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Summary

This report presents a simple typology of the Saxon knives recovered form the Six Dials Site, Hamwih, Southampton. It also includes details of manufacturing typology identified from X-radiographs.

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THE TYPOLOGY OF ANGLO-SAXON KNIVES FROM HAMWIH, SOUTHAMPTON, HAMPSHIRE

BY G McDonnell, V Fell and P Andrews

A limited metallurgical study of Anglo-Saxon knives from Hamwih has been undertaken (McDonnell 1987). The selection of knives for study was based on two major factors. Firstly, a general assessment was made by the archaeologists of the variability of types of Anglo-Saxon knives recovered from excavations at Six Dials and other sites in Southampton, so that a wide a range of typological groups could be examined. Secondly, the extensive corrosion of the ironwork restricted the number of knives suitable for analysis.

The metallurgical study showed that the predominant manufacturing method used was the 'butt welded' (Type 2) technique. Definition and discussion of the manufacturing types of edged tools can be found in Tylecote and Gilmour (1986), and McDonnell (1987). The probability that butt welded knives had been selected preferentially for some reason had to be considered. In order to establish that a wide a range of types of knives had been analysed a typological study had to be made as although a limited typological study of all the ironwork had been initiated it was never completed. The study of the knives was incomplete and, therefore, a new study was undertaken rather than reapply an incomplete classification. The metallurgical study had shown that structural detail was available from X-Radiographs. This had also been independently noted by V. Fell during the standard X-radiography screening of the Hamwih iron objects. The typology was therefore, established by Andrews, Fell and McDonnell.

Two general observations can be made. Firstly, the iron artefacts were heavily corroded, (especially when compared with the Coppergate (York) material). The general accepted theories propose that stressed martensitic structures corrode preferentially to unstressed microstructures e.g. ferritic/phosphoric irons ("wrought iron") or pearlitic steel. The evidence from both the X-radiographs and the metallurgical study show that the steel survives. This indicates that the stressed/non-stressed state is not the major factor determining the rate of corrosion but, in the Hamwih blades, the morphology of the slag inclusions seem to be a dominating factor. In the ferritic/phosphoric/piled irons of the knife backs the slag inclusions are predominantly in the form of stringers which form corrosion pathways through the iron. In the steel the slag inclusion are predominantly in the form of spheroidal inclusions, are fewer in number and stringers are very rare. There is therefore no network of pathways down which corrosion can penetrate. The X-radiographs show these differences, the knife backs have the characteristic 'fibrous wrought iron' appearance with stringers present, whereas the steel has a speckled appearance due to corrosion around the spheroidal inclusions. In extreme cases, probably due to the

presence of large spheroidal inclusions, the corrosion may penetrate right through the knife blade resulting in a hole that may resemble a rivet-hole.

The second general observation is the absence in the knives of the heavily concave or 's-shape' outline of the cutting edge that was common in Coppergate knives (Ottaway forthcoming). This resulted from heavy wearing of the Type 1 knife blades resulting in a thin blade that curved sharply to the unworn tang/blade interface.

The archaeological typology of the knives was based on the examination of the X-radiographs and to a lesser extent of the objects themselves. This was because only a small proportion of the objects were cleaned and therefore the majority were heavily encrusted with corrosion products. Since not all the knives were complete the classification was based on a number of factors. Firstly, for complete or near complete examples, on the overall shape of the knife. Secondly, on the shape of the tip, and thirdly on the tang/blade interface. Eight types were established (Figure 1).

Type A

No distinct tang/blade junction. The knife back curves down to form the point.

Type B

No distinct tang/blade junction. The tip is angle-backed, ie. the knife back forms a sharp angle to join the tip.

Type C

The knife has a broad tang which does not form sharp junctions with the blade. The knife back curves down to form the point.

Type D

The knives tend to be small, and are probably 'specialist knives'. The tang/blade junction is distinct on one side only, normally the cutting edge side.

Type E

Angle-backed knives, the back is parallel to the cutting edge, but the tang is missing.

Type F

Angle-backed knives, the back is not parallel to the cutting edge, and the tang is missing.

Type G

The tang/blade junction is exaggerated on the back side, and there may be no junction on the cutting edge side.

Type G/H

In cases when only the tang/blade junction survived and distinct shoulders were present on both the back and cutting edge side the knife fragment was ascribed to this type.

Type H

The tang/blade junction is exaggerated on the cutting edge side, and may be absent on the back side.

Table 1 shows the classification of all the 132 identified knives, of which 53 were complete. The commonest types were Type C (35.5%), Type E (20%) and Type A (14.5%). The Types E, F and B could be grouped together (since they are all angle-backed) giving a total of 42 knives (32.5%). This is a high proportion when compared to the quantity of angle-backed knives from Coppergate where 18% were angle-backed (Ottaway 1986). In addition a further 10% of the knives comprised only the tang/blade junction or lacked tips and therefore some or all of these knives could have been angle-backed.

TABLE 1 CLASSIFICATION OF ANGLO-SAXON KNIVES FROM HAMWIH, SOUTHAMPTON

TYPE	NUMBER OF KNIVES	NUMBER AS A PERCENTAGE
A	19	14.5
B	9	7.0
C	47	35.5
D	11	8.5
E	26	20.0
F	7	5.5
G	7	5.5
G/H	2	1.5
H	4	3.0

Study of the X-Radiographs enabled butt welds and steel cutting edges to be indicated as present or absent. The method is not totally reliable when compared with the results obtained from the metallographic study. For example knife 31/340 was assessed to have both a butt weld and a steel cutting edge, but was found on investigation to be wholly

manufactured from steel. In a second case (knife 169/540) no butt weld was observed on the radiograph, but the metallographic analysis showed a small butt welded steel cutting edge to be present. Table 2 shows the total number of knives in each group and the number of butt welds and steel cutting edges identified. The results show no consistency between the types, for example Type D showed nearly all the knives had evidence of a butt weld and a steel cutting edge, (one was believed to be all steel). Less than 50% of the Type E knives were identified as butt welded and less than one third had a steel cutting edge (two were thought to be all steel).

The results of the typological study with reference to the metallurgical study will be discussed in a later report. This brief typological study has shown that the Anglo-Saxon knives from Hamwih can be classified into loosely defined types, and that technological data can be extracted from good quality screening X-radiographs.

References

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TABLE 2 NUMBER OF KNIVES IN EACH TYPE WITH IDENTIFIED BUTT WELDS AND STEEL CUTTING EDGES (FROM X-RADIOGRAPHS)

TYPE A

TOTAL NUMBER OF KNIVES 19

NUMBER WITH BUTT WELDS 11

NUMBER WITH STEEL CUTTING EDGES 8

OTHER COMMENTS: None

TYPE B

TOTAL NUMBER OF KNIVES 9

NUMBER WITH BUTT WELDS 3

NUMBER WITH STEEL CUTTING EDGES 4

OTHER COMMENTS: None

TYPE C

TOTAL NUMBER OF KNIVES 47

NUMBER WITH BUTT WELDS 22

NUMBER WITH STEEL CUTTING EDGES 25

OTHER COMMENTS: Two knives were grooved, one of which was possibly all steel. Three knives had Type G tang/blade junctions.

TYPE D

TOTAL NUMBER OF KNIVES 11

NUMBER WITH BUTT WELDS 9

NUMBER WITH STEEL CUTTING EDGES 10

OTHER COMMENTS: One knife was grooved, and one possibly all steel.

TYPE E

TOTAL NUMBER OF KNIVES 26

NUMBER WITH BUTT WELDS 12

NUMBER WITH STEEL CUTTING EDGES 8

OTHER COMMENTS: One knife was grooved, two were possibly all steel. 3 had Type C tang/blade junctions

5 " " G " " "

3 " " H " " "

TYPE F

TOTAL NUMBER OF KNIVES 7

NUMBER WITH BUTT WELDS 2

NUMBER WITH STEEL CUTTING EDGES 2

OTHER COMMENTS: One knife was pattern welded

TYPE G

TOTAL NUMBER OF KNIVES 7

NUMBER WITH BUTT WELDS 2

NUMBER WITH STEEL CUTTING EDGES 3

OTHER COMMENTS: One knife was grooved.

TYPE G/H

TOTAL NUMBER OF KNIVES 2

NUMBER WITH BUTT WELDS 1

NUMBER WITH STEEL CUTTING EDGES 0

OTHER COMMENTS: Tang/blade junctions only.

TYPE H

TOTAL NUMBER OF KNIVES 4

NUMBER WITH BUTT WELDS 0

NUMBER WITH STEEL CUTTING EDGES 0

OTHER COMMENTS: Tang/blade junctions only.