AB 81 4311

Ancient Monuments Laboratory Report No 4311

Analysis of Inlays and Fittings on Medieval Iron Knives and Shears from the Museum of London

Paul Wilthew

Ancient Monuments Laboratory July 1984

The non-ferrous metal inlays and fittings on forty three Medieval knives and shears were analysed qualitatively using energy dispersive X-ray fluorescence. The objects were from sites at Swan Lane (SWA), Trig Lane (TL), Customs House (CUS), Billingsgate (BWB), Baynard's Castle (BC) and Bishopsgate (BIS). The features analyzed included decorative inlay, shoulder plates, handle end plates, rivets and, most frequently, cutler's marks. The analytical results, which are discussed below, are listed in the appendix. Low levels of copper and lead (and sometimes zinc) were detected on most objects even in areas where no non-ferrous metal was apparently present. This was almost certainly due to contamination during burial and so the presence of minor amounts of these elements does not provide evidence for the existence of an inlay originally.

The knives examined were from contexts dated between c 1250 AD and 1420-1460 AD, but cutler's marks were only present on knives from contexts dated between 1340 and 1460, apart from the possible mark on 165. The inlays used for cutler's marks were either brass, an alloy of copper and zinc, (Accession Nos 445, 1098, 146, 808, 2527 and 2530) or tin (690, 1593, 1611, 1612, 1111, 4214, 2428, 4324 and 165). On one knife (4228) both brass and tin inlays had been used. There was no analytical evidence for inlays in the cutler's marks on some of the knives (823, 114, 590, 128, 186, 2433, 2426, 191, 4319 and 1931).

All the non-ferrous metal rivets remaining on the knives were brass (115, 796, 892, 1168, 509, 1111, 146, 4324 and 1931). The strips inlaid into the blades of two knives (2433 and 4228) and the discs set into the blades of two other knives (3274 and 108) were also brass.

The alloys used in the shoulder plates present on some knives included copper (1243), tin (848 and 1014) and brass (114 and 146) and in two cases (796 and 2735) significant levels of copper, zinc and tin were detected. The appearance of 796 and 2735 was such that it was not possible to decide whether the alloys present were gunmetals (copper-tin-zinc alloys) or whether both tin and brass were present. The plates threaded along the handle of knife 1243 were tin and the handle end plates of knives 1168, 1172 and 146 were all brass. The end plate of knife 892 could not be analysed separately from the cone above it, but an analysis essentially only including the cone, which was brass, was possible. The appearance of the end plate and cone suggested that they were of different composition and the end plate was probably relatively pure copper, although it may have contained some zinc.

The inlays on three objects, a knife (2240) and two shears (1953 and 2230), contained silver and in the case of 1953 low levels of gold and mercury. All three were almost certainly inlaid with metallic silver originally and 1953 may have been mercury gilded, although the levels of mercury and gold in the inlay could be the result of reuse of silver which had been mercury gilded previously, if the gilding had not been removed completely before reuse.

The cutler's marks on two shears (462 and 2861) were analysed. The mark on 462 was inlaid with brass but no evidence for an inlay in the mark on 2861 was found.

There was no apparent correlation between the metal used as inlay in the cutler's mark on a knife and its context date or the site on which it was found. The range

of alloys used as inlays in the cutler's marks was, perhaps surprisingly, limited to brass and tin. This contrasts with inlays in the cutler's marks on medieval knives from Goltho, Lincolnshire which were copper and silver ("The Medieval Clay-Land Village: Excavations at Goltho and Barton Blount", Guy Beresford). The use of tin inlays suggests that the knives were not kept polished, as otherwise the contrast between the tin inlay and the iron would be slight.

All the fittings and decorative inlays, with one exception, on objects from contexts dated between 1340 and 1440 (all the knives with cutler's marks had context dates in this range except knife 165 from Bishopsgate which was possibly marked) were also tin or brass, which suggests that during this period the cutler s used brass and tin whenever possible if a non-ferrous metal was required. The only exception was the use of a copper (probably) end plate on knife 892 to contrast with a brass cone placed over it.

Copper, silver, tin and brass were all found on the objects with earlier, 13th century, context dates and although too few objects from this period were examined to enable any general conclusions to be drawn, there does appear to be a greater range of non-ferrous metals used during this period than were used commonly later.

Appendix - Analytical Results

Site	Accession No	Object Type	Context Date	Area Analysed	Elements Detected (except Fe) by XRF (Minor elements)
SWA 81	1243	Knife	c 1250	Shoulder	Cu (Pb)
"	"	"	"	Plates on handle	Sn (Cu, Pb)
SWA 81	1953	Shears	1270-1280	Inlay on blade	Ag (Cu, Au, Hg)
SWA 81	2230	Shears	1270-1280	Inlay on blade	Ag (Cu, Zn, Pb)
SWA 81	2240	Knife	1270-1280	Inlay on blade	Ag (Cu, Zn, Pb)
SWA 81	3274	Knife	1270-1280	Discs set into blade	Cu, Zn (Pb)
SWA 81	1115	Knife	1370-1390	Handle rivets	Cu, Zn
SWA 81	848	Knife	1420-1460	Shoulder	Sn
SWA 81	796	Knife	1420-1460	Shoulder plates	Cu, Zn, Sn (Pb)
"	"	"	"	Handle rivet	Cu, Zn (Pb)
SWA 81	892	Knife	1420-1460	End cone	Cu, Zn (Pb, Sn)
"	"	"	"	End cone and plate	Cu, Zn (Pb, Sn)
"	"	"	"	Handle rivets	Cu, Zn
SWA 81	1168	Knife	1420-1460	End plate	Cu, Zn (Pb, Sn)
"	"	"	"	Handle rivets	Cu, Zn
SWA 81	1172	Knife	1420-1460	End plate	Cu, Zn
CUS 73	108	Knife	1200-1250 or 1330-1350	Discs set into blade	Cu, Zn (Pb)
CUS 73	509	Knife	1330-1350	Handle rivets	Cu, Zn (?Pb)
TL 74	445	Knife	1340-1360	Cutler's mark	Cu, Zn
TL 74	690	Knife	1340-1360	Cutler's mark	Sn (Cu, Pb)
TL 74	823	Knife	1340-1360	Cutler's mark	(Cu, Pb)
TL 74	1593	Knife	1360-1380	Cutler's mark	Sn (Cu, Pb)
TL 74	1611	Knife	1360-1380	Cutler's mark	Sn (Cu, Pb)
TL 74	1612	Knife	1360-1380	Cutler's mark	Sn (Cu, Pb)
TL 74	1098	Knife	c 1440	Cutler's mark	Cu, Zn (Pb)
TL 74	1104	Knife	c 1440	Shoulder plates	Sn (Cu, Zn, Pb)

Site	Accession No	Object Type	Context Date	Area Analysed	Elements Detected (except Fe) by XRF (Minor elements)
TL 74	1111	Knife	c 1440	Handle rivets	Cu, Zn
"	"	"	"	Cutler's mark	Sn (Cu)
TL 74	2735	Knife	c 1440	Shoulder plates	Cu, Zn, Sn (Pb)
BWB	114	Knife	c 1380	Shoulder plate	Cu, Zn (Pb, Sn)
"	"	"	"	Cutler's mark	(Cu, Pb)
BWB	146	Knife	c 1380	Shoulder plate	Cu, Zn (Pb)
"	"	"	"	Rivet	Cu, Zn (Pb)
"	"	"	"	End plate	Cu, Zn (Pb)
"	"	"	"	End angle	Cu, Zn (Pb)
"	"	"	"	Cutler's mark	Cu, Zn (Pb)
BWB	191	Knife	c 1380	Cutler's mark	(Cu, Zn, Pb)
BWB	462	Shears	c 1380	Cutler's mark	Cu, Zn (Pb)
BWB	590	Knife	c 1380	Cutler's mark	-
BWB	128	Knife	c 1380	Cutler's mark	(Cu)
BWB	808	Knife	c 1380	Cutler's mark	Cu, Zn (Pb)
BWB	186	Knife	c 1380	Cutler's mark	(Cu, Pb)
BC 72	4214	Knife	c 1380	Cutler's mark	Sn (Cu, Pb)
BC 72	2428	Knife	c 1380	Cutler's mark	Sn (Cu, Pb)
BC 72	2433	Knife	c 1380	Cutler's mark	-
"	"	"	"	Inlaid strip	Cu, Zn (Pb)
BC 72	2527	Knife	c 1380	Cutler's mark	Cu, Zn (Pb)
BC 72	2426	Knife	c 1380	Cutler's mark	(Cu, Pb)
BC 72	2861	Shears	c 1380	Cutler's mark	(Cu, Pb)
BC 72	2530	Knife	c 1380	Cutler's mark	Cu, Zn (Pb, Sn)
BC 72	4319	Knife	c 1380	Cutler's mark	(Cu)
BC 72	4228	Knife	c 1380	Inlaid strip	Cu, Zn (Pb)
"	"	"	"	Cutler's mark (yellow)	Cu, Zn (Pb)

Site	Accession No	Object Type	Context Date	Area Analysed	Elements Detected (except Fe) by XRF (Minor elements)
BC 72	4228	Knife	c 1380	Cutler's Mark (yellow and white)	Cu, Zn, Sn (Pb)
BC 72	4324	Knife	c 1380	Cutler's mark	Sn (Cu, Zn)
"	"	"	"	Shoulder rivet	Cu, Zn
BC 72	1931	Knife	c 1380	Cutler's mark	(Cu, Pb)
"	"	"	"	Rivet	Cu, Zn
BIS 82	165	Knife	1270-1350	?Cutler's mark	Sn (Cu, Zn)