METALWORK FROM SHARDLOW QUARRY, SOUTH DERBYSHIRE

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SUMMARY

Nineteen Bronze Age metalwork artefacts were recovered from Shardlow Quarry, Derbyshire, between 1977 and August 2004. The site has been interpreted as a network of palaeochannels and lakes during the Bronze Age, and all the metalwork for which a clear find site has been identified has come from a watery location. The metalwork assemblage is catalogued and illustrated, and issues are discussed: one of the spearheads is unique in design, and the context of a sword shows clear signs of votive deposition. The assemblage is compared to the other metalwork concentrations along the middle section of the River Trent.

BACKGROUND

The Trent is second only to the Thames in Britain in the recovery of Bronze Age metalwork from a riverine source. The metalwork finds from the central and lower reaches of the Trent have been published in two papers (Scurfield 1997; Davis 1999). The author has carried out further research to complete the corpus of River Trent metalwork, from the source on Biddulph Moor to its outlet into the Humber Estuary. The total number of metalwork artefacts from the Trent currently stands at 183. Prior to the finds at Shardlow Quarry, close to the confluence of the Trent and Derwent in South Derbyshire, the main areas of metalwork distribution were in the Nottingham reach and in North Lincolnshire. Three concentrations are identified in the Nottingham reach — 15 artefacts from the Attenborough Quarry, 19 from a 400m stretch of the river at Clifton, and 21 from the Colwick and Holme Pierrepont Quarries, facing each other on opposite banks of the river (Scurfield 1997). Two hoards were recovered from riverine sites in North Lincolnshire — the Keadby hoard of 24 socketed axes, and the Burringham hoard of five artefacts (Davey 1973).

Up to the mid 1990s, metalwork appeared to be sparse in the South Derbyshire section of the Trent with a total of only eleven artefacts. This was surprising because there was a known concentration of field monuments in the area from the Neolithic and Bronze Age (O'Brien 1978; Knight and Howard 2004). This *lacuna* appears to have been the result of recovery bias, because the situation has recently been transformed with new finds, and twenty seven bronze artefacts are now known from the river and its immediate floodplain in this section of the river (Davis 2003, 69). Two logboats and a causeway from the Bronze Age have also been recovered at Shardlow Quarry (Garton et al. 2001).

The corpus from the River Trent is weighted to weapons with 98 artefacts (53% of total), the remaining 85 being axes and other tools. There is a slight weighting to the Late Bronze Age (LBA) at 86 artefacts, compared to 81 from the Middle Bronze Age

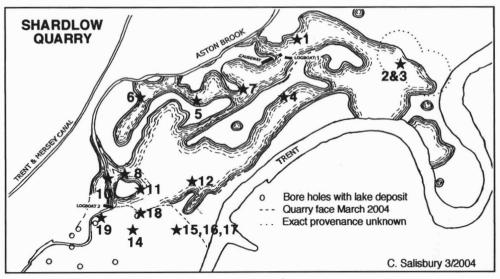


Fig. 1: Shardlow Quarry: Bronze Age geomorphology, and metalwork find sites.

(MBA) and 12 from the Early Bronze Age (EBA). These relationships are influenced by the 24 socketed axes from the LBA in the Keadby Hoard.

The geomorphology of Shardlow Quarry has been interpreted by Chris Salisbury of the University of Nottingham (Fig. 1), although his interpretation of a palaeolake as well as palaeochannels is considered controversial by some. He monitored the site, normally on a weekly basis, from September 1999 to 2004. Metalwork was usually discovered by the metal detection equipment on the conveyor, and he was able to trace back the batch of gravel in which the artefact was found to the precise site that was being worked at the time. All the artefacts with find sites recorded in this way can be traced to a palaeochannel or palaeolake. One artefact found in situ by a quarry worker also came from a palaeochannel.

THE FINDS

The Bronze Age metalwork recovered from Shardlow Quarry consists of nineteen artefacts. The first finds were made in 1977, and there was a sharp increase in rate of recovery during 2004 with eight artefacts found in a six month period as quarrying moved along the site.

Details of the Shardlow assemblage are given in the catalogue, and all are illustrated in Figs. 2–4. Seven of the artefacts are weapons and twelve are tools. One is dated to the EBA, eight to the MBA and ten to the LBA. The assemblage covers a period of production of almost a millennium.

The swords and rapiers are common types, with distribution strongly weighted to the River Thames and the Fen Edge. One of the spearheads (no. 10) is also of common design, but has incised decoration above the socket mouth, a feature that is found on four of the spearheads from the Wilburton Hoard (Colquhoun and Burgess 1988,

Type	EBA	MBA	LBA	Total
Sword	_	_	2	2
Rapier	_	3	_	3
Spearhead	_	_	2	2
Flat axe	1	_	_	1
Palstave	_	5	_	5
Socketed axe	_	_	5	5
Chisel	_	_	1	1
Total	1	8	10	19

Table 1: Metalwork from Shardlow Quarry: by artefact type and Bronze Age period.

pl. 146-8). The protected loop spearhead is of a unique design, and is discussed separately below.

Many of the axe types from Shardlow are also found elsewhere along the Trent. The Early Bronze Age Type Migdale flat axe (no. 19) is matched by four others from Attenborough and Colwick/Holme Pierrepont (Scurfield 1997, nos 5, 51, 59, 60). Examples of the early palstave Type Sleaford (no. 5) were recovered from the Clifton Reach, Hoveringham (Scurfield 1997, nos. 28, 77), Burton-upon-Trent (Gunstone 1964, 18) and Besthorpe (Davis 1999, no. 34). The transitional palstaves, Type Roundhay (no. 7) and Type Shelf (no. 14) are matched by two Type Roundhay palstaves from Newark and the Burringham hoard (Davis 1999, no. 7; Davey 1973, no. 243) and two Type Shelf palstaves from Langford and Gainsborough (Davis 1999, nos 23, 58). The two late palstaves, Type Nettleham (no. 17) and Type Isleham (no. 6) are not found elsewhere from the Trent, and these types have their distribution concentration in South East England, particularly East Anglia.

Of the socketed axes, Type Everthorpe (no. 3) and Type Welby (no. 12) are common in the Lower Trent, and elsewhere in North Lincolnshire. Two of each type were present in the Keadby hoard, and one each at East Ferry. Two further Type Welby axes were recovered at Fenton and Gainsborough (Davey 1973, nos 104, 133, 291; Davis 1999, nos 38, 60; North Lincolnshire Museum Collection KDAB4-6). The Sompting axe (no. 9), attributed to the final phase in the Late Bronze Age (Schmidt and Burgess 1981, 247), is matched by no less than nine other Sompting variants from the Middle Trent (Davey 1973, no. 143; Scurfield 1997, nos 1, 50, 57, 61–3, 73, 76).

Based on the distribution pattern of the metalwork types represented at Shardlow, the higher technology weapons are likely to have been influenced by, or imported from the Thames and East Anglia. The palstave and socketed axe types are well represented along the Trent, and are broadly distributed in Yorkshire, Lincolnshire and the South East. It is likely that they were the product of a local, or at least a regional industry.

Two artefacts from the assemblage are of particular interest, a spearhead for its typology, and a sword for its context:

The protected-loop spearhead (Fig. 2:1)

Prior to the recovery of the Shardlow spearhead, 57 protected-loop spearheads had been recorded. Their distribution is weighted to Ireland, accounting for 36 spearheads (Ramsey 1989, nos 745–778, and p. 171). There is a further concentration in Northern England with eleven spearheads, and scattered distribution in Southern England with

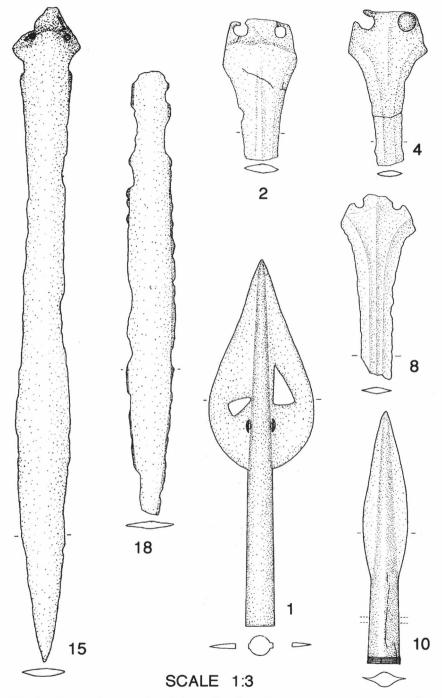


Fig. 2: Bronze Age metalwork from Shardlow Quarry: weapons.

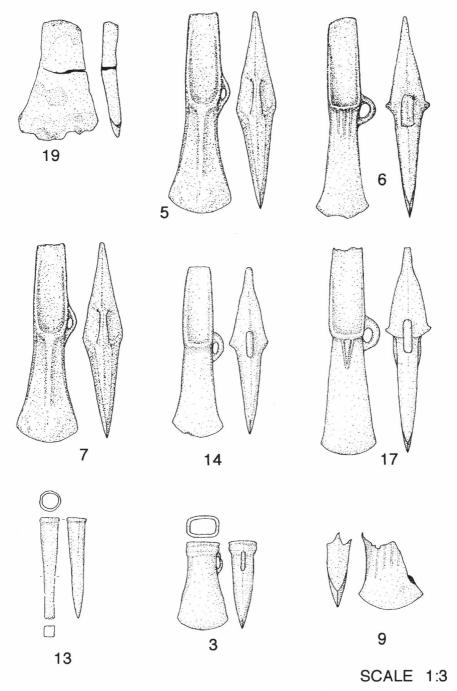


Fig. 3: Bronze Age metalwork from Shardlow Quarry: tools.

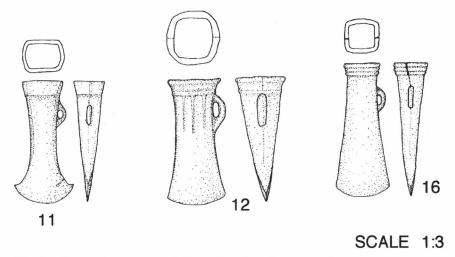


Fig. 4: Bronze Age metalwork from Shardlow Quarry: tools.

six and Scotland with three (Needham 1990, 268). One protected-loop spearhead has been found on the Continent, the result of dredging in the River Isle, Dordogne (Briard and Mohen 1983, 143).

The diagnostic attributes of protected-loop spearheads are the position of the loops and the presence of loop plates. The small loops are located within the blade, adjacent to the midrib and further above the blade/socket junction than on basal-looped spearheads. They have a raised protective plate on the outer side of the loops, similar to the lozenge loop plates on the basal-looped spearheads. The blades are flame shaped with a flat surface and bevels at the blade edges (Evans 1881, 331–3).

The distribution pattern suggests an Irish origin for the type. In Ireland the only dating evidence is a radiocarbon determination made on the shaft of the spearhead from Cloghore, Co. Donegal of 1435–1261 cal. BC (3095±40 BP, GrN 11439, Brindley 2001, 154). The date range at 2 sigma equates to the Killymaddy and early Bishopsland phases in Ireland, contemporary with the Acton Park and Taunton phases in Britain. Protected-loop spearheads were present in four hoards from Northern England — Farnley, Wallington, Corbridge and Netherby Fort. All these hoards are attributed to the Wallington complex (Burgess 1968, 67–8) which has now been dated to the Penard phase (Needham 1990, 261). A protected-loop spearhead was one of a number of associated finds from Croxton, Norfolk, which was also attributed to the Penard phase (Needham 1990).

The Shardlow spearhead is unique in that it has two triangular apertures in the blade, in addition to the protected loops. The apertures are positioned asymmetrically, with the apex of the triangle pointing towards the tip in one triangle, and at an angle to the midrib in the other. Blade apertures of various shapes are known in spearheads from the LBA, but only one other from the Thames at Hammersmith (Fig. 5:3) has triangular apertures (Smith 1920, 15), though these are differently oriented to the Shardlow spearhead. The most prevalent aperture type is a semicircle which is termed "lunate" (Fig. 5:1). In some cases the semicircle is extended at one end to match the shape of the

blade edge, in the form of a tear drop (Fig. 5:2). The lunate apertures are normally positioned opposite each other, but occasionally they are positioned asymmetrically. Other aperture types are circles and slots of various sizes, sometimes in combination with each other (Figs 5:4–5) (Evans 1881, 334–7). A number of explanations have been suggested for the apertures — to reduce the weight of the spearhead, to economise on raw material, or as decoration (Coffey 1893–6, 503; Greenwell and Brewis 1909, 452). Several of the spearheads with blade apertures are large, and display a high level of craftsmanship, some decorated with raised mouldings and cable patterning. In these cases, the spearheads appear to have been designed to be impressive, high status weapons.

The Shardlow protected-loop spearhead can be attributed to the Wilburton industrial phase in the LBA since it combined the protected loop attribute from the Penard phase in Northern Britain, and the large blade apertures which first appeared in the Wilburton phase. Its origins are obscure, in that its form is unique. It is unlikely that a specialised weapons production centre was present in the Trent Valley at this date (Rowlands 1976, 131), so it may be speculated that it was a gift to an important chieftain in the Trent Valley, who was part of the long distance trade/exchange network (Rowlands 1980, 24).

The sword (Fig. 2:15)

The edges of this sword are badly corroded and the upper part of the hilt missing. However, it has a typical leaf-shaped blade, and rivet slots in the shoulders can be discerned within the heavy corrosion. These attributes are diagnostic of some Type Wilburton swords, although the condition of the hilt is such that no closer identification can be made (Colquhoun and Burgess 1988, 40–52). This sword is of particular interest because of the position in which it was discovered. A quarryman spotted it sticking up vertically at the top of the gravel in a point bar or meander core deposit. The vertical position strongly suggests deposition of a purposeful and ceremonial/votive character. Other examples of swords, dirks and rapiers being recovered in a vertical position are the hoards from Ewart Park and Whittingham, Northumberland, the hoard from the Island of Shuna, Argyll, and as single finds at Highclere, Hampshire, Cerrig-y-Drudion, Clwyd and Oxborough, Norfolk (Barber 2003, 59, 65, 150).

How likely is it that the sword was deposited in this way in the Bronze Age? Chris Salisbury (unpublished site report 2/7/04) investigated the evidence for the context. In his judgement, the quarryman who found the sword was a man of integrity, unlikely to have indulged in a fanciful description of the find context. The upright position cannot be attributed to river processes and gravel rolling, which would probably have left it in a horizontal rather than a vertical position. The most likely scenario is that the sword was indeed thrust into the river gravel in the position it was found.

Another unusual deposition of a Late Bronze Age sword took place in the Trent Valley landscape near Stoke-on-Trent. Two halves of the blade were found on separate hill tops, in line of sight with each other, and overlooking the Trent. They were recovered by different metal detectorists, with one section found in 1982, the other in 1995. By chance, they were both taken to the same museum where the curator noticed that they were an exact fit. A site visit and survey was carried out by members of the Potteries Museum staff, and their report concluded that it represented a genuine find rather

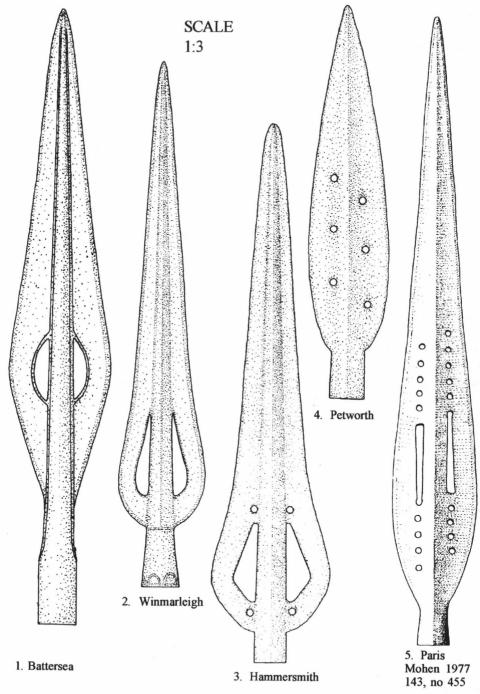


Fig. 5: Examples of spearheads with different styles of blade aperture.

Site	Weapons	Axes/tools	Total
Shardlow	7	12	19
Attenborough	10	5	15
Colwick/Holme Pierrepont	10	11	21
Clifton	19	0	19

Table 2: Artefact types in Bronze Age assemblages from the Middle Trent.

than an elaborate hoax. The find was announced to the press under the headline "A prehistoric Excalibur?" (Ford et al. 1998).

DEPOSITION ISSUES

The contexts of all the metalwork for which the precise provenance can be identified were palaeochannels or palaeolakes. Most of the finds are in sufficiently good condition to suggest that they were not waste, discarded because they had finished their working life. The Shardlow bronzes can be considered as support for the widely held view that much of the Bronze Age metalwork came from watery sites and was purposefully deposited as a votive offering (Torbrügge 1970-1; Levy 1982; Bradley 1990; Kristiansen 1998, etc.). Although the case has been strongly made by these and other authors for purposeful deposition, the motivation for the votive acts still remains unclear. The offerings may represent general acts of supplication or propitiation — seeking supernatural help for health, fertility and success against enemies. They may have been more specific as gifts accompanying the dead in conjunction with river burial, offerings of booty taken in a successful military encounter, or symbols to mark important events such as treaties, appointment of a chieftain, births and marriages of important members of society. To interpret the cult practices involved, Renfrew (1985, 12) suggested that supportive evidence was necessary from relevant verbal or iconographic sources, which were not present in Bronze Age Britain.

The mix of artefacts deposited at Shardlow Quarry and the dispersed pattern of their recovery within the Bronze Age river and lake system are of particular interest. The situation is similar to the pattern found at Attenborough and Colwick/Holme Pierrepont, which also had a dispersed pattern of distribution in watery locations (Scurfield 1997). It is in sharp contrast to the metalwork from Clifton which was concentrated in a 400m stretch of the river and consisted entirely of weapons, many of them among the largest examples of their type (Phillips 1941).

How should this dichotomy be interpreted? At Clifton, only the highest status weapons were used as offerings but, at the dispersed sites, axes apparently had sufficient merit to be used as offerings as well. Perhaps this was because they had a dual use as tools and weapons (Chapman 1999, 108), or perhaps because any bronze artefact was considered a valuable possession. Clifton appears to have been considered a special place, and it may have been the central place for gatherings of a complete tribal group along the Middle Trent, while the dispersed sites were used by individual communities. Flag Fen has been identified as just such a central place where "the objects found are overwhelmingly weapons and ornaments, with tools hardly being represented"

(Coombs 1992, 504). Similar concentrations of weapons have been found at specific locations along the Thames at Kingston, Richmond, Kew and Hammersmith (Needham and Burgess 1980; Museum of London Accession Register).

The central place at Clifton may have been an open space on the river bank, or may have included a wooden platform structure as at Flag Fen on which ritual activity connected with the water took place. The dredger at Clifton encountered a number of oak stakes driven into the river bed (Phillips 1941), but these have not been dated.

Two levels of ritual behaviour in relation to votive deposition appear to have taken place along the Middle Trent. It can be speculated that single bronze artefacts of various types were deposited in the river channels adjacent to individual communities at Shardlow, Attenborough and Colwick/Holme Pierrepont, while the finest weapons of the tribal leaders were offered at Clifton, a central place where all the communities of the region gathered on special occasions.

ACKNOWLEDGEMENTS

I would like to thank Hazel Salisbury for permission to use Chris Salisbury's previously unpublished map.

CATALOGUE OF BRONZE AGE METALWORK FROM SHARDLOW QUARRY

Listed in chronological find order. Classification and distribution based on appropriate Prähistorische Bronzefunde volume (Burgess and Gerloff 1981; Colquhoun and Burgess 1988; Schmidt and Burgess 1988) and Greenwell and Brewis (1909).

Abbreviations: length (L), width (W), remaining (rem), maximum (max), millimetres (mm), grammes (g), estimated (est).

1 Spearhead (Fig. 2)

Find details: SK 431 292. 4/1997. From an excavation vehicle's bucket.

Classification: Class IVb, protected loops with lunate apertures. Wilburton phase, LBA. *Description*: L 305mm, max W 85mm. 470g. Asymmetrical triangular blade apertures, and small protected loops in blades. Sharp blade edges. Good condition. Black patina and bronze.

Present location: Derby Museum L1998-456.

2 Rapier (Fig. 2)

Find details: SK 435 290 — 436 291 (exact provenance unidentified). 7/1997. Conveyor belt.

Classification: Group III, Type Wandsworth. Taunton phase, MBA.

Description: L rem 109mm, max W 58mm. 101g. Lower blade missing. Butt and part of the blade damaged, probably during extraction. Bent, edges damaged. Two rivet holes, one broken: no rivets *in situ*. Central rib in butt only, slight bevels. Dull brown/green, some bronze showing.

Present location: Derby Museum, loan Hanson PLC.

3 Socketed axe (Fig. 3)

Find details: SK 435 290 — 436 291 (exact provenance unidentified). 7/1997. Conveyor belt

Classification: Type Everthorpe. Ewart Park phase, LBA.

Description: L 69mm, cutting edge 39mm. 88g. Fine but damaged loop: fragment of wooden haft still present in rectangular socket. Badly corroded. Light and dark green. *Present location*: Derby Museum, loan Hanson PLC.

4 Rapier (Fig. 2)

Find details: SK 4339 2911. 8/1997. Conveyor belt.

Classification: Group III, Type Wandsworth. Taunton phase, MBA.

Description: L rem 119mm, max W 61mm. 128g. Two pieces — butt with part of blade, and the next section of blade. Lower blade missing. Edges bent. Probably damaged during extraction process. Two rivet holes, one broken, one with large rivet in place (14mm). Rib on blade. Blade narrower than no. 2 above. Very little corrosion. Dull bronze.

Present location: Derby Museum, loan Hanson PLC.

5 Palstave (Fig. 3)

Find details: SK 4277 2906. 21/12/1999. Conveyor belt.

Classification: Early, Group III, Type Sleaford. Taunton phase, MBA.

Description: L 162mm, cutting edge 72mm. 427g. Looped. Splayed blade, expanded at cutting edge. Long central rib. Badly damaged cutting edge, corrosion and some accretions on the surface and filling the loop. Dull green.

Present location: Derby Museum, loan Hanson PLC.

6 Palstave (Fig. 3)

Find details: SK 4258 2907. 17/1/2001. Conveyor belt.

Classification: Late, Type Isleham. Wilburton phase, LBA.

Description: L 160mm, cutting edge 43mm. 448g. Looped. Narrow blade, expanded at cutting edge. Three decorative short ribs. Damage to cutting edge and butt. Some corrosion and accretions. Olive brown patina.

Present location: Derby Museum, loan Hanson PLC.

7 Palstave (Fig. 3)

Find details: SK 4296 2908. 5/6/2001. Conveyor belt.

Classification: Transitional, Type Roundhay. Penard phase, MBA.

Description: L 158mm, cutting edge 50mm. 418g. Looped. Narrow blade, expanded at cutting edge. One wide rib. Excellent condition with sharp cutting edge. Butt damaged through use. Sand and stone accretions on one side of the septum.

Present location: Derby Museum, loan Hanson PLC.

8 Rapier (Fig. 2)

Find details: SK 431 292. 20/5/2002. Conveyor belt.

Classification: Group III, Type Wandsworth. Taunton phase, MBA.

Description: L rem 146mm, max W 59mm. 121g. Tip section missing. Two notches in hilt. Blade edges corroded.

Present location: Derby Museum, loan Hanson PLC.

9 Socketed axe (Fig. 3)

Find details: No grid reference. 7/2002. Conveyor belt.

Classification: Type Sompting, variant Roseberry Topping. Llynfawr phase, LBA.

Description: L rem 64mm, W 53mm. 100g. Only lower blade remaining. Broken in

antiquity. Four ribs on blade. Wood in socket. Grey-brown, green.

Present location: Derby Museum, loan Hanson PLC.

10 Spearhead (Fig. 2)

Find details: SK 4246 2876. 13/8/02. Conveyor belt.

Classification: Class V. Wilburton/Ewart Park phase, LBA.

Description: L 200mm, max W 34mm. Midrib and blade bent. Crack in socket: modern damage. Blade edges bent, nicked. Some brown patina remaining over light green corrosion. Rivet holes with bronze rivets remaining. Wood in socket. Five incised decorative rings round socket mouth.

Present location: Derby Museum, loan Hanson PLC.

11 Socketed axe (Fig. 4)

Find details: SK 4258 2869. 26/9/2002. Conveyor belt.

Classification: Type Wilburton. Wilburton phase, LBA.

Description: L 95mm, cutting edge 46mm. 145g. Looped, splayed blade edge, plain surface, rectangular socket. Casting marks on side of socket. Good condition, recovery damage on one side near blade. Bronze, light brown and light green.

Present location: Derby Museum, loan Hanson PLC.

12 Socketed axe (Fig. 4)

Find details: SK 4280 2872. 22/3/2004. Conveyor belt.

Classification: Type Welby. Ewart Park phase, LBA.

Description: L 97mm, cutting edge 45mm. 259g. Looped. Square socket. Blade edge blunt, modern nicks. Good condition, some pitting. Green, brown and bronze.

Present location: Hanson PLC.

13 Chisel (Fig. 3)

Find details: No grid reference. 3/2004. Found in a bag of sand, purchased from B & Q, Derby. Store manager said the supplier was Hansons locally, so it must have been from Shardlow Quarry.

Classification: LBA.

Description: L 78mm, max W 15mm, cutting edge 8mm. 42g. Socketed, round socket mouth, raised band at socket mouth. Condition good, no corrosion. Vertical crack in socket. Blade edge undamaged. Brown and bronze.

Present location: Private ownership.

14 Palstave (Fig. 3)

Find details: SK 4424-6 3285-6. 15/6/2004. Conveyor belt. Classification: Transitional, Type Shelf. Penard phase, MBA.

Description: L 133mm, cutting edge 41mm. 259g. Looped. Trace of rib on blade surface. Blade edge blunt, damaged. Casting flaws on sides. Surface rough, encrustation of sand and gravel. Small traces of patina remaining. Light green and brown.

Present location: Hanson PLC.

15 Sword (Fig. 2)

Find details: SK 42686 26555. 23/6/2004. Sticking up vertically in gravel: spotted by quarry worker.

Classification: Type Wilburton. Wilburton phase, LBA.

Description: L rem 509mm (est 586mm), W 42mm. 412g. Hilt broken off above first set of rivets. Single rivet slot on each shoulder, rivets in situ. Concave ricasso. Leaf shaped blade. Blade edges badly corroded. Heavy corrosion at shoulders. Trace of omega shape of hilt. Some patina remaining. Light brown and light green.

Present location: Hanson PLC.

16 Socketed axe (Fig. 4)

Find details: SK 4268 2854. 5/7/2004. Conveyor belt. Classification: Type Fulford. Wilburton phase, LBA

Description: L 102mm, cutting edge 41mm. 195g. Looped. Square socket. Three ribs around the socket mouth. Slightly expanded blade. Blade edge fairly sharp. Extensive casting seam. Slight splits at side of socket mouth. Corrosion and accretions, possible traces of binding round socket mouth. Brown, bronze and green.

Present location: Hanson PLC.

17 Palstave (Fig. 3)

Find details: SK 4269 2853. 12/7/2004. Conveyor belt.

Classification: Late, Type Nettleham. Wilburton phase, LBA.

Description: L 161mm, cutting edge 43mm. 485g. Looped. Three short ribs converging to form a shield shape. Blade curves in from the stop, with gentle expansion to blade edge. Butt damaged. Blade edge blunt. Rough surface, good condition. Heavy. Bronze, dark green, black in septum.

Present location: Hanson PLC.

18 Sword (Fig. 2)

Find details: SK 4256 2861. 15/7/2004. Conveyor belt.

Classification: Type Wilburton or Ewart Park unclassified. LBA.

Description: L rem 342mm (est 550mm), W 38mm. 335g. Blade and hilt missing from upper part of blade, tip missing. Heavily corroded with patches of bronze disease on one side, and scoured by sand/gravel on the other. Blade profile smooth curve, no rib, bevelled edges. Olive brown and green corrosion and some patina on one side; bronze, pitted on the other.

Present location: Hanson PLC.

19 Flat axe (Fig. 3)

Find details: SK 4296 2853. 6/8/2004. Conveyor belt.

Classification: Type Migdale. Migdale phase, EBA.

Description: L rem 94mm, cutting edge 63mm, max depth 14mm. 320g. Butt missing, break across blade. Surface irregular. Blade edge bent, corroded. Bronze and small green corrosion patches.

Present location: Hanson PLC.

Note: the artefacts whose present location is listed as Hanson PLC were stolen, and at time of writing (September 2005) had not been recovered.

REFERENCES

Barber, M. (2003) Bronze and the Bronze Age. Tempus. Stroud.

Bradley, R. (1990) The passage of arms: An archaeological analysis of prehistoric hoards and votive deposits. Cambridge University Press. Cambridge.

Briard, J. and Mohen, J-P. (1983) *Typologie des objects de l'Age du Bronze en France*. Fasc 11: 135–145. Société Préhistorique Française, Commission du Bronze. Paris.

Brindley, A.L. (2001) Tomorrow is another day: some radiocarbon dates for Irish bronze artefacts. In W.H. Metz, B.L. Van Beek and H. Steegstra (eds) *Patina*. *Essays presented to Jay Jordan Butler on the occasion of his 80th birthday*: 145–160. Metz, Van Beek and Steegstra. Groningen.

Burgess, C.B. (1968) *Bronze Age metalwork in Northern England c. 1000-700 BC*. Oriel Press. Newcastle-upon-Tvne.

Burgess, C.B. and Gerloff, S. (1981) *The dirks and rapiers of Great Britain and Ireland.* [PBF IV:7]. C.H. Beck. München.

Chapman, J. (1999) The origins of warfare in the prehistory of Central and Eastern Europe. In J. Carman and A. Harding (eds), *Ancient Warfare*: 101–142. Sutton Publishing. Stroud.

Colquhoun, I. and Burgess, C.B. (1988) *The swords of Britain*. [PBF IV: 5]. C.H. Beck. München.

Coffey, G. (1893–6) Notes on the classification of spearheads in the Bronze Age found in Ireland. *Proceedings of the Royal Irish Academy* 3: 486–510.

Coombs, D. (1992) Flag Fen platform and Fengate Power Station post alignment—the Metalwork. *Antiquity* 66: 504–517.

Davey, P.J. (1973) Bronze Age metalwork from Lincolnshire. *Archaeologia* 104: 51–127.

Davis, R.N. (1999) Bronze Age metalwork from the Trent Valley: Newark, Notts, to Gainsborough, Lincs. *Transactions of the Thoroton Society* 103: 25–47.

Davis, R.N. (2003) A bronze shield fragment and spearhead from Elvaston Quarry, Derbyshire. *DAJ* 123: 63–70.

Evans, J. (1881) The ancient bronze implements, weapons, and ornaments of Great Britain & Ireland. Longmans. London.

Ford, D.A., Goodwin, J., Boothroyd, N. (1998) A prehistoric Excalibur and other antiquities of divers dates: a catalogue of selected finds from Staffordshire recovered through metal detecting. The Bronze Age. *West Midlands Archaeology* 41: 37.

- Garton, D., Elliott, L., and Salisbury, C.R. (2001) Reports: Aston-upon-Trent, Argosy Washolme. *DAJ* 121: 196–7.
- Greenwell, W. and Brewis, W.P. (1909) The origin, evolution and classification of the bronze spear-head in Great Britain and Ireland. *Archaeologia* 61: 439–472.
- Gunstone, A.J.H. (1964) An archaeological gazetteer of Staffordshire, Part 1. North Staffordshire Journal of Field Studies 4: 110-45.
- Knight, D. and Howard, A.J. (2004) *Trent Valley Landscapes*. Heritage. King's Lynn. Kristiansen, K. (1998) *Europe before history*. Cambridge University Press. Cambridge.
- Levy, J.E. (1982) Social and religious organisation in Bronze Age Denmark. British Archaeological Reports, International Series 124. Oxford.
- Mohen, J-P. (1977) L'Age du Bronze dans la région de Paris. Editions des Musées Nationaux. Paris.
- Needham, S. (1990) The Penard-Wilburton succession: new metalwork finds from Croxton (Norfolk) and Thirsk (Yorkshire). *Antiquaries Journal* 70: 253–270.
- Needham, S. and Burgess, C. (1980) The Later Bronze Age in the Lower Thames Valley: the metalwork evidence. In J. Barrett and R. Bradley (eds) *Settlement and Society in the British Later Bronze Age*: 437–469. British Archaeological Reports, British Series 83. Oxford.
- O'Brien, C. (1978) Land and settlement in Nottinghamshire and lowland Derbyshire. An archaeological review. Supplement to East Midlands Archaeological Bulletin 12. Nottingham.
- Phillips, C.W. (1941) Some recent finds from the Trent near Nottingham. *Antiquaries Journal* 21: 133–43.
- Ramsey, W.G. (1989) Middle Bronze Age Weapons in Ireland. PhD Thesis, Queens University, Belfast.
- Renfrew, C. (1985) *The archaeology of cult: the Sanctuary at Phylakopi.* The British School of Archaeology at Athens. Thames & Hudson. London.
- Rowlands, M.J. (1976) The organisation of Middle Bronze Age metalworking in Southern Britain. British Archaeological Reports, British Series 31. Oxford.
- Rowlands, M.J. (1980) Kinship, alliance and exchange in the European Bronze Age. In J. Barrett and R. Bradley (eds) *Settlement and Society in the British Later Bronze Age*: 15–56. British Archaeological Reports, British Series 83. Oxford.
- Schmidt, P.K. and Burgess, C.B. (1981) *The axes of Scotland and Northern England*. [PBF IX:7]. C.H. Beck. München.
- Scurfield, C.J. (1997) Bronze Age metalwork from the River Trent in Nottinghamshire. Transactions of the Thoroton Society 101: 27–57.
- Smith, R.A. (1920) Specimens from the Layton Collection in Brentford Public Library. *Archaeologia* 69: 1–30.
- Torbrügge, W. (1970–1) Vor- und frühgeschichtliche Flussfunde. Bericht der Römisch Germanischen Kommission 51–52: 1–146.