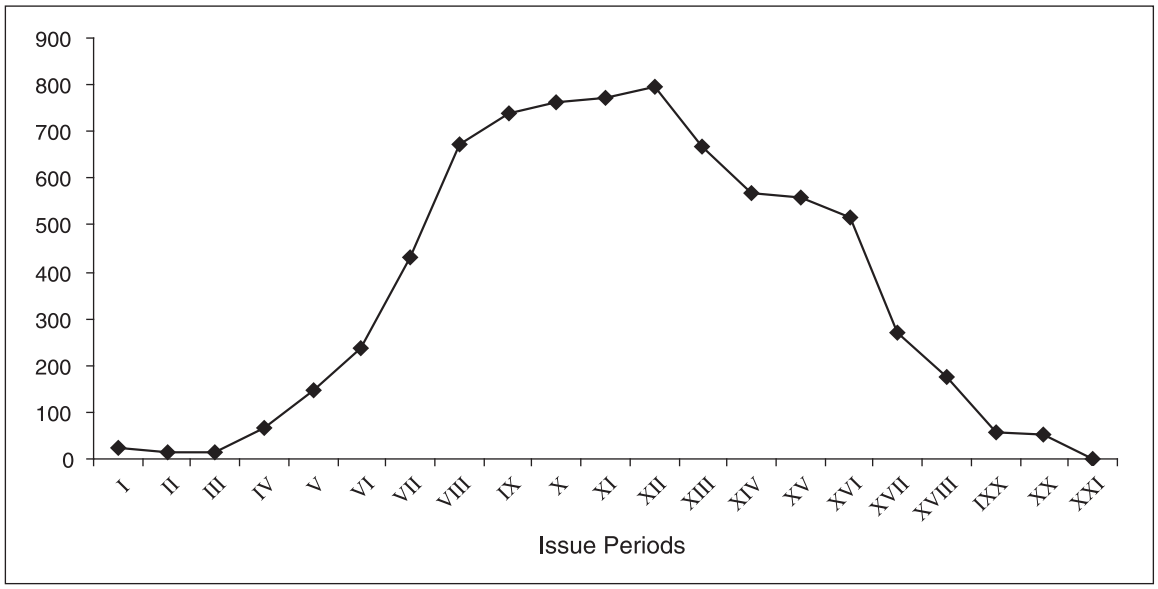

Figure 5.1 Coins: Graph plotting the deviation of the Westhawk Farm Roman coin assemblage from the British mean. Based on figures in Table 5.3.

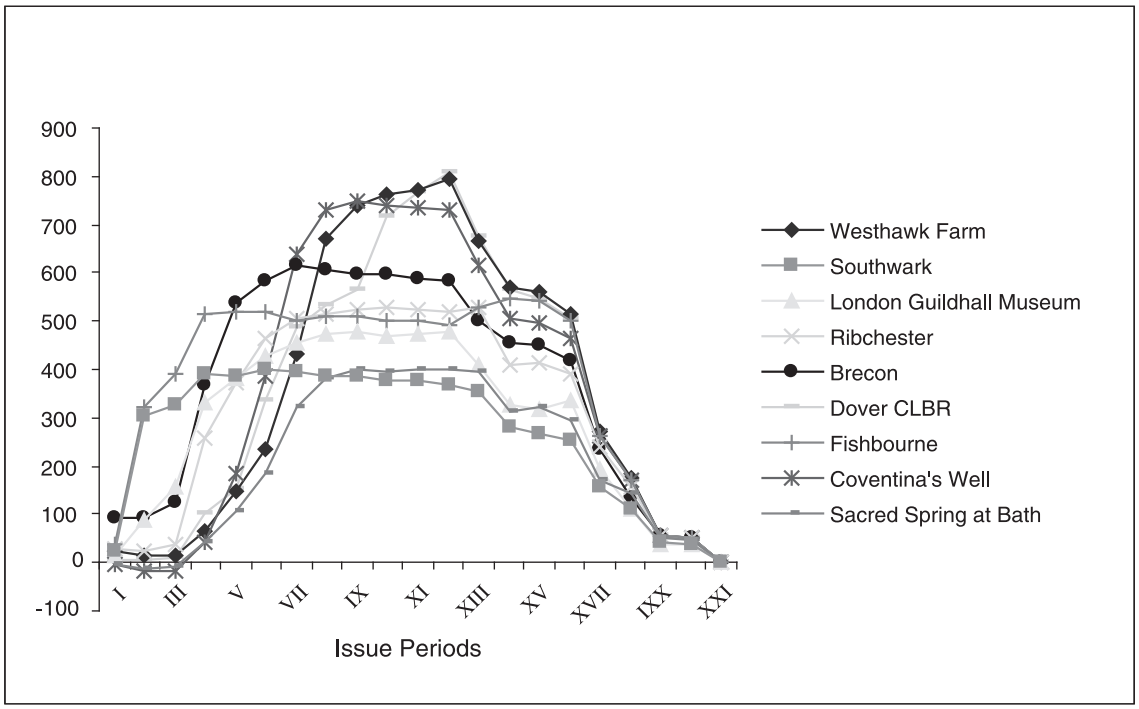

Figure 5.2 Coins: Graph plotting the deviation of the Westhawk Farm coin assemblage from the British mean, together with plots for selected sites showing a similar pattern.

early coins and a relatively weak pattern of coin loss from the beginning of the 3rd century onwards. Having identified that a particular group of sites shares similar coin loss profiles, the next stage is to understand why this might have occurred. It has long been thought that Roman coins initially arrived in Britain in order to pay the army (among other groups, perhaps), and the preponderance of early Roman coins at military sites certainly seems to bear this out. Other than the three forts shown on Figure 5.2, the palace at Fishbourne was preceded by a phase of occupation that might have been a military supply base; a military presence has been postulated at Southwark, and Coventina's Well is just outside the fort at Carrawburgh on Hadrian's Wall. Of course, the precise nature of the settlement at Westhawk Farm cannot be identified from the coins alone, but a strong military influence seems certain.

Coins and the context of deposition

It is interesting that the coins from Westhawk Farm are most similar to two assemblages from sites of religious significance. Excavations at Bath recovered over 12,500 coins from the sacred spring itself, while the well to Coventina at Carrawburgh produced perhaps 16,000 coins in total, as well as stone altars and stele, numerous items of jewellery, an incense-burner, bronze masks, mounts and fittings, and ceramic and glass vessels. There can be little doubt that these large groups of coins represent votive offerings to the deities worshipped at these places, a common practice at places dedicated to water-deities in Britain and the north-western provinces of the Roman empire (Allason-Jones and McKay 1985, 6-11).

The Westhawk Farm coins, however, are more closely similar to the assemblages from Coventina's Well and Bath than their profiles suggest. Approximately half of the recorded coins from Westhawk Farm were recovered in stratified deposits (the remaining coins are described as unstratified or from topsoil deposits). Generally, one, two, or sometimes three coins came from individual contexts, although four deposits stand out as exceptional due to the fact that they produced significantly more coins than most other contexts, as Table 5.4 shows.

Contexts 303, 677, 723 and 739 as a group account for 57 coins. In fact, it is better to treat them as a single group (or inter-related groups perhaps), as each of these four contexts represents deposits that filled

Table 5.4 Coins: Summary of coin numbers from stratified contexts producing two or more coins.

Context	No. of coins	Context	No. of coins
255 *	2	7644	2
379 *	2	8014	2
427 *	2	302 *	3
675 *	2	416	3
676 *	2	739 *	6
7081	2	303 *	9
7237	2	677 *	21
7428	2	723 *	21

* Contexts marked with an asterisk are fills of Waterhole 796.

Table 5.5 Coins: Detailed list of coins from excavated contexts.

SF no.	Context	Denomination	Wt (g)	Date	Obverse	Reverse	Mint	Reference	Comment
Roman Coins									
1141	7000	Denarius		late 2ndC BC	Head of Roma	Quadriga	Rome		very worn
1224	7428	Dup	3.8	28-15 BC	AUGUSTUS	CA in laurel-wreath & rostra	Pergamum	RIC: 497/9	
983	7185	As	5.7	20-10 BC	AUGUSTUS & AGRIPPA	COL-NIM & crocodile	Nimes	RIC: 156	
165	677	Semis	4.9	early 1st C	AUGUSTUS?	illegible			Left facing bare-headed bust
1170	7004	Semis	4.2	early 1st C	illegible	illegible			'Julio-Claudian' bust
1024	7238	AE1	15.3	54-68	NERO	illegible			
222	723	Sestertius	18.5	69-79	VESPASIAN	illegible			
1143	7004	Denarius		69-79	VESPASIAN	illegible			
1161	7004	Sestertius	9.5	69-79	VESPASIAN	illegilble			Very corroded
1382	7836	As	7.8	69-79	VESPASIAN	illegible			
1180	7004	AE frag	-	69-96	illegible	illegible			'Flavian' bust
1413	8209	AE2 copy	4.0	69-96	illegible	illegible			'Flavian' bust
128	676	AE2	2.0	81-96	DOMITIAN	illegible			Damaged
1183	7004	AE1	7.8	81-96	DOMITIAN	illegible			Damaged
1394	7906	As?	8.0	81-96	DOMITIAN	illegible			Left facing 'Flavian' bust
21	185	Denarius		91	DOMITIAN	IMP XXI COS XV CENS PP	Rome	RIC: 156	
1237	7004	Denarius		96-97	NERVA	CONCORDIA EXERCITVVM	Rome		
1308	7644	Denarius		97	NERVA	COS III PATER PATRIAE	Rome	RIC: 24	
140	677	Dupondius	5.9	98-117	TRAJAN	illegible			
152	746	AE frag	-	98-117	TRAJAN	illegible			
272	1674	Sestertius	-	98-117	TRAJAN	illegible			Damaged
1203	7003	Sestertius	16.0	98-117	TRAJAN	illegible			
1160	7004	Dupondius	6.2	98-117	TRAJAN	illegible			
1244	7004	Dupondius	-	98-117	TRAJAN	illegible			Damaged
1305	7004	As	4.4	98-117	TRAJAN	illegible			
1346	7734	Sestertius	-	98-117	TRAJAN	illegible			Damaged
1381	7835	Sestertius	22.5	98-117	TRAJAN	illegible			
1546	10351	As	5.8	98-117	TRAJAN	illegible			
1366	7769	Sestertius	13.8	103-11	TRAJAN	SPQR OPTIMO PRINCIPI - SC (Concordia)	Rome	RIC: 496	Damaged
10	126	Dupondius	1.5	117-38	HADRIAN	illegible			Cut to 20mm diam. module
95	416	As	9.9	117-38	HADRIAN	illegible			
239	723	As	6.5	117-38	HADRIAN	illegible			
1162	7004	Sestertius	7.1	117-38	HADRIAN	illegible			Cut to 24mm diam. module
1166	7004	Sestertius	14.3	117-38	HADRIAN	illegible			
1169	7004	Sestertius	11.1	117-38	HADRIAN	illegible			
1174	7004	As	2.7	117-38	HADRIAN	PONT MAX TR POT COS III - SC. PIE AVG	Rome	RIC: 579	Cut to 21mm diam. module
1233	7004	Sestertius	3.2	117-38	HADRIAN	illegible			Damaged
1371	7004	Sestertius	15.2	117-38	HADRIAN	illegible			
1067	7294	Sestertius	19.5	117-38	HADRIAN	illegible			
1388	7837	AE frag	3.4	117-38	HADRIAN	illegible			
1168	7004	Dupondius	7.2	119-21	HADRIAN	VIRTVTI AVGVSTI - SC	Rome	RIC: 605	
62	303	Sestertius	21.0	119-38	SABINA	illegible			

141	677	Sestertius	17.5	139	ANTONINUS PIUS	Libertas [Publica Cos II] - SC	RIC: 538		
24	255	AE1 frag	9.6	138-61	ANTONINUS PIUS	Libertas left			
41	266	As	9.4	138-61	ANTONINUS PIUS	illegible			
54	302	As	12.5	138-61	ANTONINUS PIUS	illegible			
146	677	As	12.4	138-61	ANTONINUS PIUS	illegible			
225	723	Sestertius	20.2	138-61	ANTONINUS PIUS	illegible			
151	739	Sestertius	14.8	138-61	ANTONINUS PIUS	illegible			
1154	7004	Sestertius	-	138-61	FAUSTINA II	illegible			damaged
1282	7004	As	8.4	138-61	ANTONINUS PIUS	illegible			
1338	7004	AE1	16.2	138-61	ANTONINUS PIUS	illegible			
1360	7004	AE2 frag	3.8	138-61	ANTONINUS PIUS?	illegible			
228	723	AE copy	7.7	Ist-2nd C	as Antoninus Pius?	illegible	copy		Right facing bust - big nose
240	724	Dupondius/as	6.0	138-80	uncertain empress	illegible			
233	723	Dupondius/as	5.6	141-61	DIVA FAUSTINA I	AETERNITAS - SC			
234	723	Sestertius	17.9	141-61	DIVA FAUSTINA I	AETERNITAS - SC			
267	723	Sestertius	25.9	141-61	DIVA FAUSTINA I	AVGVSTA (Vesta) - SC		RIC: 1126	
219	739	Sestertius	22.8	141-61	DIVA FAUSTINA I	AVGVSTA - SC			
266	739	Sestertius	14.1	141-61	DIVA FAUSTINA I	illegible			
1142	7004	Denarius		141-61	DIVA FAUSTINA I	AETERNITAS (Aeternitas)	Rome	RIC: 347	
1165	7004	Sestertius	-	141-61	DIVA FAUSTINA I	illegible			damaged
937	7086	Sestertius	23.3	141-61	DIVA FAUSTINA I	illegible			
65	303	Sestertius	20.6	145-61	MARCUS AURELIUS Caesar	illegible			
1230	7004	Dupondius/as	7.0	145-61	FAUSTINA II (Pius)	VENVS - SC		RIC: 1387	
224	739	Sestertius	24.1	145-75	FAUSTINA II?	illegible			
264	739	Sestertius	20.6	145-75	FAUSTINA II	illegible			
1409	8043	Dupondius/as	4.1	145-75	FAUSTINA II	illegible			
145	677	Sestertius	13.6	147-48	MARCUS AURELIUS	PRIMI/DECEN/NALES/COS III - SC		RIC: 846	
221	723	Sestertius	22.8	151-53	ANTONINUS PIUS	SALVS AVG COS III - SC			
1144	7004	Denarius		152-53	ANTONINUS PIUS	COS IIII (Annona)	Rome	RIC: 221	
1077	7279	As	7.3	154-55	ANTONINUS PIUS	BRITANNIA		RIC: 934	
168	677	AE2 copy?	2.4	158-59	MARCUS AURELIUS Caesar	TR POT XIII [COS II] - SC		RIC: 1350	
61	303	Sestertius	19.5	161-69	LUCILLA	[Pietas] - SC		RIC: 1756	
64	303	Sestertius	25.8	161-69	LUCILLA	VENVS - SC		RIC: 1763	
276	379	Sestertius	27.3	161-69	LUCILLA	HILARITAS - SC		RIC: 1740	
162	677	Sestertius	22.7	161-69	LUCILLA	VENVS - SC		RIC: 1763	
1158	7004	Sestertius	20.3	161-69	LUCILLA	VENVS - SC			
22	2	Sestertius	-	161-75	FAUSTINA II	[Laetitia] - SC			damaged
227	723	Sestertius	21.3	161-75	FAUSTINA II	[Laetitia] - SC		RIC: 1654	
269	723	As	10.0	161-75	FAUSTINA II	[Iuno] - SC		RIC: 1647	
176	805	Sestertius	-	161-75	FAUSTINA II	[Iuno] - SC		RIC: 1645	damaged
1188	7001	Sest copy	-	161-75	as Faustina II	as Salus std l.			damaged
1306	7004	Sestertius	11.9	161-75	FAUSTINA II	[Laetitia] - SC			
1435	7004	Sestertius	19.1	161-75	FAUSTINA II	[Venus Felix] - SC		RIC: 1686	
929	7076	Sestertius	21.9	161-75	FAUSTINA II	[Venus Felix] - SC		RIC: 1686	

(*Continued on next page*)

Table 5.5 (*continued*)

SF no.	Context	Denomination	Wt (g)	Date	Obverse	Reverse	Mint	Reference	Comment
60	303	Sestertius	14.5	161-80	MARCUS AURELIUS	Fig stdg l. with cornucopiae			
217	427	Sestertius	24.2	161-80	MARCUS AURELIUS	illegible			
144	677	Sestertius	16.0	161-80	MARCUS AURELIUS	Salus? seated l feeding snake around altar			
230	723	Sestertius	14.6	161-80	MARCUS AURELIUS	Fig stdg r. holding spear			
1404	8014	Sestertius	-	161-80	MARCUS AURELIUS	illegible			fragment
1515	9436	Sestertius copy?	6.9	161-80	MARCUS AURELIUS	illegible			
265	739	Sestertius	22.7	166-75	MARCUS AURELIUS	Roma seated with Victory, spear & shield			
271	1673	Sestertius	-	166	LUCIUS VERUS	[Trp Pot VI Imp IIII Cos II] - SC		RIC: 1457	fragment
135	677	Sestertius	19.9	168-69	LUCIUS VERUS	Aequitas seated l.			
226	723	Sestertius	17.6	168-71	MARCUS AURELIUS	Salus with sceptre feeding snake around altar			
985	7187	Sestertius	16.6	168-71	MARCUS AURELIUS	Salus with sceptre feeding snake around altar			
220	723	Sestertius	23.7	169-70	MARCUS AURELIUS	[Saluti Aug Cos III] - SC		RIC: 979	
275	379	Sestertius	20.2	170-71	MARCUS AURELIUS	IMP VI COS III (Victory setting shield on tree) - SC		RIC: 1001	
268	723	Sestertius	23.5	170-71	MARCUS AURELIUS	VOTA SUSCEPTA DECENN II COS III - SC		RIC: 1017	
129	676	Sestertius	20.3	171-72	MARCUS AURELIUS	[Imp VI Cos III] (Roma with shield) - SC		RIC: 1033	
139	677	Sestertius	18.9	171-72	MARCUS AURELIUS	IMP VI COS [III] (Roma with shield) - SC		RIC: 1033	
236	723	Sestertius	17.7	172-73	MARCUS AURELIUS	VICT/GERMA/IMP VI/COS III/SC		RIC: 1090	
1348	7004	Sestertius	12.6	176-77	MARCUS AURELIUS	Trophy with 2 seated captives at base			
1146	7004	Sestertius	13.8	177-78	MARCUS AURELIUS	[Imp VIIII Cos III PP] (Aequitas) - SC		RIC: 1230	
1310	7580	Sestertius	12.0	180	COMMODUS	IOVI VICTOR [Imp III Cos II PP] (Victory) - SC		RIC: 291	
137	677	Sestertius	12.8	183	COMMODUS	TRP VIII IMP VI COS PP (Victory) - SC		RIC: 374	
218	427	Sestertius	12.3	186	COMMODUS	FID EXERCIT		RIC: 468	
68	303	Sestertius	19.6	180-92	COMMODUS	Hercules stdg front			
229	723	Sestertius	18.3	180-92	COMMODUS	Fig. stdg with cornucopiae			
232	723	Sestertius	21.6	180-92	COMMODUS	illegible			
1175	7004	Sestertius	11.8	180-92	COMMODUS	illegible			
1022	7237	Sestertius	14.3	180-92	COMMODUS	illegible			
132	677	Plated denarius		192	-	[…] COS VII PP (Pietas std l.)	copy		single sheet of silver foil around remnants of CuA core. Probably copying denarius of Commodus
1150	7004	Sestertius	15.7	193-217	JULIA DOMNA	illegible			
1286	7646	Denarius		196-211	CARACALLA	illegible			fragment

1271	7004	Denarius		198	CARACALLA	SPES PVBLICA	Laodicea	RIC: 338b	
1359	7004	Denarius		202-05	PLAUTILLA	VENVS VICTRIX	Rome	RIC: 369	
167	677	Ae, diameter 22 mm	5.2	218-22	Elagabalus (M AVR ANTO-NINVS AVG)	[KIANON] 2 goats and large amphora	Cius, Bythinia	BMC: 40	
23	255	Sestertius	-	222-35	SEVERUS ALEXANDER	illegible			damaged
1010	7004	AE2	3.5	222-38	Severan empress	illegible			
238	723	As	4.8	238-44	GORDIAN III	illegible			
124	675	As	-	244-49	PHILIP I	VICTORIA AVG - SC		RIC: 191var	damaged
223	723	As	3.1	244-49	OTACILIA SEVERA	illegible			
163	677	Radiate		247-49	PHILIP I	FIDES EXERCITVS		RIC: 62	
1281	7644	Denarius		1st-early 3rdC	illegible	illegible			
35	2	AE2	4.7	1st-mid 3rdC	illegible	illegible			
49	302	AE1	8.4	1st-mid 3rdC	illegible	illegible			
58	302	AE1	14.7	1st-mid 3rdC	illegible	illegible			
56	303	AE2	4.9	1st-mid 3rdC	illegible	illegible			
57	303	AE1	14.8	1st-mid 3rdC	illegible	illegible			
63	303	AE1	18.4	1st-mid 3rdC	illegible	illegible			
80	416	AE1	4.6	1st-mid 3rdC	illegible	illegible			
91	416	AE1	7.1	1st-mid 3rdC	illegible	illegible			
89	417	AE1	5.1	1st-mid 3rdC	illegible	illegible			
121	675	AE1	4.2	1st-mid 3rdC	illegible	illegible			
131	677	AE1	21.8	1st-mid 3rdC	illegible	illegible			
133	677	AE1	14.6	1st-mid 3rdC	illegible	illegible			
134	677	AE1	9.3	1st-mid 3rdC	illegible	illegible			
142	677	AE3	0.1	1st-mid 3rdC	illegible	illegible			
231	723	AE1	15.8	1st-mid 3rdC	illegible	illegible			
235	723	AE2	4.8	1st-mid 3rdC	illegible	illegible			
174	819	AE2	2.9	1st-mid 3rdC	illegible	illegible			
175	841	AE1	7.1	1st-mid 3rdC	illegible	illegible			
194	1089	AE1	9.7	1st-mid 3rdC	illegible	illegible			
258	1380	AE1	5.5	1st-mid 3rdC	illegible	illegible			
252	1567	AE2	3.8	1st-mid 3rdC	illegible	illegible			
505	5030	AE2	3.7	1st-mid 3rdC	illegible	illegible			
1148	7000	AE2	3.7	1st-mid 3rdC	illegible	illegible			
1179	7000	AE1	12.7	1st-mid 3rdC	illegible	illegible			
1204	7003	AE2	1.6	1st-mid 3rdC	illegible	illegible			
1014	7004	AE1	17.4	1st-mid 3rdC	illegible	illegible			
1145	7004	AE1	9.7	1st-mid 3rdC	illegible	illegible			
1149	7004	AE1	11.1	1st-mid 3rdC	illegible	illegible			
1152	7004	AE1	10.4	1st-mid 3rdC	illegible	illegible			
1153	7004	AE2	3.8	1st-mid 3rdC	illegible	illegible			
1155	7004	AE2	2.9	1st-mid 3rdC	illegible	illegible			
1156	7004	AE2	4.3	1st-mid 3rdC	illegible	illegible			
1157	7004	AE2	3.0	1st-mid 3rdC	illegible	illegible			
1159	7004	AE2	2.8	1st-mid 3rdC	illegible	illegible			

(*Continued on next page*)

Table 5.5 (*continued*)

SF no.	Context	Denomination	Wt (g)	Date	Obverse	Reverse	Mint	Reference	Comment
1163	7004	AE1	11.1	1st-mid 3rdC	illegible	illegible			
1171	7004	AE1	3.9	1st-mid 3rdC	illegible	illegible			
1172	7004	AE2	2.7	1st-mid 3rdC	illegible	illegible			
1176	7004	AE2	1.7	1st-mid 3rdC	illegible	illegible			
1178	7004	AE2	2.3	1st-mid 3rdC	illegible	illegible			
1195	7004	AE2	3.4	1st-mid 3rdC	illegible	illegible			
1200	7004	AE1	7.6	1st-mid 3rdC	illegible	illegible			
1201	7004	AE1	11.3	1st-mid 3rdC	illegible	illegible			
1213	7004	AE1	10.6	1st-mid 3rdC	illegible	illegible			
1218	7004	AE2	1.8	1st-mid 3rdC	illegible	illegible			
1231	7004	AE1	4.9	1st-mid 3rdC	illegible	illegible			
1232	7004	AE1	3.4	1st-mid 3rdC	illegible	illegible			
1234	7004	AE2	1.5	1st-mid 3rdC	illegible	illegible			
1235	7004	AE1	3.6	1st-mid 3rdC	illegible	illegible			
1236	7004	AE2	1.1	1st-mid 3rdC	illegible	illegible			
1238	7004	AE1	4.0	1st-mid 3rdC	illegible	illegible			
1240	7004	AE2	3.9	1st-mid 3rdC	illegible	illegible			
1241	7004	AE2	3.9	1st-mid 3rdC	illegible	illegible			
1245	7004	AE1	6.3	1st-mid 3rdC	illegible	illegible			
1248	7004	AE1	4.5	1st-mid 3rdC	illegible	illegible			
1257	7004	AE1	8.2	1st-mid 3rdC	illegible	illegible			
1270	7004	AE1	9.7	1st-mid 3rdC	illegible	illegible			
1277	7004	AE2	2.1	1st-mid 3rdC	illegible	illegible			
1307	7004	AE2	1.9	1st-mid 3rdC	illegible	illegible			
1312	7004	AE2	4.5	1st-mid 3rdC	illegible	illegible			
1347	7004	AE2	3.6	1st-mid 3rdC	illegible	illegible			
1349	7004	AE2	3.8	1st-mid 3rdC	illegible	illegible			
1362	7004	AE2	0.7	1st-mid 3rdC	illegible	illegible			
1363	7004	AE1	11.3	1st-mid 3rdC	illegible	illegible			
1370	7004	AE1	4.2	1st-mid 3rdC	illegible	illegible			
1373	7004	AE1	8.8	1st-mid 3rdC	illegible	illegible			
1385	7004	AE1	3.3	1st-mid 3rdC	illegible	illegible			
1414	7004	AE2	4.4	1st-mid 3rdC	illegible	illegible			
900	7005	AE2	2.4	1st-mid 3rdC	illegible	illegible			
903	7005	AE2	2.5	1st-mid 3rdC	illegible	illegible			
904	7008	AE1	5.3	1st-mid 3rdC	illegible	illegible			
906	7022	AE2	2.3	1st-mid 3rdC	illegible	illegible			
927	7074	AE2	3.3	1st-mid 3rdC	illegible	illegible			
928	7075	AE2	3.0	1st-mid 3rdC	illegible	illegible			
931	7081	AE1	6.8	1st-mid 3rdC	illegible	illegible			
932	7081	AE2	3.9	1st-mid 3rdC	illegible	illegible			
936	7085	AE1	4.6	1st-mid 3rdC	illegible	illegible			

957	7120	AE2	2.2	1st-mid 3rdC	illegible	illegible			
986	7188	AE2	2.7	1st-mid 3rdC	illegible	illegible			
999	7210	AE1	7.4	1st-mid 3rdC	illegible	illegible			
1021	7237	AE1	5.2	1st-mid 3rdC	illegible	illegible			
1208	7426	AE2	4.2	1st-mid 3rdC	illegible	illegible			
1225	7428	AE2	3.5	1st-mid 3rdC	illegible	illegible			
1272	7637	AE1	15.3	1st-mid 3rdC	illegible	illegible			
1400	7639	AE2	4.2	1st-mid 3rdC	illegible	illegible			
1275	7640	AE1	8.5	1st-mid 3rdC	illegible	illegible			
1280	7643	AE2	3.8	1st-mid 3rdC	illegible	illegible			
1364	7789	AE2	2.2	1st-mid 3rdC	illegible	illegible			context no. unclear
1369	7793	AE1	4.0	1st-mid 3rdC	illegible	illegible			
1376	7828	AE2	4.0	1st-mid 3rdC	illegible	illegible			
1377	7829	AE2	2.3	1st-mid 3rdC	illegible	illegible			
1379	7833	AE1	4.1	1st-mid 3rdC	illegible	illegible			
1405	8014	AE2	2.9	1st-mid 3rdC	illegible	illegible			
1494	8393	AE1	3.3	1st-mid 3rdC	illegible	illegible			
1509	9155	AE2	2.5	1st-mid 3rdC	illegible	illegible			
1304	u/s	AE1	6.5	1st-mid 3rdC	illegible	illegible			
59	344	Radiate		260-68	GALLIENUS	illegible			
51	298	Radiate		268-70	CLAUDIUS II	MARS VLTOR			
138	677	Barb radiate		270-90	illegible	illegible			
164	677	Barb radiate		270-90	as Tetricus I	as Pax			
1438	7004	Barb radiate		270-90	illegible	illegible			
166	677	AE3		316	LICINIUS	GENIO POP ROM	T/F/ATR	RIC: Tr120	
Post-Roman Coins									
1276	7641	Cut farthing		12th-13thC	illegible				
956	7003	Groat		1351-61	EDWARD III				pre-Treaty coinage
1147	7004	Rose farthing		17thC					
36	2	Token		18thC?	illegible				
1173	7003	Halfpenny		1806	GEORGE III				
1408	7004	Halfpenny		1760-1820	GEORGE III				
1008	7004	Halfpenny		1826	GEORGE IV				
1151	7004	Halfpenny		1861	VICTORIA				
1167	7004	Penny		1861	VICTORIA				
1351	7004	Halfpenny		1939	GEORGE VI				

Table 5.6 Coins: Detailed list of coins from pre-excavation metal-detector survey.

SF no	Denomination	wt (g)	Date	Obverse	Reverse	Mint	Reference	Comment
Iron Age Coins								
150	quarter-stater	1.2	early 1stC AD	COM.F, pellet border	Horse with mane r., above IPPI, below flower		VA437	
Roman Coins								
275	Denarius		early 1stC BC	Head of Apollo	Quadriga			worn
213	Denarius		1stC BC-1stC AD	illegible	illegible			
85	Denarius		46-47	CLAUDIUS	DE BRITANN			
180	As	9.4	69-79	VESPASIAN	illegible			
137	Sestertius	20.5	98-117	TRAJAN	illegible			
144	Dupondius/as	4.6	98-117	TRAJAN	illegible			
229	Denarius		98-117	TRAJAN	illegible			
104	Sestertius	16.6	117-25	HADRIAN	illegible			
329	Denarius		125-28	HADRIAN	COS III (Abundantia)	Rome	RIC: 169	
67	AE1	17.2	138-92	Antonine emperor	illegible			
145	AE1	12.2	138-92	Antonine emperor	illegible			
161	AE2	3.7	138-92	Antonine emperor	illegible			
201	AE2	-	138-92	Antonine emperor	illegible			damaged
241	AE2	6.2	138-92	Antonine emperor	illegible			
309	AE1	15.9	138-92	Antonine emperor	illegible			
265	Denarius		141-61	DIVA FAUSTINA I	illegible			
158	Denarius		145-75	FAUSTINA II	illegible			
251	Denarius		145-75	FAUSTINA II	illegible			
296	Sestertius	12.8	145-75	FAUSTINA II	illegible			
340	Dupondius/as	9.8	145-75	FAUSTINA II	illegible			
91	Sestertius	20.5	161-80	MARCUS AURELIUS	illegible			
103	Sestertius	12.3	161-80	MARCUS AURELIUS	illegible			
181	Denarius		163-64	LUCIUS VERUS	TRP IIII IMP II COS II (Mars)	Rome	RIC: 515	
3	AE2	-	1st-early 3rdC	illegible	illegible			damaged
14	AE2	6.8	1st-early 3rdC	illegible	illegible			
22	AE2	9.2	1st-early 3rdC	illegible	illegible			
30	AE1	12.5	1st-early 3rdC	illegible	illegible			
61	AE2	5.6	1st-early 3rdC	illegible	illegible			
62	AE1	17.2	1st-early 3rdC	illegible	illegible			
72	AE1	13.1	1st-early 3rdC	illegible	illegible			
76	AE2	7.7	1st-early 3rdC	illegible	illegible			
80	AE2	5.6	1st-early 3rdC	illegible	illegible			
93	AE2	8.8	1st-early 3rdC	illegible	illegible			
96	AE2	3.9	1st-early 3rdC	illegible	illegible			
105	AE2	6.7	1st-early 3rdC	illegible	illegible			
115	AE2	7	1st-early 3rdC	illegible	illegible			
121	AE1	15.9	1st-early 3rdC	illegible	illegible			
122	AE1	15.1	1st-early 3rdC	illegible	illegible			
127	AE2	4.3	1st-early 3rdC	illegible	illegible			
128	AE2	6.7	1st-early 3rdC	illegible	illegible			
130	AE1	-	1st-early 3rdC	illegible	illegible			damaged
133	AE1	5.4	1st-early 3rdC	illegible	illegible			
148	AE2	5.7	1st-early 3rdC	illegible	illegible			
149	AE1	9.5	1st-early 3rdC	illegible	illegible			
154	AE1	5.9	1st-early 3rdC	illegible	illegible			
185	AE2	5.7	1st-early 3rdC	illegible	illegible			
195	AE2	5.1	1st-early 3rdC	illegible	illegible			
196	AE1	12.6	1st-early 3rdC	illegible	illegible			
200	AE1	13.5	1st-early 3rdC	illegible	illegible			
211	Denarius		1st-early 3rdC	illegible	illegible			
214	AE1	8.1	1st-early 3rdC	illegible	illegible			
218	AE2	4.7	1st-early 3rdC	illegible	illegible			
220	AE2	7.3	1st-early 3rdC	illegible	illegible			
224	AE1	11	1st-early 3rdC	illegible	illegible			
227	AE2	4.9	1st-early 3rdC	illegible	illegible			
228	AE1	11.6	1st-early 3rdC	illegible	illegible			
235	AE2	4.3	1st-early 3rdC	illegible	illegible			
237	AE1	12.1	1st-early 3rdC	illegible	illegible			

Table 5.6 (*continued*)

SF no	Denomination	wt (g)	Date	Obverse	Reverse	Mint	Reference	Comment
237A	AE2	6.9	1st-early 3rdC	illegible	illegible			
238	AE1	9.3	1st-early 3rdC	illegible	illegible			
250	AE2	7.2	1st-early 3rdC	illegible	illegible			
274	AE1	5.9	1st-early 3rdC	illegible	illegible			
277	AE2	6.9	1st-early 3rdC	illegible	illegible			
294	AE1	10	1st-early 3rdC	illegible	illegible			
299	AE2	3.9	1st-early 3rdC	illegible	illegible			
301	AE1	8.2	1st-early 3rdC	illegible	illegible			
308	AE1	8.8	1st-early 3rdC	illegible	illegible			
312	AE2	3.9	1st-early 3rdC	illegible	illegible			
317	AE3	5.5	1st-early 3rdC	illegible	illegible			
318	Denarius		1st-early 3rdC	illegible	illegible			
319	AE2	5.7	1st-early 3rdC	illegible	illegible			
330	AE1	-	1st-early 3rdC	illegible	illegible			damaged
66	Radiate		260-68	GALLIENUS	GERMANICVS MAX V	Lyons	RIC: 18	
87	Radiate		260-68	POSTUMUS	PAX			
68	Barb radiate		270-90	illegible	illegible			
136	Barb radiate		270-90	as Tetricus I	as Victoria?			
332	AE3		313-18	Constantine I	SOLI INVICTO COMITI	T/F/[…..]		
69	AE3		324-30	House of Constantine	Camp gate	-		
324	AE3		324-30	House of Constantine	PROVIDENTIAE CAESS	-		
78	AE3		335-41	House of Constantine	GLORIA EXERCITVS (1 std)	-		
94	AE3		335-41	House of Constantine	GLORIA EXERCITVS (1 std)	-		
54	AE3		350-53	illegible	Emperor stdg facing holding standard	-		
273	AE3		late 3rd-4thC	illegible	illegible			
336	AE3		late 3rd-4thC	illegible	illegible			
239	AE3	-	Roman	illegible	illegible			
244	AE3	-	Roman	illegible	illegible			
262	AE3	-	Roman	illegible	illegible			
Later Coins								
117	Token?		17thC?	illegible	illegible			

Table 5.7 Objects and vessels of non-ferrous metal, fired clay and glass: Summary quantification (fragment count) by Phase and material.

Phase	Copper alloy	Lead alloy	Modern alloys	All non-ferrous metal finds	Fired Clay	Frit	Glass	All non-metallic finds	Total
2	1	-	-	1	-	1	2	3	4
3	10	-	-	10	1	-	39	40	50
4	16	3	-	19	1	2	73	76	95
5	11	5	-	16	-	-	45	45	61
6	1	2	-	3	-	-	9	9	12
Unphased	57	57	4	118	-	-	10	10	128
Total	96	67	4	167	2	3	178	183	350

Table 5.8 Objects and vessels of non-ferrous metal, fired clay and glass: Percentages of small finds and vessel fragments by material in the phased and unphased contexts. (Quantification by fragment count, see Table 5.7).

Phase	Copper alloy	Lead alloy	Modern alloys	All non-ferrous metals finds	Fired Clay	Frit	Glass	All non-metallic finds
Phased	41%	15%	0%	29.4%	100%	100%	94%	94.5%
Unphased	59%	85%	100%	70.6%	0%	0%	6%	5.5%

waterhole 796 in plot NW2, close to structure J (see Chapter 3 above). Including the smaller numbers of coins from other component contexts the upper fills of this feature produced a total of 73 coins, or just over half of all the stratified coins from the excavations. This is remarkably close to the patterns observed at the Sacred Spring at Bath and Coventina's Well. In both cases large numbers of coins, among other things, were recovered from watery contexts where, it is generally agreed, they were deposited singly or in groups as offerings to the deities that could be approached, it was thought, via these sources of ground water.

Yet, the excavated stratigraphy at Westhawk Farm indicates that those coins recovered from waterhole 796, despite appearances, should not be interpreted as *in situ* votive deposits. Instead the excavators argue that this feature's upper fills comprised a series of cleaning deposits, collected from elsewhere in the settlement, and thrown into the waterhole sometime in the early 4th century. Although only five of the 57 coins from the waterhole were struck after AD 200, these included two barbarous radiates from the late 3rd century (SF138 and SF164), and a reduced *follis* of 316 struck in the name of Licinius I (SF166). Nevertheless, the proximity of plot NW2 to the temple enclosure to the south-east, might suggest that the coins from waterhole 796 did indeed originate from a votive context before being cleaned up and finally disposed of in a shallow pond across the road.

OBJECTS AND VESSELS OF NON-FERROUS METAL, FIRED CLAY AND GLASS

by H E M Cool

Introduction

The archaeological investigations at Westhawk Farm produced a total of 350 fragments of non-ferrous metal, fired clay and glass small finds and vessels as summarised in Table 5.7. (In addition, fragments of copper alloy wire were also found stringing together the elements of the jet bracelet - Allason-Jones below). In Table 5.7, for ease of comprehension, the material from contexts assigned to more than one phase (2-3, 2-4 etc) has been placed in the later or latest phase.

The high figure for the unphased material reflects the extensive metal detecting that was undertaken as most finds thus recovered came from plough or subsoil contexts. The effect of this metal detecting programme can easily be seen from Table 5.8 where the assemblage is summarised according to material and whether it came from phased or unphased contexts. Approximately 70% of the non-ferrous metal came from unphased contexts, whereas the corresponding figure for the other types of material is a little over 5%.

Of the unphased material, virtually all of the glass could be assigned to the Roman period on typological grounds. For the non-ferrous metal, 31 items (26.3% of the unphased metalwork) were typologically Roman. The other dateable items in the unphased metalwork point to casual use of the land from the late medieval period onwards. There is, for example, a much damaged seal (SF1439) depicting a bird centrally which belongs to Rigold's banal type and which may be dated to the 14th century. There was also a button and several buckles of the late medieval to early post medieval period, as well as musket balls, bullet casings, buttons and buckles of the post medieval to modern periods. In total 60 items (50.8% of the unphased metalwork) could be assigned to the late medieval or later period. The remaining metalwork is not chronologically diagnostic.

This report considers all the material that can be regarded as having been used by the Romano-British inhabitants of the settlement, both from the unphased and phased contexts. It is probable that some of the undiagnostic metalwork in the unphased contexts is also of Roman date but as it would not contribute anything to our understanding of the site; it is not considered further here.

One important factor that must be kept in mind when considering the small finds from Westhawk Farm is that the soil conditions have had a deleterious effect on them, and this has undoubtedly biased the assemblage. The underlying geology is capped by moderately acidic soil (see Chapter 1 above). This has resulted in most of the non-ferrous metalwork being in very poor condition. As Fell has noted (conservation report in project archive), there appears to have been decuprification of the surfaces of the copper alloy, and on many items the surface is poorly preserved. The disappearance of the surface has often removed features which would have allowed more precise identification of the items. The total lack of worked bone is also probably a result of the soil conditions rather than reflecting a true absence. Worked bone often served the role in antiquity that plastic serves in the modern world, and its lack severely biases the assemblage from the site.

The first part of the report presents the individual items found, placing them in their chronological and typological context, and is structured according to the functional categories developed by Crummy (1983). The assemblage as a whole is then considered from the point of view of chronology and what it can tell us of the character of the population, their status and their links with the wider world. Finally the combination of metal detecting and excavation at the same site allows a comparison to be made between the types of metal finds that the two methodologies recover.

Finds by function

The Roman finds are summarised by functional category in Table 5.9. Personal ornaments are well represented. The high total for the household category is due to the quantity of vessel glass found. An unusual feature of this assemblage is the quantity of weigh-

Table 5.9 Objects and vessels of non-ferrous metal, fired clay and glass: Summary quantification (fragment count) by functional category and material.

Function	Copper alloy	Lead alloy	Fired Clay	Frit	Glass	Total
Personal	18	-	-	3	5	26
Toilet	5	-	-	-	1	6
Textile	2	-	-	-	-	2
Household	3	1	-	-	165	169
Recreation	-	-	1	-	-	1
Weighing	2	10	-	-	-	12
Buildings	-	-	-	-	2	2
Fasteners	9	-	-	-	-	9
Religion	-	-	1	-	-	1
Craft and Industry	2	-	-	-	2	4
Miscellaneous	13	12	-	-	-	25
Total	54	23	2	3	175	257

ing equipment recovered, and this will be further discussed in the next part of the report.

Personal ornaments and jewellery

Personal ornaments are dominated by brooches with 15 examples. A remarkable feature about this group is its typological homogeneity. With the exception of the knee brooch no. 15, all of the brooches that can be assigned to a type (nos 1-13) are Colchester Derivatives. They all have semi-cylindrical spring covers with a double perforated lug behind the head. This holds the chord of the spring in the upper perforation and the bar which holds the spring in the lower one. They also have D-sectioned bows and, where preserved, perforated catch-plates. These features mean that they belong to what Hull variously designated his Colchester BB type (Hull 1968, 79) or Type 93 (Crummy 1983, 12). Hull noted that these were very common in Kent, and proposed a Flavian date (Hull 1959, 48-9, nos 4, 6-9). In Kent examples found in later 1st-century contexts include those from Springhead (op. cit.), Eastwood Farm, Fawkham (Hull 1964, 70, nos 4-6, fig. 3) and Lullingstone (Meates 1987, 65, no. 60, fig. 24). The contextual information from Westhawk Farm is not particularly useful for dating the type. The three brooches (nos 2, 4, and 8) broadly contemporary with the *floruit* of the type derived from contexts that could not be closely dated within Phases 2-3.

The various types of the Colchester Derivative brooch were the commonest type in use during the second half of the 1st century in the south-east of England, and it is becoming increasingly clear that the variants had regional significance. The type where the spring is held by a rearward facing hook is found in large numbers in the Norfolk/Suffolk areas and is relatively frequent in Essex. Mackreth suggests that this should be seen as the type specific to the Iceni with its disappearance after *c* AD 65 being attributable to the suppression of the tribe after the Boudican rising (Mackreth 1996, 300). The form with a spring fixing mechanism similar to the ones found at Westhawk Farm, but with a bow with cavetto mouldings down the front frequently combined with rocker arm ornament (Colchester B or Hull Type 92 - Crummy 1983, 12) appears to be the form worn by the Trinovantes and Catuvellauni in the mid 1st century. Mackreth has designated this the Harlow type and has drawn attention to the regional distribution; he notes that many of the well-dated examples are from contexts that predate AD 75/80 (Mackreth 1995, 959-61, nos 10-18). The popularity of the type found at Westhawk Farm perhaps points to it being the equivalent brooch for the Cantiaci.

It is clear that even if this were the preferred type south of the Thames, it did not dominate at all sites in Kent to the extent that the Catuvellaunian/Trinovantes type did to the north. Harlow brooches are frequently encountered in assemblages from sites in Kent. At the Marlowe excavations at Canterbury (Mackreth 1995, 959-61, nos 10-18) and at Richborough (Hull 1968, 80), for example, they are in the majority. The domination of the Westhawk assemblage by the Colchester BB is thus remarkable. One explanation may be chronological. If the Harlow type was indeed passing from fashion in the 80s, the Colchester BB perhaps continued in use for longer and perhaps at Westhawk the fashion of wearing (and losing) brooches was a late 1st century one. This does not seem a very satisfactory explanation given the popularity of brooch wearing in the south-east throughout the 1st century, and the undoubted occupation on the site prior to the later 1st century. Alternately, if this variant was indeed the preferred variant of the Cantiaci, then perhaps it is hinting that at Westhawk Farm we have a native population whose dress habits were relatively untouched by foreign influences - be those influences continental or foreign in the sense that they came from another British tribe. Both Richborough and Canterbury could be expected to have been far more cosmopolitan than Westhawk Farm. It is noticeable that at the Keston villa, a site that may be more comparable to Westhawk Farm, it is again the Colchester BB that is present (Philp *et al.* 1991, 171-3, nos 96-8, 101), with only one possible Harlow type (Philp *et al.* 1999, 92, no. 975, fig. 40).

The brooches come in two clear size ranges: large examples frequently with elaborate decoration (nos 1-7 and probably the fragmentary no. 13) and smaller, plainer ones (nos 8-11). In considering the examples from Springhead, Hull hypothesised that the larger ones might be the earlier (Hull 1959, 48, no. 4), but both variants often seem to be found contemporaneously. An alternative explanation may be that the smaller plain examples were used to fasten inner garments, and the larger ones for garments made of thicker fabric, possibly outer garments where the decoration on the brooches would be better displayed and appreciated.

Brooch wearing only really died out amongst the bulk of the civilian native population of Britain in the mid to late 2nd century. Colchester Derivatives are

normally considered to be a 1st-century form. Unless we assume that the population at Westhawk Farm gave up wearing brooches early in the 2nd century, which again seems unlikely, then one must assume that here the Colchester BB form had a long life, well into the 2nd century. This may be hinted at by the contexts in which they were found. As already noted only three were from contexts of Phases 2-3. One (no. 1) was found in a Phase 4 pit fill and a poorly preserved fragmentary one (no. 11) from a similar context belonging to Phase 3-4. Though the latter may be residual, this seems unlikely in the case of no. 1 which, given the generally poor condition of the Westhawk Farm metalwork, is in very good condition. Such longevity is also suggested elsewhere. A large example of the type in good condition was found at Keston in the clay lining of a pond dug in the mid 2nd century (Philp *et al.* 1991, 171, no. 96, fig. 52).

The other identifiable brooch from Westhawk Farm (no. 15) is a knee brooch of Snape Type 5.1A (Snape 1993, table 3 and fig. 3) dateable to the later 2nd to earlier 3rd centuries. As already noted the habit of wearing brooches amongst the civilian population declined in the mid 2nd century, and it is noticeable that sites with large assemblages of knee brooches tend to be northern military ones (see, for example, Snape 1993, 122, Appendix IIb; Mackreth 2002). This suggests that in Britain the people who were wearing them may well have been soldiers, or officials of some other kind, who adopted a different style of dress from the majority of the civilian population. Elsewhere in Kent, knee brooches tend to be found on sites where an official presence could be expected, though they are never common. Amongst the very large assemblage of brooches published from Richborough only three fall into this category (Hull 1968, 92, no. 84, plate xxxiii; Henderson 1949, 118, nos 51 and 52, plate xxix, (of which the last is of the same variant as our no. 15)). A small number has also been recovered from Canterbury (Mackreth 1995, 979, nos 111-2, fig. 409), but it is noticeable that they appear to be absent on extensively excavated sites with later 2nd-century occupation such as at Lullingstone and Springhead, where the likelihood of military or official involvement is less. The presence of a knee brooch at Westhawk Farm is thus of some interest, perhaps hinting at official interest in the site during the later 2nd to 3rd centuries.

One of the ways in which changing fashion amongst the female population can be most easily traced is via hairpins which were needed when the Romanised hairstyles were adopted. That they were adopted in some quantity at other sites in Kent is clear from the development of local north Kent variants in copper alloy (Cool 1991, 175). The only metal hairpin from this site (no. 16) is from a Phase 5 context and is of a type that, while most likely to have been commonest during the 2nd century, could have been contemporary with its date of deposition (Cool 1991, 170, group 24). By far the majority of hairpins, however, were made in bone, and so the non-survival of bone artefacts at the site is a particular loss. Had bone survived, by comparing the brooch evidence with that of hairpins, it would have been possible to test the suggestion made above that the population at Westhawk Farm may have been relatively uninterested in adopting new styles of dress and ornamentation in the 1st to 2nd centuries.

Where the date of various other undoubted items of female jewellery can be established either by the context in which they were found or by typological parallels, they all appear most likely to be of late 2nd-century date or later. This again makes it difficult to place the brooch evidence in context. The earring no. 17 is of a long-lived type (Allason-Jones 1989a, 2, type 1), but was found in a Phase 5 context. The three small glass beads (nos 18-20) are all forms that are commonest in the late Roman period, though the contexts of two of them (nos 18-19) suggest they might be evidence for the wearing of necklaces in the 2nd to 3rd centuries. Blue segmented beads such as no. 18 have occasionally been found in early 2nd-century contexts (see Brewer 1986a, 148; fig. 48, no. 11), but by far the majority come from later 3rd- to 4th-century ones (Guido 1978, 92). It is possible that this example, which came from a Phase 3-4 pit fill, might be an early example. Translucent blue/green spherical beads such as no. 19 are not particularly common and few have come from well-dated contexts, so the discovery of this one in a Phase 5 dump is a valuable addition to the corpus. The small polychrome bead (no. 20) from the Phase 6 silting of the waterhole is of type that first appears in Britain in the later 2nd to early 3rd century (Brewer 1986a, 151; fig. 48, no. 73; Wedlake 1982, 154, no. 5), though again is most frequently encountered in late Roman contexts as here. This example very clearly shows the intricate way in which the beads were made.

One ornament type that is strikingly absent from the assemblage is the bracelet. On most Romano-British sites occupied during the 4th century, fragments of copper alloy bracelets are normally found (Swift 2000, 119-20), probably reflecting the female fashion for wearing several to a wrist at that time. Here the only copper alloy bracelet (no. 21) is from the cremation burial of a male. No fragments have been recognised within the site assemblage. No. 21 now appears to be a massive plain penannular bracelet. Unfortunately the terminals are missing and the whole surface badly damaged by corrosion, so the possibility that it originally had joining terminals and some decoration cannot be entirely ruled out. What can be said is that it would have been amongst the less common bracelet types in use in the 4th century, as most women wore several light bangles together, rather than a more massive single bracelet as here.

Finger-rings are also absent but their presence is indicated by one intaglio (no. 22) and probably by the glass setting no. 23. No. 22 is a very small example of the type of moulded glass intaglio of 'an extremely barbarous sort', which is a common 3rd-century Romano-British type thought possibly to be based on radiate coinage and to represent the spread of signet wearing to the rural peasantry (Henig 1974, 164-65). Most

commonly these have a recognisable human figure, which Henig suggests may have been intended to be Virtus, Sol or Pax. Interpreting the design on no. 22 is complicated by its very small size, but it may have been intended to be Henig's figure type 4 (ibid., key to fig. 3). The intaglio was found in the fill of the cremation urn and may well have been a pyre good. It shows no obvious evidence of having been affected by heat, but this may simply indicate that the pyre did not reach a temperature high enough to affect the glass. To melt Roman glass requires a temperature in excess of 1100ºC (Henderson 2000, 39, fig 3.24).

The small blue glass hemisphere (no. 23) is of a size that would have been appropriate for a finger-ring with constricted shoulders and a deep box-bezel, such as those found at Silchester in a bank with material dated to AD 190-210 (Cotton 1947, fig. 9.5) and at Verulamium in a destruction deposit containing late 3rd-century material (Cotton and Wheeler 1953, fig. 1.10). Such rings appear to have been in use in the late 2nd to 3rd century, mainly in the south-west and south central parts of England (Cool forthcoming), but occasional examples have been found in the east such as an example from the Marlowe Car Park, Canterbury (Henig 1995, 1001, no. 199, fig. 419).

Finally in this section the presence of three melon beads (nos 24-26) may be noted. These are a common find on 1st- to mid 2nd-century sites (Cool and Philo 1998, 181), especially military ones. There are some doubts as to whether these were ornaments for people. Many years ago, Fox (1940, 132) suggested these were harness ornaments, a supposition borne out by excavation of a horse wearing a copper alloy neck ring threaded with both frit and blue glass melon beads at Krefeld-Gellep (Pirling 1997, 58-9). Though they are a very typical Roman artefact, the presence of these beads at Westhawk Farm in an early Phase 2 context (no. 25) cannot, therefore, be taken as an indication of the early adoption of Roman fashions by humans. No. 24 is of interest because of the very heavy wear it shows at either end, as if tightly strung against other beads of a similar size.

Toilet and medical equipment

The site has produced an interesting range of finds that can be assigned to this category. Nos 27 and 28 are both fragments of rectangular mirrors of Lloyd-Morgan Group A (1981). No. 27 came from the Phase 4 fill of the roadside ditch and no. 28 was unstratified in the subsoil. They may have come from the same mirror but it should be noted that no. 27 is bevelled in from the reflecting edge while that of no. 28 is bevelled out, possibly suggesting that the two fragments came from different mirrors. Rectangular mirrors are a common 1st-century form which is not believed to have been made after that date, though of course they could have continued in use well into the 2nd century. A third mirror is represented by an internal fragment (no. 29). Unlike the rectangular mirrors which can be polished to a reflecting surfaces because they are made of a high tin bronze, this one has been deliberately tinned to produce the reflecting surface; on the other side there is a raised ring. The fragment is in very poor condition but the ring may be turned. This seems most likely to have come from a hand mirror, perhaps from Lloyd-Morgan group G (1981), another 1st-century form. Although now represented only by a very fragile fragment, originally this mirror would have been a much more luxurious item than the mirrors represented by nos 27-8, which are almost the equivalent of handbag mirrors kept in a wooden frame (see, for example, Lloyd-Morgan 1983). By contrast, no. 29 is likely to belong to the same family as the silver mirrors in the Boscoreale treasure (Baratte 1986, 45-7), consisting of a large reflecting disc held on a projecting handle.

Mirrors are not often found in such quantities outside urban and military sites. Glass stirring rods such as no. 30 are also commonest on military and urban sites during the 1st and to a lesser extent the 2nd centuries (Manning *et al.* 1995, 306). No. 30 came from a Phase 5 context suggesting it was probably residual. When complete the rod might either have had another disc terminal like the extant one or perhaps a bird such as on the yellow example from the cemetery at the Artillery Barracks at Canterbury (Brent 1879, 39, plate 6, no. 1).

Another unusual find at a site like Westhawk Farm is no. 31. This appears to be the terminal and upper part of the arms of a set of forceps, see for example those of Coudé type found near Littleborough, Notts (Jackson and Leahy 1990). Here because most of the arms and jaws are missing the precise type is unknown. No. 31 may have been a medical instrument used by a doctor (Jackson 1986, 137), but smooth-jawed forceps could also be used in depilation and this may have been the purpose of the examples found at bathhouses such as those at Caerleon (Brewer 1986b, 189, no. 188) and Castleford (Cool and Philo 1998, 139, no. 138). When this item would have been in use during the Roman period is unknown as they are not closely dateable and the fragment was found in an unstratified context. A similar problem besets the tweezers (no. 32).

This assemblage of toilet equipment is curiously unbalanced consisting as it does of unusual and less commonly encountered types, with the normally ubiquitous chatelaine implements and long-handled implements such as *ligulae* only being represented by the tweezers.

Textile equipment

Two lengths of copper alloy wire may have come from needles. On no. 33 the head is missing but the upper end is thinning in the normal way. No. 34 is broken at both ends but retains the grooves often seen below the eyes of copper alloy needles (Crummy 1983, 67, type 3), though the extant length would be long for such an artefact. These needles may have been used in textile work though it should be noted that there is some evidence that metal needles were preferred for leatherwork (Cool 2002, 35) and they may have been

used for this purpose. Again the absence of bone probably means the category is under represented in the assemblage, as many needles were made of that material.

Household equipment

This category is dominated by fragments from glass vessels but there is also at least one metal vessel and part of a candlestick.

Glass vessels

In total 168 fragments of vessel glass were found during the excavations and these are summarised by phase and colour in Table 5.10. Though glass was found stratified in contexts of Phases 2 to 6, both the colours and the types represented suggest that glass vessels were primarily in use during Phases 3 and 4, that is, the later 1st and 2nd centuries. There is very little material that could be attributed to the 3rd century with any certainty and only one fragment (no. 53) made of the typical bubbly light green glass of the 4th century, and this seems to have been intrusive in the context in which it was found.

The earliest vessel on the site is represented by nos. 35 and 36 which could come from a single blue/green pillar moulded bowl. These were in use from the conquest until the late 1st century (Price and Cottam 1998, 44), and this example may have arrived on site in the middle of the century as no. 36 was found in a Phase 2 context. Large bowls are also represented by fragments from the tubular-rimmed form (nos 37-40). As these were a common mid 1st- to mid-century type (ibid., 78), no. 39 found in a Phase 5 context is almost certainly residual.

Drinking vessels are rare in the assemblage. Fragments from two indented beakers (nos 41-2) were recovered from Phase 4 ditch and gully fills, but again they are likely to be residual as the form is commonest in the later 1st century, going out of use early in the 2nd century (Price and Cottam 1998, 85).

A similar date is appropriate for the collared jar no. 43 (ibid., 137) and globular jugs nos 45 and 46 (ibid., 150). The lower body and base fragments (nos 48-50) are also likely to have come from vessels of this sort. The handle fragment no. 47 could either come from a globular jug or the conical form (ibid., 155) which continued in use into the third quarter of the 2nd century. All of this range of vessels, as well as the tubular rimmed bowls, were often decorated with ribs and it is highly probable that the ribbed body fragments nos 69-74 could have come from vessels of the same range.

Another jug form is represented by no. 51, one fragment of which was found in a context dated to Phases 4-5. This is a funnel-mouthed jug with a folded-in rim and pinched-in spout, the neck is short and the body possibly globular or ovoid. These features would suggest it was in use during the later 1st or first half of the 2nd century (Cool and Price 1995, 131). The spouted jugs of that date normally have a trefoil outline to the rim, see for example those found in contexts of the second half of the 1st century at Leadenhall Court London (Shepherd 1996, 110, nos 144-51, fig. 65). Though the spout of no. 51 is missing there are distinct suggestions that as well as being pinched in, it might have been pulled up at the tip. This was generally a 2nd-century fashion (Cool and Price 1995, 133) and so a 2nd century date may be favoured for no. 51. Such a date would fit with its context and also with the substantial amount recovered which does not hint that the fragments were residual. Another 1st- or 2nd-century jug is represented by the handle fragment no. 52. A variety of small jugs of that date had such pinched attachments, but it is not possible to identify the precise form from the fragment.

As is normally the case in 1st- to 2nd-century assemblages, blue/green bottles are very common (nos 55-64). Where it is possible to identify the shape, the fragments come from the square variant (see Price and Cottam 1998, 194). These became common during the later 1st century, were in use throughout the 2nd century and seem to have finally disappeared during the early to mid 3rd century (see Cool 2004).

The final vessel forms of the 1st or 2nd century are a jar with a fire rounded rim (no. 44 - see Cool and Price 1995, 113) and some form of globular flask (no.

Table 5.10 Roman vessel glass: Summary quantification (fragment count) by Phase and glass colour.

Phase	Blue Green	Bottle	Deep Blue	Light Green	Yellow Brown	Yellow Green	Colourless	4th century	Total
2	1	1	-	-	-	-	-	-	2
2-3	2	-	-	-	-	4	-	-	6
2-4	3	-	-	-	-	-	-	-	3
3	19	5	-	2	5	1	-	1	33
3-4	6	-	1	-	1	-	-	-	8
3-5	3	-	-	-	-	-	-	-	3
4	31	8	-	3	-	11	5	-	58
4-5	3	1	-	-	1	-	-	-	5
5	13	18	-	-	-	-	1	-	32
6	1	4	-	-	-	-	3	-	8
U/S	8	2	-	-	-	-	-	-	10
Total	90	39	1	5	7	16	9	1	168

54) from a Phase 3 context, but as this is only represented by a lower body and base fragment, the precise form cannot be suggested.

A very noticeable absence from this assemblage is the colourless cylindrical cup with double base ring (Price and Cottam 1998, 99). This generally occurs in such large numbers on later 2nd- to mid 3rd-century sites, that it can almost be taken as a type fossil for that period. Its absence at Westhawk Farm strongly suggests that glass vessels were not much in use after the mid 2nd century in the part of the site excavated.

The latest piece of glass recognised in the assemblage is no. 53. This is made in the typical bubbly glass of the 4th century, and the base form strongly suggests it came from a jug on a high foot, a common 4th-century form (Cool and Price 1995, 136, no. 1160).

The 1st- to 2nd-century glass assemblage can be summarised according to broad vessel type. As can be seen from Table 5.11, the assemblage is dominated by bowls and bottles, with other vessel types playing a much smaller role. In a survey of vessel glass use in Roman Britain, it was obvious that there was a marked difference in the consumption patterns of urban and military sites in the later 1st to mid 2nd century. It was suggested that the consumption patterns of rural sites at the time were far more akin to military ones than those on urban sites, but the small size of rural assemblages and the fact they were frequently poorly published made it difficult to be certain of this (Cool and Baxter 1999, 84-5). The bowl and bottle pattern seen at Westhawk Farm is typical of the proposed rural pattern, and provides more evidence that on such sites large bowls of both glass and samian pottery were playing a special role in society.

Other items

In the light of this proposed special role for large bowls in rural society, it is interesting to note that the one metal vessel that can be recognised with certainty at Westhawk Farm would also have fallen into this category. The escutcheon no. 75 was clearly designed to be mounted on the side of a vessel so that the open loop would have been closed by the side wall. This style of escutcheon was favoured on shallower bowls (see, for example, den Boesterd 1956, 55-6, nos 189, 193, plate viii) where the escutcheons held small rings. This escutcheon is a substantial cast piece, obviously designed to fit onto a vessel of large diameter (perhaps *c* 210-220 mm), but whether it would have been in use during the 1st to 2nd centuries cannot be suggested with certainty. It was found in the subsoil and cannot therefore be dated by its context, and no precisely similar parallel has been traced which would allow it to be dated on typological grounds. It does have a broad generic similarity with some escutcheons designed to project above the rim edge of deeper buckets. The foliate edging and heavy casting, for example, is also seen on two escutcheons of that sort with female masks found at Carlisle (Padley 1991, 113 no 68) and Castel Collen (Britnell *et al*. 1999, 53, no. 9, fig. 6); unfortunately neither of these came from a usefully dated context.

The presence of two other copper alloy vessels can be suggested more tentatively. The features seen on no. 76 are consistent with it being from the base of a turned vessel, but the fragment is so corroded that no original surface survives and the identification cannot be made with certainty. The small mount no. 77 may have come from the lid of a trefoil mouthed jug. The knobs on these often took a zoomorphic form, frequently of a small bird. These could be cast in one with the lid (see, for example, Goodburn 1984, 51, no. 175, fig. 19), but frequently must have been made separately and inserted, as in the case of an example from Usk (Manning *et al*. 1995, 194, no. 2, fig. 51).

Finally in this category, the lead strip (no. 78) from waterhole 796 may be one leg of a three-legged candlestick. Fragments of such items have been recovered from time to time in urban sites in the Essex/Suffolk region in contexts suggesting a later 2nd- to 3rd-century date (Crummy 1983, 168, no. 4709; Major and Eddy 1986), but it was not until the discovery of a virtually complete example still bent in shape from Culver St., Colchester (N Crummy 1992, 163, no. 608) that it was realised what the object was. The dimensions of no. 78 match those of the legs of the other examples quite closely and the pelleted decoration is frequently encountered on them as well. While the identification cannot be made with total certainty, it does seem very likely. The date of the context it came from would also be appropriate. It may be noted that the type was not exclusively a south-eastern one as an example is known from Piercebridge, Co. Durham (Scott 1977, 50, no. 3, fig. 2), though the moulded decoration on the latter seems to differ from the patterns seen on the south-eastern ones.

Recreation

The only item in this category is a purpose-made fired clay counter (no. 79) from a Phase 3 pit fill. Purpose-made counters like this are unusual finds. In the late 1st to mid 2nd centuries plano-convex glass counters were very common, declining in numbers towards the end of the period as bone counters come to dominate

Table 5.11 Roman vessel glass: Summary of the 1st- to 2nd-century assemblage by functional type. Quantification by estimated vessel equivalents (EVE).

	Cup/beaker	Bowl	Jar	Flask	Jug	Bottle
EVE	60	200	92	40	126	238
%age	7.9%	26.5%	12.1%	5.3%	16.7%	31.5%

(Cool *et al.* 1995, 1555). In the soil conditions at Westhawk Farm, bone counters are not to be expected, but the absence of glass ones is noteworthy. As there is no other evidence of board games at the site, it is possible that no. 79 was not intended to be used as a counter, but could instead have functioned as something like a stopper to a vessel.

Weighing equipment

As already noted, a remarkable feature of this assemblage is the number of items associated with weighing that have been recovered. These include a steelyard (no. 80), nine steelyard weights (nos 81-89) and at least one weight for an equal-armed balance (no. 90).

The virtually complete steelyard arm, found in a ditch fill of Phase 4-5, retains sufficient of the scale markings to show that it was intended to weigh items up to 45 Roman pounds or *librae* (*c* 14.74 kg). (For an explanation of how steelyards work see Crummy 1983, 99.) The scale along one arm runs up to 9 *librae*. The space between each *libra* marking is divided up into 12 portions by 11 dots. These indicate the ounce (*uncia*) markings. When the scale was turned over and suspended from the second fulcrum, it could be used to measure weights between 10 and 45 *librae* with the grooves along the edge denoting the individual pounds. Corrosion has removed some of the markings but it seems likely that on the 1 to 9 side the full numerals were not scratched along the side but instead the sequence I, II, III, IIII, V, I, II, III, IIII was used. This was presumably because the scale along the edge did not have precise marks where the pound divisions were, such as on the steelyard from a Boudican context at Colchester (Crummy 1983, 99, no. 2508), but only slight gaps in the dot sequence. The repeated use of I, II, III, IIII rather than VI, VII, VIII, VIIII would have made it easier to position the weight accurately as the gaps would have been more narrowly pinpointed. Only the suspension loop of the weight remains and this is very heavily corroded with the surface removed at the point where it would have rested on the arm. It appears, however, to have been rectangular-sectioned and may have narrowed slightly at the point of contact allowing it to have been placed with some precision.

Not all steelyards have the scale marked as clearly as on the Westhawk example. The Colchester example did not have clearly marked scales, and nor did those from Whitton, South Glamorgan (Webster 1981, 182, no. 48, fig. 72) and Gestingthorpe, Essex (Draper 1985, 41, no. 136, fig. 17). Three steelyards from London, however, have clearly marked scales and some other similarities with the Westhawk arm. A fragmentary steelyard from Austin Friars (Wheeler 1930, 87, fig. 23) has the lower scale divided by dots into *unciae* and the larger by grooves into *librae*. The markings for the greater scale on this also seem to suppress the 'X's for measurements such as XV, as in the case of no. 80. Though the terminal end of this arm is missing, the fact that on steelyards the greater scale starts where the lesser scale finishes indicates that it would have weighed objects up to 5 or 6 *librae* on the lesser scale and up to perhaps 30 *librae* on the greater scale. A complete steelyard with suspension loops and weights was found in the Walbrook (Brailsford 1958, 78, no. 11, fig. 40). The lesser scale on this measures up to 8 *librae* and the drawing would appear to indicate that the *unciae* marks were dots. The other scale is unfortunately neither illustrated nor described, so it is not possible to see if the 'X's are suppressed. It does however have an identical spur at the fulcrum end above the terminal suspension loop to that seen on the Westhawk arm. There are hints that something similar may have been present on the Austin Friars steelyard but the drawing is not sufficiently detailed to be sure of this. A second steelyard from the Walbrook (Merrifield 1965, 186, plate 128) has a lesser scale running up to 6 in Roman numerals, but no details of the greater scale or the gradations along the edges are illustrated or described. It shares with the other Walbrook steelyard and the Westhawk example the shallow conical terminal. This is not an invariable terminal type for steelyards. The example from Colchester had a crossbar and that from Gestingthorpe had a perforated disc terminal. The same combination of numbering, conical terminal and possible spur on the fulcrum is also seen on a steelyard found at Benwell (Petch 1927, 189, no. 18, fig. 13).

There are, therefore, slight hints here that these steelyards may have come from the same source. A short steelyard found in a late Neronian to Flavian context at Canterbury has a similar terminal and what would appear to be the greater scale clearly marked with numerals and grooves to denote the individual *librae* (Frere 1970, 112, no. 6, fig. 13), but the quality of the description and illustration is too poor to be certain whether or not it could have been another product of the same workshop. If the workshop was a common source then the presence of two complete examples from the Walbrook might suggest it was active between the mid 1st and mid 2nd century. The Walbrook has produced large quantities of artefacts in pristine condition and though there is some dispute about the precise nature of the deposition (Shepherd 1998, 218), the date advanced for it by Merrifield (1962) is not in dispute. No. 80 was found in a deposit dated to Phase 4 to 5 (*c* AD 150-250) but it was clearly old when discarded, as one of the suspension loops is broken and the other shows distinct signs of wear through long use.

The production of steelyards would have been a specialist arm of the bronzesmith's trade. Much ancient commerce and accounting was conducted using measures of weight or volume as a glance at the price edict of Diocletian (Graser 1940) or the Vindolanda tablets (see, for example, Bowman and Thomas 1994, nos 180, 182, 190 and 192) will show. It would have been important that such measures were reliable and trustworthy within the bounds that was possible across the empire (for discussion see *RIB* II.2, 1-5), and there are some grounds for thinking that

attempts were made to standardise weighing equipment. A steelyard from Pompeii, for example, has an inscription indicating that it was calibrated according to the 'Articuleiana' standard as laid down in the year AD 47 at Rome (Ward-Perkins and Claridge 1976, no. 248). A weight of 1 *libra* from Alchester, Oxon. (*RIB* II.2, no 2412.99) had the inscription CAES-AUG around the sides suggesting it might have been an official standard, although it would have been approximately 2% underweight. A workshop producing weighing equipment might be expected in London as, whatever its precise status, the city was undoubtedly a place where much official provincial business was transacted, and also a place where the calibration of weighing instruments could be conducted. Whether the apparent concentration of steelyards of this type in the London/Kent area is a true reflection of their distribution is, however, open to question. As will already be clear, the publication of steelyards is frequently inadequate, which makes it difficult to characterise them correctly. The possibility that one has been identified at Benwell suggests that the distribution may have been much wider.

Of the steelyard weights there is one small example in copper alloy in the form of an acorn (no. 81). As Webster (1992, 157, no. 366) has noted, there has been some discussion as to whether these small acorns were intended as steelyard weights, but given the plethora of other weights in the assemblage, this seems an appropriate identification here. The other steelyard weights are all made of lead with iron wires running through the centre to provide the attachment loops. Nos. 82-87 are all of the classic biconical form, frequently used in the Roman period. It is, for example, the type of weight used on the steelyards from the Walbrook discussed above. No. 88 is less common as it has a cylindrical middle section, and no. 89 is now hemispherical over its lower parts.

The weight for the equal-armed balance (no. 90) now weighs 12 g and, given the damage it has sustained may well have been a half *uncia* weight (13.6 g). Its cylindrical shape is one of the commoner Roman forms (*RIB* II.2, 5, fig. 1a), but the surface damage makes it impossible to see if it retained any marking to indicate its calibration. No. 91 might be another weight of the same type but it is now so damaged that the identification cannot be a secure one.

Of all these weights, only no. 82 comes from a stratified and phased context which is broadly contemporary with the steelyard beam context. Given their typology, however, there seems little doubt of their Roman date, and they must strongly suggest that the inhabitants of Westhawk Farm were regularly called upon to weigh things. The range of sizes would also suggest that a variety of commodities were involved.

Structural finds

Fragments of cast window glass were found in a Phase 4 context (no. 92) and one of Phase 5 (no. 93). This is the typical Roman window glass of the 1st to 3rd centuries and indicates that at least one of the buildings in the settlement had glazed windows. The fragments may hint of the presence of a bathhouse as suggested by the tile evidence (see Harrison, Chapter 6 below), as glazed windows were an important feature of bathhouse architecture allowing illumination while at the same time keeping heat in.

Fasteners and fittings

The commonest item in this category is the bell-shaped stud (Allason-Jones 1985). Three examples were found (nos 94-6), all of which have integral shanks cast in one with the head. No. 96 is likely to have belonged to Allason-Jones' Type 2 which has a perforation through its lower extremity. Nos. 94-5 may have belonged to this type but the short lengths of shank that remain are more reminiscent of the type defined by Webster (1992, 136) where the shank is short and tapering. The various types of bell-shaped studs were in use throughout the Roman period and had a variety of purposes, but those with integral shanks seem most likely to have been parts of the fittings of large chests or boxes with the examples with perforated terminals forming part of the lock mechanism. Nos 94-6 are therefore likely to reflect the presence of such chests among the furnishings of the houses at Westhawk Farm. No. 97 may be part of another box fitting, as it could be part of a lock. The sheet copper alloy clearly contains some form of mechanism, but the interior is now too corroded to ascertain, even with the aid of X-radiographs, what it might have been.

Some of the small fittings (nos 98-100) could also have been used decorate items of furniture. The small horse head mount (no. 98) was found unstratified but is typical of the small end mounted terminals that could be either for furniture or the ends of handles. Of the other items in this category only the mount no. 102 calls for special comment. This is very corroded, but seems very likely to have been in the form of a dolphin and to have been very similar to examples from Caerleon (Wheeler and Wheeler 1928, 168, no. 42, fig. 15) and Birdoswald (Wilmott *et al.* forthcoming). Those were in better condition and were so similar that it seemed possible they could have come from the same mould. This example seems to be swimming in the opposite direction suggesting that they were mounted as pairs. Neither the Caerleon nor the Birdoswald examples came from usefully dated contexts, and so the discovery of this example in the Phase 2 primary silt of the roadway is a useful addition to the corpus.

Religious items

The only object in this category is a fragment of a Central Gaulish pipe clay Venus figurine (no. 103) of the type where the semi-draped goddess raises her right hand to her hair at the side of her neck. This is the commonest figurine type found in Britain. When Jenkins first studied them, he could point to a hundred

examples (Jenkins 1958). In a more recent study that number had almost doubled (van Boeckel 1993, 247), and the figure has continued to rise in the decade or more since. They were in use primarily in the 2nd century, and the Phase 4 context of no. 103 shows it was broken and lost within that period. In the south-east, these and other pipe clay figurines are common finds on a wide range of site types (ibid., fig. 110), and presumably all parts of the population found a use for them.

Evidence of craft and industry

There is a small amount of evidence to indicate that non-ferrous metalworking took place at the site from time to time. No. 104 is an off-cut from working copper alloy sheet found in the Phase 2-3 fill of a boundary ditch. Although found in the subsoil, the fragment of casting waste no. 104 presumably also relates to Romano-British activity. The small blue glass hemisphere no. 106 has a superficial resemblance to a bead, but the lack of a perforation and its highly vesicular nature would indicate that it is more like to be a by-product of high temperature activity. This need not have been concerned with working glass, as such a small vesicular fragment might have arisen as part of the processes that produce fuel ash slags.

Most tools would not have been made of the materials under consideration here, but no. 107 is a fragment of a blue/green bottle that has been flaked like a piece of flint to provide a sharp edge to be used in some cutting activity. This sort of re-use is frequently observed on Roman sites where bottle glass may have been a more easily accessible raw material for knapping than flint.

Miscellaneous

The remaining catalogued items cannot be assigned to a particular functional category, either because they may have had many functions, or because their function is unknown or because they are too fragmentary to identify. In the first category there is the bell, no. 108. Though from an unphased context it is typical of the small bells in use during the Roman period (see for example Manning *et al.* 1995, 55, fig. 20). Apart from the more utilitarian functions, such as animal bells, they also served to ward off evil spirits. In the second category lie the lead whorls, nos 109-13. These all derive from the sub- or ploughsoil and there is no certainty that they are Roman as whorls of this sort are rarely encountered in Roman contexts. Roman lead spindle whorls tend to be flat (see Mould 1998, 121, nos 1-5, fig. 43), and the Westhawk Farm whorls in any case have perforations that would be too wide for the narrow spindle of the Roman era. Given the number of steelyard weights at the site, one possibility might be that they were removable counter weights, added where necessary to the chains from which the item to be weighed was suspended.

The Finds as an assemblage

It is clear that the finds reflect the life of the occupants at Westhawk Farm in the later 1st and 2nd centuries. There is a distinct scarcity of material that would have been in use in the middle of the 1st century and have gone out of use by the end of it. Only the pillar moulded glass bowl fragments (nos 35-6) fall into this category. The bulk of the dateable finds have a *floruit* of the second half of the 1st century running into the 2nd century. Material that would have been in use within the mid 1st- to mid 2nd-century period includes all of the Colchester Derivative brooches, the melon beads, the mirrors, the stirring rod and most of the vessel glass. It was suggested above that the steelyard might be the product of a workshop that operated in the period between the mid 1st and mid 2nd centuries. If this is correct then the steelyard would also fall into this category.

Material with a 2nd-century date consists of the pipe clay figurine and hairpin. Later 2nd- to 3rd-century items include the knee brooch and the lead candlestick, and possibly the glass beads. The 3rd century is represented by the glass intaglio and possibly the ring setting (no. 23) and the 4th century by a single fragment of vessel glass and presumably the bracelet no. 21. This date range is reflected, in part, by the stratified contexts in which the items were found. As can be seen from Table 5.7, two-thirds of the stratified items had been deposited by the end of Phase 4 at the latest. It is also noticeable that two of the very small number of late items (the intaglio and the bracelet) come from burials rather than settlement contexts.

What do the finds tell us of the people who lived here in the later 1st and 2nd centuries? There are hints from the brooches that they were conservative in their dress, not rapidly adopting new fashions. Their glass and metal vessels fall into the rural pattern of consumption, hinting that dining here would have been a somewhat different experience to dining in the developing local towns. There is also, however, a relatively substantial amount of items that suggest an interest in acquiring Romanised material culture, and the resources to acquire it, so it may well be that the conservatism applied to particular facets of life, not to all of it.

It is also probable that the acquisition of Romanised material culture increased with time. This is hinted at by the increasing range of functional categories present in the stratified material. Table 5.12 summarises this. The possible counter (no. 79) from a Phase 3 context has been excluded on the grounds that the identification of function is not secure, and the vessel glass has been excluded from household category. As can be seen from the table, the later part of the occupation shows a noticeable expansion of functional types present, as though the trappings of a Romanised life were being more enthusiastically embraced.

This development may have been a natural development of the indigenous population, but it is worth

Table 5.12 Objects and vessels of non-ferrous metal, fired clay and glass: Presence of different functional categories amongst the phased finds.

	Phase 2	Phase 3	Phase 4	Phase 5
Personal	Present	Present	Present	Present
Toilet	-	-	Present	Present
Textile	-	Present	Present	-
Household	-	Present	-	Present
Weighing	-	-	-	Present
Buildings	-	-	Present	Present
Fasteners	Present	-	Present	Present
Religion	-	-	Present	-
Industry	-	Present	Present	Present
Number of categories	2	4	7	7

considering whether it might reflect some changing function within the settlement. As already noted the knee brooch may hint at the presence of an official. The presence of the small glass beads no. 18, from a Phase 3-4 context, and no. 19, from a Phase 5 context, is also of interest. Glass bead necklaces do not appear to have become fashionable for the majority of the population until the later 3rd and 4th centuries. If the contexts of these are to be believed, the women of the Westhawk Farm settlement were very early adopters of the fashion, which stands in marked contrast to the earlier conservatism with regard to fashions in brooches.

As already noted, the number of items associated with weighing at this site is unusual as normally such items form a small part of any assemblage. How unusual the Westhawk Farm assemblage is can be seen from Table 5.13. In this the number of weights, steelyards and balances has been compared to the number of brooches from a range of excavations of sites which include 1st and 2nd century occupation and have produced large finds assemblages. Brooches have been chosen as a standard against which to compare the weighing equipment as they are a common find and, given their privileged status within Romano-British finds research, can be relied on to be fully published. The weighing equipment is shown as a percentage of the brooch total. This is admittedly a crude measure, but serves to put the Westhawk Farm figures into perspective. The *vicus* at Caersws stands out and here a conservative interpretation of the lead weights has been taken, including only those with the standard dot markings indicating their weight. Generally, however, weighing equipment totals are 10% or less of brooch totals at most sites no matter what their status. Even if only the stratified and phased material from Westhawk Farm was considered (9 brooches, 1 steelyard and 1 weight), the weighing equipment percentage (22%) would still be only second to Caersws.

Such a plethora of weighing equipment in the finds assemblage would suggest a greater than normal interest in measuring commodities. At Caersws the weights were associated with an area of the *vicus* that could be plausibly interpreted as a commercial site. The weights there, however, were all for an equal-armed balance requiring a range of weights to be useful. At Westhawk Farm, by contrast, the weights are for steelyards which only need one weight, and the number of such weights found must indicate that a large number of steelyards were in use. This may have been for straightforward commercial transactions as is likely in the *vicus* at Caersws, but the timing of this activity may be significant. Only the steelyard (no. 80) and one of the steelyard weights (no. 82) were from phased contexts, and assigned to Phases 4-5 when the increased range of functional

Table 5.13 Objects and vessels of non-ferrous metal, fired clay and glass: Comparison of numbers of brooches and items of weighing equipment from selected sites, with the number of items of weighing equipment expressed as a percentage of the number of brooches from each site.

Site	Site type	Source	Brooch	Weights etc	%
Westhawk Farm	Rural settlement	this report	15	11	73%
Stonea	Rural settlement	Jackson and Potter 1996	108	6	6%
Wilcote	Rural settlement	Hands 1993; 1998	47	1	2%
Dragonby	Rural settlement	May 1996	157	1	>1%
Cirencester	Town	Viner 1998	133	18	14%
Verulamium	Town	Waugh and Goodburn 1972; Goodburn 1984	80	10	10%
Wroxeter	Town	Barker et al 1997	181	16	9%
Colchester	Town	Crummy 1983, 1992a & b	161	10	6%
Canterbury	Town	Blockley *et al* 1995	139	1	>1%
Leicester	Town	Cooper 1999	29	0	0%
Caersws	vicus	Britnell 1989.	15	11	73%
Castleford	Fort and *vicus*	Cool and Philo 1995	150	12	8%
Caerleon	*Vicus*	Evans 2000	50	4	8%
Richborough	Fort and civil settlement	Bushe Fox 1926, 1928, 1932, 1949; Cunliffe 1968.	210	13	6%
Gorhambury	Villa	Neal et al 1990	47	10	21%
Gadebridge Park	Villa	Neal 1974	31	2	7%
Frocester Court	Villa	Price 2000	75	4	5%

types is noticeable at the site. This is also the period when the state was moving towards supplying the troops with their rations directly, without deducting the cost from their pay, and acquiring those rations, at least in part, by direct requisitions. Precisely when this system (the *annona militaris*) was introduced, if it was indeed a single decision, is unknown. A recent consideration, however, suggests a date at the end of the 2nd century to the early 3rd century might be appropriate (Roth 1999, 241). How it was administered in practice is equally unclear (Millett 1990, 149). One might speculate, however, that if direct requisitions were starting to occur towards the end of the 2nd century, 'rural' sites such as the settlement at Westhawk Farm on the junction of two important roads might have had a role to play as collection points.

If there were to have been some form of change of role, with or without official involvement, for the settlement, it might also explain some of the conflicting strands of evidence in the finds assemblage. As noted in the previous section, the composition of some categories of finds, such as the toilet equipment, is more typical of an urban or military site than a rural one of the type demonstrated by the brooch and vessel glass assemblages. The later burials on the site with small finds also hint at a slightly more cosmopolitan society.

It is difficult to assess the status of the individual whose remains were found in cremation urn 5009 (cremation group 5050) together with the intaglio no. 22. As already noted (see above) this is an intaglio type that is thought to be associated with the spread of signet ring use to the rural peasantry. Its presence as a probable pyre good, however, is most unusual. Philpott (1991, 163) knew of only two intaglios from cremation burials in Britain. To these a third may be added from a mid 2nd-century burial at West Tenter Street in the East Cemetery at London (Whytehead 1986, 94, fig. 41; Barber and Bowsher 2000, fig. 85) and a fourth from a mid 3rd-century burial at Brougham (Cool 2004, 382). But the total is still tiny and in two of the cases where it is known the deceased is likely to have been a soldier.

The person buried with the jet necklace and bracelets of jet/lignite (see Allason-Jones, below) and copper alloy (no. 21) in cremation urn 5026 (cremation group 5090), however, may have been a most exotic individual. He was an adult male which makes the association with a necklace and bracelets most unusual, as these are normally ornament types associated with females. Precisely the same combination of ornaments, however, was worn by a young adult male buried in an inhumation grave at Catterick, where the copper alloy 'bracelet' was being worn as an anklet (Cool 2002). Beads from a similar jet bead bracelet were found with the cremated remains of an adult male in a 3rd-century burial at Brougham (Cool 2004, 391). In the East cemetery at London a male of 19-25 years was found wearing a copper alloy bracelet in a late 3rd- to 4th-century inhumation and was accompanied by an unworn jet necklace with Medusa pendant and a separate jet pendant in the form of a palmette (Barber and Bowsher 2000, 226-7, burial 709). The sex of the individuals cremated with a similar bead bracelet at Ospringe (Whiting 1926, 146, group lxii; Whiting *et al.* 1931, plate lvii, fig. 2), and inhumed with them at Verulamium (Wheeler and Wheeler 1936, 210, no. 48, fig. 45) and York (*Eburacum*, 94, burial IV k (vi); Allason-Jones 1996, 28, no. 28) is unknown.

There can be no doubt that if the young man at Catterick had worn the ornaments in life, as he did in death, then he would have been regarded as a transvestite, and it was suggested he may have been one of the castrated priests of Cybele, as the ornaments are of the types they are regarded as having worn. There were also sufficient unusual features surrounding the deposition of the individual at Brougham with the jet bracelet, to suggest that he may too have been regarded as 'other' in some way. The man in the East London cemetery too may have been 'different' as his grave was one of two isolated burials at what the excavators describe as on 'an odd alignment' (Barber and Bowsher 2000, 45). The individual buried at Westhawk Farm with these ornaments may also have been in some way unusual, perhaps because he was a priest or had adopted a different gender role to his biological sex. This might also explain the choice of a less common copper alloy bracelet form for inclusion in the grave.

Comparison of the stratified and non-stratified non-ferrous metal small finds

Previous work with metal detected assemblages has suggested that not all categories and shapes of Roman finds are as likely to be found by metal detecting as by excavation (Britnell *et al.* 1999, 47). This supposition has been strengthened by an examination of the Roman small finds in the Portable Antiquities Database (Cool 2001) which suggested that long thin items such as most types of toilet implements and hair pins were seriously underrepresented in metal detected assemblages. Other types that were underrepresented were penannular brooches and bracelets which could, of course, be regarded as long thin items bent into a circle. The extensive metal detecting undertaken at Westhawk Farm allows a comparison of the stratified and unstratified material from the topsoil to see if the latter is a good reflection of the former.

In order to investigate this the recognisable Roman non-ferrous finds have been characterised in two ways: in the first they were weighed, and in the second they were assigned to one of five broad shape categories. The current state of the items has been taken into account, thus bow brooches in a good condition are assigned to the solid three dimensional categories, whereas those that are damaged and have lost their wings and springs are better described as being long and thin.

The weight is summarised in Table 5.14. The top two rows show the complete data set. In both cases this is distorted by the recovery of a small number of

Table 5.14 Roman non-ferrous metalwork: Summary of the numbers of pieces, and comparison of the ranges of weights, and mean weights of objects recovered by excavation and by metal detecting.

	Number	Range	Mean
Excavated	27	1 - 183g	14.6g
Metal-detected	26	1 - 581g	56.7g
Excavated less than 100g	26	1 - 62g	8.1g
Metal-detected less than 100g	23	1 - 95g	22.9g

heavy items, so the third and fourth rows summarise those items of 100 g or less. As can be seen the metal-detected items are regularly heavier and by implication larger than the excavated pieces.

Table 5.15 summarises the shape of the items and as may be seen the bulk of the metal-detected items may be characterised as being three-dimensional, whereas a wider range of shapes is found in the excavated assemblage. Flat and narrow items appear much more likely to be recovered through excavation than through metal-detecting. The difference in size is not surprising as large items are more likely to survive in the plough soil than small ones, but the increasing evidence that metal detecting may be better at recovering items of particular shapes is of some importance as it has implications for how best to make use of the increasingly large amounts of data available from metal-detecting, both within archaeological work and from such initiatives as the Portable Antiquities Scheme (cf. DCMS 2000). If certain categories of finds are always going to be rare within such material, then clearly it would be sensible to devise any research schemes that are going to make use of metal detected data with this in mind.

Catalogue

Personal ornaments and jewellery

Brooches (Fig. 5.3: 3-9, 15)

1 (*not illustrated*) **Colchester derivative brooch**. Copper alloy. Semi-circular spring cover, ends broken, front of cover decorated by alternating pairs of narrow ribs with wide curved ribs. Double perforated lug behind cover, outer edge of this cast into series of scalloped ribs which continue over top of bow to form crest in the form of a skeuomorphic forward facing hook. Fragmentary spring of at least 12 turns with chord held in upper perforation of lug and bar retaining spring in lower perforation. D-sectioned bow with side flanges and three narrow ribs running down centre; rocker arm ornament down flanges and down outer edge of central triple rib group. Foot and catchplate missing. Extant L: 44 mm. Context 7377, SF1101, Phase 4.

2 (*not illustrated*) **Colchester derivative brooch**. Copper alloy. Wide semi-cylindrical spring cover, ends broken; front of cover decorated by alternating pairs of narrow ribs with wide curved ribs. Double perforated lug behind, top broken; small fragment of chord retained in

Table 5.15 Roman non-ferrous metalwork: Comparison of numbers of stratified and unstratified finds characterised by shape and size.

Shape	Type	Stratified		U/S	
Solid three dimensional	Bow brooch	9		3	
	Steelyard weight	1		8	
	Cylindrical weight	1		1	
	Bell-shaped stud	1		2	
	Vessel	-		2	
	Fitting	1		2	
	Lead whorl	-		4	
	Subtotal		*13*		*22*
Three dimensional	Lock casing	1		-	
	Bell	-		1	
	Forceps	-		1	
	Subtotal		*1*		*2*
Solid flat	Mirror	2		1	
	Steelyard beam	1		-	
	Dolphin mount	1		-	
	Vessel	1		-	
	Lead disc	1			
	Subtotal		*6*		*1*
Long thin	Brootch	2		1	
	Tweezer	1		-	
	Needle	2		-	
	Candlestick	1		-	
	Subtotal		*6*		*1*
Ring	Earring	1		-	
	Subtotal		*1*		*0*
Total		27		26	

broken upper perforation, bar holding spring through lower perforation; spring of at least 12 turns, parts missing; front of spring cover has pairs of narrow ribs alternating with wide plain zones. D-sectioned bow with side flanges and central rib joining perforated lug as a crest, pair of grooves marking the junction. Foot missing, majority of perforated catchplate missing. In two joining corroded fragments, twisted out of shape. Context 50, SF5, Phase 2-3.

3 **Colchester derivative brooch**. Copper alloy. Semicircular spring cover, ends broken; front decorated by narrow vertical ribs. Double perforated lug behind; spring of at least 12 turns, chord held in upper perforation of lug, spring held by ?iron central bar that would have passed through lower perforation. D-section bow with upper face divided into 5 ribs; upper part of perforated lug forms small projection, below on central rib two diagonal grooves separated by horizontal grooves, traces of similar cross motif on right-hand rib. Bow tapering to missing foot, part of catch plate with triangular perforation extant. Extant L: 57 mm, extant W of wings: 42 mm. Context 7004 (subsoil), SF1127, unphased.

4 **Colchester derivative brooch**. Copper alloy. Semi-circular plain spring cover, both ends broken, with double perforated lug behind retaining part of chord of spring in upper perforation and bar holding mostly missing spring in lower. D-sectioned bow with central rib separated from top of perforated lug by notch; bow tapering to missing foot; most of catch plate also missing but retains upper part of perforation. Surfaces poorly preserved but isolated traces of rocker arm ornament suggest originally a band running down either side of central rib. Extant L: 49 mm, extant W of wings: 25 mm. Context 892, SF183, Phase 2-3.

5 **Colchester derivative brooch**. Copper alloy. Upper part of brooch only. Part of semi-circular plain spring cover with double perforated lug retaining part of chord in upper perforation and central bar for spring in lower perforation; small fragment of spring retained by lug. D-sectioned bow with central rib becoming crest at top of perforated lug, with slight notch marking junction. Extant W: 17 mm. Context 7412, SF1202, Phase 4-5.

6 **Colchester derivative brooch**. Copper alloy. Stumps of semi-cylindrical spring case preserved either side of broken head; stumps of double perforated lug behind. D-sectioned bow with 3 gently rounded vertical ribs and side flanges; central rib probably divided from perforated lug by notch. Foot missing and catch plate mostly broken away. Extant L: 51 mm. Context 7186, SF984, unphased.

7 **Colchester derivative brooch**. Copper alloy. Semi-cylindrical spring cover with ends missing; front divided into three zones either side of the bow, two outer zones diagonally grooved, central plain with convex-surface. Spring mostly missing but chord held in upper perforation of double perforated lug at rear of head, lower perforation retains part of iron bar holding spring. Bow has stepped D-section; central rib continues over the head to merge with perforated lug and is decorated with groups of diagonal lines arranged in vertical chevron pattern; plain convex-curved ribs on either side; low flange on either side horizontally grooved to give close-milled effect. Foot broken, triangular catch plate has broken edge, and triangular perforation obscured by corrosion. Context 7004 (subsoil), SF1128, unphased.

8 **Colchester derivative brooch**. Copper alloy. Semi-cylindrical plain spring cover, one end chipped; double perforated lug behind retaining chord of spring in upper perforation and iron bar holding spring in lower perforation, only one turn of spring extant. Much of surface of bow now missing but over head a pronounced central rib forming crest with top of lug, with two transverse grooves marking junction; some evidence that this rib continued down centre of bow. Catchplate and lower part of bow missing. W of spring cover: 17 mm, extant L: 23 mm. Context 28, SF2, Phase 2-3.

9 **Colchester derivative brooch**. Copper alloy. Heavily corroded and virtually no original surface remaining. Semi-cylindrical spring cover, with stumps of double perforated lug behind. One detached coil of spring extant. D-sectioned bow forming slight crest over head where joined with perforated lug. Foot and catchplate missing. Bow now bent up over head. Depth of spring cover 4.5 mm, extant L: as bent: 20 mm. Context 7089, SF940, unphased.

10 (*not illustrated*) **Colchester derivative brooch**. Copper alloy. Small fragment of semi-cylindrical spring cover either side of head, double perforated lug behind head with curved mouldings over upper part. D-sectioned bow with central rib. Foot and catchplate missing. The whole very corroded and surface poorly preserved but the central rib may have had band of rocker arm ornament down front. Extant L: 42 mm. Context 5007, SF501, Phase 5.

11 (*not illustrated*) **Colchester derivative brooch**. Copper alloy; the whole much corroded and no original surfaces remaining. Semi-cylindrical spring cover, ends broken, with double perforated lug behind. D-sectioned bow forming slight crest over head where joins with perforated lug. Foot and catchplate missing. Depth of spring cover 5 mm, extant L: 22 mm. Context 7808, SF1374, phase 3-4.

12 (*not illustrated*) **Colchester derivative brooch**. Copper alloy; two fragments from head. Very heavily corroded and details obscured. Remains of lower part of spring cover preserved below head. Spring of *c* 10 turns with chord held in forward facing hook or pierced lug. Upper part of D-sectioned, apparently plain bow. Extant L:

18 mm, W of spring: *c* 19 mm. Context 565, SF106, Phase 3-4.

13 (*not illustrated*) **Colchester derivative brooch**. Copper alloy. Two very corroded fragments consisting of head and one side of spring cover and detached spring fragment. Semi-cylindrical spring cover, stumps of double perforated lug behind; front of spring cover has traces of paired narrow ribs. Traces of grooves on each side of head. Detached fragment consists of spring of at least 6 turns with central bar. Extant W of spring cover: 19 mm. Context 869, SF181, Phase 3-4.

14 (*not illustrated*) **Brooch**. Copper alloy. Shallow D-sectioned bow, probably originally with narrow flanges on either side, now mostly missing. Triangular catch plate. Much corroded and much of original surface missing. Extant L: 33 mm. Context 7004, SF1129, subsoil.

15 **Knee brooch**. Copper alloy. Cylindrical spring cover with central iron bar for spring held in pierced ends, spring of *c* 6 turns with chord running below missing pin. Angular bow with stepped junction with spring cover, bow expanding slightly to flat-based foot, broken rod catch-plate. Heavily corroded and much of the surface now missing. L: 35 mm, W of spring cover: 22 mm. Context 7642, SF1279, unphased.

Other personal ornaments (Fig. 5.3: 16; Fig. 5.4: 17-24)

16 **Hairpin**. Copper alloy. Circular-sectioned tapering rod with shallow conical terminal, other end broken. Bent out of shape. Maximum section: 3.5 mm, Extant L: 63 mm. Context 7298, SF1072, Phase 5.

17 **Earring**. Copper alloy. Penannular D-sectioned wire ring tapering to pointed ends. In two fragments, the whole much corroded and no original surfaces extant. D: *c* 20 x 13 mm. Context 7279, SF1028, Phase 5.

18 **Bead**. Deep blue opaque glass. Segmented, parts of two segments remaining. Extant L: 6 mm, D: 4.5 mm. perforation D: 2 mm. Context 872, SF284, Phase 3-4.

19 **Bead**. Blue/green glass. Spherical with traces of winding visible at perforation. L: 8mm, section: 7.5 mm, perforation D: 2 mm. Context 687, SF277, Phase 5.

20 **Bead**. Opaque blue glass with opaque white and red chevron. Made from cane layered blue, white, red, white red, bead formed of two slices of cane shaped round former; junction clearly marked. Cubic. L: 4.5 mm, section: 3 mm, perforation D: 1.5 mm. Context 379, Sample 16, Phase 6.

21 **Bracelet**. Copper alloy. Oval section tapering to either end; terminals now broken. Casting flange runs around one side. The whole surface much eroded. D: 66 x 51 mm, maximum section: 5 x 4 mm. Context 5025, SF563, Phase 6.

22 **Intaglio**. Very pale translucent green-tinged colourless glass with streak of opaque turquoise. Oval with bevelled edges. Moulded design - in impression an H -shape with small dots between arms. L: 6.5 mm, W: 6 mm, Th: 3.5 mm. Context 5008, SF508, Phase 4-5.

23 **Jewellery setting**. Deep blue translucent glass; hemispherical. D: 7 mm, Th: 4.5 mm. Context 865, SF278, Phase 3-4.

24 **Melon bead**. Frit retaining turquoise glaze. Complete with heavily worn edges to the perforation. L: 15 mm, D: 23 mm, perforation D: 12.5 mm. Context 161, SF14, Phase 3-4.

25 (*not illustrated*) **Melon bead**. Frit retaining turquoise glaze. Half extant in two joining fragments. L: 12 mm, D: 15 mm, perforation D: 7 mm. Context 7478, SF1251, Phase 2.

26 (*not illustrated*) **Melon bead**. Frit. Approximately one quarter extant. L: 11 mm. Context 10303, SF1543, Phase 4.

Toilet and medical equipment (Fig. 5.4: 27-32)

27 **Mirror**. High tin bronze (XRF analysis). Parts of two bevelled edges extant, other sides broken. Slightly convex reflecting surface much obscured by corrosion blisters. Dimensions: 63 x 38 mm. Context 7491, SF1249, Phase 4.

28 **Mirror**. Copper alloy. One straight bevelled edge; other edges broken. Back unfinished. Dimensions: 23 x 23 mm, Th: 1mm. Context 7004 (subsoil), SF1013, unphased.

29 **Mirror**. Copper alloy. Slightly convex reflecting surface retaining white metal coating; circular ring or frame in back with groove around outer edge. XRF indicated tin or tin/lead coating on bronze with the lead possibly being present in the base alloy. Dimensions: 33 x 11 mm, outer D: of ring *c* 50 mm, Th: 1.5 mm. Context 871, SF182, Phase 3-4.

30 **Stirring rod**. Blue/green glass. Cylindrical rod with four pronounced ribs on side with right-hand twist; one end broken, other has flattened disc terminal with curving lines from twist on underside. Extant L: 35 mm, D of terminal: 17 mm, section of rod: 9mm. Context 9088, SF1499, Phase 5.

31 **Forceps**. Copper alloy. Circular-sectioned pear-shaped terminal with chipped point; square-sectioned unit with 3 ribs; upper parts of two arms. Section (maximum): 7 x 7 mm, extant L: 31 mm. Context 7787, SF1367, unphased.

32 **Tweezers**. Copper alloy. Rectangular-sectioned bar bent in half to form tweezers, jaws missing on each arm. Outer face of arms have groove parallel to each edge. Extant L: 46 mm. Context 7293, SF1066, unphased.

Textile equipment *(Fig. 5.4: 34)*

33 (*not illustrated*) **Needle**. ?Copper alloy. Circular-sectioned shaft tapering to point, flattening to-

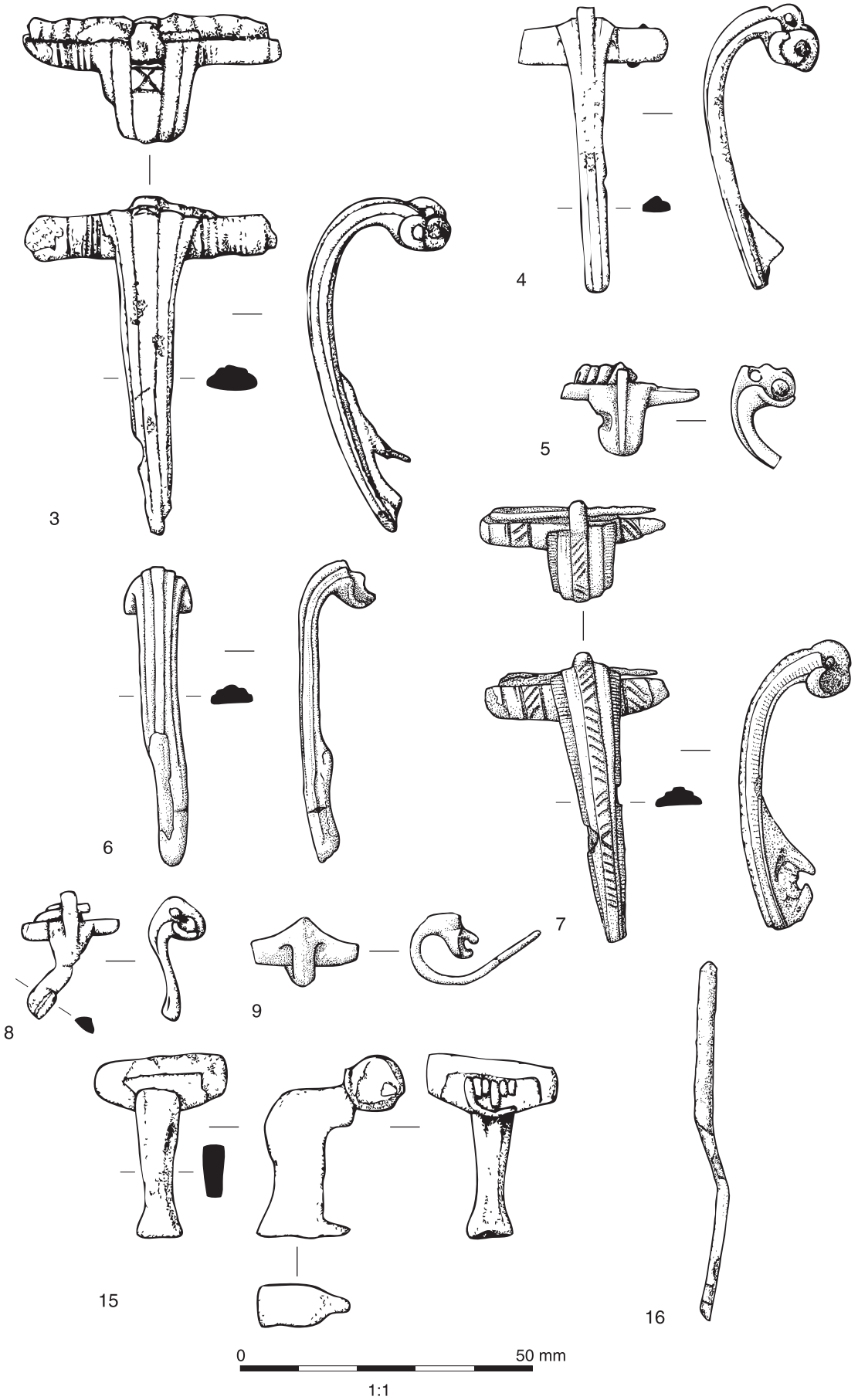

Figure 5.3 Copper alloy objects (nos 3-9, 15-16).

wards broken head. Section: 2 mm, extant L: 45 mm. Context 8239, SF1430, Phase 2-3.

34 **Needle**. Copper alloy. Circular-sectioned; broken into three fragments; one end broken, other flattens with groove below missing eye. Section D: 2.5 mm, extant L: 140 mm. Context 233, SF32, Phase 4.

Household equipment

Glass vessels (Fig. 5.4: 37-38; Fig. 5.5: 40, 44, 51-53, 55-56, 58-59, 65)

35 (*not illustrated*) **Pillar-moulded bowl**. Blue/green glass; wheel polished internally, fire polished externally. Two body fragments, one from side and one from base. Dimensions (largest): 27 x 25 mm. EVE 0.40. Context 5098, SF504, Phase 2-4.

36 (*not illustrated*) **Pillar-moulded bowl**. Blue/green glass, wheel-polished internally, fire-polished externally. Lower body fragment retaining parts of four ribs, abraded band internally. Dimension 28 x 24 mm. EVE 0.20. Context 5084, SF503, Phase 2.

37 **Tubular-rimmed bowl**. Blue/green glass. Rim fragment, outbent rim, edge bent down and in; straight side. Rim D: *c* 130 mm, wall Th: 2 mm, present Ht: 15 mm. EVE 0.40. Context 1272, SF203, Phase 3.

38 **Tubular-rimmed bowl**. Blue/green glass. Rim fragment, rim bent out and down, rim slightly incurved; body curving in. Rim D: 160 mm, present Ht: 12 mm, wall Th: 1 mm. EVE 0.20. Context 9333, SF1512, Phase 4-5.

39 (*not illustrated*) **Tubular-rimmed bowl**. Blue/green glass. Rim fragment, edge bent out and down with tube at upper point. Extant Ht: 14 mm. EVE 0.20. Context 7244, SF1550, Phase 5.

40 **Tubular-rimmed bowl?** Blue/green glass with many bubbles. Complete base fragment, wide lower body broken at junction with side; applied true base ring of oval outline with post technique scars. Base D: 65 x 58 mm, wall Th: 2 mm, present Ht: 15 mm. EVE 0.60. Context 551, SF103, Phase 3.

41 (*not illustrated*) **Indented beaker**. Blue/green glass. Seven body fragments, four joining; vertical side retaining part of two indentations. Extant Ht: 65 mm, wall Th: 1 mm. EVE 0.20. Context 7154, SF966, Phase 4.

42 (*not illustrated*) **Indented beaker**. Light green glass, many bubbles. Two body fragments with parts of indentations, including base of indentation. Dimensions (largest): 37 x 28 mm, wall Th: 1 mm. EVE 0.20. Context 1081, SF193, Phase 4.

43 (*not illustrated*) **Collared jar**. Yellow/green glass. 14 body fragments, many joining; broken at junction with rim, wide upper body with rounded carination to lower body, vertical tooled ribs on lower body. Maximum body D: 120-130 mm, wall Th: 1.5-2.5 mm, present Ht: *c* 70 mm. EVE 0.52. Context 7528, SF1283, Phase 4.

44 **Jar**. Blue/green glass. Rim fragment; asymmetric out-bent rim, edge fire-rounded. Rim D: 65mm, wall Th: 1mm, present Ht: 13 mm. EVE 0.40. Context 64, SF6, Phase 2-4.

45 (*not illustrated*) **Globular jug**. Light yellow/brown glass. Four neck and shoulder fragments, 3 joining. Cylindrical neck with slight tooling marks at base, curving out to wide shoulder. Neck D: *c* 20 mm, wall Th: 1.5 mm, present Ht: 34 mm. EVE 0.28. Context 159, SF13, Phase 3.

46 (*not illustrated*) **Globular jug**. Blue/green glass. Shoulder fragment broken at junction with tooled base of neck; vertical tooled ribs. Dimensions: 41 x 30 mm, wall Th: 2mm. EVE 0.14. Context 742, SF157, Phase 2-3.

47 (*not illustrated*) **Jug**. Light green glass. Handle fragment ribbon with central rib. Section excluding rib: 28 x 5 mm. EVE 0.14. Context 171, SF27, Phase 3.

48 (*not illustrated*) **Jar or jug**. Yellow/green glass. Two joining lower body and open pushed-in base fragments. Base D: 70 mm, wall Th: 1.5 mm, present Ht: 21 mm. EVE 0.28. Context 7157, SF967 and SF968, Phase 4.

49 (*not illustrated*) **Jug or jar**. Blue/green glass. Lower body and base fragment; side sloping in to open pushed-in base ring, horizontal scratch marks on side above base ring. Base D: 75 mm, wall Th: 2 mm, present Ht: 18 mm. EVE 0.14. Context 8546, SF1551, Phase 3-4.

50 (*not illustrated*) **Jug or jar**. Pale green glass. Lower body fragment, convex-curved retaining small part of open pushed-in base ring. Dimensions: 37 x 24 mm, wall Th: 1.5 mm. EVE 0.14. Context 7588, SF1317, Phase 4.

51 **Spouted jug**. Blue/green glass; many bubbles; some large. Three joining rim, neck and handle fragments. Slightly funnel-shaped mouth, rim edge bent in and down, rim pinched in to form lobate outline, spout missing and possibly slightlypulled up; short neck curving out to shoulder. 'D'-sectioned rod handle with simple lower attachment, handle attached to back of rim, trailed up and down and re-attached to top of rim with small return trail. Handle between two upper attachments pinched together, flattened and bent back to form a thumb rest, the upper part of this thumb rest shows tapering points of pincers used in flattening and bending process. W of rim: 56 mm, handle section: 9 x 5 mm, present Ht: 62 mm. Context 8797, SF1453-1454 and SF1456, Phase 4-5.

52 **Jug**. Blue/green glass with streaky green impurities and many bubbles. Handle fragment, rod handle with single pinched projection at lower handle attachment which retains small fragment of convex-curved shoulder. Handle section: 9 x 7 mm. EVE 0.14. Context 530, SF100, Phase 3-4.

53 **Jug**. Light green bubbly glass. High pushed-in base ring, side and base missing. Base D: *c* 65 mm. EVE 0.14. Context 417, SF281, Phase 7.

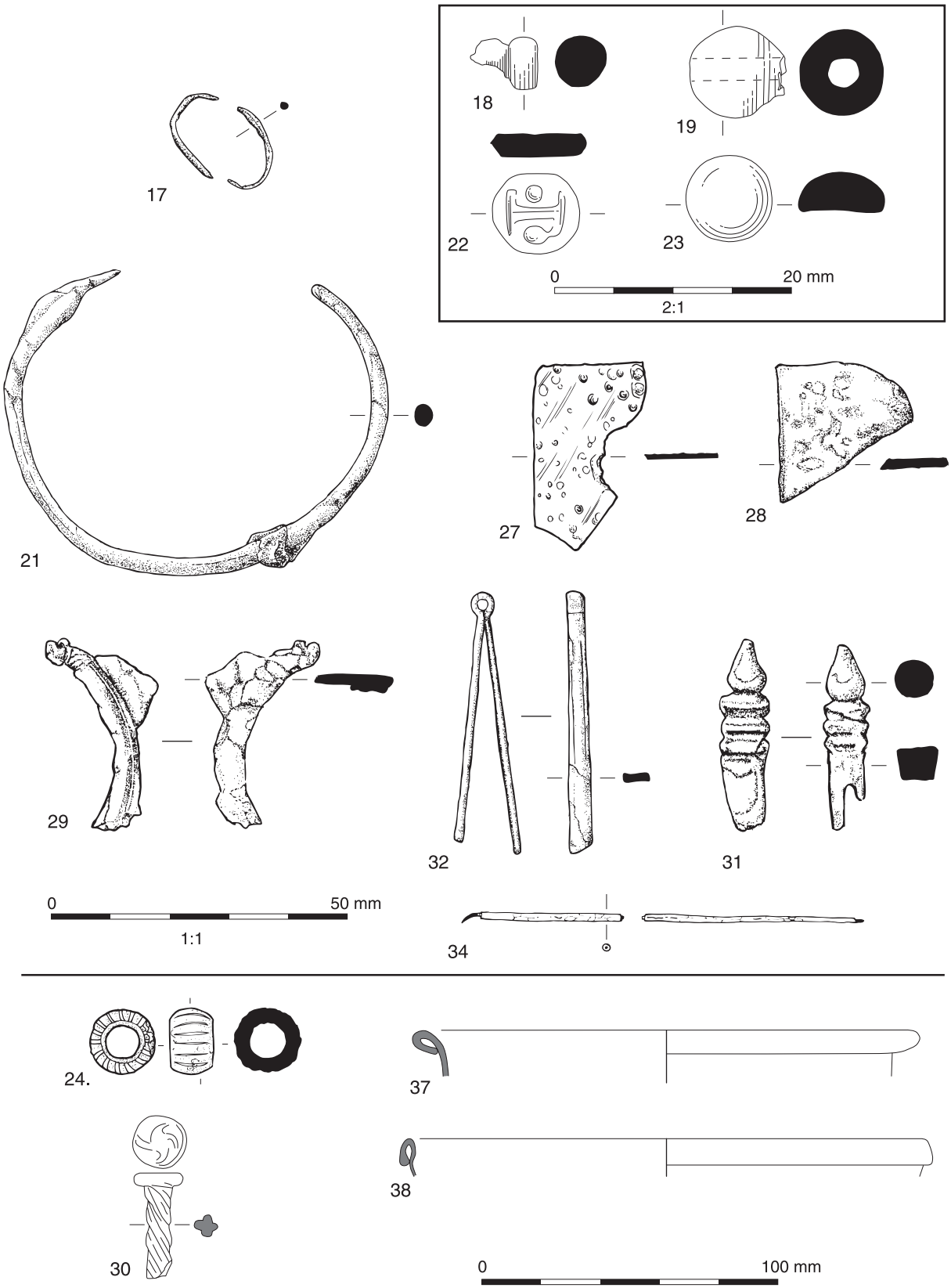

Figure 5.4 Copper alloy objects (nos 17, 21, 27-29, 31-32, 34); Glass objects (nos 18-19, 22-24, 30, 37-38).

54 (*not illustrated*) **Flask?** Blue/green glass; many bubbles, streaky green impurities. Base fragment; side curving into concave base. Base D: c 50 mm, wall Th: 1 mm, present Ht: 13 mm. EVE 0.40. Context 177, SF19, Phase 3.

55 **Prismatic bottle**. Blue/green glass; many bubbles, some large. Four joining rim, neck, handle and shoulder fragments; rim bent out, up, in and flattened; cylindrical neck; flat shoulder; angular ribbon handle with simple lower attachment, upper attachment on neck with return trail between handle and rim edge. Rim D: *c* 45mm; handle section: 21 x 2.5 mm, present Ht: 41 mm. EVE 0.56. Context 8857, SF1457, Phase 4.

56 **Bottle**. Blue/green glass; streaky green impurities. Rim and neck fragment, rim folded out, up, in and flattened; narrow cylindrical neck with tooling marks at base; bending out to shoulder. Fragment of folded upper handle attachment on neck below rim. Rim D: 30 mm, shoulder Th: 2.5 mm, present Ht: 44 mm. EVE 0.42. Context 9059, SF1493, Phase 4.

57 (*not illustrated*) **Bottle**. Blue/green glass. Rim and neck fragment, rim bent out, up, in and flattened; vertical neck. Rim D: 40 mm. EVE 0.28. Context 7029, SF922, unphased.

58 **Bottle**. Blue/green glass. Three joining handle fragments; angular reeded handle with simple lower handle attachment retaining part of shoulder. Handle section 28 x 4 mm, Ht of handle: 37 mm. EVE 0.28. Also one body fragment possibly from this vessel. Context 7225, SF1006, Phase 5.

59 **Prismatic bottle**. Blue/green glass. Handle fragment; angular with pronounced side ribs, simple lower attachment retaining part of shoulder. Handle section: 38 x 5 mm. EVE 0.28. Context 7066, SF941, Phase 4.

60 (*not illustrated*) **Bottle**. Blue/green glass. Handle fragment. EVE 0.14. Context 1633, SF274, Phase 4-5.

61 (*not illustrated*) **Bottle or jug**. Blue/green glass. Handle, fragment from folded upper attachment. Dimensions: 18 x 15 mm. Context 675, SF150, Phase 6.

62 (*not illustrated*) **Bottle**. Blue/green glass. Neck fragment. Context 677, SF136, Phase 5.

63 (*not illustrated*) **Bottle**. Blue/green glass. Shoulder fragment broken at tooled junction with cylindrical neck. Neck D: *c* 50 mm. EVE 0.14. Context 7347, SF1104, Phase 5.

64 (*not illustrated*) **Prismatic bottle**. Blue/green glass. Base fragment. Base design - at least two concentric circular mouldings. Dimensions: 17 x 17 mm. EVE 0.14. Context 675, SF122, Phase 6.

65 **Base fragment**. Blue/green glass. Base fragment; high pushed-in base ring, concave base. Base D: 70 mm, present Ht: 13 mm. Context 7255, SF1026, Phase 5.

66 (*not illustrated*) **Base fragment**. Blue/green glass; many bubbles. Two joining base fragments; wide lower body fragment broken at junction with side; solid, possibly trailed base ring, base missing. Base D: 40 mm, wall Th: 2 mm, present Ht: 11 mm. Context 7279, SF1096, Phase 5.

67 (*not illustrated*) **Base fragment**. Blue/green glass. Side sloping into concave base with pontil scar, edge of base heavily worn. Base D: *c* 80 mm, wall Th: 2.5 mm. Context 7562, SF1295, Phase 4.

68 (*not illustrated*) **Base fragment**. Colourless glass. Solid pushed-in base ring, part of base, side grazed. Base D: *c* 80 mm. Context 758, SF196, Phase 6.

69 (*not illustrated*) **Body fragment**. Yellow/green glass. Convex-curved with part of one rib. Dimensions: 25 x 15 mm, wall Th: 1 mm. Context 868, SF180, Phase 2-3.

70 (*not illustrated*) **Body fragment**. Light green glass. Convex-curved with optic blown rib. Dimensions: 15 x 12.5 mm, wall Th: 1.5 mm. Context 7813, SF1375, Phase 3.

71 (*not illustrated*) **Body fragment**. Blue/green glass. Convex-curved with vertical tooled ribs. Dimensions: 34 x 24 mm, wall Th: 2.5 mm. Context 868, SF179, Phase 2-3.

72 (*not illustrated*) **Body fragment**. Blue/green glass. Parts of two optic blown ribs. Dimensions: 27 x 23 mm, wall Th: 2 mm. Context 1272, SF202, Phase 3.

73 (*not illustrated*) **Body fragment**. Blue/green glass. Convex-curved, retaining parts of two vertical ribs. Dimensions: 21 x 16 mm, wall Th: 1.5 mm. Context 7514, SF1268, Phase 3.

74 (*not illustrated*) **Body fragment**. Blue/green glass. Convex-curved with parts of three vertical optic blown ribs. Dimensions: 29 x 16 mm. 7 Context 045, SF923, Phase 3-4.

Other items (Fig. 5.5: 75-78)

75 **Escutcheon**. Copper alloy. Triangular leaf-shaped plate with unfinished back; rectangular-sectioned loop at right angles to plate, tapering to rounded point. Dimensions of plate: 39 x 33 mm. Context 7004 (subsoil), SF1434, unphased.

76 **Vessel?** Copper alloy. Very heavily corroded with no original surface remaining. Flat plate with low angular projecting ring - possibly turned base ring. Dimensions: 25 x 12 mm, D: of ring *c* 35-40 mm. Context 172, SF17, Phase 2-3.

77 **Mount**. Copper alloy. Flat-bottomed oval casting with 'neck' at one end. Short-circular-sectioned shank centrally below with convex end. L: 16.5 mm, section: 10 x 6 mm. Context 7639, SF1274, unphased.

78 **Candlestick?** Lead alloy. Rectangular strip, one end cut across, other broken at point where it may have widened out, central row of pellets. L: 52 mm, section (excluding pellets): 8 x 3 mm. Context 707, SF161, Phase 6.

Recreation

79 (*not illustrated*) **Counter**. Fired clay, oxidised. Circular disc with concave faces. D: 27 mm, Th: 9 mm. Context 8915, SF1486, Phase 3.

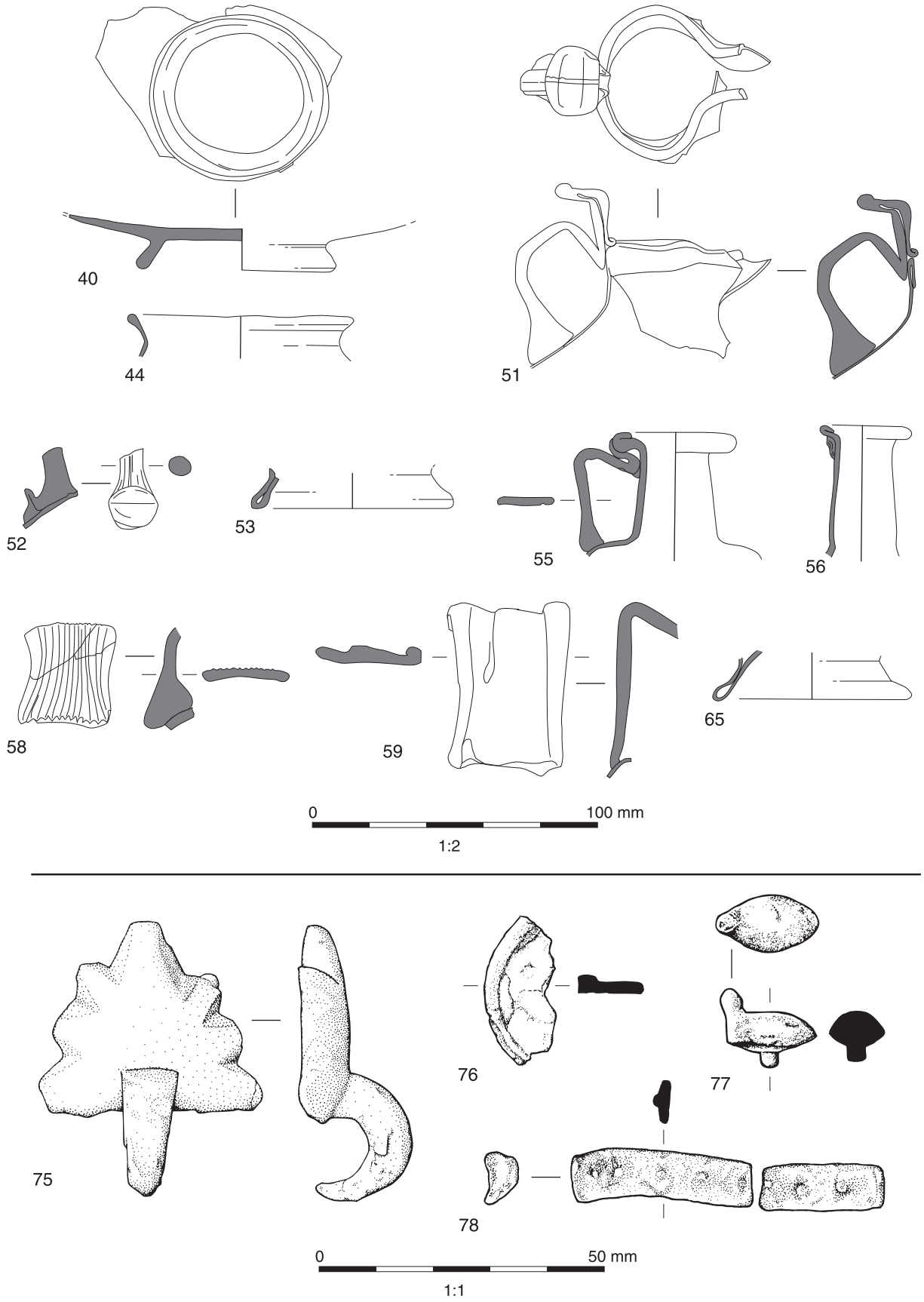

Figure 5.5 Glass objects (nos 40, 44, 51-53, 55-56, 58-59, 65); Copper alloy objects (nos 75-77); Lead alloy object (no. 78).

Weighing equipment *(Fig. 5.6: 80, 84, 86-88, 90)*

80 **Steelyard**. Copper alloy. Pointed oval-sectioned arm tapering to conical terminal, fulcrum end rectangular-sectioned with three suspension loops, one broken; small double pointed spur on edge close to end suspension loop. Corroded and original surface frequently missing on sides. Two scales marked by divisions along edges and numerals scratched on side. The corrosion means that in some cases numerals are represented by 'ghosts' below the missing surface. Scale corresponding to suspension from outer (broken) loop marked by groups of 11 dots on edge, generally with small gaps between them. The dots have been removed by corrosion between fulcrum and first division, are intermittently present between first and second division and are thereafter clearly marked. On side corresponding to gaps, I and II are represented by ghosts; III present, IIII represented by one stroke and 3 ghosts, upper ends of V present; VI represented by tip of one stroke; VII by upper ends of II, VIII by upper ends of III; and VIIII by III prior to deep corrosion. In the case of VI, VII, VIII and VIIII there are no ghosts or tips of strokes to suggest that the 'V's were ever present. The suggested sequence is therefore I, II, III, IIII, V, I, II, III, IIII with the 'V's being assumed in the latter case. Scale represented by suspension from inner loop marked by short grooves across edge with corrosion removing most of those between fulcrum and the 2nd division, thereafter most remain. First division marked by upper part of X, then V, XX, V, XXX, V, XXXX mark includes three ghosts, possible ghost of final V at end by terminal. There are 5 edge grooves between each numeral. Wire suspension loop probably for weight found with arm, now much corroded. Rectangular sectioned wire bent to form loop and free end wrapped around shank at least 5 times to secure it. Arm: L: 206 mm, section by fulcrum: 16 x 4 mm, suspension loop: 34 mm. Context 8796, SF1451 and SF1452, Phase 4-5.

81 **Steelyard weight**. Copper alloy. In shape of acorn, broken across base of loop terminal. Maximum D: 11.5 x 10 mm, L: 21 mm, Wt: 7 g. Context 7004 (subsoil), SF1132, unphased.

82 (*not illustrated*) **Steelyard weight**. Lead. Biconical with iron wire through centre, one end has stump of two wires from a loop, other has central stump of wire with a second wound around it. L: 49 mm, D: 37.5 x 36 mm, Wt: 183 g. Context 7412, SF1207, Phase 4-5.

83 (*not illustrated*) **Steelyard weight**. Lead. Biconical with iron corrosion at one end and possible trace of wire at end. L: 70 mm, D: 54 mm, weight 581 g. Context 7627, SF1321, unphased.

84 **Steelyard weight**. Lead. Biconical with stump of iron loop at one end and traces of iron wire at other. L: 39 mm, D: 30 mm, Wt: 105 g. Context 7004 (subsoil), SF1326, unphased.

85 (*not illustrated*) **Steelyard weight**. Lead. Biconical with stump of iron suspension loop at one end. L: 32 mm, D: 37.5 x 31 mm, Wt: 95 g. Context 7004 (subsoil), SF1115, unphased.

86 **Steelyard weight**. Lead. Assymetrical biconical, iron visible at either end. L: 21 mm, D: 23 x 21 mm, Wt: 32 g. Context 7077, SF930, unphased.

87 **Steelyard weight**. Lead. Biconical with traces of iron wire at either end. L: 27 mm, D: 20 mm, Wt: 30 g. Context 7004 (subsoil), SF1116, unphased.

88 **Steelyard weight**. Lead. Biconical with cylindrical central part. Traces of iron wire at apex. L: 39 mm, D: 39 mm, Wt: 260 g. Context 7238, SF1496, unphased.

89 (*not illustrated*) **Steelyard weight**. Lead. Rounded biconical with conical upper part and rounded lower part. Broken stump of iron loop in apex. Damaged on one side. L: 31mm, D: 25 mm, Wt: 69 g. Context 7004 (subsoil), SF1258, unphased.

90 **Weight**. Lead. Cylindrical disc, damaged on one edge and much of original surface missing. D: 18 mm, Th: 5.5 mm, Wt: 12 g. Context 7426, SF1209, unphased.

91 (*not illustrated*) **Weight?** Lead. Disc with damaged edges. D: 27 mm, Th: 6.5 mm, Wt: 23 g. Context 7004 (subsoil), SF1122, unphased.

Structural finds

92 *(not illustrated)* **Window**. Blue/green glass. Cast, matt/glossy. Area 31 cm^2. Context 922, SF188, Phase 4.

93 (*not illustrated*) **Window**. Blue/green glass. Cast matt/glossy. Area 1 cm^2. Context 7240, SF959, Phase 5.

Fasteners and fittings *(Fig. 5.6: 95-96; Fig. 5.7: 97-100)*

94 (*not illustrated*) **Bell-shaped stud**. Copper alloy. Moulding around outer edge of base of central cone; circular-sectioned broken shank. D: 23 mm, extant L: 21 mm. Context 7237, SF1023, Phase 5.

95 **Bell-shaped stud**. Copper alloy. Upper margin chipped but retains internal groove; circular rib around central cone; broken circular-sectioned shank. D: 20 mm, extant L: 19 mm. Context 7004 (subsoil), SF1206, unphased.

96 **Bell-shaped stud**. Copper alloy. Circular head chipped on one side; turning grooves internally and forming effect of rib around base of conical centre; rectangular-sectioned integral shank, broken at end. Head D: 36 mm, shank section: 10 x 7 mm, extant L: 39 mm. Context 7004 (subsoil), SF1139, unphased.

97 **Lock casing?** Copper alloy. Rectangular sheet retaining one rounded corner and parts of two parallel edges, other edges broken. Second sheet, rivetted to back, bent to form a square casing, parts of four round-headed rivets remaining. Much corroded remains of ?mechanism internally, possibly of iron as corrosion products are blue suggesting vivianite. W: 40 mm, extant L: 48 mm. Context 7279, SF1063, Phase 5.

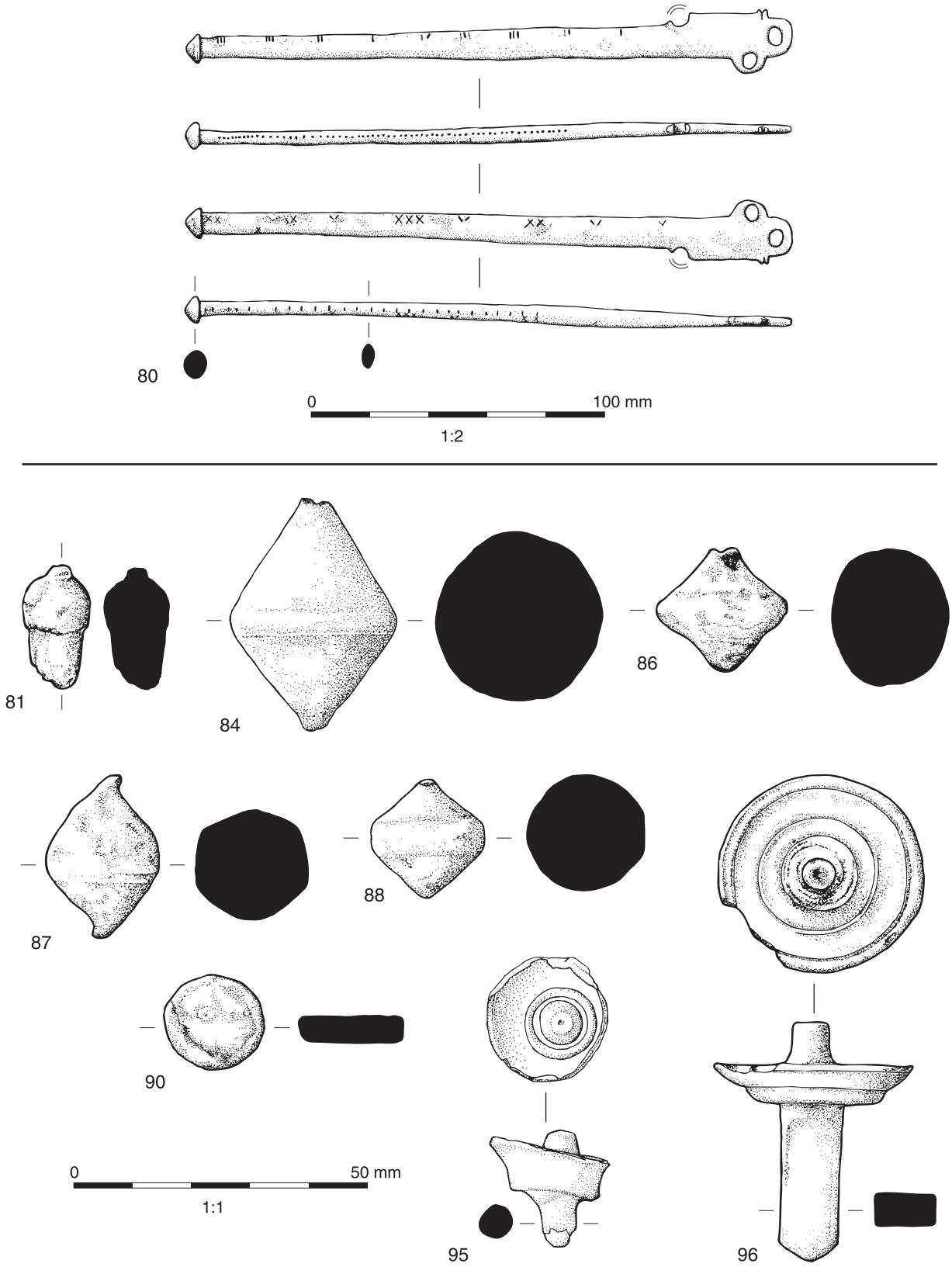

Figure 5.6 Copper alloy objects (nos 80-81, 95-96); Lead objects (nos 84, 86-88, 90).

98 **Fitting**. Copper alloy. Cast horse head with elongated muzzle and prominent ears, traces of eyes, mouth and nostrils; broken shank. section: 8 x 6 mm, extant L: 19 mm. Context 7628, SF1322, unphased.

99 **Fitting**. Copper alloy. Discoid with large central perforation now filled with iron corrosion products. L: 9 mm, D: 16mm, perforation D: 7 mm. Context 7088, SF939, unphased.

100 **Nail**. Possibly leaded copper alloy. Spherical knob terminal with broken circular-sectioned shank. D: 13.5 mm. Context 806, SF158, Phase 4.

101 (*not illustrated*) **Rivet and washer**. Copper alloy. Oval slightly domed head with chipped edges; circular shank; flat integral washer with chipped edges. L: 7.5 mm, head D: 11 x 9 mm. Context 10293, SF1541, Phase 4.

102 (*not illustrated*) **Dolphin mount**. Copper alloy. Hollow-backed, curved, one end broken across perforation within forked tail, centrally on upper edge the remains of the fins; head divided from attachment area by vertical rib, small iron rivet beyond rib and edge beyond broken. All of the original surface lost. Extant L: 42 mm. Context 7536, SF1300, Phase 2.

Religious items

103 (*not illustrated*) **Venus figurine**. Pipe clay. Back of head and neck, fragment has divided from front of head at mould seam. Hair including bun at base of neck clearly moulded with ringlet on each shoulder and tip of right hand touching one ringlet. W of head: 26 mm, extant L: 35 mm. Context 7573, SF1303, Phase 4.

Craft and industry

104 (*not illustrated*) **Offcut**. Copper alloy. Narrow twisted strip with many fragmented crumbs. L: 39 mm. Context 61, SF7, Phase 2-3.

105 (*not illustrated*) **Casting waste**. Copper alloy. Fragment. Context 7004 (subsoil), SF1393, unphased.

106 (*not illustrated*) **Fragment**. Melted opaque dark blue glass, vesicular. D: *c* 5.5 mm, Th: 3.5 mm. Context 1529, SF279, Phase 5.

107 (*not illustrated*) **Scraper**, Blue/green glass. Flat prismatic bottle body fragment showing flaking and deliberate retouch along one side. Dimensions: 46 x 31 mm, wall Th: 7 mm. Context 7258, SF976, Phase 4.

Miscellaneous (Fig. 5.7: 108-112, 126)

108 **Bell**. Copper alloy. Upper part of conical body with complete but much corroded upper suspension loop and internal rectangular-sectioned suspension loop for missing clapper. Body of bell has external white metal coating, possibly a high tin bronze with surface enhancement. Present Ht: *c* 47 mm. Context 7638, SF1273, unphased.

109 **Whorl**. Lead. Tall plano-convex. L: 16 mm, D: 20 x 17.5mm, perforation D: 10 mm, weight 31 g. Context 7004 (subsoil), SF1415, unphased.

110 **Whorl**. Lead. Plano-convex. L: 9 mm, D: 23 mm, perforation D: 8 mm, weight 29 g. Context 7003 (ploughsoil), SF1215, unphased.

111 **Whorl**. Lead. Plano-convex. L: 7 mm, D: 18 mm, perforation D: 9 mm, weight 10 g. Context 7004 (subsoil), SF1416, unphased.

112 **Whorl**. Lead. Cylindrical. L: 15.5 mm, D: 23 mm, perforation D: 10 mm, weight 38 g. Context 7003 (ploughsoil), SF1120, unphased.

113 (*not illustrated*) **Weight**. Lead. Lentoid-sectioned slightly bent disc, with oval perforation. D: 23 x 21 mm, Th: 4 mm, perforation D: 8 x 5.5 mm, weight 9 g. Context 7579, SF1309, Phase 6.

114 (*not illustrated*) **Strap fitting?** Copper alloy. End of rectangular folded sheet with possible traces of minerally preserved organic material internally. Dimensions: 14 x 10 mm, Th: 0.5 mm. Context 8239, SF1428, Phase 2-3.

115 (*not illustrated*) **Ring?** Copper alloy. Approximately circular-sectioned slightly curved rod, possibly from a large ring; both ends broken; much corroded. Section: 4 mm, L: *c* 35 mm. Context 7666, SF1333, Phase 4.

116 (*not illustrated*) **Rod**. Copper alloy. Circular-sectioned, tapering; both ends broken. Section (maximum): 3 mm, extant L: 34 mm. Context 9481, SF1519, Phase 4.

117 (*not illustrated*) **Rod**, Copper alloy. Circular-sectioned, both ends broken. White metal coating on surface. D: 2.5 mm, extant L: 41 mm. Context 7529, SF1284, Phase 4.

118 (*not illustrated*) **Rod**. Copper alloy. Tapering circular-sectioned rod; both ends broken. L: 59 mm, section: 2.5 mm. Context 686, SF130, Phase 4.

119 (*not illustrated*) **Shank?** Copper alloy. Circular-sectioned rod tapering to point, other end broken. Section: 3 mm, extant L: 75 mm. Context 9031, SF1490, Phase 4.

120 (*not illustrated*) **Sheet**. Copper alloy. Sheet folded into bar. Dimensions: 59 x 14 x 10 mm. Context 8855, SF1469, Phase 5.

121 (*not illustrated*) **Terminal**. Copper alloy. Hemispherical rounded terminal at end of angular plate. Plate now fragmented. D of knob: 6 mm, Th of plate: 2 mm. Context 8475, SF1433, Phase 3.

122 (*not illustrated*) **Wire**. Copper alloy. Both ends broken. L: 5 mm. Context 8425, SF1432, Phase 2-3.

123 (*not illustrated*) **Wire**. Copper alloy. Both ends broken; no original surfaces now extant. L: 70 mm. Context 7024, SF907, Phase 4.

124 (*not illustrated*) **Fragment**. Copper alloy. Approximately D-sectioned cast. Section: 11 x 8 mm, extant L: 17 mm. Context 7395, SF1219, Phase 3.

125 (*not illustrated*) **Fragment**. Copper alloy. Cast fragment, all edges broken. Dimensions: 13 x 13 x 4 mm. Context 1258, SF214, Phase 5.

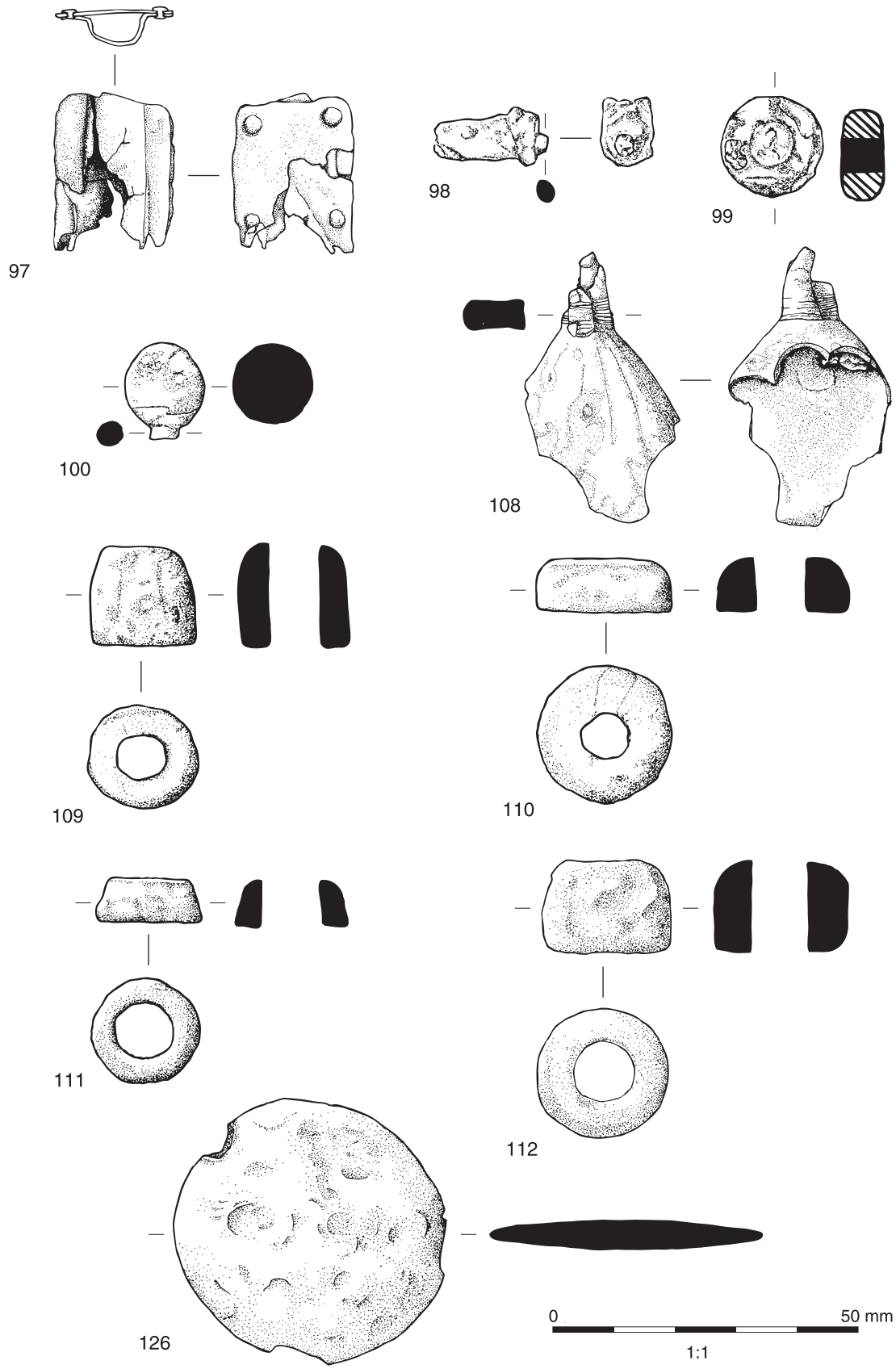

Figure 5.7 Copper alloy objects (nos 97-98, 100, 108); Copper alloy and iron object (no. 99); Lead objects (nos 109-112, 126).

126 **Disc**. Lead. D: 46 mm, Th: 5 mm, weight 44 g. Context 7127, SF981, Phase 4.
127 (*not illustrated*) **Sheet**. Lead. Fragmented strip retaining parts of two perforations. W: 29 mm, Wt: 15 g. Context 7244, SF998, Phase 5.
128 (*not illustrated*) **Strip**, Lead. Bent. L: 31 mm, W: 5 mm, Wt: 2 g. Context 1081, SF192, Phase 4.
129 (*not illustrated*) **Fragment**, Lead. Wt: 7 g. Context 8218, SF1420, Phase 4.
130 (*not illustrated*) **Run-off**. Lead. Wt: 7 g. Context 7237, SF1019, Phase 5.
131 (*not illustrated*) **Run-off**. Lead. Wt: 2 g. Context 720, SF172, Phase 6.
132 (*not illustrated*) **Run-off**. Lead. Wt: 18 g. Context 7237, SF1016, Phase 5.
133 (*not illustrated*) **Run-off**. Lead. Wt: 16 g. Context 723, SF270, Phase 6.

JET AND LIGNITE OBJECTS FROM GRAVE 5090

by Lindsay Allason-Jones

Catalogue *(Figs 5.8-5.9, 8.5)*

1 **Cylinder necklace beads**, jet. There are 183 examples. Two beads were long and decorated with panels of grooves (Fig. 5.8: 1-2). The majority of the cylinder beads (Fig. 5.8: 3-5) were short but made from long tubes with scored encircling line decoration. Each bead has been snapped off at a scored line usually leaving one line as a central decoration on each individual bead; eight beads are decorated with two lines and one bead has three, suggesting that the bead-maker was not always careful to make the beads a uniform length. Occasionally a rough spelk of jet has been left as a result of the initial snapping; the fact that these are still visible and sharp suggests that the necklace had not been worn extensively by its owner before deposition. Long cylinder beads: L: 28 mm, D: 4 mm - 5 mm; short cylinder beads: L: 2.5 mm – 7 mm, D: 4 mm. Context 5025, SF504, SF512-19, SF521-39, SF541-49, SF586, SF589-610, SF643-53, SF659-738

The short cylinder bead is the commonest form of jet bead found in Roman Britain and Germany: see Allason-Jones 1996. The type seems first appear in the late 2nd century AD and continues in use into the 4th century.

2 **Armlet**. Made from three large, **oval, ridge-backed beads** (Fig. 5.8: 6-8), on which traces of gold leaf were found, and 25 **flat elliptical beads** (Fig. 5.8: 9-31) with one edge more markedly curved than the other and decorated with a deeply cut motif. Twenty-two of the latter divide into the main two types of armlet beads to be found in Britain: Fifteen examples have a central Z-motif flanked by ovals, while seven simply have ovals. Of the remaining two, one has a central, waisted oval motif flanked by zigzags while the other is notched along one edge. Both the ridge-backed beads and the elliptical beads are pierced laterally by two circular holes. Ridge-backed beads: 36 x 27 mm, 22 x 28 mm, 22 x 24 mm; elliptical beads: 16 x 9 mm – 29 x 13 mm. Context 5025, elliptical beads: SF511, SF520, SF565-575, SF577-584, SF654, SF656-658; ridge-backed beads: SF564, SF576, SF655.

Parallels to the oval-decorated elliptical beads can be found at York (Allason-Jones 1996, no. 28) and Colchester (Crummy 1983, fig. 37, no. 1498), as well as in the Rhineland (Hagen 1937, Taf. 25, Abb. 2, C38). The type with a central Z-motif flanked by ovals is more common in Britain (Allason-Jones and Miket 1984, no. 7.28) although it does occur occasionally in France (Deyber 1989) and at Aquincum in Hungary where examples are also known in lignite (Aquincum Museum unpubl.). The larger ridge-backed beads, however, are almost exclusively confined to the Rhineland being particularly prominent in the cemeteries of Cologne (Hagen 1937, Taf. 25, Abb. 2, C45; Taf. 27, Abb. 1, C27), although a few examples are known from British contexts, for example Silchester (Lawson 1975, fig. 1.4) and London (unpublished, MSL87.1914.SF642-7).

The beads when found still had fragments of copper alloy wire *in situ* making it clear that a complete, strung armlet was deposited as part of the funerary rite, rather than a handful of loose beads (see Fig. 5.8: 25). However, both the mixture of bead types and the arrangement of the beads makes it equally clear that the armlet had been made from beads recycled from at least five other armlets. Armlet beads were designed to be graded in size with the largest in the centre, tapering to the smallest at each terminal; this made the armlet more comfortable for the wearer and made it fit the wrist more snugly. The decorative motifs on the curved outer faces of each bead were also carefully carved so that when the beads were in the right order the design flowed. On this armlet one of the ridge-backed beads was set at each terminal with the third dividing the elliptical beads into two sets. Only the most cursory attempt has been made to grade the beads so that the largest are in the middle of each set and the two main types of decorative motifs have been mixed.

Analysis

Analysis of ten samples taken from the beads (see Table 5.16) was carried out by Dr J M Jones, Fossil Fuels and Environmental Geochemistry (Postgraduate) Institute, University of Newcastle-upon-Tyne, using reflected light microscopy (Allason-Jones and Jones 2001). This revealed that the necklace beads were all likely to be of jet while the armlet beads were a mixture of lignite and jet beads.

The jet fits in well with that found from Yorkshire, although it should not be presumed that it could only have been found in Yorkshire. Pirite specks present in the sample from ridged bead 655 may suggest a Rhineland source. The lignite, on the other hand, appears

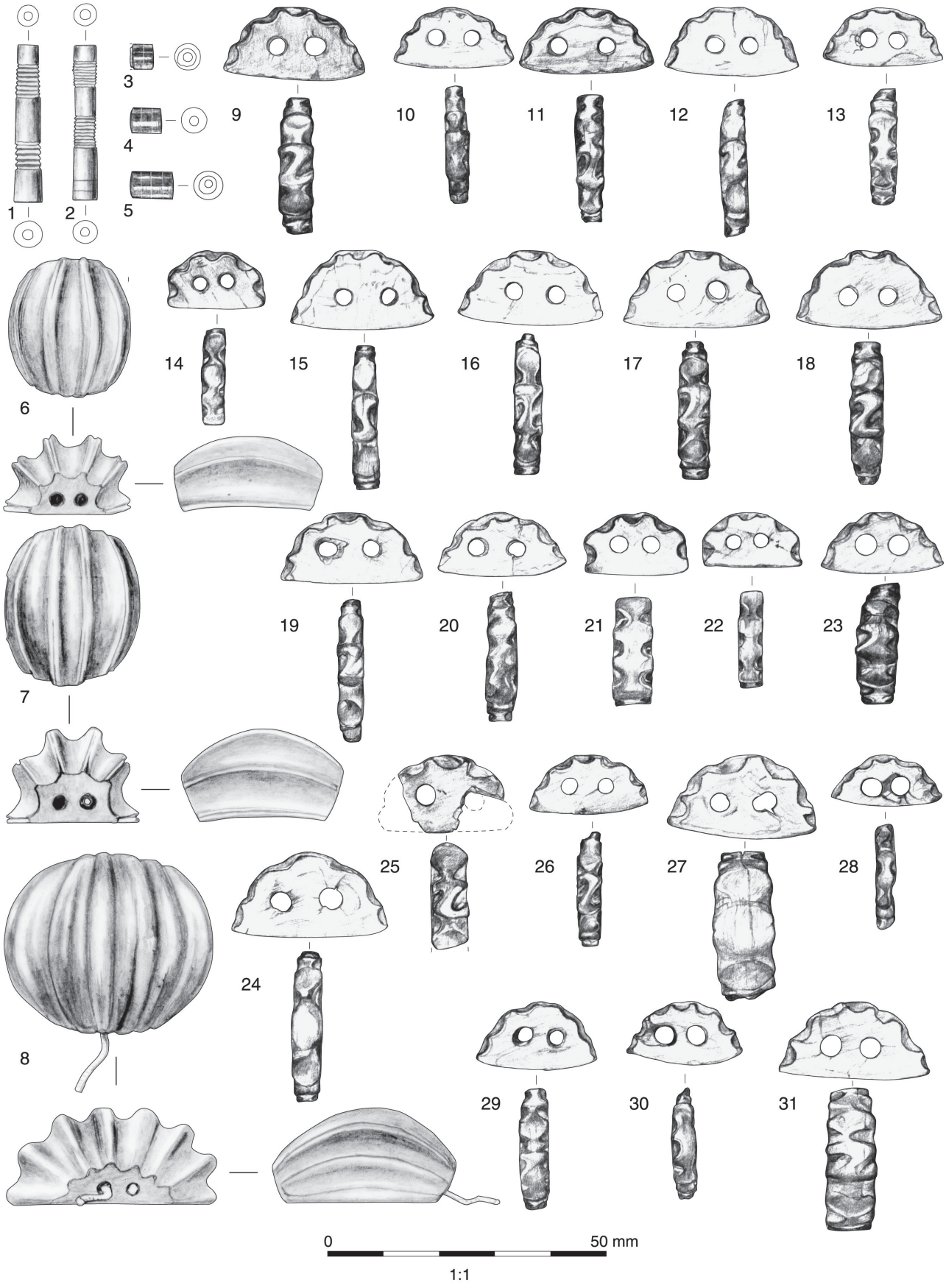

Figure 5.8 Jet cylinder beads (nos 1-5); Jet and lignite ridged-back beads (nos 6-8) and flat elliptical beads for an armlet (9-31) from Burial 5090.

Figure 5.9 Reconstruction of jet and lignite armlet from burial 5090.

to have come from a local source. Local sources of lignite with their reflectance measurements is summarised in Table 5.17.

It is unlikely that the lignite source could be pinned down to one particular bed in a foolproof way but it seems likely that whoever carved this group of beads had not travelled far for the raw material. This is the first time that lignite has been found worked as jewellery in a Romano-British context. Because the armlet appears to have been made from beads recycled from five armlets it is not possible to suggest that all the beads are of British manufacture; the use of the ridge-backed beads, indeed, may suggest some influence from the Rhineland.

The fact that traces of gold were found on one of the ridge-backed beads is of great importance as this is the first time gold has been found on a piece of Romano-British black jewellery (Allason-Jones 1999). Gold has been found on jewellery from Roman Germany as wire, twisted around cable armlets (eg Cologne - la Baume 1971), and applied in the form of gold leaf on octagonal armlets (Allason-Jones 1996, fig. 12), but not previously on armlet beads. Because only minute traces of gold were found it is not clear if the beads were completely gilded or if the gilding was confined to the valleys of the decoration or applied as spots.

Although the wearing of jet and jet-like jewellery started in the late 2nd century in Britain it became particularly fashionable in the late 3rd to 4th centuries. Each of the Ashford objects could have derived from almost any period within the late 2nd to 4th century timescale but, as an assemblage, is more likely to be early 4th century in date.

Table 5.16 Jet and lignite from Grave 5090: Summary of results of reflected light microscopy analysis of samples from beads. (10 samples selected).

SF number	Type	Reflectance	Material
582A	Elliptical bead	0.27% R.O	Lignite
570	Elliptical bead	0.34% R.O	Lignite
654	Elliptical bead	0.3% R.O	Lignite
581	Elliptical bead	0.28% R.O	Lignite
582B	Bead frags.	0.27% R.O	Lignite
569	Elliptical bead	0.26% R.O	Lignite
576	Ridged bead	0.18% R.O	Jet
655	Ridged bead	0.19% R.O	Jet
641	Cylinder bead	0.18% R.O	Jet
642	Cylinder bead	0.18% R.O	Jet

Table 5.17 Jet and lignite from Grave 5090: Comparison of reflectance measurements for local sources of lignite.

Source	Reflectance
Lignite Wealden	0.25% R.O
Lignite Weald Clay	0.32% R.O
Lignite Lulworth	0.34% R.O
Shale Ashdown beds	0.37% R.O
Lignite Hastings	0.38% R.O
Shale Hastings beds	0.4% R.O

IRONWORK

by Ian Scott

Introduction

Composition of the assemblage

The ironwork assemblage comprises 676 fragments. The range of material represented is limited (Tables 5.18 and 5.19). Only 31 pieces (4.6% of the total assemblage by count) are identifiable objects (see Table 5.20). The largest categories of object are nails, which comprise 49.9% of the assemblage by number (337 nails or nail fragments, see Table 5.21) and hobnails, which form 24.1% of the assemblage (163 hobnails or hobnail strips, see Table 5.22). The remainder of the assemblage comprises 83 miscellaneous pieces of strip, rod, sheet, etc (see Table 5.23) and 30 pieces of uncertain identification (see Table 5.24), which together form 16.7% of the assemblage. The latter comprise fragments of objects that cannot be identified to a specific object or function. Finally there are 32 small unidentifiable scraps (see Table 5.25). A number of pieces of slag (40 pieces) and cinder and possible hammerscale (115 pieces), which were bagged with the artefacts, have been omitted from consideration in this report.

The material was largely recovered by hand, although some finds, mainly hobnails and small fragments, were recovered from sieving. The assemblage is comparatively small when its composition and the extent of the excavations are taken into account. In particular the number of identifiable objects, excluding nails and hobnails, is very small.

Methodology

Because of the limited number of objects which can be identified to function, the emphasis in this report is on the assemblage as a whole rather than on individual objects. The ironwork from the site was classified to function in broad terms during the recording process. The system employed is based on the Colchester system (Crummy 1983, 4-6), but with the addition of classifications for material which cannot be identified as specific objects, or identified to a particular function or process. Fragments of strip, sheet, rod and wire are classed as 'miscellaneous'; other fragments which may have formed parts of larger objects, but which now cannot be identified, are classed as being of 'uncertain identification'. The material which could not be classified to function, mainly small fragments, is classed as 'unidentifiable'. These classifications are used in this report and in the archive database.

Report structure

The ironwork assemblage is considered from two points of view: the assemblage as a whole and the individual phase assemblages. The comparison of different types of material across the phases is briefly considered, but given the small size of the assemblage,

Table 5.18 Ironwork: Summary quantification (fragment count) by functional category and Phase, showing percentage of each functional category in each Phase.

Phase	Objects (excl hobnails)		Hobnails and hobnail strips		Nails		Misc		Uncertain ID		Unidentifiable		All classes	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
2	-	-	-	-	6	1.8%	1	1.2%	-	-	11	34.4%	18	2.7%
3	5	16.1%	45	27.6%	40	11.9%	10	12%	4	13.3%	-	-	104	15.4%
4	5	16.1%	32	19.6%	92	27.3%	29	34.9%	10	33.3%	10	31.3%	178	26.3%
5	5	16.1%	80	49.1%	112	33.2%	24	28.9%	7	23.3%	9	28.1%	237	35.1%
6	3	9.7%	6	3.6%	26	7.7%	2	2.4%	1	3.3%	-	-	38	5.6%
Uncertain	3 }	41.9%	-	-	28 }	18.1%	10 }	20.5%	5 }	26.7%	2 }	6.3%	48 }	14.9%
Unphased	10 }		-		33 }		7 }		3 }		0 }		53 }	
Total	31	99.9%	163	99.9%	337	100%	83	99.9%	30	99.9%	32	100.1%	676	100%

Table 5.19 Ironwork: Summary quantification (fragment count) by functional category and Phase, showing each functional category as a percentage of each per Phase assemblage.

Phase	Objects No /% age	Hobnails No / % age	Nails No / % age	Miscellaneous No / % age	Uncertain ID No / % age	Unidentifiable No / % age	All classes No
2	-	-	6	1	-	11	18
	-	-	33.3%	5.6%	-	61.1%	= 100%
3	5	45	40	10	4	-	104
	4.8%	43.3%	38.5%	9.6%	3.8%	-	= 100 %
4	5	32	92	29	10	10	178
	2.8%	18%	51.7%	16.3%	5.6%)	5.6%	= 100%
5	5	80	112	24	7	9	237
	2.1%	33.8%	47.3%	10.1%	3%	3.8%	= 100.1%
6	3	6	26	2	1	-	38
	7.9%	15.8%	68.4%	5.3%	2.6%	-	= 100%
Uncertain	3	-	28	10	5	2	48
Unphased	10	-	33	7	3	-	53
Total	31	163	337	83	30	32	676
	4.6%	24.1%	49.9%	12.3%	4.4%	4.7%	= 100%

this has not proved to give any interesting information. The contents of the assemblage are summarised in the tables and only the identifiable objects are catalogued in detail. Most of the latter are also illustrated (Figs 5.10-5.12). Although percentages are given in the various summary tables, these are provided only to give an indication of the composition of the phase assemblages and of the various categories of finds. The assemblage is small and on this account any statistics are unreliable except in the broadest terms.

Assemblage as a whole

Range of finds present

The range of identified objects is typical of any Roman site; structural pieces, some horse/cart gear, a few personal items, etc. are largely unphased (Table 5.20). What is atypical is the small proportion of the assemblage that can be identified to function. The paucity of finds perhaps reflects the comparatively early abandonment of the site. It is only an impression based on observation of a number of finds assemblages as yet without statistical evidence to support it, but it does seem that the metal finds from earlier phases of Roman sites tend to be less prolific than those from later phases. Where a site has a long occupation history this can be attributed to the gathering up and recycling of earlier material by later occupants. However, the Westhawk Farm site was not occupied throughout the Roman period – as witnessed by the coin list – and it is arguable that the absence of substantial numbers of metal objects reflects a genuine absence and careful husbanding of valuable re-usable resources. The impact of any post-depositional erosion of deposits needs to be considered as well. It is worth noting that it is not simply the ironwork assemblage which is limited. Other metal finds assemblages are also limited.

Amongst the identifiable objects, there is little that would be out of place on any Romano-British site, civil or military. Only the iron billet (catalogue no. 2), smith's wedge (no. 1) and possibly the small dense iron block (no. 3) can be directly connected with one of the main economic functions of the site. What is generally recovered from archaeological contexts on Romano-British sites comprises small broken fragments, which have been lost, and more rarely structural fragments *in situ* and deliberate deposits of material such as grave furniture. Substantial objects and largely complete pieces are generally only found in demolition, rubbish, or ritual deposits, where they

Table 5.20 Ironwork: Summary of identified objects by Phase, Structure, and group/feature.

Phase	Structure	Group	Context	SF No	No	L (mm)	Cat No	Description and Comments
3	Structure I	1790	542	104	1	85	24	Split spike loop.
	Structure Q	80	417	88	1	101	13	Possible hinge strap
	Waterhole	7239	9155	1508	1	115	11	L-shaped lift, or slide, key.
	Waterhole	7239	9155	1507	1	42	26	?L-shaped staple fragment
	-	8530	7950	1397	1	c 93	21	looped pin or spike
3			**Sub-total**		**5**			
4	Waterhole	796	1547	248	1	217;124	15	Bucket handle
	Waterhole	796	1547	253	1	93	16	bucket handle mount
		1260	510	92	1	124	7	Chisel-, or paddle-, shaped object
	-	8160	8189	1447	1	62	5	possible awl,
	-	9210	8857	1461	1	52	22	loop headed spike fragment
4			**Sub-total**		**5**			
5	Waterhole	796	367	73	1	205	19	Large collar of thin rectangular section.
	Waterhole	796	1359	259	1	103	25	T-shaped staple, incomplete.
	-	-	7235	1018	1	150	8	linch pin, with spatulate head
	-	-	7237	1504	1	44	4	carpenter's ?chisel, blade fragment. Firmer chisel
	-	-	8855	1467	1	50	18	chain links or looped junction
5			**Sub-total**		**5**			
6	Waterhole	796	255	28	1	81	20	Hook formed from rectangular strip
	Waterhole	796	723	147	1	60	9	Bell fragment
	Waterhole	796	739	263	1	57	23	L-shaped binding with tear-shaped plate.
6			**Sub-total**		**3**			
8?		8600	7054	925	1	93	17	knife fragment, uncertain form
	-	9000	7082	933	1	142	6	spade shoe, fragment
	-	-	9989	1534	1	135	-	handle with rolled over loop at one end
8?			**Sub-total**		**3**			
Unphased	-	-	7000	1123	1	43	-	rectangular buckle frame, almost complete, with probable sheet metal roller.
	-	-	7003	1126	1	88	-	scissors handle.
	-	-	7003	1124	1	44	-	rectangular buckle frame, almost complete. Probably had a sheet metal roller.
	-	-	7004	1090	1	110	-	horseshoe, complete.
	-	-	7004	1256	1	77	1	smith's wedge.
	-	-	7009	905	1	320	2	Large pointed billet
	-	-	7083	934	1	65	10	L-shaped slide key, small.
	-	-	7626	1320	1	66	14	L-shaped ?hinge staple
	-	-	8014	1403	1	70	3	block of iron
	-	-	8015	1446	1	100	12	Possible hinge strap
Unphased			**Sub-total**		**10**			
			Total		31			

have been placed deliberately. Examples of such deposits are well known: the pit deposits from the Flavian fort at Newstead (Curle 1911), the 3rd century abandonment deposits from Künzing on the Danube (Hermann 1969), deliberate deposition in wells at Baldock, Herts (Stead and Rigby 1986, 147-9) and at Dalton Parlours, North Yorks (Wrathmell and Nicholson 1990, 195-272). Perhaps most famous is the deposit of almost 10 tons of both used and unused nails found together with nine wheel-tyres in a single pit in the *fabrica* at Inchtuthil (Angus *et al.* 1962; Pitts and St Joseph 1985, 109-13, 289 and plates xix and xx).

It can be argued that all these deposits are more than purely demolition deposits. Hingley has recently argued that such deposits were made for ritual as well as practical reasons (Hingley 2006 *passim*). Of course ritual activities and practical or pragmatic behaviour are not mutually exclusive. Indeed it can be argued that Roman religion was supremely pragmatic, and that much of the associated ritual behaviour was intended to ensure the success of both public and personal endeavours through the performance of sacrifices or the making of vows. Everything from success in warfare and diplomacy, to more personal concerns - safe return from voyages, success in business ventures and fertility of crops - were all perceived as being subject to the whim of the gods.

The number of nails recovered from the Westhawk Farm site (Table 5.21), is too small to be significant in terms of distribution or site use, with the possible exception of a few cases which are considered in discussion of the phase assemblages below. Again, consideration should also be given to the possibility that the deposition of such seemingly humble objects as nails might have had ritual significance (see for example the discussion by Dungworth 1998). There are no substantial deposits of nails indicative of demolition deposits, or caches of stored nails. The quantities of nails required for structural work would have been enormous, and more readily quantifiable by

Table 5.21 Ironwork: Quantification (fragment count) of nails and nail fragments by Phase, Structure and group/context comparing finds from Structures and stratigraphic groups or features to finds from contexts not assigned to a stratigraphic group or feature.

Phase	Structure	Group/Feature		No.	
2	-	8620		6	= 6
	-	No group		0	= 0
2		**Sub-total**			**= 6**
2 to 3		40		1	
		8730		1	= 2
2 to 3		No group		0	= 0
2 to 3		**Sub-total**			**= 2**
2 to 4		Groups		0	= 0
		No group		2	= 2
2 to 4		**Sub-total**			**= 2**
2 to 5		5120		1	= 1
		No group		0	= 0
2 to 5		**Sub-total**			**= 1**
3	Structure Q	80		16	
	Structure I	200		1	
	-	5220		8	
	-	8520		1	
	-	8790		1	
	-	9990		1	= 28
	-	No group		12	= 12
3		**Sub-total**			**= 40**
3 to 4	Structure R	1698		1	= 1
		No group		4	= 4
3 to 4		**Sub-total**			**= 5**
3 to 5	Waterhole	7239		1	= 1
		No group		0	= 0
3 to 5		**Sub-total**			**= 1**
3 to 6	Waterhole	796		1	= 1
		No group		0	= 0
3 to 6		**Sub-total**			**= 1**
4	Structure Q	970		1	
	Structure I	7269		4	
	Structure I	7306		1	
	Structure R	1698		1	
	Waterhole	7023		10	
	-	20		1	
	-	30		3	
	-	430		1	
	-	1260		3	
	-	1680		1	
	-	1690		2	
	-	1700		1	
	-	1740		4	
	-	1755		1	
	-	7670		2	
	-	7860		4	
	-	8160		2	
	-	8270		1	
	-	8500		1	
	-	9210		1	
	-	9370		1	
	-	9390		1	
	-	9450		3	
	-	9520		1	
	-	9570		1	
	-	9580		1	
	-	10420		1	= 54
	-	No group		38	
		(Includes	ctx 7127	20)	= 38
4		**Sub-total**			**= 92**
4 to 5	Structure I	7269		2	
	Structure I	7306		2	
	Structure R	1760		1	
		8510		2	
		10170		1	
		10190		2	
		10250		2	= 12
		No group		4	= 4
4 to 5		**Sub-total**			**= 16**
5	Structure R	1200		14	
	Structure R	1220		2	
	Structure R	1230		1	
	Structure R	1233		2	
	Structure R	1437		1	
	waterhole	796		14	
		220		10	
		820		2	
		1675		1	
		5173		1	
		7239		1	
		7500		5	
		8500		1	
		8770		2	
		10415		4	
		10440		1	= 62
		No group		50	
		(Includes	ctx 7279	40)	= 50
5		**Sub-total**			**= 112**
6	waterhole	796		18	
		5090		8	= 26
		No group		0	= 0
6		**Sub-total**			**= 26**
Ph ?		7		5	
		526		4	
		8850		1	
		9360		1	
		10260		1	= 12
		No group		21	= 21
Ph ?		**Sub-total**			**= 33**
		Total			= 337

weight than number, as witnessed by the Inchtuthil deposit, which probably contained as many as a million nails.

The recovery of hobnails is very much related to identified cremation graves (Table 5.22). A few stray hobnails were recovered from ditch and pit fills and a small number were found in the waterhole 796 (Phase 6), but the majority are from burials (Phase 3, groups 5220 and 9860; Phase 4, group 210; Phase 5, group 220).

The miscellaneous pieces (Table 5.23) and fragments of uncertain identification (Table 5.24) are quite few in number. The unidentified fragments are also tabulated for the sake of completeness (Table 5.25). The distributions of these small groups of material reveal no significant patterns.

Overall spatial distribution

The ironwork assemblage as a whole does show some spatial patterning. If we set aside the identified objects, many of which are from unphased contexts,

Table 5.22 Ironwork: Summary and quantification (fragment count) of hobnails by Phase, Structure and group/context.

Phase	Structure	Group	Context	Sf no	No.	Length	Description
3	-	5220	5133	554	19		hobnails, 19 complete and 3 small pieces
3	-	5220	5133	558	2	21	hobnails, two fused together
3	-	5220	5133	559	3	13	hobnails, complete
3	-	5220	5220		1	12	hobnail, complete
3	-	9860	9843		20		hobnails, mainly heads. From Sample 742
3					45		
4	Structure Q	970	1027		1	18	hobnail complete. From Sample 52
4	-	210	233		27		hobnails including 2 strips of 2, and stem fragments. From Sample 6.
4	-	1740	686		1	16	hobnail. From Sample 41
4	-	1740	686	0	1	22	hobnails, strip of 3, 2 complete. From Sample 41
4	-	9210	8857	1459	1	15	hobnail, or furniture tack, complete
4	-	-	1460		1	19	hobnail, complete. From Sample 97
4					32		
5	Waterhole	796	1359	0	1	22	possible hobnail, complete. From sample 172
5	-	220	231	0	55		hobnails, fused into strips and blocks. Found with c. 7 nail fragments. From Sample 7
5	-	220	231	34	19		Strips of hobnails, heavily mineralised. From cremation group 220.
5	-	10415	8191	1419	1	15	hobnail
5	-	-	1232	0	4		hobnails, include 2 fused together and 1 complete. From Sample 67
5					80		
6	Waterhole	796	379	0	4		hobnails, 3 complete, 1 head, 1 stem and tiny fragment. From Sample 16
6	Waterhole	796	379	0	2		hobnails, 2. From Sample 16
6					6		
All			**Total**		**163**		

the distribution of the ironwork concentrates in four main areas. First, to the north-west of the main road and particularly around structure I and to its immediate south-west; secondly, at the north-east edge of the excavation around and to the north-west of structure R; thirdly in and around the shrine enclosure (structure Q); and finally a small scatter within the enclosures to the south-west of the shrine and its adjacent open space. There are also two dump deposits – contexts 7127 and 7279 – which produced a number of iron fragments. Context 7127 produced 20 nails and three miscellaneous pieces, while context 7279 produced 40 nails, 13 miscellaneous and 1 uncertain piece, a total of 54 fragments. There are no dense concentrations.

The identified objects on the other hand display a much less patterned distribution. They are generally from the south-west part of the site, away from the concentrations of other iron finds and away from settlement features such as buildings and ditches. This probably reflects the fact that the ten unphased objects (Table 5.20) were found in topsoil (contexts 7000 and 7003) or subsoil (context 7004), or outside cut features (finds references 7009, 7083, 8014-15) and probably demonstrates that there has been some post-depositional movement of finds presumably through ploughing.

Evidence for religion and ritual

There are small concentrations of ironwork finds associated with specific structures and features, some associated with the temple and waterholes, others with the metalworking areas structures I and R.

Waterhole 796 produced the most pieces: seven identified objects, including a bucket handle and bucket handle mount, 33 nails, six hobnails, and five miscellaneous pieces and six fragments of uncertain identification - a total of 58 items (Table 5.26). Although in the context of the Westhawk Farm site, this represents a concentration of iron objects, it is not a large concentration, and has no distinctive features in its composition. The bucket fittings could simply represent the utilitarian items one would associate with a waterhole, but they could also have a ritual significance, though the two functions are not mutually exclusive. The other identified objects (Table 5.20) comprise a small cow bell fragment and unremarkable structural fixtures and fittings. The former is a common Romano-British site find. The seven objects form 22.6% of all identified objects (including post-medieval pieces), which is interesting and perhaps significant. Again it must be stressed that the numbers are small.

In contrast, waterhole 7239 produced only two identified objects (an L-shaped lift, or slide key, and an L-shaped staple fragment). It also produced two nails, one miscellaneous fragment and two fragments of uncertain identification, a total of seven pieces. Waterhole 7023 produced 14 objects (10 nails, three bar fragments and unidentifiable fragment) from its upper fills (7024, 7042 and 7043). On the evidence of the ironwork neither of these two features needs to have had any ritual significance.

Table 5.23 Ironwork: Summary and quantification (fragment count) of miscellaneous fragments by Phase, Structure and group/context.

Phase	Structure	Group	Context	SF No	Object Id	No	L (mm)	Description and Comments
2	-	8620	7535		sheet	1		sheet fragment, no original edges. From Sample 632
2					**Sub-total**	**1**		
2 to 3		5171	5030	506	bar	1	59	bar, or nail, fragment, with rounded point at one end. Could be a tool point.
2 to 3					**Sub-total**	**1**		
3	Structure Q	80	166	0	sheet	1	43	sheet, or strip, fragment
	Structure Q	80	166	15	strip	1	59	strip, or plate, with nail hole
	Structure Q	80	417	75	bar	1	70	bar fragment, possibly fragment of awl?
	Structure I	200	150	11	bar	3		bar, or nail, fragments
	-	5220	5133	552	bar	1	35	bar, or nail, fragment, square section
	-	none	1447	0	sheet	3		sheet fragments, very small. From Sample 91
3					**Sub-total**	**10**		
3 +		0	9083		plate	1	35	?plate fragment, with possible rolled-over edge.
		0	10297	1542	bar	1	48	bar fragment, curved, of ?square section
		0	10297	1544	bar	1	46	bar, or nail stem, fragment, slightly curved and tapering. Uncertain section
3 +					**Sub-total**	**3**		
3 to 4		0	9839	1528	bar	1	65	bar, or rod, fragment of ?square section
3 to 4					**Sub-total**	**1**		
4	Structure I	7306	7397	1091	bar	1	27	bar, or nail stem, fragment of square section
	Waterhole	796	1386	0	plate	1	17	plate fragment, irregular, with tiny perforation near one end. From Sample 88
	Waterhole	7023	7024	910	bar	1	26	bar, or nail stem, fragment of square section
		7023	7042	919	bar	1	42	bar, or nail stem, fragment of square section
		7023	7043	924	bar	1	c 77	bar, rod, fragment of circular section
	-	30	369	85	bar	1	28	bar, or nail stem, fragment
	-	666	956	186	bar	1	41	bar, or nail, fragment, of square section.
	-	770	749	154	bar	1	44	bar, or nail, fragment, tapering
	-	1260	578	0	bar	1	53	bar, or nail, fragment of square section
	-	1755	785	0	strip	1	50	Strip with possible rivet? Needs further investigation?
	-	1765	866	184	bar	1	56	bar, or nail, fragment, of square section.
	-	8160	8189	1445	strip	1	80	irregular strip, no nail holes.
	-	8590	7005	901	bar	1	46	bar, or nail, fragment, very heavily corroded.
	-	8680	8132	1411	bar	1	38	bar, or nail stem, fragment of square section
	-	9210	8857	1460	bar	1	51	bar fragment of ?square section
	-	9390	7562	1291	bar	1	38	bar, or nail stem fragment, of uncertain section.
	-	9390	7564	1311	bar	1	32	bar, or nail stem, fragment of square section
	-	9450	7572	1293	strip	1	47	?strip, narrow. No nail holes.
	-	9450	7572	1318	bar	1	34	bar, or nail stem, fragment of uncertain section
	-	9900	7682	1334	strip	1	63	strip, possibly thicker and narrower at one end. No nail holes
	-	none	524	94	bar	1	70	bar fragment
	-	none	524	94	bar	1	32	bar fragment
	-	none	730	0	sheet	1	47	sheet fragment of irregular shape.
	-	none	841	0	rod	1	42	rod or bar fragment. Possibly a nail shank
	-	none	7127	963	bar	1	46	bar, or nail, fragment of circular section
	-	none	7127	977	bar	1	16	bar, or rod, fragment of sub-rectangular section, small
	-	none	7127	990	bar	1	46	bar, or nail, fragment of ?square section.
	-	none	7496	1263	strip	1	41	Strip, no nail holes
	-	none	7499		bar	1	19	bar, or nail stem, fragment, of sub-rectangular section. From Sample 729
4					**Sub-total**	**29**		
4?		8160	8648	1440	strip	1		irregular strip or rod
		0	526	97	plate	1	54	plate fragment, slightly dished
		0	1142		sheet	1	50	sheet fragment with a nail hole and nail and one edge turned up. No original edges.
		0	7205	1002	bar	2	47, 36	bar fragments of well-formed square section
4?					**Sub-total**	**5**		

(*Continued on next page*)

Table 5.23 (*continued*)

Phase	Structure	Group	Context	SF No	Object Id	No	L (mm)	Description and Comments
5	Waterhole	796	302	50	strip	1	30; 17	Fragment of strip in two pieces
	Waterhole	796	344	0	bar	1	42	bar, or nail stem, fragment of square section. From Sample 14
	-	7239	7240	1186	bar	1	57	bar fragment of uncertain cross section
	-	7850	7453	1247	bar	1	51	bar fragment of ?square section
	-	10415	8192	1422	strip	1	92	Rectangular strip, or block, of thick rectangular section. No nail holes.
	-	10415	8191	1425	plate	1	63	plate fragments, flat, forming corner with possible nail hole.
	-	none	1448	0	strip	1	38	strip fragment. From Sample 92
	-	none	7237	1017	bar	1	c 48	bar, of square section, strongly curved
	-	none	7237	1501	strip	1	31	strip fragment, slightly curved, with ?corrosion lump
	-	none	7279	1030	bar	1		bar fragment of round/sub-rectangular section, small
	-	none	7279	1033	bar	1	26	bar fragment of square cross-section
	-	none	7279	1047	bar	1	c 47	bar, or nail, fragment, of square section
	-	none	7279	1051	bar	1	102	bar, or nail, fragment of square section. No taper.
	-	none	7279	1052	bar	1	35	bar, or nail, fragment of square section
	-	none	7279	1055	bar	1	31	bar, or nail stem, fragment of square section
	-	none	7279	1060	plate	1	60	strip, possibly with rounded end and nail hole. Possibly bonding or hinge strap?
	-	none	7279	1064	bar	1	c48	bar, or nail stem, fragment with square cross section.
	-	none	7279	1082	bar	1	47	bar or nail stem, fragment of uncertain section
	-	none	7279	1093	bar	1	31	bar, or nail fragment, of circular section. Curved
	-	none	7279	1094	Ring	1	44, 35	?ring fragments x 2. Sub circular section. Both fragments curving.
	-	none	7279	1032	strip	1	120	strip, rectangular with rounded edges. No nail or rivet holes.
	-	none	7279	1226	strip	1	43	strip of irregular outline.
	-	none	8855	1473	bar	1	28	bar, or strip, fragment, small
	-	none	9101		bar	1	40	bar fragment of square section.
5					**Sub-total**	**24**		
6	Waterhole	796	429	0	sheet	1	37	Disc, irregular in outline and slightly dished. From Sample 19
	Waterhole	796	739	200	bar	1	40	bar, or nail, fragment, square section
6					**Sub-total**	**2**		
Ph?		none	7001	1189	strip	1	60	Strip of rectangular section, tapers from 22 mm to 19 mm wide. No nail holes.
		none	7004	1355	strip	1	90	strip of spring steel, thin in section, with three cut-and-raised notches/holes. Modern.
		none	7084	935	bar	1	90	bar, or bolt, fragment, of tapering square section. Laminating badly.
		none	7731		bar	1	32	bar, or nail stem, fragment of square section, no taper.
		none	7761	1368	bar	1	57	bar, or rod, fragment of circular section
		none	7769	1365	bar	1	52	rod, or bar, fragment of ?circular section
		none	7945	1396	bar	1	35	bar, or nail stem, fragment of square section
Ph?					**Sub-total**	**7**		
					Total	**83**		

Structure Q - the polygonal shrine and enclosure - produced a total of 31 pieces of iron (Table 5.27); of these 24 were from the structure and only seven from the enclosure ditch. Interestingly all of the latter were from a fill (context 1027) of the later re-defined (Phase 4) north-east ditch (group 970). The absence of iron objects from the rest of shrine enclosure ditch fills is interesting, since elsewhere on the site, boundary ditches have been one of the main sources of iron finds, albeit the numbers of items are small.

This raises questions about how material arrives in ditches: did lost and discarded items simply collect in ditches, was material deliberately dumped during rubbish disposal or demolition, or was it ritually deposited? Hingley has stressed the role of boundaries and ritual deposition of ironwork in ditches (Hingley

Table 5.24 Ironwork: Summary and quantification (fragment count) of pieces of uncertain identification by Phase, Structure, and group/context.

Phase	Structure	Group	Context	SF No	No	L (mm)	Description and Comments
3	Structure Q	80	166	15	1	23	Possibly broken chain link
	Structure Q	80	461	81	1	167	Spike or pointed slightly curving blade. It was found positioned with the point downwards.
	Structure Q	80	461	83	1	90	Dense block of irregular shape.
	Structure Q	80	632	114	1	50	bar of square section, with wedge-shaped flat flange, bent over at the end. Possible binding
3			**Sub-total**		**4**		
3?	-	-	696	126	1	55	Strip, of uncertain (lenticular?) section, tapering to an apparent point.
3?			**Sub-total**		**1**		
4	Structure I	-	7270	1105	1	46	Object comprising length of bar of square to rectangular section with irregular round flat end. There is no nail hole through the flat end. Incomplete.
	Waterhole	7239	7120	951	1	112; 110	Object formed from thick plate, in poor condition (laminating). Both pieces have turned up edges, suggesting the possibility that they were parts of a vessel or shovel.
	Waterhole	7239	7248	997	1	59	Bar, or rod, of circular section with a slight taper. Possibly a punch or part of a tool. Badly laminated
	-	1755	785	0	1	64	Strip with possible rivet?
	-	8160	8189	1448	1	65	Uncertain object. X-ray shows trace of a possible tang.
	-	8590	7056	926	1	70	Rectangular bar, dense, with central hole.
	-	9210	8857	1463	1	77	Strip, heavy, bent into a curve. One end is square, with a possible nail hole, the other is broken in part. Possibly part of a collar
	-	10050	8903	1484	1	152	Object formed from strip with flared end. Could be a handle. Badly preserved.
	-	10050	8903	1483	1	60	Curved fragment, could a part of a ring.
	-	-	7379		1	28	Tube formed from rolled sheet. Small, with open seam. Function uncertain
4			**Sub-total**		**10**		
4?		-	526	109	1	367	Bar, of square section that appears to taper at both ends to a blunt point. Purpose?
		none	526	102	1	65	Possibly fan-tailed object.
4?			**Sub-total**		**2**		
5	Structure R	1200	1176	205	1	81	Possible nail, incomplete, heavily encrusted
	-	-	1448	0	2	34	Objects, unidentified. From Sample 92
	-	-	7237	1020	1	77	Bar or strip of rectangular cross-section, slightly tapering.
	-	-	7279	1053	1	37	Object, fragment of uncertain function. Possibly part of a buckle
	-	-	8855	1465	1	85; 50	Handle or tang (2 pieces).
	-	-	8855	1471	1	36	Plate fragment, triangular in outline and slightly curved with a smooth convex face.
5			**Sub-total**		**7**		
5?	-	-	9088	1500	1	102	Nail, ?complete, of uncertain section with ?flat head. Poorly preserved
5?			**Sub-total**		**1**		
6	Waterhole	796	739	0	1	30	Bar fragment or broken end, of sub-triangular section
6			**Sub-total**		**1**		
8?	-	-	10077	1539	1	113	Strip, tapering and curved. ?handle.
8?			**Sub-total**		**1**		
Ph?	-	-	7003	1125	1	108	Pointed object formed from strip. The square end, which may be broken, has a deep slot. Function uncertain.
		none	7004	1325	1	76	Strip of irregular outline, with slightly curved cross section; one end is slightly bent up. Evidence for a band across the object on x-ray. Dense, could be cast iron. Fragment of bomb or shell case?
		none	7630	1324	1	84	Tapering point or spike, of square section and strongly curved. The wider end is broken. Uncertain function, possibly part of a tool.
Ph?			**Sub-total**		**3**		
			Total		**30**		

Table 5.25 Ironwork: Summary and quantification (fragment count) of unidentifiable fragments by Phase, Structure and group.

Phase	Structure	Group	Context	SF No	No	Description and Comments
2	-	8620	7535		1	amorphous lump. From sample 632
	-	-	1263	0	4	four tiny fragments from sieving. From Sample 72
	-	-	1264	0	6	amorphous fragments including pieces of mineralised iron. From Sample 74
2			**Sub-total**		**11**	
2 to 4	-	none	10166	1538	1	amorphous lump, small
2 to 4			**Sub-total**		**1**	
3					0	
3			**Sub-total**		**0**	
3 to 4	-	1720	161	0	1	amorphous lumps
3 to 4			**Sub-total**		**1**	
4	Structure Q	970	1027		5	amorphous lumps. From Sample 52
	Waterhole	7023	7042	920	1	amorphous lump
	-	770	749	153	1	amorphous lump
	-	1260	576	96	1	Unidentifiable fragment
	-	8160	8548	1442	1	irregular fragment
	-	-	7127	972	1	small amorphous lump
4			**Sub-total**		**10**	
5	Structure R	1200	1258	0	4	amorphous lumps. From Sample 71
	Structure R	1233	1232	0	1	amorphous lump. From Sample 67
	-	-	8855	1472	1	amorphous lump
	-	-	8855	1474	1	amorphous lump, small
	-	-	8855	1477	1	amorphous lump
	-	-	8855	1476	1	amorphous lump, small
5			**Sub-total**		**9**	
			Total		32	

2006). If we accept Hingley's contention that deposition in ditches and boundaries can have some meaning beyond the merely pragmatic and practical, then the absence of material from the shrine enclosure might take on added significance. Does it support Hingley's proposal, and suggest that the ditch was ritually cleansed before it was abandoned? Or does it suggest that in this particular ditch associated with a ritual setting ironwork was not deposited?

The material from the shrine structure (group 80) consists of 24 objects, including 16 nails and 8 miscellaneous or uncertain fragments. Most are derived from fills of the central pit 415 (Table 5.27) and include nails and a small dense block. The latter could have been an offering of a sample of the iron produced on the site. The evidence for ritual deposition is limited, although there is a small concentration of finds associated with the shrine; the finds themselves are mundane and apparently of little value.

Table 5.26 Ironwork: Waterhole 796: Summary quantification (fragment count) of iron finds by Phase and functional category.

Phase	Objects	Nails	Hobnails	Misc.	Uncertain	Totals
4	2	0	0	1	0	= 3
5	2	14	1	2	0	= 19
6	3	18	6	2	6	= 35
3-6	0	1	0	0	0	= 1
Total	7	33	7	5	6	= 58

Evidence for ironworking

The ironwork assemblage provides little evidence of the ironworking attested by structural evidence and the presence of substantial quantities of iron slag (see Chapter 7). The distribution of ironwork broadly coincides with known ironworking areas – structures I and R – but there are few if any specific associations and none of the finds is diagnostic.

The finds from Structure I and its associated features in Plot NW3 total 28 objects (Table 5.28), of which 18 are nails and a further 5 are nail stem or bar fragments. The only identified object is a split spike loop (no. 24) from the fill of posthole 540, which is one of the large rectangular postholes linked with gully 1790. The latter is parallel to the south-west boundary of Plot NW3. A nail or nail fragment and three bar, or nail stem, fragments were found in the fill (150) of the north boundary ditch 200 on the north side of Structure I.

Other finds came from pits and a well. A single hobnail came from pit 1461 and a nail or bar fragment from pit 7944, which were respectively east and west of structure I. More finds came from pit 7306 and well 7269, which were both east of Structure I and just south of the original plot boundary 8540. The well produced 15 pieces of iron. It is thought that the boundary of Plot NW3 was moved south. Fenceline 1698 ran parallel to and to the south of boundary 8540. Two postholes (370 and 383) in the fence line each produced a single nail.

There are 31 iron objects, including 24 nails, from structure R (Table 5.29). Most of the iron finds come

Table 5.27 Ironwork: Structure Q: Summary of iron finds from features and contexts belonging to the temple and its enclosure.

Group	Feature	Description	Context	Finds	No.	Total
80		Octagonal structure				
	192	Posthole	166	Sheet fragment	1	
				Strip fragment	1	
				Nails	6	
				Possible chain link	1	9
	115	Posthole	198	Nail	1	1
	415	Central pit	417	Nails	6	
			416	Nail	1	
				Bar fragment	1	
				Possible hinge strap	1	
			461	Nails	2	
				Spike or blade	1	
				Dense block	1	
				Possible binding	1	14
970		Ditch re-defining NE side of Temple enclosure				
	1026		1027	Nail	1	
				Hobnail	1	
				Amorphous fragments	5	7
					Total	**31**

from boundary ditches 1200, 1220/1760 and 1230. The largest number (19) come from fills of the north-west boundary ditch 1200 (Table 5.29). Pit 1233, which cut into ditch 1200, produced two nails, four hobnails, and an unidentified amorphous fragment. Ditch 1230 produced one nail. Ditches 12201760 produced three nails. Hearth 1438 within Structure R, produced a single nail.

Although the distribution of ironwork seems to favour structures I and R slightly, the surviving material gives no real clue as to the processes performed there. The iron finds comprise predominantly nails and fragments of utilitarian items. The absence from the ironwork assemblage of any tools or other items associated with the working of iron blooms or smithing is scarcely to be wondered at. The smith's tools - anvils, tongs, hammers and other the like – would not easily have been mislaid and were essential to his livelihood, as well as being valuable. Large objects such as these would not normally be expected in the archaeological record unless deliberately buried or otherwise deposited. The best evidence for ironworking, and in particular the smithing of blooms, is provided by the iron billet (no. 2), which unfortunately was not found directly associated with any ironworking area. The object has been the subject of analysis (see Chapter 7,

Table 5.28 Ironwork: Structure I: Summary of iron finds from features and contexts belonging to the iron producing workshop.

Group	Feature	Description	Context	Finds	No	Total
200	149	N boundary	150	Bar/nail fragments	3	
				Nail	1	4
1790		Gully and postholes				
	540	Posthole	542	Split spike loop	1	1
-	1461	Pit	1460	Hobnail	1	1
-	7944	Large pit	7945	Bar/nail fragment	1	1
1698		Fence line				
	370	Posthole	371	Nail	1	
	383	Posthole	383	Nail	1	2
-	7306	Large pit	7397	Bar/nail fragment	1	
				Nail	1	
			7307	Nails	2	4
-	7269	Well	7270	Nail	1	
				Bar with flattened end	1	
			7309	Nails	2	
			7327	Nail	1	
			7484	Nails	2	
			7535	Nails	6	
				Sheet fragment	1	
				Amorphous fragment	1	15
					Total	**28**

Table 5.29 Ironwork: Structure R: Summary of iron finds from features and contexts belonging to the iron producing workshop.

Group	Feature	Description	Context	Finds	No	Total
1200	1177	NW gully	1176	Nail	1	
				Possible nail	1	
	1221		1219	Nails	3	
			1222	Nails	4	
	1342		1258	Nails	6	
				Amorphous fragments	4	19
-	1233	Pit cutting 1200	1231	Nail	1	
			1232	Nail	1	
				Hobnail	4	
				Amorphous fragment	1	7
1230	1368	SW gully	1366	Nail	1	1
1220	1218	SE gully	1216	Nails	2	2
-	1438	Hearth	1437	Nail	1	1
1760	1445	NW/SE ditch	1334	Nail	1	1
					Total	**31**

below). The form of the billet is interesting: it is 0.32 m long, tapered at both ends and weighs *c* 4.46 kg.

The billet is a semi-finished product of the bloomery process. The bloom produced in the furnace was converted to usable iron by heating and smithing. It was time consuming process, but the result was a billet or bar of iron suitable for trading and transporting.

Only a comparatively small number of iron billets have been found in archaeological contexts. There are billets from Newstead (Curle 1911, 288, plate lxv, no. 9; see also Manning 1976, plate 1). These are roughly worked rectilinear blocks. A similar but smaller worked bloom comes from the Roman bloomery site at Little Farningham Farm (Cleere and Crossley 1985, fig. 16). This rough rectilinear block is only *c* 200 mm long and weighs about 2 kg. It is therefore much smaller than the Westhawk billet. Another form of worked bloom, or billet, is the trapezoid billet with a hook at the top as typified by an example from the Roman small town of Asthall, Oxfordshire (Salter 1997, 95-6, citing other examples, and fig. 4.4, no. 1; plate 4.1). The latter is an insular Iron Age form (Crew 1994, 348 and figs 1 and 2).

The Ashford billet is more akin to the northern European Iron Age tradition of trade iron in the form of pointed bars than to the British tradition of sword-shaped billets or trapezoid billets. Individual currency bars and other trade iron from the British Iron Age range in weight from as little as 145 to 165 g up to 1200 to 1640 g (ibid., fig. 3).

Comparison can be made with a number of examples of double-pointed iron base recovered from Iron Age sites in the Rhineland-Palatinate, Germany (Engels 1974). The examples published by Engels range in length from 310 mm to 563 mm, although most are between 366 mm and 455 mm. Their cross-sections vary from 71 mm by 60 mm to 54 mm by 43 mm and 55 mm by 36 mm. In weight they range from 1960 g to 5845 g, although most are between 3150 g and 5040 g. They are therefore significantly larger than anything produced during the insular Iron Age in Britain. The only items of trade iron found in Britain that compare are the '*spitzbaren*', or double-pointed ingots of continental origin from the Isle of Portland; these weigh in excess of 6 kg each (Crew 1994, 348).

Although it would inappropriate to draw direct comparisons between La Tène double pointed bars, typified by those from the Rhineland-Palatinate, and the Westhawk Farm billet, a number of points can be made. Firstly, currency bars and other trade iron from the insular Iron Age were light in weight by comparison with continental material. This reflects the limited production of iron and its consequent value which determined its use during the British Iron Age. Secondly, no trade iron comparable in form or size to the Westhawk billet seems to have been produced during the Iron Age in Britain. These two pointers indicate that the billet from Westhawk is a Romano-British product, and furthermore one influenced by north European Iron Age practice.

Phased assemblages

A proportion of the ironwork (97 fragments or 14.5% by count) is either from unphased contexts – often isolated features – or from contexts which cannot be closely phased. This material is not discussed in considering the phase assemblages, but will be briefly discussed at the end of this section.

Phase 2 (AD 43-70)

The quantity of material from this phase is very limited and comprises only 18 pieces made up of nails (6) and unidentifiable scraps (11) and one miscellaneous piece, a fragment of sheet (see Tables 5.18 and 5.19). The nails, one of the unidentified fragments and the miscellaneous fragment are all from the primary phase of the roadside ditch (group 8620) on the south-east side of the road (see Tables 5.21, 5.23 and 5.24). The other unidentified fragments are from cremation deposits (1263 and 1264).

Phase 3 (AD 70-150)

The ironwork from this phase comprises a total of 104 pieces, most of which are nails (45) and hobnails and strips of hobnails (40). There are 14 miscellaneous objects and pieces of the ironwork of uncertain identification. There are five identifiable objects (see Tables 5.18 and 5.19).

The identified objects comprise an L-shaped lift, or slide, key (no. 11) and a possible L-shaped staple fragment (no. 26) from waterhole 7239, a looped pin or spike (no. 21) from a NW-SE boundary gully (group 8530) and a split-spike loop (no. 24) from a gully or beam slot (group 1790) of structure I. A possible hinge strap fragment came from the central pit within the polygonal temple, structure Q (no. 13). These are all structural or domestic objects.

The majority of nails come from the probable shrine enclosure, structure Q (16 nails) and from a box cremation grave in Area C (group 5220: 8 nails; see Table 5.21). The latter group also produced 25 hobnails/hobnail strips. The other 20 hobnails/hobnail strips came from another cremation group, 9860 (see Table 5.22). The remaining nails came from gullies (groups 8790 and 9990), a boundary ditch (group 200) of structure I, and from a grave cut (8002, group 8520).

Three of the miscellaneous pieces (Table 5.23) and all four objects of uncertain function (Table 5.24) are from the shrine structure (structure Q). Three miscellaneous fragments of bar were from a boundary ditch (group 200) of structure I. Another miscellaneous fragment came from cremation group 5220. Finally three small fragments of sheet came from pit 1447, which was filled in large part with roasted iron ore.

Phase 4 (AD 150-200)

There are 178 pieces of iron from Phase 4 (see Tables 5.18 and 5.19). Only Phase 5 produced more pieces. The bulk of the Phase 4 assemblage comprises nails (92 = 51.7% by count), hobnails (32 = 18.1%) and miscellaneous fragments (29 = 16.3%). There are 10 pieces of uncertain identification and 10 unidentifiable fragments. Finally, there are five identified objects.

These comprise a large fragment of a bucket handle and bucket handle mount (nos 15 and 16), both from the large waterhole 796, an awl (no. 5), which came from a grave (group 8160), a chisel-shaped object (no. 7) from a pit (group 1260) - which is cut by ditch 970 forming the re-defined north-east side of the shrine enclosure - and a looped pin (no. 21) from a plot boundary (group 9210).

The nails were found in a number of groups (see Table 5.21), but there do not seem to be any concentrations; the nails are found in small numbers only. Most nails are from contexts not assigned to groups – isolated pits and the like. The largest number (20) comes from a dumped deposit (context 7127), which was located in a shallow, possibly natural hollow and which also contained a concentration of pottery. A number of nails, together with some miscellaneous bar fragments, came from the upper fills of waterhole 7023: context 7043 produced a single nail and a bar fragment; 7042 three nails, a bar fragment and an amorphous fragment; context 7024 six nails and a bar fragment. Most of the hobnails (27 of 32) came from a cremation grave, group 210 (see Table 5.22). The remainder came from ditches or a pit.

The distributions of miscellaneous fragments (Table 5.23) and the pieces of uncertain identification (Table 5.24) do not reveal any concentrations. Most of the pieces from groups were from the fills of boundary ditches, plot divisions and roadside ditches. The exceptions were the single fragments from a grave (group 8160), from a pit (group 1260), from the large waterhole 796 and from a pit 7306, associated with structure I. The fragments from ungrouped contexts came mainly from the fills of single pits or postholes, although some pieces were from the upper fills of waterhole 7023, as noted above. Three fragments came from the dump deposit 7127, which also contained a number of nails, as noted above.

Phase 5 (AD 200-250)

This phase produced 237 objects, which is the most from any phase (see Tables 5.18 and 5.19). Again much of the material comprises nails (112 = 47.3%) and hobnails (80 = 33.8%). There are 24 miscellaneous objects and seven of uncertain identification, together with nine small unidentifiable fragments. There are a mere five identified objects.

The five identified objects comprise a possible carpenter's chisel (no. 4), a linchpin (no. 8), a chain link (no. 18), a large collar with thickened or reinforced edges (no. 19), and a T-staple (no. 25). The ring and T-staple were both recovered from the waterhole 796, and the chain link came from pit 8855, which also produced other iron fragments. The possible chisel was provided with a finds reference number only (7237), while the linchpin was from a shallow pit (7235).

There are some concentrations of nails (see Table 5.21). Single nails were recovered from ditches, gullies and isolated pits. There were 10 nails from a cremation grave (group 220), which also produced most of the hobnails from this phase, and at least 14 nails from the waterhole (796). Four nails came from a line of four postholes forming a fenceline (group 10415). Seventeen nails were recovered from enclosure ditches (1200, 1220 and 1230) bounding structure R, which is associated with metalworking (see above). The main concentration of nails came from a spread of material (context 7279), which also produced a concentration of pottery and small finds. Forty nails were from this deposit.

The majority of the hobnails (74 of 80) from this phase were recovered from a cremation, group 220 (see Table 5.22). One hobnail came from waterhole 796 and another from fenceline 10415. The four remaining hobnails came from the single fill (1232) of pit 1233 associated with structure R.

The miscellaneous finds of bar, strip, etc. and the pieces of uncertain identification formed a small part of the assemblage (see Tables 5.23 and 5.24). The only concentration was in dump deposit 7279, which produced 13 of the miscellaneous pieces and one of the uncertain fragments. One fragment was found in ditch 1200, which formed part of the enclosure around structure R, and two fragments came from fenceline 10415. Other fragments came from pit fills or given a finds reference only. Of the unidentified small fragments (Table 5.25), which totalled only nine from this phase, four were from ditch 1200 bounding the north-west side of structure R, and four from pit 8855.

Phase 6 (AD 250-350)

The ironwork from Phase 6 comprises only 38 fragments, 26 of which are nails. There are six hobnails and two miscellaneous pieces and one fragment of uncertain identification (see Tables 5.18 and 5.19).

Three identified objects – a bell fragment (no. 9), a hook (no. 20) and a binding (no. 23) - were all recovered from the waterhole 796. Eighteen of the nails (see Table 5.21) also come from the waterhole (796) and the other eight from a cremation grave (group 5090). The six hobnails are likewise from waterhole 796, which also produced the miscellaneous material and fragment of uncertain identification (see Tables 5.23 and 5.24).

Unphased material and material of uncertain phase

The material that falls into this category (see Tables 5.18 and 5.19) is of limited value for understanding the site, but does include a disproportionate number of identifiable objects (see Table 5.20). Thirteen objects were either of uncertain phase or unphased. These include four objects, which are certainly, or probably, post-Roman in date; the scissors and horseshoe are certainly post-Roman, and the two rectangular buckle frames are probably post-Roman in date (all uncatalogued). There are a number of objects, which are not typologically diagnostic: the smith's wedge (no. 1), spade shoe (no. 6), L-shaped hinge staple (no. 14), handle fragment (uncatalogued), possible hinge strap (no. 12) and broken knife (no. 17) could be Roman, but equally could be later in date and the spade shoe came from the top of a post-medieval ditch fill. The L-shaped key (no. 10) is probably Roman in date. The billet of iron (no. 2) and small dense block of iron (no. 3) are probably Roman in date and products of the main economic activity of the site.

Distribution of different types of material across the phases

Given the small size of the assemblage, few conclusions about the changing the composition of the assemblage through time can be drawn, and any conclusions are likely to be tentative and broadly drawn and therefore of limited interest. The limited number of identified objects (see Table 5.20) from the assemblage as a whole has been stressed, and little can be added with regard to the various phase assemblages. The miscellaneous material derives mainly from Phases 4 and 5, but the numbers are so small as to be of little statistical relevance (see Table 5. 23). The situation is similar with regard to the fragments of uncertain function (see Table 5.24), although they occur in Phase 3 as well as Phases 4 and 5. There are more nails (see Table 5.21), but this still a small sample of the large number that must have been needed on site. There is little that can be said regarding changes in distribution through the site phases. Overall there is a preponderance of nails in Phases 3, 4 and 5. The distribution of hobnails (see Table 5.22) is tied to the occurrence and excavation of cremations and therefore does not provide independent evidence for the use of ironwork.

Catalogue of identified and illustrated objects

Tools *(Fig. 5.10: 1-2, 4-6)*

1 **Smith's wedge**. Top is square and battered and lipped by hammering. The cutting edge appears slightly rounded. L: 77 mm. Context 7004, SF1256, unphased.
2 Large pointed billet. Weight 4.5 kg. L: 320 mm. Context 7009, SF905, unphased.
3 (*not illustrated*) **Block of iron**, may be production debris. L: 70 mm. Context 8014, SF1403, unphased.
4 **Carpenter's ?chisel**, blade fragment. Shank of rectangular section with flaring blade. Firmer chisel. L: 44 mm. Context 7237, SF1504, Phase 5.
5 Possible **awl**, tapering to a point at each end, square section in centre. L: 62 mm. Context 8189 (Group 8160), SF1447, Phase 4.
6 **Spade shoe**, fragment comprising corner of blade and part of one side arm. Probably straight mouthed or only slightly curved. There is slight evidence for a slot on the inside edge of the blade. The arm has a rectangular section., L: 142 mm. Context 7082 (Group 9000), SF933, Period 4.
7 (*not illustrated*) **Chisel-, or paddle-, shaped object**, chamfered on three sides. There is a stout tang or arm on the fourth side. Could be a chisel, but the identification is far from certain. Dense. L: 124 mm. Context 510 (Group 1260), SF92, Phase 4.

Transport *(Fig. 5.11: 8-9)*

8 **Linchpin**, with irregular spatulate head and rolled-over loop. L: 150 mm. Context 7235, SF1018, Phase 5.
9 **Bell**, part of the upper portion of an iron 'cow bell'. L: 60 mm. Context 723 (Group 796), SF147, Phase 6.

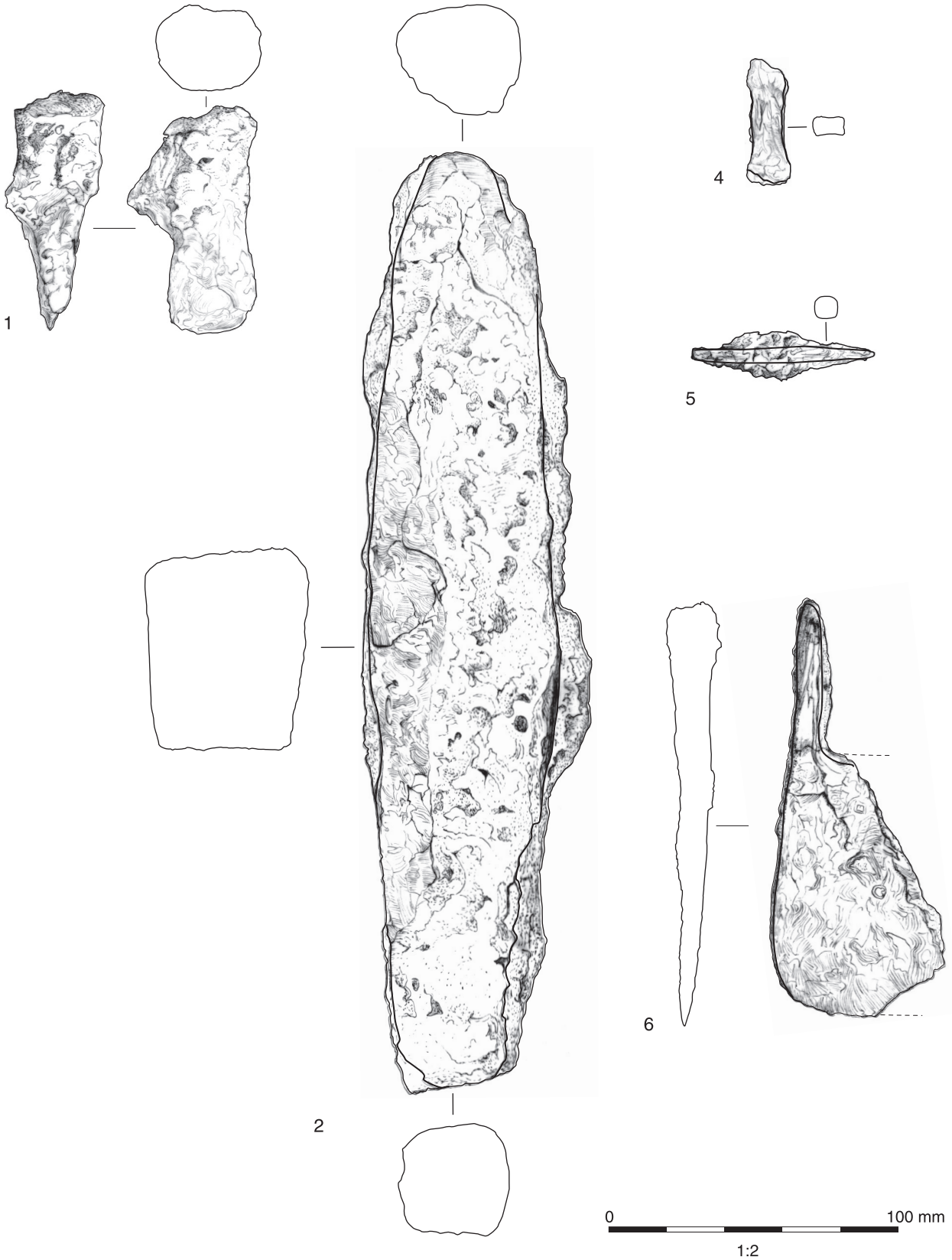

Figure 5.10 Iron objects (nos 1-2, 4-6).

Locks and keys *(Fig. 5.11: 10-12, 14)*

10 **L-shaped slide key**, small. No obvious teeth on the bit. The handle is pierced for suspension. L: 65 mm. Context 7083, SF934, unphased.
11 **L-shaped lift or slide key**, with rectangular handle but ?no extant bit. L: 115 mm. Context 9155 (Group 7239), SF1508, Phase 3.
12 Possible **hinge strap**, comprising tapering strip with rounded end 1 extant part nail hole. L: 100 mm. Context 8015, SF1446, unphased.
13 (*not illustrated*) Possible **hinge strap**. Comprises a strip with two nail holes. It is pinched in at each end. One end is broken but slightly curved as if rolled over to form a loop. L: 101 mm. Context 417 (Group 80), SF88, Phase 7.
14 Possible **L-shaped hinge staple**. The long arm is of flat rectangular section with a rounded end, the short arm is of ?circular section. L: 66 mm. Context 7626, SF1320, unphased.

Household objects *(Fig. 5.11: 15; Fig. 5.12: 16)*

15 **Bucket handle**, with one hooked end. Rectangular sectioned, with U-sectioned handgrip. L: 270 mm; Context 1547 (Group 796), SF248, Phase 4.
16 **Bucket handle mount** comprising strip with two nail holes with d-shaped loop at one end. L: 93 mm. Context 1547 (Group 796), SF253, Phase 4.
17 (*not illustrated*) **Knife fragment**, with slim rod handle, or possible whittle tang. Too little of blade is extant to identify the form, but it has a triangular section. L: 93 mm. Context 7054 (Group 8600), SF925, medieval or post-medieval.

Fixtures and fittings *(Fig. 5.12: 18, 20-25)*

18 **Chain links or looped junction**. L: 50 mm. Context 8855, SF1467, Phase 5.
19 (*not illustrated*) **Collar or ring** of thin rectangular section, thickened at the edges. It is too light to be a nave band or hub lining from a wheel, and its precise use is unclear. Possibly a binding or hoop fixed around a wooden post or pole. L: 205 mm. Context 367 (Group 796), SF73, Phase 6.
20 **Hook** 47 mm across, formed from rectangular strip. L: 81 mm. Context 255 (Group 796), SF28, Phase 6.
21 **Looped pin or spike** with stout circular section stem pointed at one end and rolled over into a loop at the other. L: *c* 93 mm. Context 7950 (Group 8530), SF1397, Phase 3.
22 **Loop-headed spike** fragment formed from rod of ?circular section with rolled over loop. L: 52 mm. Context 8857 (Group 9210), SF1461, Phase 4.
23 **L-shaped binding** with tear-shaped plate, ?pierced for a nail, at the end of one arm. The other arm, of rectangular section, appears broken. L: 57 mm. Context 739 (Group 796), SF263, Phase 6.
24 **Split spike loop**, highly encrusted. L: 85 mm. 5 Context 42 (Group 1790), SF104, Phase 3.
25 **T-shaped staple**, incomplete. L: 103 mm. Context 1359 (Group 796), SF259, Phase 5.
26 (*not illustrated*) Possible **L-shaped staple** fragment. L: 42 mm. Context 9155 (Group 7239), SF1507, Phase 3.

WORKED STONE

by Fiona Roe

Introduction

The worked stone assemblage consists almost entirely of quern or millstone fragments, which came from 44 contexts. The other stone objects amount to a single whetstone, a slab used as a whetstone or polisher and 33 slingstones. The quern and millstone fragments were nearly all brought to the site from outside Kent. Niedermendig lava from the Rhineland was imported in some quantity, while Millstone Grit from the Pennines was also much utilised (Table 5.30). Greensand, which was available nearer to the site, was used less frequently, although three rotary querns of Lodsworth greensand were acquired from Sussex. The local greensand from Folkestone only accounts for two rotary querns. Local Wealden sandstone was used for the whetstone and whetstone/polisher, while the slingstones are all flint pebbles from the coast.

Querns and Millstones

Niedermendig lava

Niedermendig lava seems to have been extensively used at Westhawk Farm, and this may well have been the easiest grinding material to transport, since it could have been brought nearly all the way from the Rhineland by boat. If it was delivered to *Portus Lemanis* (Lympne), which in Roman times was closer to the sea than it is now (Cunliffe 1980, 258), there would have been a direct, onward road journey of only 14 km. Much of the lava found at Westhawk Farm is very fragmentary. A large number of small pieces were found (Table 5.30), and it is difficult to estimate how many querns or millstones might be represented. Lava was recorded from 33 contexts, but in many cases mere crumbs weighing only a few grams were recovered, and the total recorded weight of some 24 kg is probably unrepresentative. Four rotary querns could be distinguished (eg SF244 and SF249, Fig 5.13: 15 and 16 respectively), together with one millstone (context 9422), which although very weathered, could be identified by its diameter of about 750 mm. The diameters of two of the querns were about 430 mm. These two querns have a typical Roman feature, a raised rim around the edge of the upper stone, providing a wide hopper into which the grain could be poured. They are both well made upper stones, with other Roman characteristics, such as

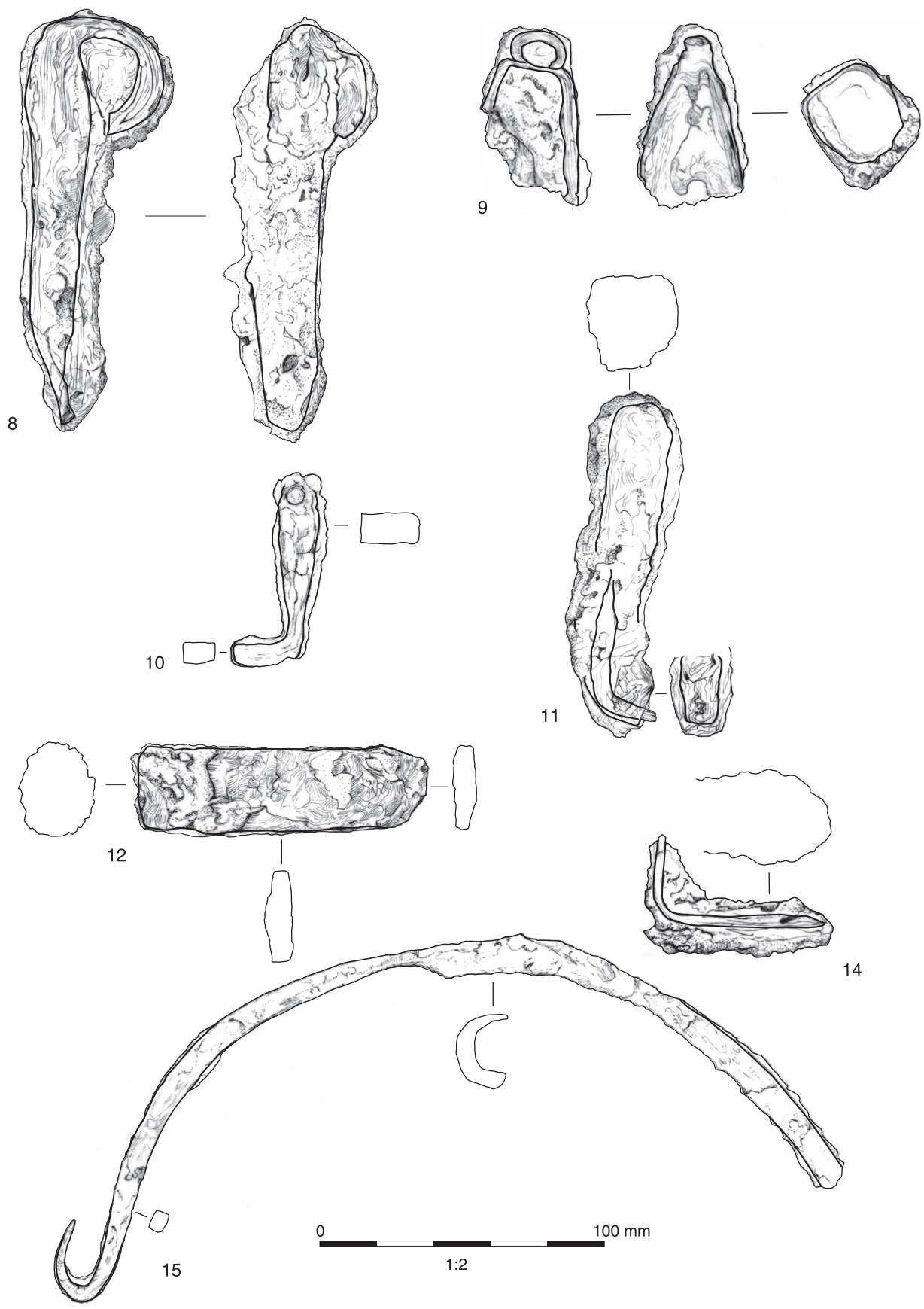

Figure 5.11 Iron objects (nos 8-12, 14-15).

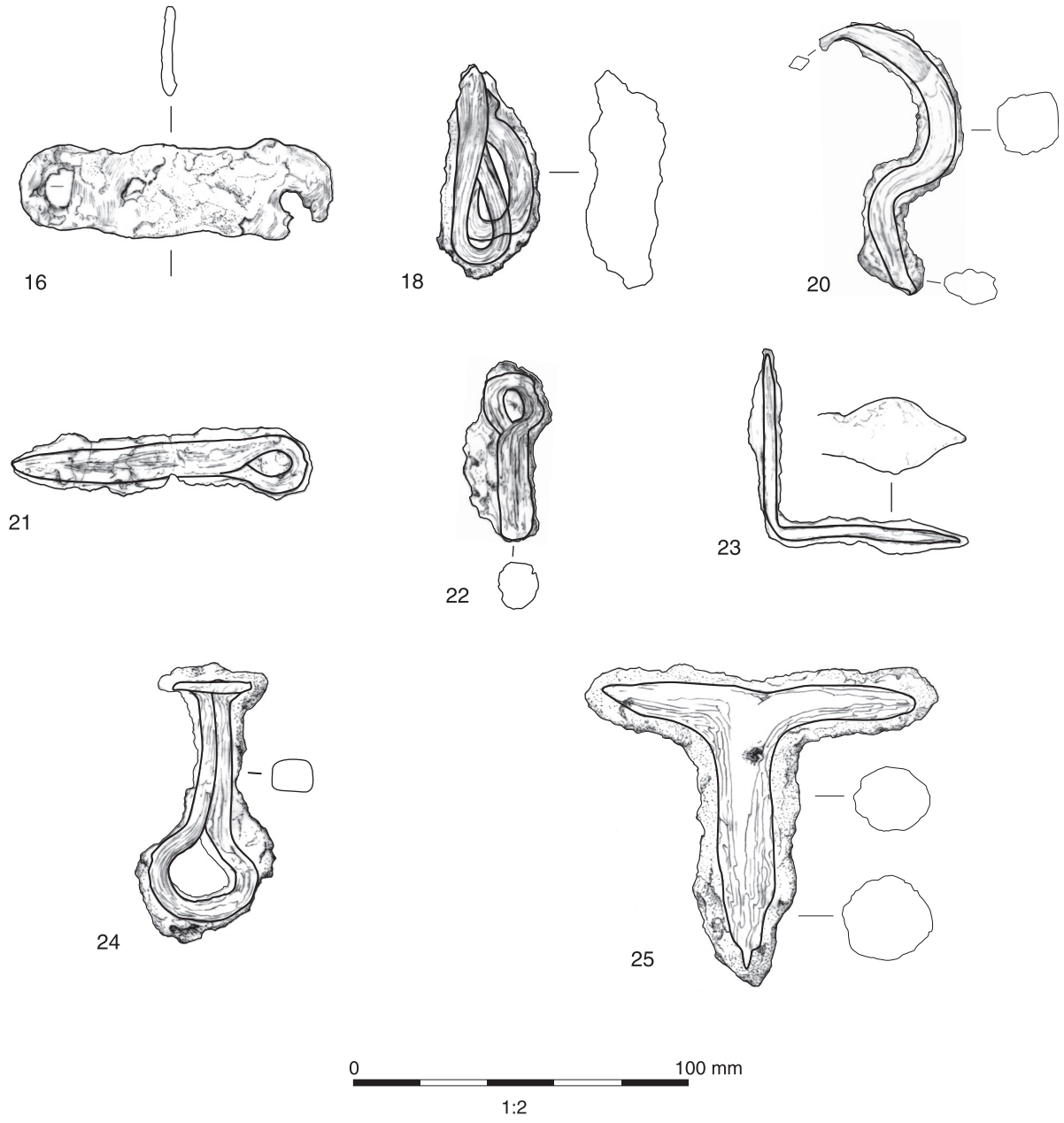

Figure 5.12 Iron objects (nos 16, 18, 20-25).

vertical striae around the rim, and, in one case, radial grooving on the grinding surface (SF249). Both also have decorative grooving on the upper surface, as illustrated.

Table 5.30 Worked stone: Quantification (weight and fragment count) of quern and mill stone by stone type.

Stone	Total weight	No of fragments
Niedermendig lava	24.219 kg	507+
Millstone Grit	12.910 kg	14
Lodsworth greensand	2.515 kg	3
Folkestone greensand	6.075 kg	51+

Lava does not always survive well, but these two better preserved quern fragments (SF244 and SF249) came from waterhole 796, while the lava millstone came from waterhole 9179 (context 9422). By contrast, a lava quern in a particularly friable state was retrieved from the upper silt (context 1433) of a ditch, where it would have had a less certain chance of survival in the acidic, silty clay of the site. Some 39% of the lava, according to the number of contexts, was found in various wells or waterholes. Another 3% came from ditches, with few pieces from pits or gullies, but the record from these other contexts could well be misleading, since they might have been expected to produce a higher proportion of the lava.

The finds are spread across all phases (Table 5.31), although there is only one from Phase 2 (AD 43–70). The majority are from Phases 4 and 5 (AD 150-250). All the Phase 6 pieces were from the upper fills of well/waterhole 796.

Millstone Grit

Millstone Grit may also have been transported to Kent by sea, using an east coast route from the Humber, since a cumbersome cart journey of some 300 km overland from the Pennines would have been impractical. The finds of Millstone Grit are somewhat different in character from the lava, consisting of a small number of large fragments. There are pieces from seven contexts, and while no certain rotary querns were identified, there are fragments from at least three millstones. There is a stream, the Whitewater Dyke a tributary of the Great Stour, adjacent to the site and although it cannot be certain what conditions were like in Roman times, it seems probable that this stream provided water power for the millstones. These were less carefully crafted than the lava querns, with crude pitting on the top surfaces of the upper stones (SF1449, 1521, 1523 and 1525), or, in one case, coarse grooving (SF1520).

Two small fragments of Millstone Grit were found in waterhole 796, which otherwise contained numerous fragments of lava, along with other finds. A probable millstone came from waterhole 8479 (context 8480, SF1491). However, the majority of pieces had been re-used as packing in large post holes. On a site based on clay, and in an era when little was wasted, the Millstone Grit would have been ideal for this purpose, unlike the Niedermendig lava, which was probably too friable. The finds of Millstone Grit come mainly from Phase 4 contexts (AD 150-200), with only the fragments from waterhole 796 belonging within Phase 6 (AD 250–350).

Lower Greensand, Lodsworth stone

The three finds of querns made from Lodsworth stone were somewhat unexpected, since this material has not previously been recorded in Kent, and a local source of greensand was available not far away at Folkestone. The Lodsworth stone was brought from a quarrying area in Sussex some 100 km or more to the west of Ashford (Peacock 1987). There was no known direct route by road, so deliveries by boat are once again a possibility, this time along a southern coastal route. The three pieces are all fragmentary, but one has a grooved surface (co ntext 1068, SF195). Two of the finds are from Phase 4 contexts (AD 150–200), one (context 1068) from a pit, the other (context 7114) from a roadside ditch, while a third fragment (context 9951) came from a ?Phase 5 post-pipe.

Lower Greensand, Copt Point, Folkestone

The local greensand was used for just two rotary querns, although it was available from a known quarrying area at Copt Point, East Wear Bay, Folkestone, only 24 km south-east of Westhawk Farm (Keller 1989). Both pieces are from Phase 4 contexts (AD 150–200). One is a re-used quern fragment from a pit (context 510), the other (SF 1164, Fig 5.13: 48) a nearly complete but unevenly-shaped upper stone (finds reference 7379). The poor workmanship of this quern is in marked contrast to the skill clearly used on the lava querns. The grinding surface has been crudely pitted, as illustrated, with an area of rough grooving near the rim, and further patches that have been worn smooth. This quern was probably made from a beach boulder, and may have seen considerable wear, since it is now fairly flat and only some 39 mm in thickness, whereas the greensand boulders at Copt Point tend to be well rounded.

Other Stone Objects

Cretaceous sandstone from the Wealden Beds (Gallois 1965, 22) was not suitable for rotary querns, but was used for a whetstone from a Phase 5 feature. This is not the usual rod or slab shape, but has been worn to a triangular cross-section (Fig 5.13: 49). A slab of the same sandstone was found in a Phase 4 ditch (context 9031), and has a flat, worn surface, suggesting use as a whetstone or a smoother. The 33 slingstones are all rounded, slightly oval, flint pebbles, for which there are two possible sources. They could have come from the Clay-with-Flints capping the North Downs some 8 km north of the site (Smart *et al.* 1966, 201). More probably they were collected

Table 5.31 Worked stone: Occurrence of stone types (number of contexts) by phase.

	Phase								
Stone	2	3	3/4	4	4/5	5	6	0	Total
Niedermendig Lava	1	5	1	11	2	5	6	2	33
Millstone Grit				5			1	1	7
Lodsworth stone				2		1		1	3
Copt Point, Folkestone				2					2
Wealden sandstone				1		1			2
Slingstones								33	33
Total	1	5	1	21	2	7	7	36	80

from a shingle beach similar to present day Dungeness Beach (Lake and Shephard-Thorne 1987). Parts of the local coast were nearer to Westhawk Farm in Roman times than they are today, and beach pebbles could have come from near Lympne, at distances of between 7.5–14.5 km south-east of Westhawk Farm (Cunliffe 1980, 258). These slingstones came from an undated area of trample, and so it is uncertain whether they are one of the few traces of Iron Age activity at the site, or represent the continuation of older traditions during the Roman period. Similar flint slingstones were found at Oldbury hillfort (Ward-Perkins 1944, 166).

Discussion

The three main quern or millstone materials found at Westhawk Farm - lava, Millstone Grit and greensand, are typical of Roman sites in Kent (Roe nd). Of 32 Roman sites in Kent with known quern and millstone finds, some 22 are presently recorded with finds of Niedermendig lava, while Millstone Grit has occurred at 16 sites; greensand was also widely used, coming from 18 sites (Roe, report in archive). Some of the greensand querns may prove, on closer inspection, to be made of Lodsworth stone, which has not previously been noted in Kent. Other greensand querns are undoubtedly made of stone from Folkestone, which is now becoming known from a number of sites (Keller 1988, 64), including Springhead. Formerly these grinding materials have been recorded mainly from villas (Black 1987, 218, fig 21), or towns such as Canterbury (Blockley *et al.* 1995) and Springhead (Roe nd), which all cluster in the northern part of the county. What is now becoming clear is that the imported stone, particularly lava and Millstone Grit, were not restricted to these types of higher status site, but were widely distributed to all varieties of settlement, including the iron-working community at Westhawk Farm.

The importation of Niedermendig lava from the Rhineland was not necessarily a Roman innovation, although at present only one reasonably certain, earlier, find from Kent is known. A segment of lava rotary quern was incorporated into a rampart at Oldbury hillfort, thought by the excavator to have been reconstructed around AD 43 in response to the Roman invasion (Ward-Perkins 1944, 166), although it is more likely that activity here only extended into the early 1st century AD (cf Cunliffe 1991, 368; Hamilton and Manley 2001, 19). It is already known that Lodsworth stone was transported quite widely around southern England in pre-Roman times, occurring, for instance, near Portsmouth in a late Bronze Age context (Hall and Ford 1994, 29). It is not, as yet, known from a prehistoric site in Kent, and only from Westhawk Farm in a Roman context, but further finds could be expected. However the greensand from Folkestone appears to have been used in Kent both for earlier prehistoric saddle querns and for Iron Age rotary querns (Keller 1989). Only Millstone Grit remains, at present, unknown from pre-Roman contexts in the area.

During the Roman period lava may have been used in Kent to an even greater extent than the large number of recorded instances suggests, since it fragments easily under certain soil conditions, and the resulting grey crumbs may not always have been recorded. It seems to have been in use both for rotary querns and millstones throughout the Roman period, having been retrieved from Phase 2–6 contexts at Westhawk Farm, and from a wide date range at other sites. Lava millstones are also known from Snodland (Ocock and Sydell 1967, 213), Stone-by-Faversham (Philp 1976, 63) and Fishbourne in Sussex (Cunliffe 1971, 153), while a fairly small one, *c* 570 mm in diameter, came from Springhead (Roe nd, 29). There may well have been more, either found as fragments, or else recorded as querns.

Millstones made from Millstone Grit are remarkably common in Kent. In addition to the pieces found at Westhawk Farm, there are three examples from Darenth (Philp 1973, 143), and further finds from Horton Kirby (Philp and Mills 1991, 71), Keston (Philp *et al.* 1991, 180), The Mount at Maidstone (Kelly 1992, 228), Shuart (op. cit.) and Worth (Parfitt 2000, 139). Fragments from Canterbury (Blockley *et al.* 1995, 1206), Springhead (Roe nd, 29) and the Thurnham Roman Villa (Shaffrey, forthcoming) may also come from millstones. Other fragments of Millstone Grit have frequently been reported, often reused. No querns have been specifically identified, and it may be that this particular commodity was brought to Kent entirely in the form of millstones. It has been suggested that C*lassis Britannica* ships were used to supply Wealden iron to the army military zone in northern England, transporting the goods to York by an East coast route (Cunliffe 1988, 84). The opportunity may well have been taken to load them with useful supplies of Millstone Grit for the return journey. This could have been transported as a form of ballast, which would fetch a good price at the port of return. The evidence is beginning to suggest that it was large millstones that were transported, rather than rotary querns. It is thought that the *Classis Britannica* ceased to be operational in the Kent area around AD 250 (Salway 1981, 529), and the phasing for the millstone fragments from Westhawk Farm seems to reflect this, since all the dated finds of Millstone Grit fall within an approximate time range of AD 150 to 250. Good dating evidence for this type of find is not always forthcoming, and broken millstones were in any case often re-used, as at Westhawk Farm, and also at Darenth (Philp 1973, 143), so that the date of their original use is uncertain. Finds of Millstone Grit, when dateable, do however seem to fall within the period that the *Classis Britannica* was transporting iron to the north. The site at Worth is estimated to have been occupied between AD 50 and 225 (Parfitt 2000, 142); at Horton Kirby the deposit containing the millstone is late 2nd or early 3rd century (Philp and Mills 1991, 7); the mill-

stone at Keston has a date range that is a little later, approximately AD 200–300 (Philp *et al. 1991*, 180), which is still well within the range of possibility. In an area with such prolific finds of millstones, further dateable examples of Millstone Grit seem likely to occur.

The choice of any particular material for a quern or millstone must have been dependent to quite an extent on availability. The supply of goods arriving by sea would have been erratic at the best of times. It may have been necessary to be equipped with spare rotary querns or even saddle querns for use if left without a complete millstone, as appears to have been the practice at Ickham, where Millstone Grit fragments were extensively re-used for these items (Spain 1989, 171). If a boat from the Rhine or the Humber failed to arrive, a rotary quern of Lodsworth or Folkestone stone would also have been a serviceable alternative.

For those unable to afford imported querns of superior stone, local quernstone from Folkestone could have been used instead. Rotary querns made from this greensand were sometimes well made and finished (eg Keller 1989, 195 and fig. 3). However, one well-worn rotary quern of this stone from context 7379 (Fig 5.13: 48) shows so little skill in the making that it suggests a disadvantaged owner, maybe an ironworker accustomed to hard manual labour, but lacking finer craft skills. This unfortunate individual might even have had to walk to Folkestone to collect beach boulders and then shape them into upper and lower rotary quern stones as best he could.

Conclusion

It can be shown that the use of specific kinds of stone for querns and millstones at Westhawk Farm was part of an established pattern in Roman Kent. Most of the materials had been in use from before the conquest, although improved road and sea communications must subsequently have facilitated distribution of such essential commodities in the Roman period. The main innovation during the Roman period seems to have been the organisation of transport for millstones from the Pennines. Watermills must have been a common site in Kent by the 2nd century AD, when the first of the mills at Ickham was in operation (Spain 1989). All this activity was part of a much wider pattern, in which lava and Millstone Grit were brought to many sites in south-east England (Black 1987, 117), while their use was supplemented by local greensands. The transport of Millstone Grit may have eased off once the *Classis Britannica* was no longer sailing up and down the North Sea route, but lava was also brought into Kent and elsewhere during the Saxon period (eg Blockley *et al.* 1995, 1206). Whether this trade was part of the same operating system, or was differently organised after a break, remains a matter for future consideration.

Catalogue of worked stone (including illustrated examples)

Quern or millstone fragments

Niedermendig Lava (Fig. 5.13: 15-16)

1 Two fragments. Wt: 105 g. Context 344 (Group 796), Phase 6.
2 Four fragments. Wt: 90 g. Context 346 (Group 796) Phase 6.
3 Ten fragments. Wt: 40 g. Context 378 (Group 796) Phase 6.
4 Three fragments. Wt: 45 g. Context 502 (Group 1760) Phase 4-5.
5 Ten fragments. Wt: 87 g. Context 724 (Group 796) Phase 6.
6 Three fragments. Wt: 20 g. Context 739 (Group 796) Phase 6.
7 Thirty fragments. Wt: 435 g. Context 758 (Group 796) Phase 6.
8 One fragment. Wt: 15 g. Context 805 (Group 1740) Phase 4.
9 Thirty-one fragments. Wt: 98 g. Context 841, SF178, Phase 4.
10 Five fragments. Wt: 340 g. Context 933 (Group 1720), SF185, Phase 3-4.
11 Thirty-three fragments. Wt: Context 430 g. 956 (Group 666), SF187, Phase 4.
12 Twenty-one fragments. Wt: 143 g. Context 1236, Phase 4.
13 One fragment. Wt: 7 g. Context 1308 (Group 1040) Phase 4.
14 Eighty-seven(+) fragments. Wt: 2,360 g. Context 1433 (Group 1760) SF243, Phase 4-5.
15 (*Fig. 5.13*) Part of **rotary quern**, upper stone, with raised rim round edge on upper surface, while rest of upper surface has decorative grooving. There are vertical striae around the rim and the grinding surface appears to be slightly pecked. D: *c* 430 mm, Th at rim: 60 mm, worn to 14 mm in centre, Wt: 2,700 g. Context 1434 (Group 796) SF244, Phase 4.
16 (*Fig. 5.13*) Part of **rotary quern**, upper stone, with raised rim round the edge. Very similar to no. 15 above, but a different quern, because the grinding surface has radial grooving. Both rim and upper surface have decorative grooves, and there are vertical striae round the edge. Lava has whitish phenocrysts, probably of nepheline. D: *c* 430 mm, worn to *c* 18 mm in centre. Context 1547 (Group 796) SF249, Phase 4.
17 One fragment. Wt: 5 g. Context 5129 (Group 5210) Phase 5.
18 Twelve fragments. Wt: 370 g. Context 5175, Phase 3.
19 One fragment. Wt: 18 g. Context 5179 (Group 5280) Phase 3.
20 Seven fragments. Wt: 18 g. Context 7024 (feature 7023) Phase 4.
21 Two fragments. Wt: 20 g. Context 7087, SF938, unphased.

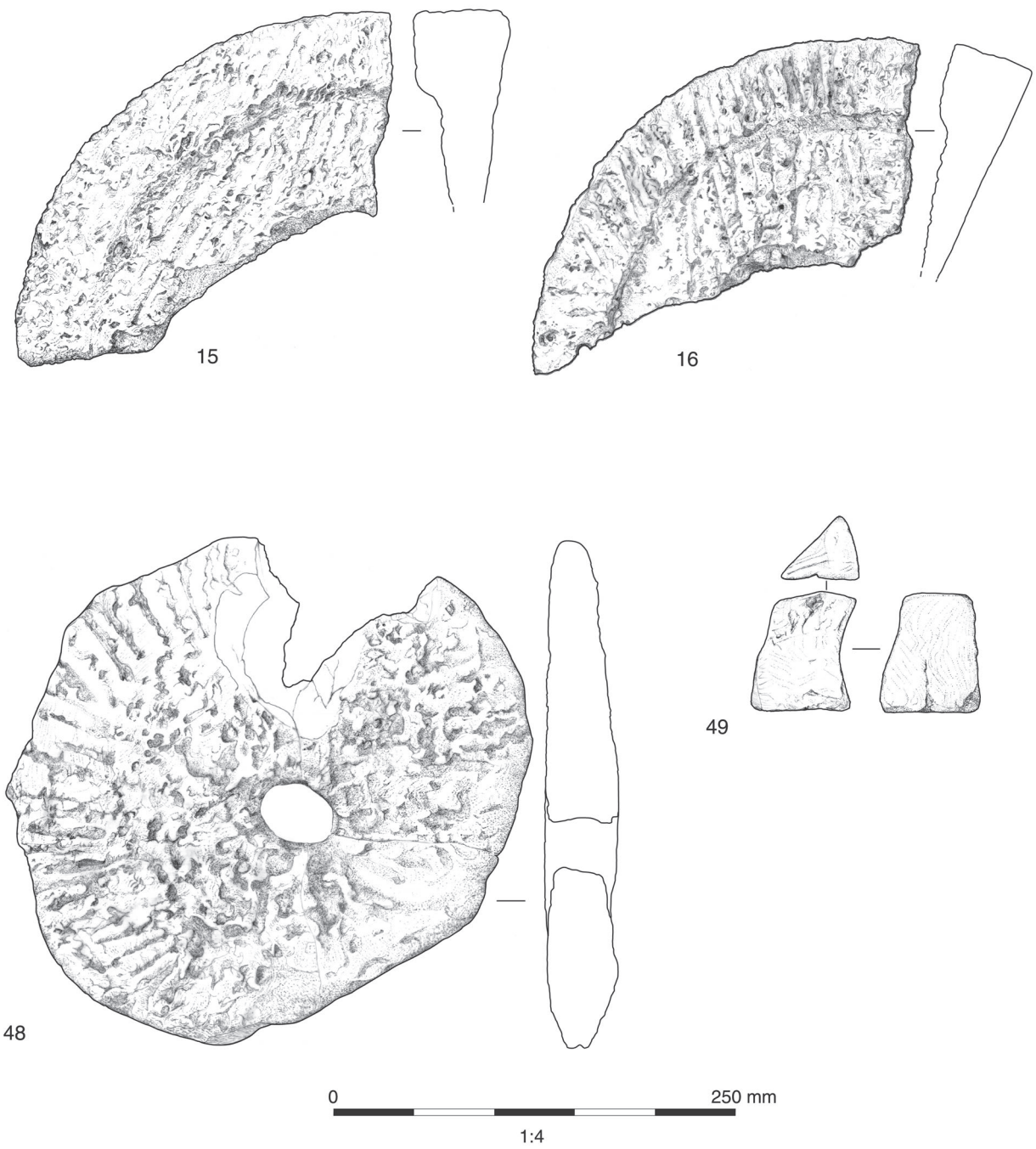

Figure 5.13 Stone objects (nos 15-16, 48-49).

22 Probable **rotary quern** fragments. Five fragments, including one large weathered piece,. Wt: 443 g. Context 7120 (feature 7239) SF960, Phase 4.
23 Sixteen fragments. Wt: 125 g. Context 7237, SF1502, Phase 5.
24 Seventeen fragments. Wt: 135 g. Context 7244 (feature 7239) SF1193, Phase 4.
25 Twenty-three(+) fragments, including one large weathered piece probably from a rotary quern. Wt: 3,700 g. Context 7274, SF947, Phase 5.
26 Eight fragments. Wt: 450 g. Context 7279, SF1078, Phase 5.
27 Five fragments. Wt: 92 g. Context 7415 (feature 7416) Phase 4.
28 Twelve fragments. Wt: 150 g. Context 7536 (Group 8620) SF1285, Phase 2.
29 Fourteen fragments. Wt: 120 g. Context 7536 (Group 8620) SF1292, Phase 2.
30 Thirteen fragments. Wt: 113 g. Context 7658 (Group 9100) SF1340, Phase 3.
31 Nine fragments. Wt: 215 g. Context 7768 (Group 7850) SF1339, Phase 3.
32 Large segment from probable **millstone**, very weathered, also worn. D: *c* 750 mm, extant Th:

c 42 mm at rim, 39 mm in centre, Wt: 8,200 kg. Context 9422 (feature 9179) SF 1518, Phase 4.

33 Four fragments. Wt: 20 g. Context 10077, Post-Roman.

34 One hundred and fourteen(+) fragments. Wt: 860 g. Context 10323 (Group 10070) SF1545, Phase 3.

Millstone Grit

35 **Quern** or **millstone**, weathered fragment with part of grinding surface. Wt: 3,000 g. Context 293, SF47, Unphased.

36 Fragments, small burnt and weathered. Two pieces. Wt: 100 g. Context 758 (Group 796) SF198, Phase 6.

37 **Rotary quern** or **millstone** fragment, burnt slightly pink, part of outer edge, traces of pitted surface. Th at rim: 59 mm, Wt: 830 g. Context 8189, SF1449, Phase 4.

38 Probable **millstone**, large weathered fragment, with one fairly smooth surface. Maximum Th: 98 mm, Wt: 2,700 g. Context 8480 (feature 8479) SF1491, Phase 4.

39 Small fragment, slightly burnt. Wt: 7 g. Context 8745, sample 683, Phase 4.

40 Probable **millstone** fragment, probably upper stone, with part of rim. Grinding surface worn into rings, upper surface has been grooved diagonally. D: *c* 750 mm, Th at rim: 58 mm, Wt: 1,665 g. Context 9488, SF1520, Phase 4.

41 Possible **millstone**, worn fragment. Very similar to millstone No. 43. Worn grinding surface with rings, upper surface pitted, part of central hole. Maximum Th now: 38 mm, Wt: 760 g. Context 9488, SF1523, Phase 4.

42 **Quern** or **millstone**. Four fragments, two fitting, probably all from the same stone. Include two fragments with part of outer edge, grinding surface worn into rings. Maximum Th at rim: 64 and 66 mm, Wt: 2218 g. Context 9488, SF1524-SF1527, Phase 4.

43 **Millstone.** Two joining fragments with part of rim, well worn grinding surface, which is now fairly smooth with traces of rings, upper surface pitted fairly crudely. D: *c* 750 mm, maximum Th at rim now: 34 mm, Wt: 830 g. Context 9636, SF1521 and SF1522, Phase 4.

Lower Greensand, Lodsworth stone

44 **Rotary quern** fragment with grooved grinding surface and part of rim. Maximum Th: 83 mm, Wt: 400 g. Context 1068, SF195, Phase 4.

45 Probable **rotary quern** fragment, weathered and slightly burnt. Extant dimensions: 122 x 122 mm, maximum Th: 70 mm, Wt: 575 g. Context 7114 (Group 8590) SF950, Phase 4.

46 **Rotary quern** fragment, burnt. D: *c* 430 mm, Th at rim: 71 mm, Wt: 1,540 g. Context 9951, SF1533, Phase 5.

Lower Greensand, Copt Point, Folkestone (Fig. 5.13: 48)

47 Probable **rotary quern** fragment, worn top and bottom with concave grinding surface, burnt. Wt: 475 g. Context 510 (Group 1260) Phase 4.

48 (*Fig. 5.13*) Fragmentary **rotary quern,** crude and unevenly shaped. Almost complete, comprises four large pieces and *c* 46 small fragments. Grinding surface is more or less flat and crudely pitted, with an area of grooving near the rim, extending about half the way round. Some evidence of wear. Other surface looks like the unmodified part of a beach boulder. D: 330 x 300 mm, oval hole *c* 45 x 35 mm, Th at hole: 39 mm, Wt: 5,600 g. Context 7379, SF1164, Phase 4.

Other stone objects

Wealden Sandstone (Fig. 5.13: 49)

49 (*Fig. 5.13*) **Whetstone**, pyramidal block, worn on three sides. Unusual shape for a whetstone, but well worn. Two narrow grooves from point sharpening. Dimensions: 72 x 60 x 57 mm, Wt: 215 g. Context 7279, SF1046, Phase 5.

50 Possible **smoother or whetstone**. Slab broken in three, worn smooth on one flat side. Dimensions: 142 x 74 x 26 mm, Wt: 360 g. Context 9031 (Group 10420) Phase 4.

Flint

51 Pebbles, all slightly oval, likely to be **slingstones**. 33 examples. Average Wt: 48.5 g. Context 10239, unphased.

WOODEN FINDS

by S J Allen

Introduction

Some 78 pieces of waterlogged wood were recovered during the excavation, deriving from fills of three waterholes: 796, 7239 and 9179, containing 12, 13 and 53 pieces of wood respectively. This material was recorded and assessed by Nick Mitchell in 2000 (records held in archive), being cleaned and checked for original surfaces, joints, toolmarks and fixings such as nails. After this a number of pieces, consisting primarily of unworked oak from waterhole 9179, were discarded. These includ ed a part of a small tree trunk (context 10117) found in an upright position against the south-west edge of the feature. A sample was taken from this timber for dendrochronological dating, but despite having a sequence of some 300 rings it was impossible to find a match (the rings were unusually closely-spaced throughout) and, consequently, a date (D Miles pers. comm.; data and notes in project archive). Some 30 pieces of worked wood were then submitted for more detailed reporting.

Methodology

The 30 pieces of wood were subject to further cleaning and washing. Notes were made on each piece as it was dealt with and these form the basis of the present report. The overall condition of the wood was poor. Although the ladder parts and withy tie (see below) were in excellent, though soft, condition, the remainder of the assemblage was much degraded.

Each piece was sampled for species identification at York. These were examined in transverse, radial longitudinal and tangential longitudinal sections under a microscope; all species identifications follow Schweingruber (1990). All identifications carried out in this way were incorporated into the database using their scientific names. A database was created using Microsoft Access to record information about each object and to allow the data to be sorted and interrogated after the completion of recording. Following examination, each piece was returned to its original packaging to await a decision on its future, with the exception of the ladder parts and withy tie, which were fully conserved.

Most of the wood can only be identified to a particular genus. For example, while there are many different species of willow, their wood cannot be differentiated. Only three species, *Fraxinus excelsior L.* (Ash), *Quercus spp*. (Oak) and *Salix spp.* (Willow) were noted in the assemblage.

Catalogue and summary of assemblages

In all cases, the wood survived through burial in waterlogged anoxic conditions, maintained from burial through to excavation. Many of the pieces exhibited shrinkage cracks which suggest that the site has been recently subjected to dewatering or that the wood had suffered some period of drying during the excavation.

Finds from Waterhole 796 *(Fig. 5.14: 1-4)*

1 Part of radially faced pierced wooden **board** with curved edge/ends. Broken along the grain with the break passing across a small through drilled hole in the face. Half of a pot lid, or possibly a blade from a small scraping tool. *Quercus spp.* L: 119 mm, W: 63 mm, Th: 12 mm, hole D: *c* 16 mm. Context 1456 (Group 796) Phase 4

2 Section of **roundwood stake point** with beginning of two opposing facets cut to form the (missing) tip. Faint tool signature marks. *Salix sp.* Spring cut. L: 137 mm, D: 33 mm. Context 1547 (Group 796) Phase 4

3 Butt end of **handle** cut from radially faced board. 'Pommel' is of semi circular plan with shoulders to handgrip formed by sawing. Grip and curved edge of 'pommel' formed by hewing. *Quercus sp.* L: 110 mm, W: 55 mm, Th: 28 mm. Context 1547 (Group 796) Phase 4

4 **Withy tie**. Three strands, each 'S' twisted, plaited 'Z' fashion to form a short length of rope. No bark present. No working marks *Salix sp.*. D of strands: 8 mm, 10 mm and 12 mm, rope D: 30 mm. Context 1583. SF250 (Group 796) Phase 4

Woodworking debris from waterhole 9151

5 (*not illustrated*) **Offcut**. Section of box halved worked timber, originally of rectangular cross-section with at least two of the corners chamfered. Very eroded, with deep shrinkage cracks. *Fraxinus excelsior L.* L: 88 mm, W: 61 mm, Th: 40 mm. Context 9389 (Group 9151) Phase 3

6 (*not illustrated*) **Chipping**. Radially faced and eroded section of timber with much sapwood present. Very eroded with deep shrinkage cracks. *Quercus sp.* L: 118 mm, W: 32 mm, Th: 32 mm. Context 9389 (Group 9151) Phase 3

7 (*not illustrated*) Heartwood **chipping**. Section of boxed heart timber. Very eroded with deep shrinkage cracks. *Fraxinus excelsior L.* L: 137 mm, W: 44 mm, Th: 44 mm. Context 9389 (Group 9151) Phase 3

8 (*not illustrated*) **Heartwood chipping**. Section of radially faced timber. Very eroded with deep shrinkage cracks. *Quercus sp.* L: 148 mm, W: 37 mm, Th: 30 mm. Context 9389 (Group 9151) Phase 3

9 (*not illustrated*) **Heartwood chipping**. Section of tangentially faced timber. Very eroded with deep shrinkage cracks. *Fraxinus excelsior L.* L: 87 mm, W: 33 mm, Th: 17 mm. Context 9389 (Group 9151) Phase 3

Rectangular shaft and peg from Waterhole 9151 *(Fig. 5.15: 10)*

10 **Shaft**. Section of radially faced wood cut to regular rectangular cross-section with one end slightly angled, other end broken. Pierced near intact end by single sub-rectangular peg hole through face. Good condition, slightly eroded surfaces. Possibly part of a ladder? *Fraxinus excelsior L.* L: 252 mm, W: 43 mm, Th: 31 mm, peg hole 9 x 10 mm. 9392 (Group 9151) SF1516, Phase 3

11 (*not illustrated*) **Peg**. Small rectangular cross-section peg fitting to pierced hole of Cat.No.10. One end broken, other slightly bifaced. *Quercus sp*. L: 29.5 mm, W: 10 mm, Th: 10 mm. Context 9392 (Group 9151) SF1516, Phase 3

Broken ladder rail and broken ladder rung from Waterhole 9151 *(Fig. 5.15: 12-13)*

12 **Ladder rail**. Section of box halved rectangular cross-section heartwood, with chamfered edges. One end had chamfered corner, other end broken. Complete rectangular through mortise almost halfway along length for ladder rung, with remains of a second similar mortise at the broken end. Good condition, though heavy mineral staining over much of surface. *Quercus sp.*

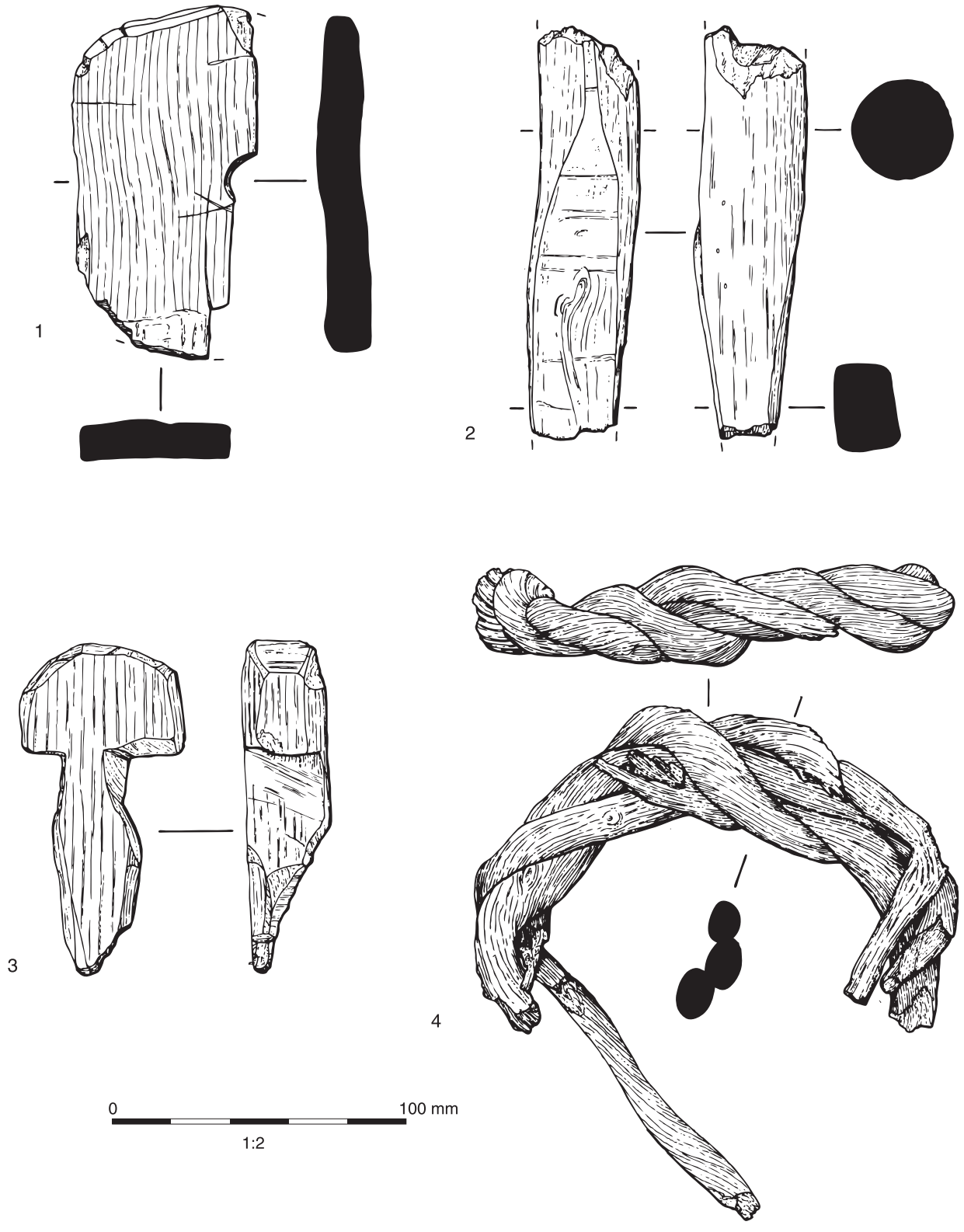

Figure 5.14 Wooden objects (nos 1-4).

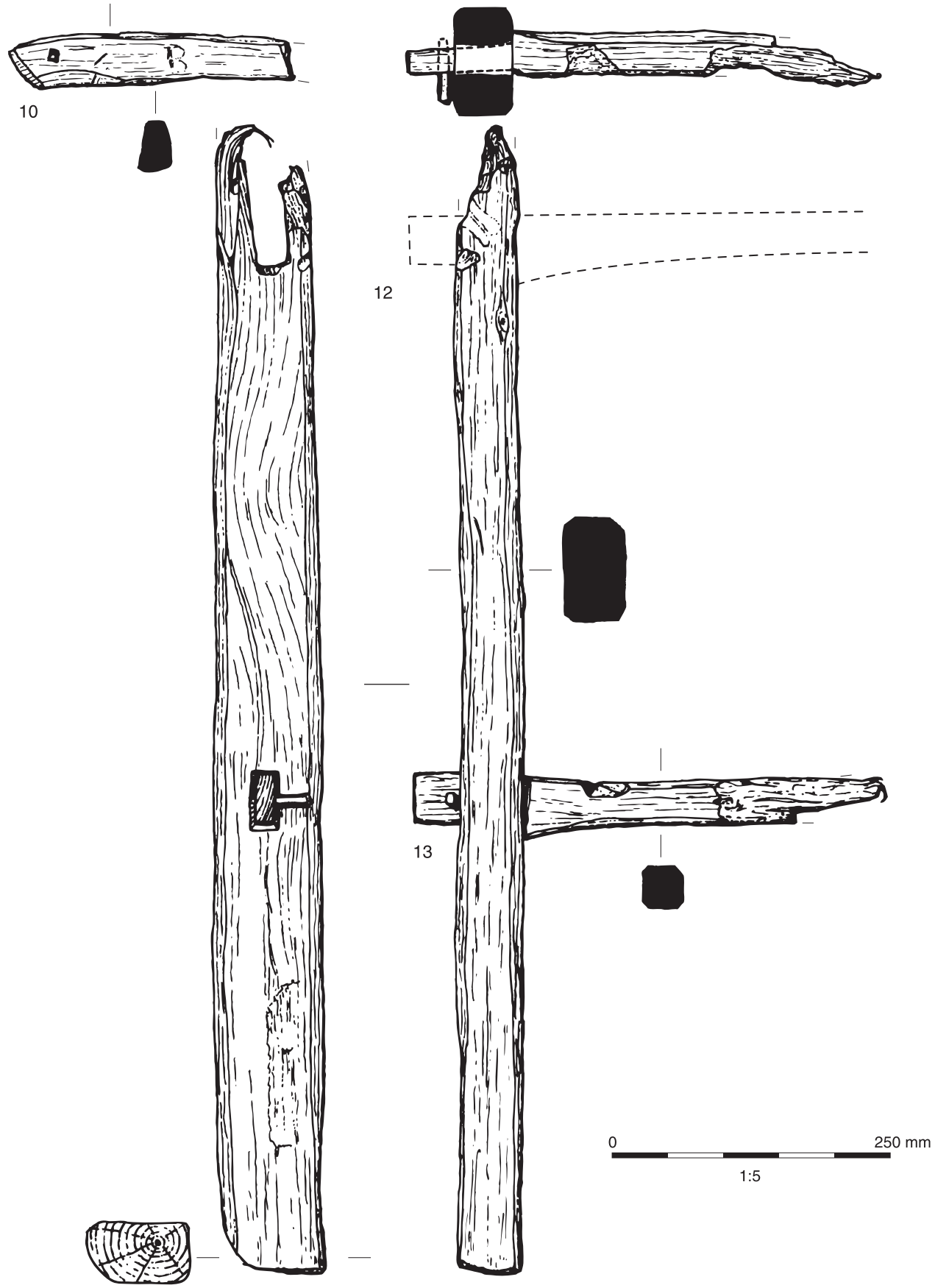

Figure 5.15 Wooden ladder (nos 10, 12-13).

L: 1016 mm, W: 93 mm, Th: 55 mm. Intact mortise 50 x 30 mm, broken mortise W: 30 mm. Context 9396 (Group 9151) SF1517, Phase 3

13 **Ladder rung**. Section of radially-faced heartwood with one end cut to form a tenon. Tenon pierced for single rounded peg, of which remains are present. From shoulder of tenon, one edge continues straight and the opposing edge is carved to a concave form before terminating at a break. Light saw marks on shoulders of tenon, worked surfaces of tenon itself are hewn. Good condition though heavy mineral staining over much of surface. *Quercus sp*. L: 421 mm, W: 51 mm, Th: 35 mm. Tenon: L: 101 mm, W: 43 mm, Th: 20 mm, hole D: 7 mm. Context 9396 (Group 9151) SF1517, Phase 3

Worked timbers or remains derived from worked timbers from waterhole 9179, *(Fig. 5.16: 14, 18)*

14 **Offcut**. Tangentially faced sub-rectangular cross-section timber broken into two refitting parts. Larger piece has flat based groove cut across one face with faint hewing marks in base. Very eroded with deep shrinkage cracks. Several small knots - cut from branch wood. *Quercus sp.* L: 1107 mm, W: 190 mm, Th: 104 mm. Groove 58 mm wide, 26 mm deep. Context 9422 (Group 9179) Phase 4

15 (*not illustrated*) **Offcut**. Radially faced section of sub-rectangular cross-section heartwood. Very eroded with deep shrinkage cracks. *Quercus sp.* L: 352 mm, W: 120 mm, Th: 68 mm. Context 9422 (Group 9179) Phase 4

16 (*not illustrated*) **Offcut**. Radially faced section of sub-rectangular cross-section heartwood. Possible remains of a smashed bare faced tenon at one end. Very eroded with deep shrinkage cracks. *Quercus sp.* L: 253 mm, W: 138 mm, Th: 69 mm. Context 9422 (Group 9179) Phase 4

17 (*not illustrated*) **Offcut**. Halved section of sub-rectangular cross-section heartwood/sapwood. Cut from branch wood. Very eroded with deep shrinkage cracks. *Quercus sp. L:* 194 mm, W: 110 mm, Th: 65 mm. Context 9422 (Group 9179) Phase 4

18 **Offcut**. Radially faced section of sub-rectangular cross-section heartwood. One fair face, possibly torn from a post or plank. *Quercus sp.* L: 488 mm, W: 104 mm, Th: 54 mm. Context 9422 (Group 9179) Phase 4

19 (*not illustrated*) **Stump**. Section of tree at branch or root junction, with at least four shoots springing from this bole. Very eroded. *Quercus sp*. L: 224 mm, W: 198 mm, Th: 143 mm. Context 9422 (Group 9179) Phase 4

20 (*not illustrated*) **Roundwood**. Section of roundwood with cut ends. Very eroded, deep shrinkage crack along whole length. *Quercus sp*. L: 598 mm, diameter 31 mm. Context 9422 (Group 9179) Phase 4

Worked, eroded, light timber from waterhole 9179

None of the pieces fit to make coherent structures.

21 (*not illustrated*) **Offcut**. Box halved section of irregular cross-section heartwood. Very eroded with deep shrinkage cracks. *Quercus sp*. L: 437 mm, W: 86 mm, Th: 40 mm. Context 10079 (Group 9179) Phase 3 or 4

22 (*not illustrated*) **Offcut**. Box quartered section of sub-rectangular cross-section heartwood. Very eroded. *Quercus sp*. L: 154 mm, W: 46 mm, Th: 34 mm. Context 10079 (Group 9179) Phase 3 or 4

23 (*not illustrated*) **Offcut**. Box halved section of sub-rectangular cross-section heartwood. One end broken, other tapered and cut off. Very eroded. *Quercus sp.* L: 199 mm, W: 64 mm, Th: 47 mm. Context 10079 (Group 9179) Phase 3 or 4

24 (*not illustrated*) **Offcut**. Box heart section of sub-rectangular cross-section heartwood. Possible eroded joint at one end. Very eroded with deep shrinkage cracks. *Quercus sp.* L: 184 mm, W: 42 mm, Th: 41 mm. Context 10079 (Group 9179) Phase 3 or 4

25 (*not illustrated*) **Offcut**. Box heart section of irregular cross-section heartwood. Very eroded with deep shrinkage cracks. *Quercus sp.* L: 198 mm, W: 40 mm, Th: 34 mm. Context 10079 (Group 9179) Phase 3 or 4

26 (*not illustrated*) **Offcut**. Radially faced section of irregular cross-section heartwood. Very eroded with deep shrinkage cracks. *Quercus sp.* L: 141 mm, W: 36 mm, Th: 27 mm. Context 10079 (Group 9179) Phase 3 or 4

27 (*not illustrated*) **Offcut**. Box halved section of sub-rectangular cross-section heartwood. Broken into two refitting pieces. Very eroded with deep shrinkage cracks. *Quercus sp.* L: 352 mm, W: 61 mm, Th: 34 mm. Context 10079 (Group 9179) Phase 3 or 4

28 (*not illustrated*) **Offcut**. Radially faced section of sub-rectangular cross-section heartwood. Very eroded with deep shrinkage cracks. *Quercus sp.* L: 231 mm, W: 36 mm, Th: 27 mm. Context 10079 (Group 9179) Phase 3 or 4

29 (*not illustrated*) **Offcut**. Box heart section of irregular cross-section heartwood. Broken into two refitting pieces. Possible eroded remains of half lap dovetail housing in one edge. Very eroded with deep shrinkage cracks. *Quercus sp.* L: 771 mm, W: 81 mm, Th: 45 mm. Context 10079 (Group 9179) Phase 3 or 4

30 (*not illustrated*) **Offcut**. Box heart section of irregular cross-section heartwood. Very eroded with deep shrinkage cracks. *Quercus sp.* L: 296 mm, W: 83 mm, Th: 45 mm. Context 10079 (Group 9179) Phase 3 or 4

31 (*not illustrated*) **Offcut**. Box heart section of irregular cross-section heartwood. Very eroded. *Quercus sp.* L: 358 mm, W: 84 mm, Th: 43 mm. Context 10079 (Group 9179) Phase 3 or 4

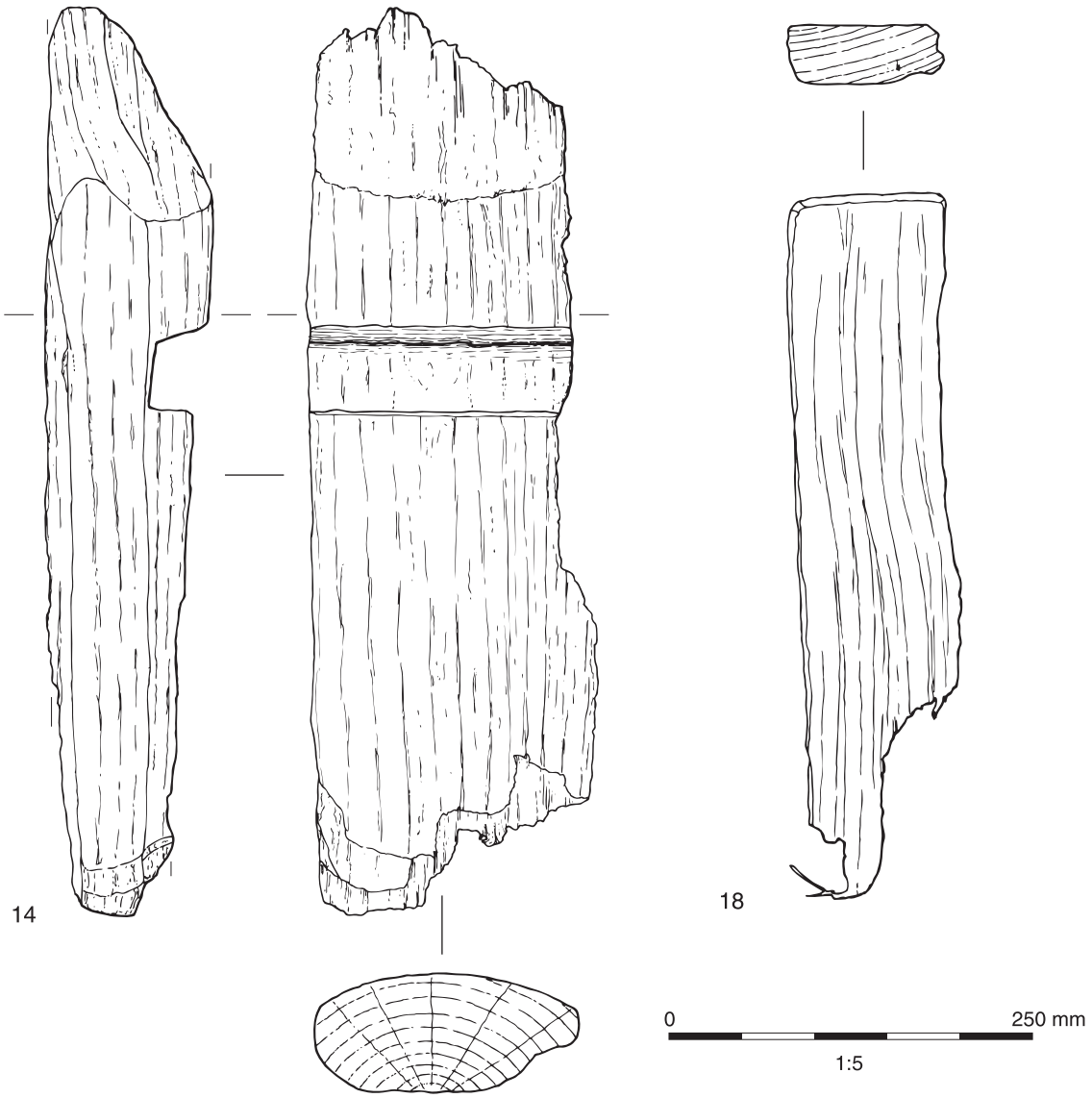

Figure 5.16 Wooden objects (nos 14, 18).

32 (*not illustrated*) **Offcut**. Radially faced section of irregular cross-section heartwood. Very eroded. *Quercus sp.* L: 171 mm, W: 53 mm, Th: 25 mm. Context 10079 (Group 9179) Phase 3 or 4

33 (*not illustrated*) **Offcut**. Box halved section of irregular cross-section heartwood. Very eroded with deep shrinkage cracks. *Quercus sp.* L: 183 mm, W: 46 mm, Th: 41 mm. Context 10079 (Group 9179) Phase 3 or 4

Discussion

All of the wood examined from this site has been worked, and has presumably formed part or parts of structures now lost. The circumstances of recovery (extraction by machine bucket in some cases) were such that careful examination of all the timbers could not be carried out *in situ*. However, it is clear from their recorded locations that the majority (at least) of the timbers did not derive from structures within the features from which they were recovered, such as shaft linings or revetments, and it is likely that in all cases they represent 'scrap' material discarded into a convenient feature. The derivation of the timbers cannot be identified.

What can be said is that a very narrow species range is represented. Both Oak and Ash are well-known as timber trees and to find them utilised to produce the objects found at Westhawk Farm is unsurprising. The three tree species represented are all native species and could have been found growing locally.

Little can be said about the working of the wood. No bark edges survive on the timbers and felling seasons cannot be identified. The few joints found are highly eroded, and it is not certain whether they are joints, or simply fortuitous erosion and breakage patterns. Only the groove on a timber (No. 14) from context 9422 exhibited any trace of tool marks. These

indicated that the groove had been cut out with an axe or similar heavy bladed cutting tool.

The 'small finds' material is of much greater interest. The pierced board (No. 1) is superficially similar to offcuts of board often found as debris on Roman and medieval sites. The ends, however, show signs of working, being deliberately cut to form a curve. How extensive this curved end/edge was cannot be known owing to damage. If part of a scraping tool, it is very small. The most likely identification therefore is as a pot lid, one of those utilitarian and probably very common objects which rarely survive in an archaeological context.

The handle (No. 3) may derive from any of a number of carved wooden tools, but the closest parallels to it are the handles of wooden swords. These are usually described as toys, though in a military context such artefacts might be practice weapons, used in training. There is no military presence at this site, so far as the writer is aware, and so it is best to consider this item as indeed part of a child's toy. In form it is similar to a more complete example of Iron Age date from The Breiddin (Britnell and Earwood 1991, 164-5, no 353), though the handgrip is not so regular.

Withy ties are being found with increasing frequency on prehistoric waterlogged sites including such Iron Age examples as Goldcliff (Brunning and Bell 2000, 216) and The Breiddin (Britnell and Earwood 1991, 164). Westhawk Farm adds another example to those which have been recovered from Roman sites. These include Perry Oaks, Middlesex (Allen 2001) and New Fresh Wharf, London (Miller *et al*. 1986, 232). Unfortunately, few of the Roman examples have yet been found in a context which would shed light on their function, but an example from a well at Stonea was interpreted as a possible bucket binding (Jackson 1996, 552). These objects could have been used for a variety of purposes, such as handles, fastenings, bindings or ties. Of possible relevance to this site is an Iron Age find from Glastonbury, where one was found *in situ* employed as a replacement rung for a ladder (Bulleid 1911, 332).

The ladder rail and one rung (SF1517) are from the same ladder, while a second rung (SF1516) may be a replacement rung for the same ladder. The rail is clearly from one end of the ladder, probably the lower end. One corner of an edge/end junction has been chamfered away, suggesting that this was the right hand side of the ladder when propped in use. Each edge/face corner has been chamfered, removing any sharp angles on the rail. The sockets for the rungs were sharply cut using a chisel type of tool with a blade width of 15 mm. Each socket is at a slight angle to the axis of the rail and when propped in place, this would mean that the faces of the rungs they housed would be closer to the vertical than otherwise.

The rung associated with this rail was shaped from a rectangular cross-section radially-faced batten. The complete end is cut to form a tenon, fitting the socket in the rail. The shoulders of this tenon are sawn. The waste wood may have been removed by a small axe, or wedge, but the final trimming marks show that a chisel or similar was used to pare away the faces of the tenon to permit a fit to the rail. The rest of the rung is carefully shaped with a straight flat upper edge and a concave-profile lower edge. The curve of this lower edge, if regular, shows that just over half of the length of the rung is present.

The tenon projected beyond the outside edge of the rail and was fastened in place by a single wooden peg. Rather than being pegged through the rail, the peg went through the projecting portion of the tenon outside the rail, locking it in place between the peg and the shoulders of the tenon. Such an arrangement would have made the rung easier to replace if broken, than if the peg had been driven through the rail as well.

If SF1516 is a replacement rung from a ladder, then it would seem to have been fastened in place in a similar fashion, that is, with a projecting end and a peg to lock the rung in place outside the rail. The entire ladder could not have been made in this fashion though, as there is nothing on the rung to prevent the rails moving closer together. It is more likely that this piece went through the sockets on both rails and was fastened outside both rails to stop it falling out of position. Rail spacing would have been maintained by the rungs above and below the replacement.

The upper edge of the rung is around 5 mm below the upper edge of the rung socket, and thus the distance from ground to the top of the first rung is 438 mm. The other rungs may have been spaced further apart, as the distance between the top of the lower socket and the bottom of the upper socket is 450 mm. If the second housing were the same size as the first, this would make a step distance of around 500 mm. Assuming that the rung was symmetrical, its overall length would have been 550 mm and the distance between the rails at this point some 348 mm.

Ladder parts are uncommon finds on Roman sites. Those which have been found, such as those from Silchester (St John Hope and Fox 1901, 244) and Queen Street, London (Weeks 1978) were, like the Westhawk Farm example, recovered from wells or waterholes. The construction and dimensions of the components of the Westhawk ladder are very similar to the Silchester and Queen Street examples. At Silchester, however, the rungs were held in place by wedges and the rails may have been cut from softwood rather than Oak. In terms of width and step distance, the three are also similar. The Silchester example is not closely dated, although that from Queen Street seems to have been buried in the late 1st century (Wilmott 1982, 47). The Westhawk ladder is from a context assigned to Period 2, Phase 3 (AD 70-150). The type may have a long history- a ladder of similar construction and size, although with more crudely fashioned rails, was recovered from the Iron Age settlement at Glastonbury (Bulleid 1911, 332), so the form of construction alone may not indicate an early date.

Where the Westhawk ladder differs is in the form of the rung. The other ladders have rungs of plain rectangular cross-section (although one of those from

Silchester may be circular). None appears to have been shaped in the same way as that described here. Although this working reduced the cross-sectional area of the rung at its midpoint, most of the weight of an occupant is placed to one side or the other of a rung when climbing or descending. A rung shaped this way would reduce the overall weight of the ladder somewhat while still retaining enough wood to give support at those parts of the rung which most needed it.

LEATHER

by Quita Mould

Methodology

The leather was washed and wet when examined. Leather species identification was made using low powered magnification.

Discussion

Four fragmentary leather objects were among the finds assemblage recovered from waterhole 796, a feature located on the north-west side of the axial road opposite the shrine enclosure. It is thought that the feature was dug sometime between AD 70-150 (within Phase 3) and may originally have been associated with a metalworking structure (Structure I) immediately to the west. The leather was found in the middle fills of the waterhole, attributed to Phase 4 and dated to AD 150-200. It has been suggested that the relatively large number of coins found in the upper (Phase 5 and 6) fills might include redeposited votive material (see Guest, above). However, there is no reason to think that the other categories of material recovered, including the leather, represent anything other than discarded domestic rubbish.

Though the group of leather is small it is of interest as it comes from a civilian settlement in the south of the country. Our knowledge of Romano-British leatherwork is principally based on large collections associated with military establishments, which have dominated the corpus of archaeological leatherwork recovered to date. Details of the leather from Westhawk Farm can be usefully added to the evidence that is slowly accumulating regarding the southern civilian population.

Context 1547 contained a length of seam torn from an unidentifiable item of goatskin (SF251, Fig. 5.17: no. 1) and the remains of two heavily worn shoes of one-piece construction (SF247.1, Fig. 5.18: 2; SF247.2, Fig. 5.18: 3). Little can be said about the simple seam (no. 1) other than it has been sewn with fine thonging in a running stitch. The two one-piece shoes (nos

Figure 5.17 Leather shoe (no. 1).

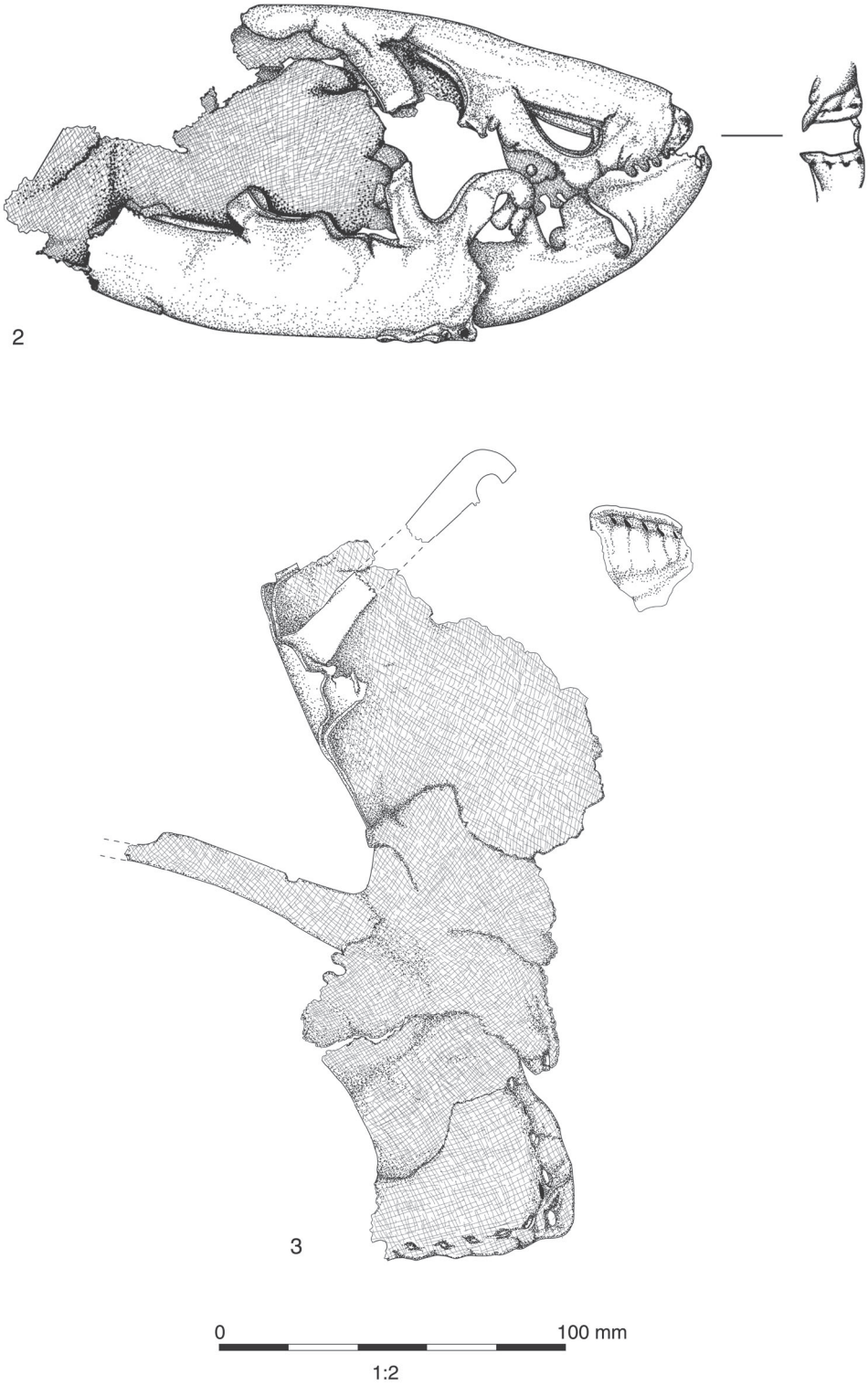

Figure 5.18 Leather shoes (nos 2-3).

2 and 3) are of similar style and it is possible, though unlikely, they may have been a pair. The shoes are fragmentary, several of their fastening loops are now missing and their exact style is uncertain (see Fig. 5.19 for a possible reconstruction). However, it is clear that they belong to a generic style of footwear worn in the mid 2nd century. Individual shoes of this general style vary greatly in the arrangement and shape of their loops and accompanying decorative features. The arrangement of the surviving fastening loops with small lobes at the base most closely resembles those seen on the uppers of shoes of nailed construction, suggesting that at this time shoes with similar styles of uppers were being made in both nailed and one-piece

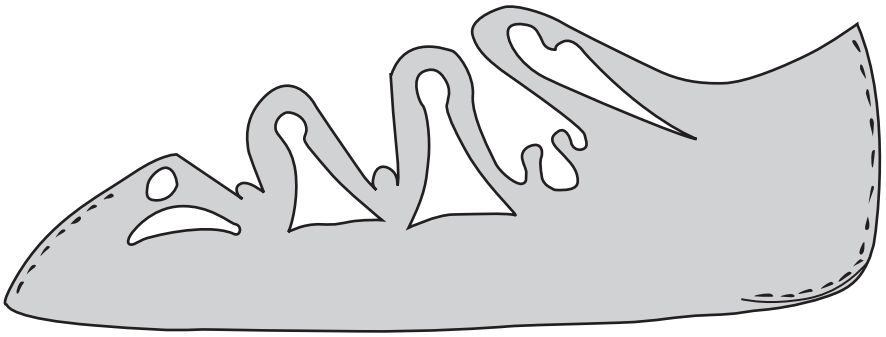

Figure 5.19 Reconstruction drawing of one-piece shoe.

constructions, a feature also noted for other upper styles found elsewhere (for example at Welzheim - van Driel-Murray 2001, 191); the different constructions employed reflect the need for heavier 'outdoor' wear and lighter footwear. Nailed shoes with comparable upper styles have been found at the fort of Birdoswald, associated with mid to late 2nd century pottery (style 2 - Mould 1997, 335), and at the Antonine fort of Bar Hill (type A calceus - Robertson *et al.* 1975, fig. 22, no. 5).

Context 1456 contained the bottom unit of a shoe of nailed construction (SF245; Fig. 5.20: 4). The shoe

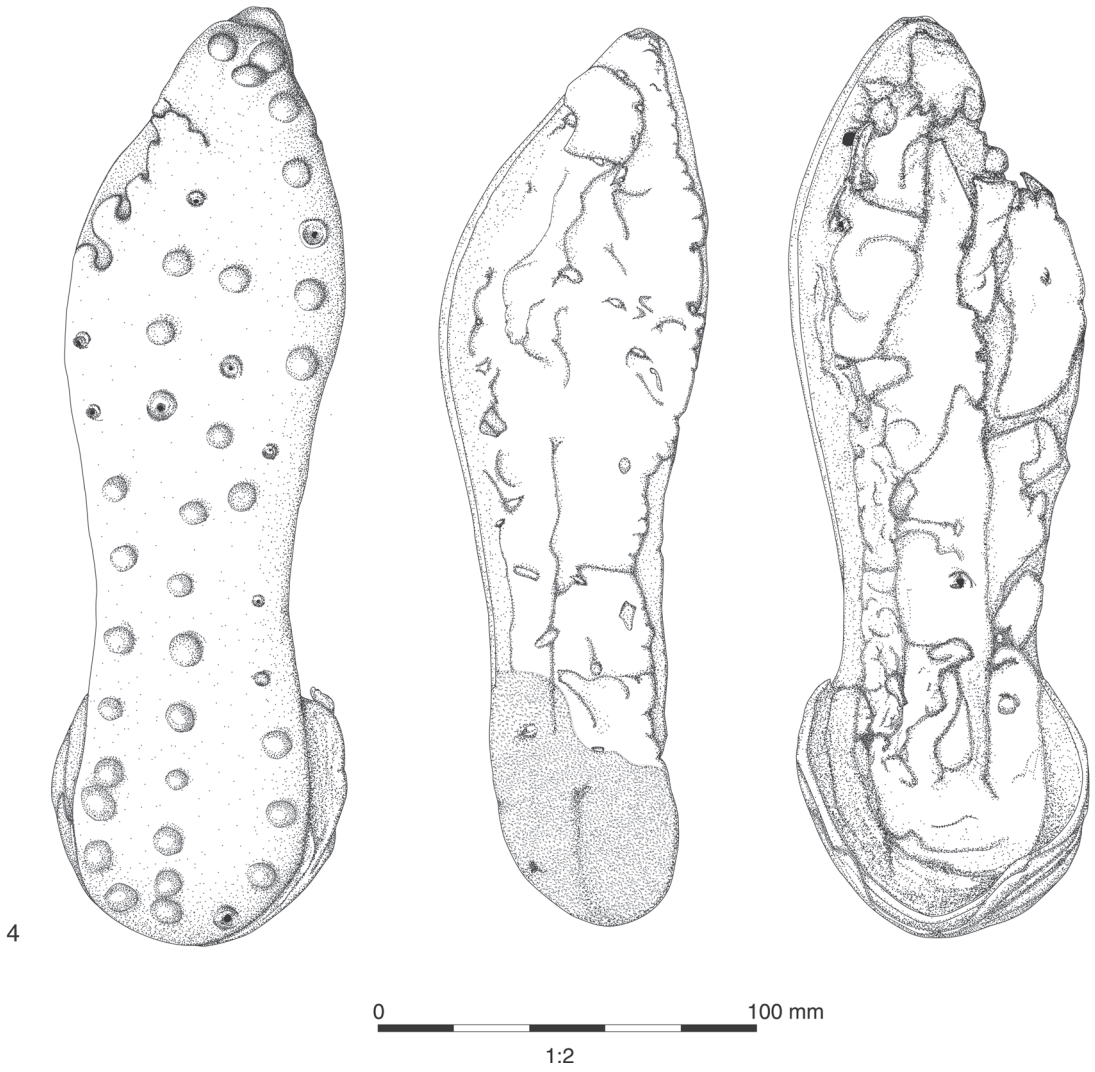

Figure 5.20 Leather shoe (no. 4).

is of elegant shape with a pointed toe and was lightly nailed (type 1a - van Driel-Murray 1983, 20, fig. 3; type B3 - Mould 1997, 335, fig. 243) with an extra nail at the toe and exterior seat indicating repair. The bottom unit had no constructional thonging to join the insole to the middle laminae. Little evidence of the upper was preserved except for a small area around the heel stiffener and fragments of the upper lasting margin lying on top and to one side of the narrow middle laminae preserved beneath the insole. Slots were visible on the underside (flesh side) of the insole that appear to be tunnel stitching used to secure the upper lasting margin in place.

There is little available material with which to compare the Westhawk Farm leather. A small group of nailed shoes from Ickham, Kent (Mould in Riddler *et al.* forthcoming), though likely to be of somewhat later date, does show some similarities. Nine of the Ickham shoes had a similar nailing pattern, while a single shoe (SF1960), from a timber-lined well backfilled at the end of the 4th century, combined the same nailing pattern with a lack of constructional thonging on the bottom unit, as seen on the Westhawk Farm example.

Catalogue of illustrated items (Figs 5.17-5.18, 5.20)

1 **Leather cut down seam**. Remains of two panels joined by a simple thonged seam. The seam runs close to the edge of the upper panel (2-6 mm from the cut edge) and is sewn with a narrow, flexible thong (2 mm in width) passing through a series of small thong holes spaced 15 mm apart. The remains of an edge with a similar thonged seam is present at right angles to the long seam. At the opposite end (the bottom as illustrated) is a cut edge running parallel to the long seam with relatively closely spaced holes at right angles to the edge which appear slightly puckered, suggesting it may also have been sewn with a tightly pulled thong. All the other edges are torn and worn away. The long seam now assumes a gentle curve that may be original; the wear suggests one of the panels may have been folded close to the seam originally. Leather sheep/goatskin. L: *c* 280 mm, max W: 156 mm. Context 1547 (Group 796) SF251, Phase 4.

2 **Leather shoe of one-piece construction**. Shoe for the right foot with an asymmetrical cutting pattern. Heavily worn, worn through at the sole tread and seat, longer fastening loops torn off, back part missing. Central toe seam with grain/flesh stitching a closed seam. D-shaped loop next to the toe seam, longer fastening loops surviving on the left side have rounded terminals, loops have decorative lobes present at the base. The edges of the loops are tooled (compressed). Leather is delaminated and the grain surface has split from the flesh in several areas. Leather calf/cattlehide. Surviving L: 207 mm, W: across tread 97 mm. Context 1547 (Group 796) SF247, Phase 4

3 **Leather shoe of one-piece construction**. Part of left side of shoe, torn away from rest of the shoe, foot uncertain, but possibly also for right foot. Toe area missing, two long fastening loops with decorative lobes at the base. Top edge of the left quarters area present 50 mm above the seam joining the sole seat to the base of the quarters. The left side of the central back seam present with large grain/flesh stitches (stitch length 9 mm); thread/thong impression suggests it had been sewn with a whip stitch (oversewn). Surviving L: 200 mm. Also fragments from two fastening loops with rounded terminals and tooled edges, and a fragment of toe seam with grain/flesh stitches from a closed seam. Likely to come from this shoe. Context 1547 (Group 796) SF247.2, Phase 4

4 **Leather bottom unit of shoe of nailed construction for the right foot**. Complete bottom unit comprising sole, middle *laminae*, and insole, with a heel stiffener and small area of uppers preserved around the quarters, and lasting margin. Bottom unit has pointed toe, petal-shaped forepart and waist and seat of the same width. Sole is worn away at the exterior tread. Widely spaced nailing with a single row of nailing around the edge and a line down the centre with infilling at the tread (van-Driel-Murray 1a; Mould B3), with an additional nail at the toe and exterior seat from repair. Two narrow middle laminae lying along the centre of the sole. Fragments of upper lasting margin present lying between middle laminae and insole. Edge of upper lasting margin shows signs of bracing. Insole is same size as the sole; underside of the insole has suggestion of thonging running parallel to the side of the shoe to attach the upper. No constructional thonging present. Leather worn cattlehide. Insole L: 246 mm, W: tread 74 mm, waist 47 mm. Adult size 4 (no allowance for shrinkage). Context 1456 (Group 796) SF245, Phase 4