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RE-APPRAISING AND RE-CLASSIFYING: A NEW LOOK AT THE CORPUS OF MINIATURE SOCKETED AXES FROM BRITAIN

By ALEX BLISS

ABSTRACT

The advent of the Portable Antiquities Scheme (PAS) has added a great deal to our understanding of prehistoric metal artefacts in England and Wales, namely in expanding enormously the corpuses of objects previously thought to be quite scarce. One such artefact type is the miniature socketed 'votive' axe, most of which are found in Wiltshire and Hampshire. As a direct result of developing such recording initiatives, reporting of these artefacts as detector finds from the early 2000s onwards has virtually trebled the number originally published by Paul Robinson in his 1995 analysis. Through extensive data-collection, synthesising examples recorded via the PAS with those from published excavations, the broad aims of this paper (in brief) are as follows: firstly, produce a solid typology for these artefacts; secondly, investigate their spatial distribution across England and Wales. As a more indirect third aim, this paper also seeks to redress the imbalance of focus and academic study specifically applying to Hampshire finds of this object type, which despite producing a significant proportion of the currently known corpus have never been the subject of detailed analysis.

INTRODUCTION

Miniature socketed axeheads are an enigmatic artefact type known primarily from mainland Britain (Kiernan 2009), although a few examples have been recovered from the Channel island of Sark, (O'Connor 2019) and Ouessant – off the coast of Brittany (Rousseau-Larroque & Le Bihan 2004). In form they mirror most closely socketed axes usually assigned to the Ewart Park and *Llyn Fawr* metalworking phases of the Late Bronze Age (*c.* 1000–700 BC), but are far too small to represent any practical use – generally measuring between *c.* 11 and 45mm in length (Robinson 1995, 60). As such, they have often been described as so-called 'votive' items. Chronologically they have often been inconsistently ascribed to a long period stretching from the Late Bronze Age to the Roman era; in many cases dating is problematic, not least because there is a preponderance of unstratified metal detected finds.

Little attention was focused on the study of miniature socketed axes before the seminal work of Paul Robinson (1995) who published a study and typology based primarily on examples discovered in Wiltshire both through excavation and early metal detecting. Subsequently, although the number known to exist has quadrupled since his work was published, little re-interpretation has been done with reference both to categorising type and analysing the distribution of these objects save for the publishing of 18 examples excavated from Whitchurch, Warwickshire (Waddington & Sharples 2011). This dearth of comparative study stands in stark contrast to work on other types of miniature 'votive' objects, with surveys by Green/Aldhouse-Green (1976, 1978) and Bagnall-Smith (1999, 1998, 1995) as well as an in-depth PhD study by Philip Kiernan (2009).

At present, the vast majority of examples present within the entire known corpus of over 150 examples are metal-detected finds with no dateable archaeological context. However, a small but steadily increasing number from stratified contexts have also been encountered during archaeological excavation. The latter (as will be discussed in due course) are an extremely valuable resource as dating evidence, given that these objects have been recovered

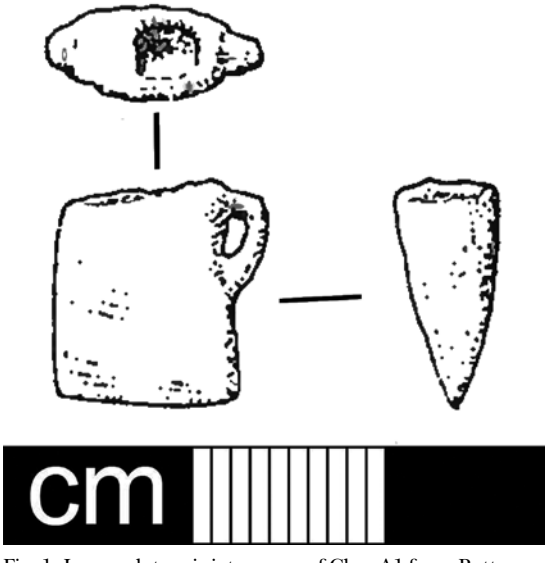

Fig. 1 Incomplete miniature axe of Class A1 from Potterne, Wiltshire (image adapted from Robinson 1995)

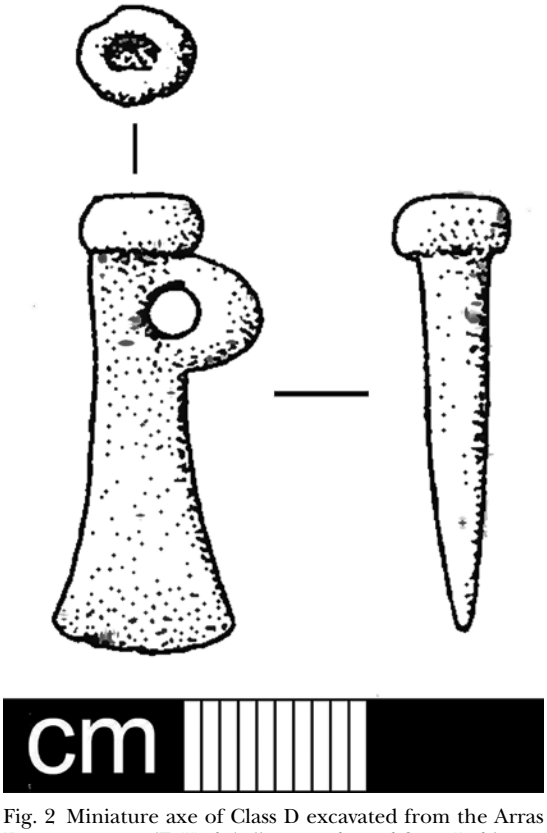

Fig. 2 Miniature axe of Class D excavated from the Arras Farm cemetery (E. Yorks) (image adapted from Robinson 1995)

in contexts dating from the Late Bronze Age/ Earliest Iron Age, Middle/Late Iron Age and Romano-British periods. Within Britain, most of these miniature socketed axes have been discovered in Wiltshire and Hampshire, but lesser concentrations within Yorkshire and more peripheral areas such as East Anglia are also visible. When encountered, these objects are frequently observed to be found in groups of twos or threes, in some cases occurring alongside other types of miniature object.

The primary aim of this paper is to provide up-to-date knowledge about these artefacts in respect of four aspects: 1) synthesis of the examples discussed by Robinson with the larger corpus of miniature axes reported to the Portable Antiquities Scheme (PAS) and formally excavated/published examples discovered since 1995, 2) re-classification of these artefacts into a comprehensive typology, 3) plotting the spatial distribution of miniature socketed axes by type, and 4) exploration of the possibilities of chronological variance and regionality based on the distribution of the different types.

This paper will begin by summarising in detail three of the key issues pertaining to these objects as follows: dating evidence, contexts of deposition and function. After this, the methodology adopted to construct the new typology and proposals for future initial data-recording of miniature axeheads will be set out, followed by detailed narrative on the new typology itself and its application to the corpus of artefacts. The final portion of this work will relate the applied methodology to distribution maps, and conclude with a discussion of trends visible in the data, setting the latter in context with both spatial and chronological perspectives.

DATING

As stated previously, most miniature socketed

Fig. 3 Dispersed 'votive' assemblage from Whitchurch, Hampshire (PAS: HAMP-8A11A7). The five miniature axes from this assemblage are all arranged on the left-hand row (image courtesy of The British Museum/PAS)

axes comprise metal detector finds with no archaeological context – although a few have been recovered from stratified layers during excavation. Consequently, it has been very difficult to assign a date to any of these unstratified objects. For example, a number of miniature axes have been found alongside Roman coins and other contemporary artefacts, which has subsequently led to flawed dating by loose association (Robinson 1995). However, even examples deposited in stratified contexts can be difficult to date in the sense that this provides only a *Terminus Post Quem*. As we shall see, it may be erroneous to assume that these objects were deposited shortly after manufacture as opposed to being curated for decades or even centuries.

Late Bronze Age and Earliest Iron Age

Probably the earliest stratigraphically-dated miniature socketed axe currently known is an example (Fig. 1) recovered during excavations of Late Bronze Age/Earliest Iron Age midden deposits at Potterne, Wiltshire (Gingell, Lawson and Mortimer 2000, 191, 194), *c.* 900–600 BC. A second find can also be ascribed a similarly early date – the miniature axe from Long Wittenham, Oxfordshire (Savory 1937, 2–4), which as with the Potterne example was discovered in earliest Iron Age midden deposits (Waddington 2009, 285). Further miniature axes from at least four other Wiltshire midden sites may be of comparable date (Bishop Cannings, Erlestoke, Cold Kitchen Hill and All Cannings), although these were dispersed

Fig. 4 Miniature axe of Class A2 with associated suspension ring from Amport, Hampshire (PAS: SF-808332) (images courtesy of P Daniels, edited by A Bliss)

in the overlying ploughsoil (Waddington 2009, 285; Robinson 1995). In addition to these are the 18 unstratified miniature axes from Whitchurch, Warwickshire (Waddington & Sharples 2011), found in close association with a midden of material dated to the Late Bronze Age or earliest Iron Age. However, this site is cut through by a number of later Iron Age and Roman features (Waddington & Sharples 2011, 33) although the excavators strongly argue for a Bronze Age date based on the lack of Iron Age and Roman metal finds.

Middle and Late Iron Age

Although the above evidence suggests that a number of miniature axes may date from the Earliest Iron Age, there is also evidence indicating the later manufacture of these items. This is perhaps best illustrated by the piece discovered in the Middle Iron Age East Yorkshire 'Arras' cemetery (Fig. 2), dating from the 4th to early 2nd century BC (Hingley 2009; Robinson 1995, 61–63; Stead 1979, 884–5). This miniature is joined by two other axes of potentially similar date within the Salisbury Hoard (Robinson 1995, 64–65) deposited in or shortly after 200 BC. However, it is important to note that the Salisbury Hoard contained metal items which were up to a millennium old when the hoard was buried. Hampshire produces an important piece of dating evidence in this respect, with a significant group of five miniature axes from Whitchurch (discussed further in the following section) appearing to have been deposited as part of a small metalwork assemblage in the 2nd or 1st century BC – probably not long after the Salisbury Hoard. Finally, we have the assemblages of miniatures (mainly model shields and spears, but including socketed axes) deposited at a number of Lincolnshire sites such as Nettleton

Fig. 5 Miniature axe of Class D from Freckenham, Suffolk (PAS: SF-07E34B) showing potential evidence of suspension (image courtesy of Suffolk County Council Archaeological Service/PAS)

Top, Dragonby, Kirmington and Sleaford. All the latter have been securely dated by excavation to the Late Iron Age (Farley 2011, 106; May 1996, 638).

Based on the currently extant evidence, it is clear that while at least some of these objects appear to date to the Middle/Late Iron Age (and potentially extending into the Romano-British period) a sizeable proportion can demonstrably be assigned to the terminal Late Bronze Age/Earliest Iron Age. Despite the fact that some pieces have been found alongside diagnostically Roman miniature axes of shafthole type (which could infer a manufacture date in some cases as late as the 3rd century AD), it could equally be the case that these occurrences reflect curation of earlier miniature socketed axes being re-deposited alongside newer miniatures (Hingley 2009, Gingell, Lawson and Mortimer 2000, 191). Alternatively, the emergence of a miniature axe 'cult' could have ensured the production of these objects over centuries, the continuation of an '*obsolete morphology*' (Gingell, Lawson and Mortimer 2000, 191) replicated as part of a long-standing belief. This may have come about as a result of a curative perspective existing in the Iron Age, whereby people were both highly aware of existing Bronze Age metalwork and more than willing to re-deposit it as a part of religious activity (Hingley 2009) – potentially a plausible explanation in regards to sites such as Whitchurch (Warwickshire) and Potterne (Wiltshire), where a number of already ancient metal items were deposited alongside miniature axes.

CONTEXTS OF DEPOSITION

Robinson (1995, 68) was the first to note that a great number of miniature socketed axes originated from areas of contemporary rural settlement, an observation corroborated by Farley's (2011) analysis of miniature objects

Fig. 6 Miniature axe of Class A2 from Cliddesden, Hampshire (PAS: SUSS-96190E). Annotated to show its principal features, not to scale (image courtesy of Sussex Archaeological Society/PAS)

(including axes) from Late Iron Age sites. With specific reference to Lincolnshire, she suggests that miniature objects were being deposited within the boundary areas of small shrines or temples located in close association with hilltop settlement areas (Farley 2011, 100). This theme of miniature axes being found at religious locales recurs at other sites across the country: at the heavily metal-detected site of a probable Late Iron Age and Roman shrine at Compton, West Sussex, two miniature axes were found within a wider landscape showing deposition of Iron Age coinage, brooches and horse-gear as well as intense later Roman activity (Bliss 2020, in prep). The infamous Late Iron Age/Roman religious site at Wanborough (Surrey) also produced two examples via excavation, with several others allegedly removed via illicit metal detecting (O'Connell & Bird 1994, 96). Though no 'hoards' *per se* of miniature axes as such are known, the five pieces referred to in the previous paragraph (Fig. 3) were recorded as a group from Whitchurch (Hampshire), being processed under the 1996 Treasure Act (PAS: HAMP-8A11A7). These appear to reflect as a 'votive' assemblage, buried alongside a Middle Bronze Age gold penannular ring, a gold Late Bronze Age lock ring, a broken Middle/Late Bronze Age spearhead and several cut-up fragments of a Late Iron Age silver torc that infer a date of deposition in the 2nd or 1st century BC. As previously stated, a connection with midden deposits also appears likely – especially in reference to the assemblages of miniatures and the other deposited metalwork from Whitchurch (Warwickshire) and Potterne.

FUNCTION

Miniature socketed axes are strictly non-functional copies of larger objects, a feature which differentiates them from socketed axes of small size such as 'Breton' and Irish 'bag-shaped' types, which do appear to have seen specialised use (Robinson 1995, 60;

Annable & Simpson 1964, 602). In many respects they appear to have been produced solely for the act of deposition, though some specialists (e.g. Kiernan 2009) have suggested that they had amuletic functions as items of personal jewellery. This potential explanation is reinforced by the significant discovery of two miniature axes with suspension rings strung through their side-loops: the first is from Wiltshire and has a gold ring (PAS-C327D4, now in Devizes Museum), subsequently dated to the Roman period based on the composition of the precious metal. Unfortunately, no image of publication quality could be obtained to illustrate this object. However, a valuable piece of evidence concerning suspension is recorded from Hampshire (PAS SF-808832), consisting a miniature axe surviving with a copper-alloy ring strung through its side loop (Fig. 4).

These two objects perhaps suggest that separately attached suspension rings on other miniature axes have not survived, though equally they could be isolated examples that were chosen for suspension specifically by their original owners. Only three other miniature axes show signs of being suspended or attached in any manner: the first comes from the 'Arras' cemetery, being allegedly found connected to a glass bead by a copper-alloy pin (Kiernan 2009, 119). The second is an example from Isleham, Cambridgeshire (PAS SF-632655), a miniature axe with a projecting loop and circular perforation at its midpoint. The third is a recent find from Freckenham, Suffolk (PAS SF-07E34B), which has a side-loop clogged with ferrous corrosion product, perhaps the remains of an iron ring (Fig. 5). Future research into this particular aspect could focus on use-wear analysis of the loops themselves, to ascertain whether more miniature axes were potentially suspended in this fashion.

METHODOLOGY OF DATA COLLECTION AND CLASSIFICATION

In preparing for construction of a typology and spatial analysis, data on miniature socketed axes was first accumulated from two broad sources: 1) examples recorded on the PAS database (see Appendix) or with local HERs (Historic Environment Records) and 2) excavated finds published as part of excavation reports or in stand-alone papers. The PAS data includes all examples recorded up to February 2019. In reference to excavated finds, these derive primarily from Robinson's summary and the Whitchurch (Warwickshire) report as undertaken by Waddington – with a few additions from elsewhere. As the data was accumulated, it was entered into an Excel spreadsheet for ease of management and analysis, along with NGR information pertaining to its spatial location (in the case of PAS data accurate to four figures, otherwise as given by the author in excavation reports). This resulted in information on 151 examples, of which eight lacked sufficient spatial data to enable their incorporation into distribution maps.

Once data accumulation had taken place, a controlled vocabulary was devised to enable the consistent description of miniatures. It was considered best to describe miniature axes as though they were full-sized examples, given that most (as shall be seen) are of forms that resemble full-sized axes to various degrees. This vocabulary was mostly drawn from Boughton's (2015) classification of socketed axes from the Earliest Iron Age, as seen below (Fig. 6). Following this, a typology was formed based primarily on overall shape/form. However, where observable trends were visible corresponding to different types of miniature axe (for example pertaining to the side loop, presence of mouth mouldings etc.) these were highlighted specifically. In addition to this, where similarities to various types of full-sized axes are visible, this has also been discussed.

In line with all of the above, a total of five classes were created (A–E) with Classes A–C further divided into sub-classes. A total of 144 axes were able to be assigned a type, with the remaining seven pieces not readily amenable to classification. The latter mainly comprised incomplete or fragmentary examples, with only one or two categorised as genuine outliers. Each class is illustrated with a high-quality photographed example, and where possible these have been selected specifically from the corpus of examples recorded with the Hampshire PAS.

It should be noted that because the primary

Fig. 7 Miniature axe of Class A1 from Winterbourne Bassett, Wiltshire (PAS: WILT-26DB43) (image courtesy of Salisbury and South Wiltshire Museum/PAS)

Fig. 8 Miniature axe of Class A2 from Skirpenbeck, E. Yorks (PAS: YORYM-SF-8345DF). The object lacks a socket view in the PAS record (image courtesy of York Museums Trust/PAS)

Fig. 9 Miniature axe of Class B1 from Bisham, Hampshire (PAS: HAMP-6EF338) (image courtesy of Hampshire Cultural Trust)

aim of this research was to formulate a coherent typology based on morphology, aspects such as the weight and dimensions of examples were not recorded. Another reason that these variables were not considered is because of the absence of a coherent recording scheme; hence the quality of the data is in many cases inconsistent or entirely absent. With this in mind, proposals for how miniatures should be recorded are set out in the following paragraph.

RECORDING MINIATURE SOCKETED AXES

In brief, the recording of miniature socketed axes includes several key elements. Photography is used to record the objects and a series of shots should be taken that show the front, back and at least one profile view (preferably where the side-loop extends), in addition to a 'top-down' shot of the socket mouth. The axe should be displayed blade-down, as opposed to socket down or laid on its side. This information will be sufficient to identify an object to type. In some cases, it has not been possible to record the full range of information because of how the artefact was originally recorded (this is noted in the relevant figure caption). As previously stated, this analysis does not consider an axe's size or weight, however in the future it would be desirable to consider these variables. Measurements should include: the total length, diameter of the socket mouth, width of the

Fig. 10 Miniature axe of Class B2 from Marden, Wiltshire (PAS: WILT-F7AB14) (image courtesy of Salisbury and South Wiltshire Museum)

cutting edge/blade, width of the body where the side-loop projects and thickness at the midpoint of the body. All axes should also be weighed, preferably to two decimal places.

TYPOLOGY

Class A

This group comprises symmetrical miniature axes with drooping blades, prominent side loops and sub-rectangular-sectioned bodies, with little or no evidence of mouth mouldings. Class A axes have been divided into two sub-classes:

A1: miniatures where the body droops either towards or away from the side loop (Fig. 7).

A2: miniatures where one edge of the body remains straight, the other angling or drooping away from the side loop (Fig. 8).

Discussion

These axes were first theorised by Robinson to be directly copied from the first wrought-iron series of socketed axes used in the Earliest Iron Age from *c.* 750 BC onwards (Robinson 1995, 61). Comparable prototypes are published both on the PAS database (see PAS records NMS-FF5E45, NMS-237223, GLO-D24F78 and FAKL-38D115) and in formal literature with the notable find from Maids Moreton, Bucks

Fig. 11 Miniature axe of Class B3 from Liddington, Wiltshire (HAMP-657353) (image courtesy of Hampshire Cultural Trust)

(Manning & Saunders, 1972). No examples of class A axes have been recovered from stratified contexts, but most examples published by Robinson (1995) were found alongside Roman artefacts of 1st to 4th century BC date. An example on the PAS (PUBLIC-C50638) was found adjacent to a Middle/Late Iron Age banjo-shaped enclosure.

Distribution

A1. Wiltshire (13), Hampshire (4), Lincolnshire (2), Cambridgeshire (1), West Sussex (1), Shropshire (1), Leicestershire (1), Oxfordshire (1), no findspot (1). A2. Wiltshire (6), Hampshire (6), Dorset (2), East Yorkshire (2), Buckinghamshire (2), questionable provenance (2).

Class B

These are symmetrical miniature axes of thicker form with prominent side-loops. Class B axes can be further split into four sub-classes:

B1: miniatures with waisted midsections and curved blades. The presence of mouth mouldings is variable, sometimes they are absent but double-moulded examples are known (Fig. 9).

B2: miniatures with gently expanding sides that remain straight along their entire length, thus giving the impression of a trapeze. The cutting edge is usually straight and the bodies of these miniatures are generally much thicker than those of Class B1. Mouth mouldings are less commonly encountered (Fig. 10).

B3: miniature axes with expanding sides that

Fig. 12 Miniature axe of Class B4 from Whitchurch, Warwickshire (SUR-D8C50A) (Image courtesy of Surrey County Council/PAS)

flare out prominently at the cutting edge, mouth mouldings are usually absent (Fig. 11).

B4: crude elongated axes of thicker form which appear to be attempts at copying the broad form of socketed axes; often rather irregular and of miscast appearance (Fig. 12).

Discussion

There is a notable resemblance between class B1 miniatures and the classic LBA Ewart Park socketed axes of 'southeastern' type. An example of a Class B2 axe was recently observed by the author being excavated from a mixed Late Iron Age/Roman ploughsoil containing 3rd century coinage and pottery of 1st century BC to 4th century AD in date, but a later Roman miniature shafthole axe was also found nearby. B3 forms are present within the group from Whitchurch (Warwickshire), though what phase of the Iron Age deposits they are associated with is unclear. There is also a single example present in the Salisbury Hoard (Robinson 1995, 62).

Fig. 13 Miniature axe of Class C1 from Devizes, Wiltshire (PAS: WILT-FFCDDF). The object lacks a socket view in the PAS record (image courtesy of Salisbury and South Wiltshire Museum/PAS)

Fig. 14 Miniature axe of Class C2 from Compton, West Sussex (PAS: PUBLIC-83FCAD). The object lacks a socket view in the PAS record (image courtesy of Sussex Archaeological Society/PAS)

Distribution

B1. Suffolk (3), Wiltshire (2), Hampshire (2), Oxfordshire (2), Berkshire (1), West Berkshire (1), Warwickshire (1), questionable provenance (1). B2. Wiltshire (5), Suffolk (1), West Sussex (1), Oxfordshire (1), Hampshire (1), Dorset (1), Norfolk (1) B3. Wiltshire (4), Isle of Wight (1), Buckinghamshire (1). B4. Wiltshire (5), Warwickshire (4), Hampshire (1).

Class C

Sub-rectangular miniature axes with elongated bodies. Class C axes can be divided into three sub-classes:

C1: neatly made miniatures with either straight or inwardly-tapering sides which transition into rounded blades (sometimes the axe flaring out slightly at the cutting edge), the side-loop on or close to the socket mouth (Fig. 13).

C2: miniatures with elongated bodies, with straight sides transitioning into either rounded or straight blades – the socket sometimes obliquely sloping and the location of the loop often erring towards the midpoint of the object. In Class C2 axes the form of the side-loop is also markedly different when compared with C1, usually sited in the edge of pieces rather than projecting prominently from the side. The relevant edge is usually characteristically angled as a way of emphasising this feature (Fig. 14).

Fig. 15 Miniature axe of Class C3 from Whitchurch, Warwickshire (PAS: SUR-FA65B0) (image courtesy of Surrey County Council/PAS)

C3: crude, squat and atrophied pieces of sub-rectangular form with either straight or tapering sides (imitating the overall form of C1/C2), where the side-loop is either projecting or has become totally absorbed into the main body of the axe itself. This is the simplest form of miniature axe, sometimes so stylised that they consist only a rectangle of triangular sectioned metal with a perforation at one corner (Fig. 15).

Discussion

Robinson's typology merged these pieces with axes of different forms, but he suggested that those with a more rectangular plan were influenced by Armorican types (Robinson 1995, 61). A close potential prototype for C1 axes is published by Savory (1980, 109, 173, fig. 25, no. 205) from Upper Cwmyoy, Monmouthshire, which is a southwestern type with parallel sides and a curved cutting edge. Axes of Class C2 are more problematic, but a Late Bronze Age southwestern type parallel with straight sides and a straight cutting edge is published by Savory (1980, 109, 173, fig. 25, no. 207) though similarities can also be drawn with a small axe of possible hybrid Portland/Armorican type (see PAS record SUR-0BD3D8) suggested to be of Early Iron Age date (c. 800–600 BC).

Distribution

C1. Wiltshire (5), Hampshire (3), East Sussex (1), Norfolk (1), Somerset (1), South Gloucestershire (1), questionable provenance (1). C2. Wiltshire (6), Warwickshire (3), West Sussex (1), Surrey (1), West Berkshire (1), Dorset (1), Hampshire (1), questionable provenance (1). C3. Warwickshire (8), Wiltshire (2), Buckinghamshire (1), Surrey (1), Hampshire (1), Kent (1), Oxfordshire (1), questionable provenance (1).

Fig. 16 Miniature axe of Class D from Bainton, E. Yorks (PAS: YORYM-7DA2C1). The object lacks a socket view in the PAS record (image courtesy of York Museums Trust/PAS)

Class D

Miniature axes of realistic style, with thin bodies, variously prominent mouth mouldings and expanding bodies with curving, chisel-like or crescentic blades (Fig. 16). Class D has not been split into sub-classes as there are currently insufficient examples to divide it further in a meaningful way. Most commonly, this form demonstrates a single very prominent mouth moulding and a wide curving blade with a crescentic cutting edge, though examples where the mouth mouldings are more inconspicuous are present. Cutting edges of the blades can also vary in how curved they are (some are noticeably more chisel-like than others), while some miniatures can have a more sub-rectangular section that gives a generally flatter appearance.

Discussion

Class D pieces are some of the most interesting of all the miniature socketed axes as they seem to be those that most closely mimic (in a very realistic sense) the forms of full-sized objects, in addition to being larger on average than their miniature counterparts of other types. Their elongated bodies and flaring blades in some cases appear to be most closely imitating Early Iron Age Sompting type axes of the Tower Hill or Kingston variants, while others can be tied more directly to linear-decorated types with acutely flaring socket mouths and multiple decorative mouth mouldings. The Class D axe from the 'Arras' cemetery provides the only secure dating evidence for this type, implying a Middle Iron Age origin (*c.* 300–200 BC onwards).

Fig. 17 Miniature axe of Class E from Steeple Bumpstead, Essex (PAS: SF-34936B). The object lacks a socket view in the PAS record (image courtesy of Suffolk County Council Archaeology Service/PAS)

Distribution
East Yorkshire (5), North Yorkshire (3), Suffolk (2), West Yorkshire (1), Oxfordshire (1), Buckinghamshire (1).

Class E

Miniature axes of squat thick bodied form, with crescentic blades as wide or wider than the object is in total length. The socket is not depicted; the place where it would normally be is simply plain and flat (Fig. 17).

Discussion
Class E axes appear to be a rare form, only three are known from the PAS database and none from excavated contexts. The use of a squat body form and heavily splayed blade is somewhat reminiscent of 'bag shaped' axes of Irish, Welsh and south-western English extraction.

Distribution
North Yorkshire (1), Buckinghamshire (1), Essex (1).

DISTRIBUTION ANALYSIS

Method

Distribution maps were produced for all miniature axes collected during the data accumulation stage that had findspots to at least a parish level (a total of 143 examples). These comprise a broad overview detailing the total distribution of pieces across the entirety of England and Wales, followed by further individual maps covering Classes A–D respectively (a total of 133 examples). Although pieces that were undiagnostic, or those which did not fit into classifiable types, were included in the overview, they were omitted from any individual discussion. Likewise, the rare group of Class E axes was included in the overall distribution, but it was not discussed as an individual type. Miniatures were plotted to the nearest 4-figure NGR (recorded findspot), which has led to some overlap of distribution points in locales where the number of axes per kilometre is greater than one.

Potential bias factors

As with any spatial analysis of artefacts, it is important to consider factors and biases that

may 'skew' a distribution. The vast majority of miniature axes are metal-detector finds, which gives rise to several problems. Certain counties have a more established tradition of recording objects recovered by detectorists (for example, Suffolk and Norfolk); moreover, some counties may also have higher recording rates compared to others. It is also likely that detectorist activity is unevenly distributed across the UK. These factors have been noted for other object types (R Webley 2019, pers. comm.), and have been discussed in the literature (e.g. Robbins 2012). Despite having higher levels of recorded finds, and by implication a greater number of active detectorists, Norfolk and Suffolk have recorded very few miniature axes. Conversely, although Wiltshire and Hampshire have together yielded a lower level of recorded finds, and probably have seen less interest by detectorists, they have produced over one third of the current dataset (50+ examples). These trends strongly suggest that the concentrations of miniature axes in these locales is a genuine archaeological pattern, not a simple reflection of detectorist activity.

Total coverage

The overall distribution of miniature axes across Britain (Fig. 18) demonstrates the clear overwhelming predominance of these finds in Hampshire and Wiltshire, with most other examples dispersed through Berkshire, Buckinghamshire and Oxfordshire. However, there is also a very clear secondary concentration of pieces north of the Humber within Lincolnshire and Yorkshire. Within Wessex itself, the presence of multiple axes located within adjacent kilometres squared (and indeed, those from within the same kilometre squared which cannot be shown in this map) clearly demonstrate that it is by no means uncommon to encounter two or three axes from the same wider 'site'. However, this latter point only refers to instances where two or three axes are found in broad association: larger assemblages such as those at Whitchurch (Warwickshire) and the five examples deposited together with other metalwork at the site of the same name in Hampshire remain very unusual as individual deposits.

Distribution by type

Class A corresponds to what can be considered the 'typical' pattern for this type of object: a predominance of finds in Wiltshire, with most others coming from Hampshire (Fig. 19). However, in addition to these pieces from the Southwest there is also a more dispersed group of A1/A2 pieces in Lincolnshire and Yorkshire. Two Class A pieces from Dorset reflect the most westerly examples currently recorded of this object type, while Class A miniatures appear to be totally absent from East Anglia.

Class B (as with Class A) has much of its corpus concentrated in Wiltshire, though in contrast to Class A there are fewer in Hampshire (Fig. 20). By contrast to Class A, there are no recorded examples of Class B from north of the Humber – though there is an interesting 'mini cluster' of three at the mouth of the Deben estuary in Suffolk, very close to the Essex border. In comparison with Class A, there are more Class B miniature axes in central Southern England; the assemblage of miniatures from Whitchurch (Warwickshire) is very much an outlier.

Class C is, as with Class A, again primarily concentrated in Wiltshire (Fig. 21), with most others from Hampshire. In contrast to Classes A and B, however, there are none in the north – although there is an outlier on the Kentish coast. Comparably to Class A, Class C is apparently absent from East Anglia. As with Class B, the presence of Class C miniatures at Whitchurch (Warwickshire), is very much outside the usual range for these objects.

Class D (Fig. 22) has a significantly different distribution when compared with Classes A–C. In complete contrast to the usual Southwestern concentration of the aforementioned groups, the distribution of Class D is almost exclusively in Yorkshire, with three outliers in Eastern and Southern England. Importantly, the focus of Class D is directly around the Iron Age cemetery at Arras, East Yorkshire, where the discovery of one of the first miniature axes was made. The very different form of these examples, compared to those in the Southwest, implies an independent regional manufacture. They probably belong to a different chronological phase given that the dating evidence for Class D is from the Middle Iron Age. This concept

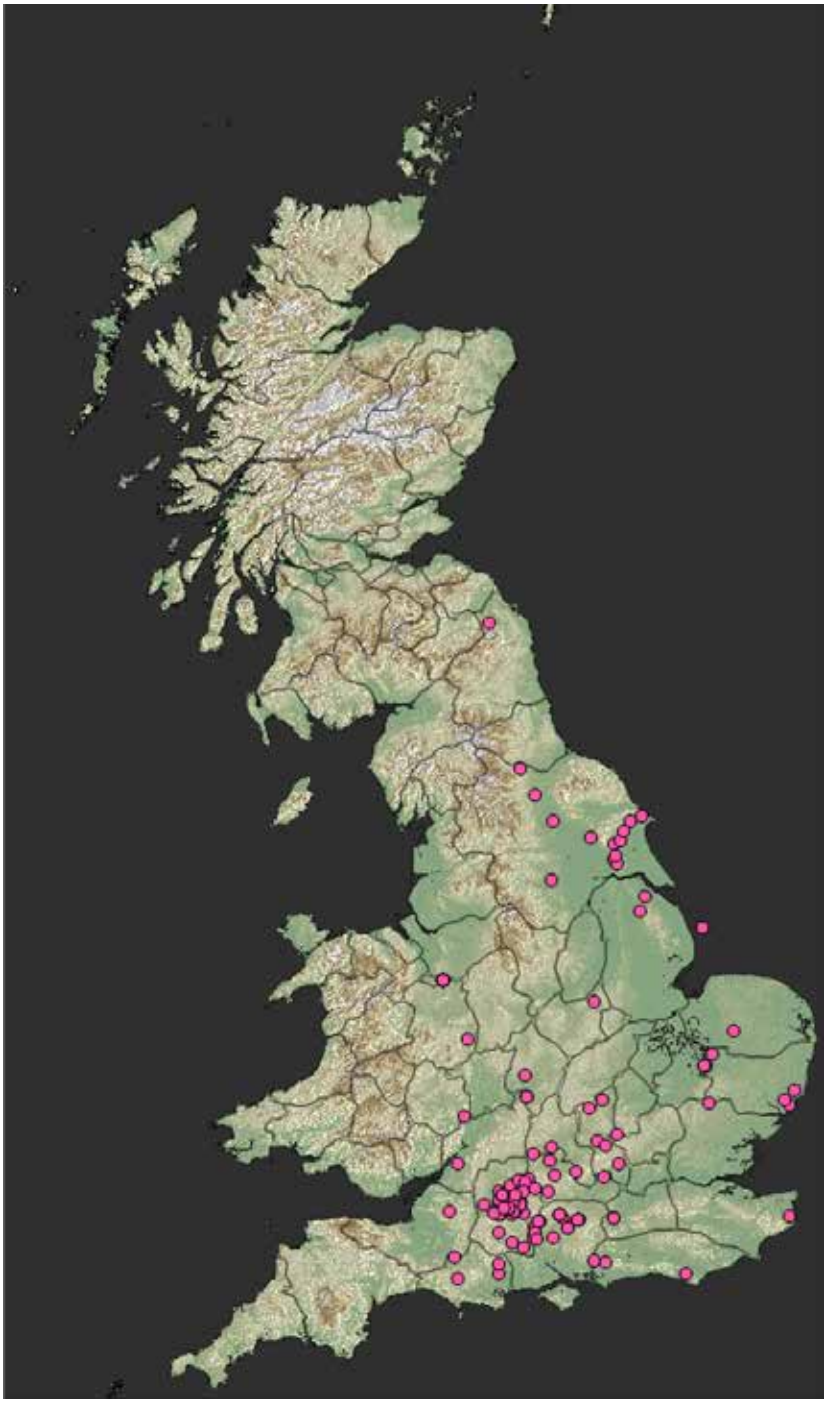

Fig. 18 Distribution of all miniature socketed axes within the known corpus. The data point in the sea off Lincolnshire should be ignored as this reflects an inputting error. The reader is reminded that this map does not show multiple finds from single sites or finds from within the same kilometre squared due to data-point overlap (map courtesy of A Bolton)

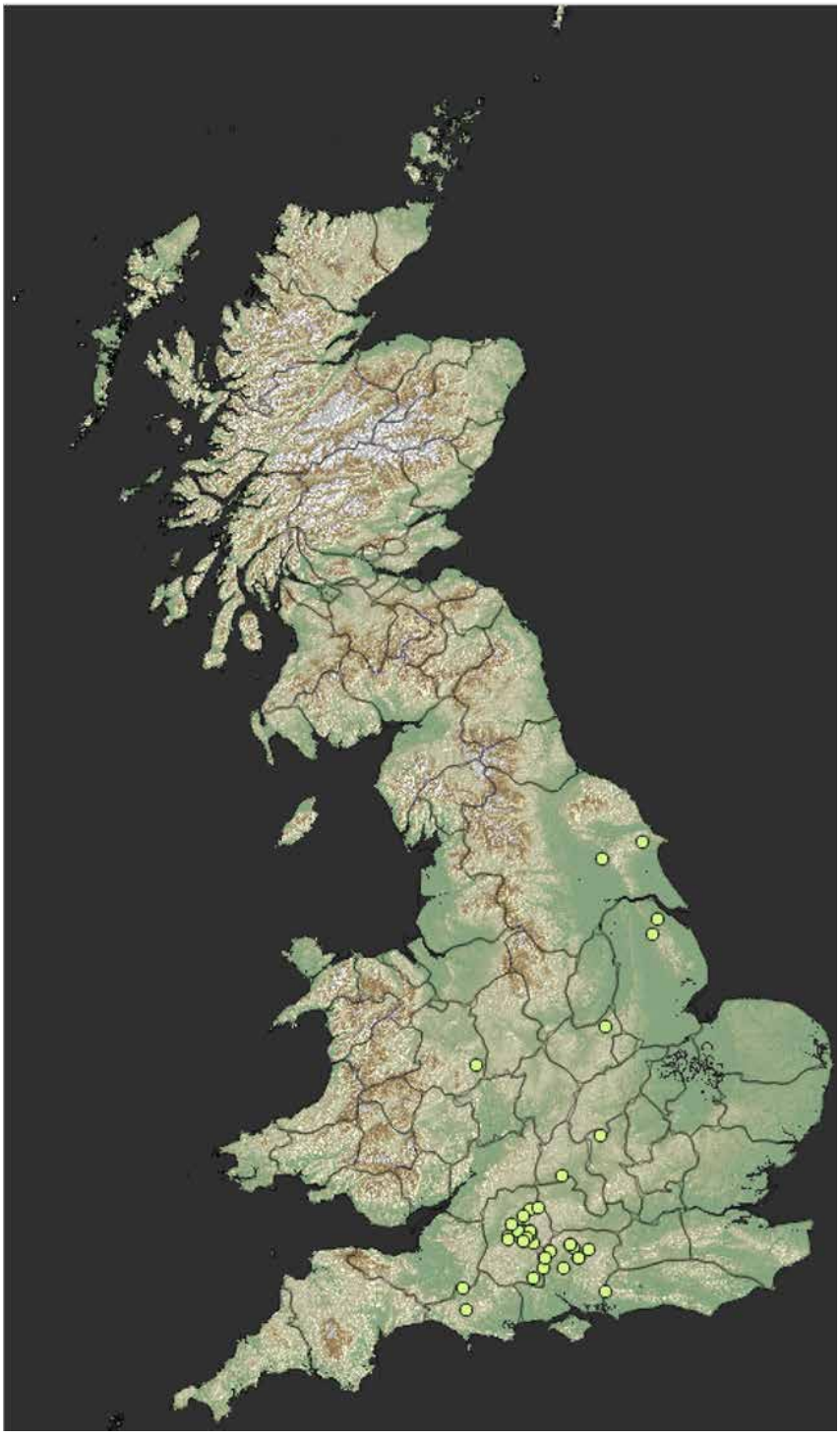

Fig. 19 Distribution of Class A axes (image courtesy of A Bolton)

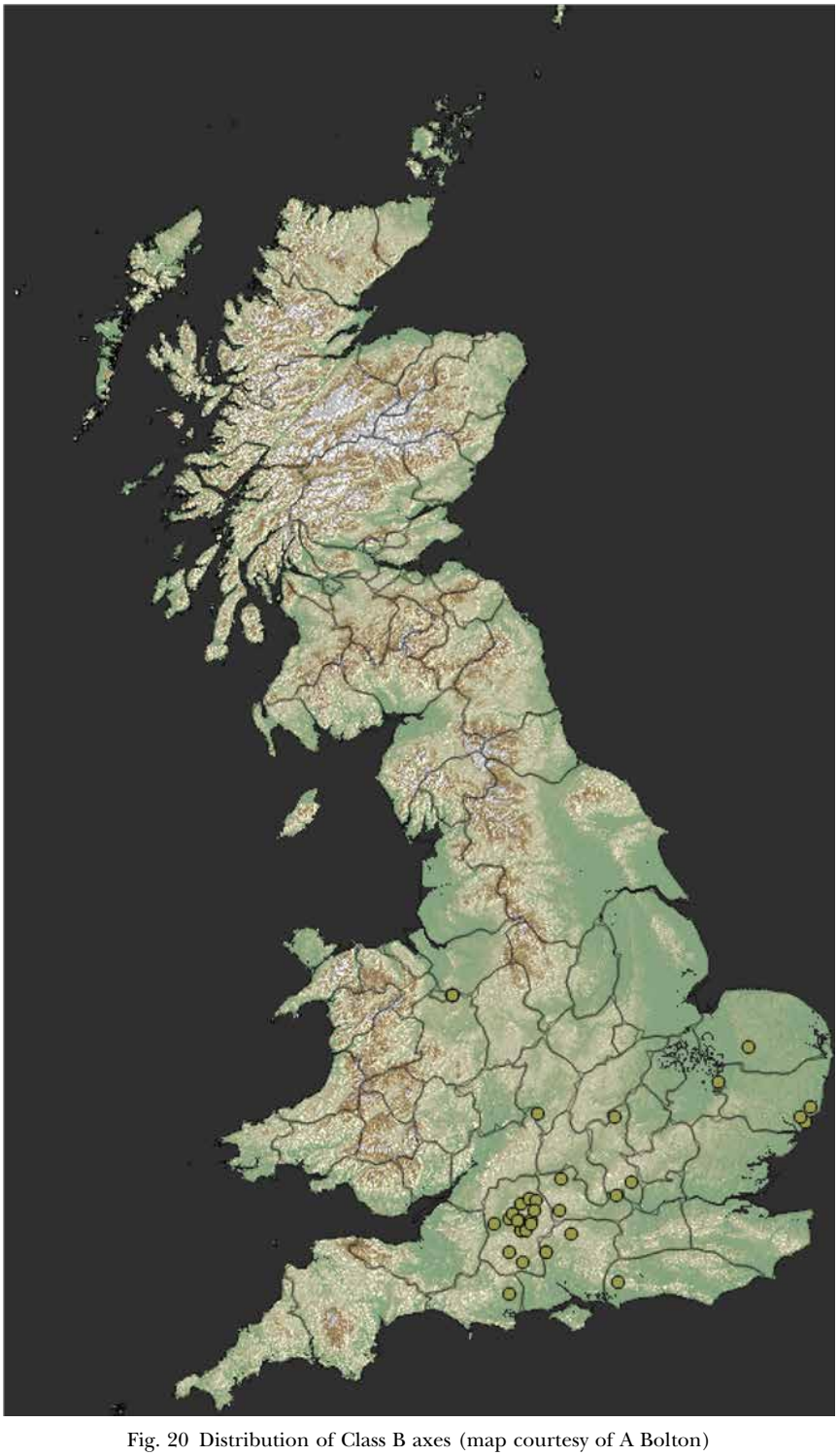

Fig. 20 Distribution of Class B axes (map courtesy of A Bolton)

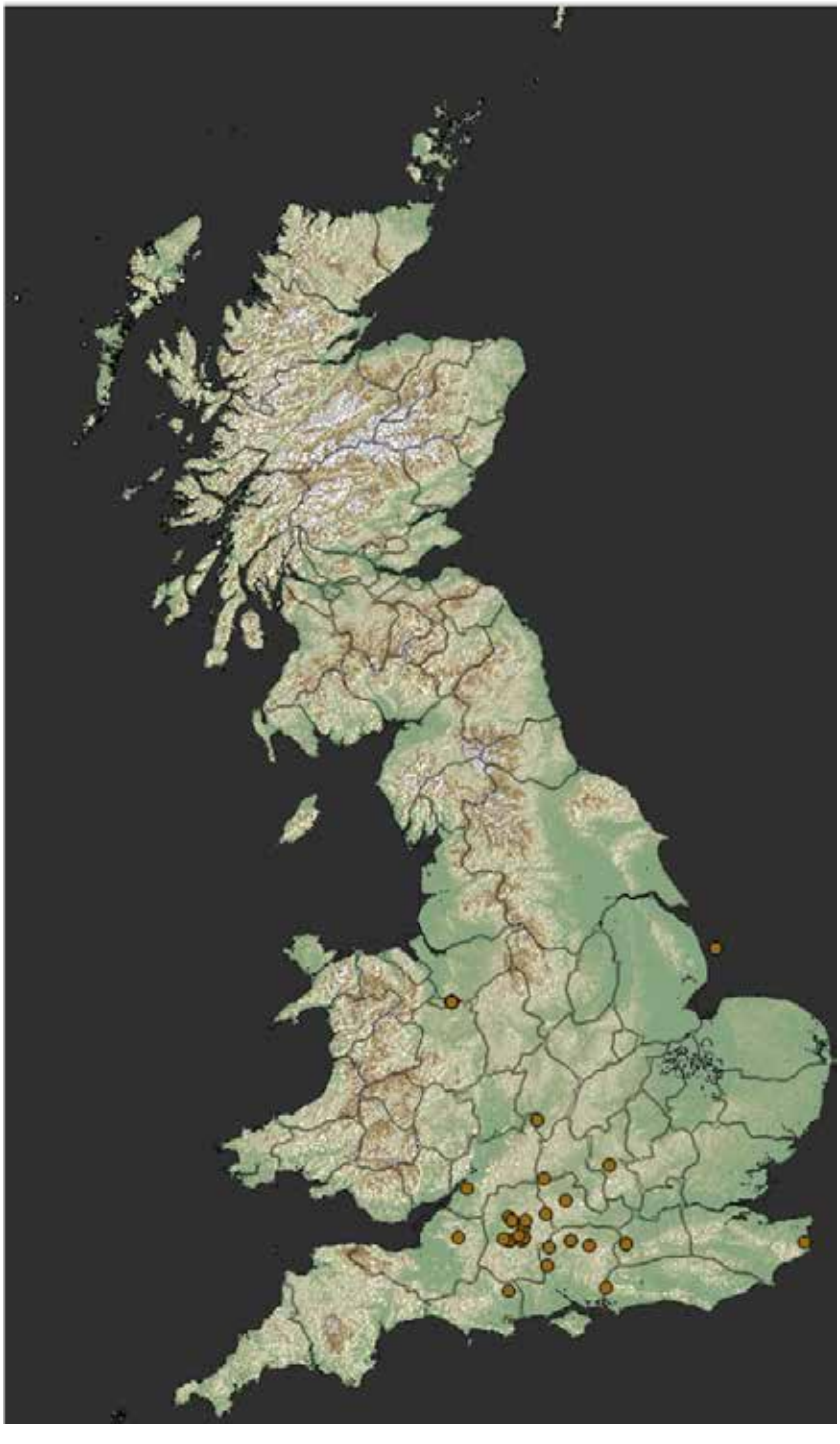

Fig. 21 Distribution of Class C axes. The data point in the sea off Lincolnshire is, as before, an inputting error to be ignored (map courtesy of A Bolton)

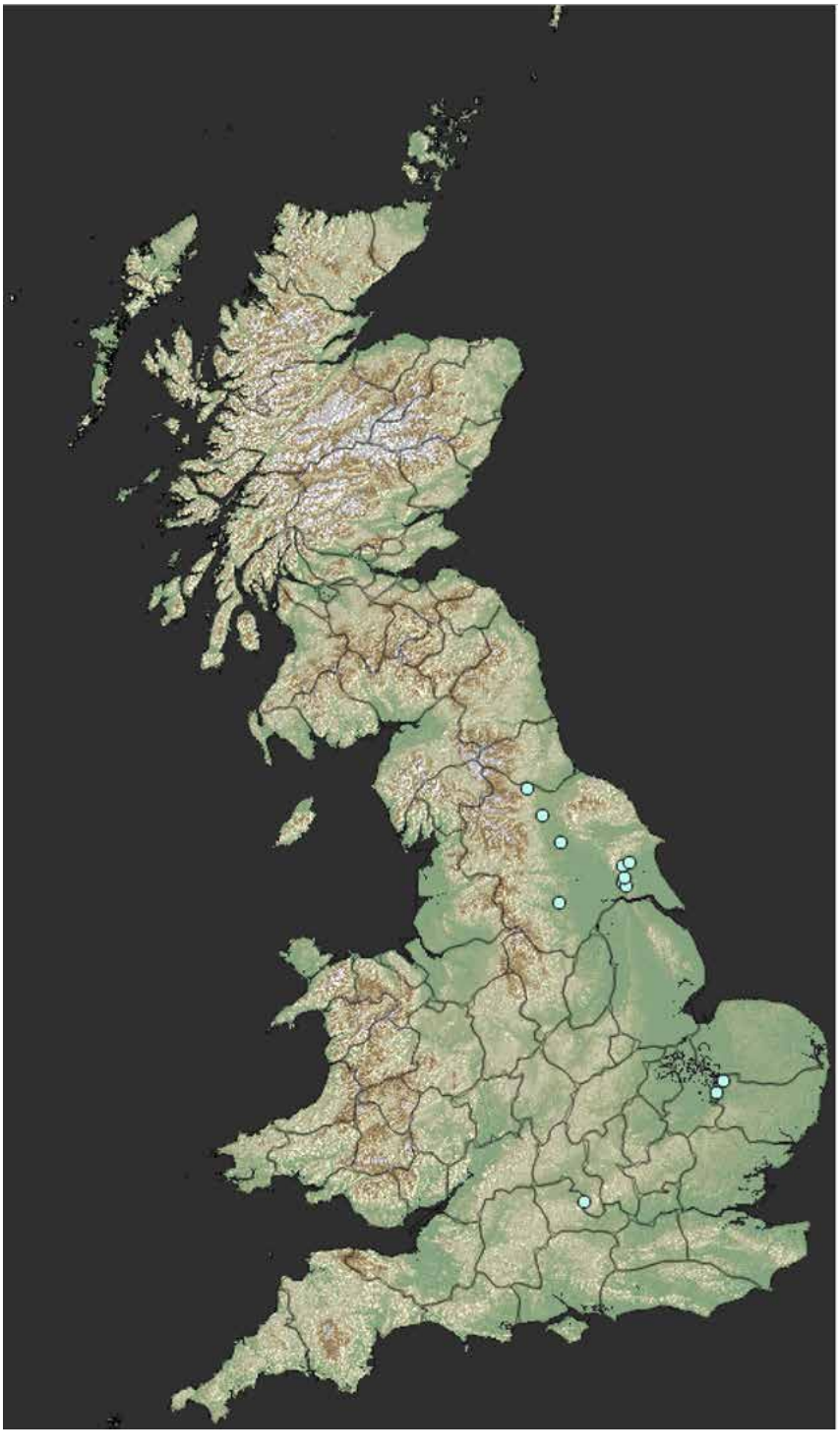

Fig. 22 Distribution of Class D axes (map courtesy A Bolton)

may be supported by the fact that whereas Class A miniatures have been found in the north, there are no Class D pieces (thus far) recorded in the southwest.

CONCLUSIONS

As stated previously, the main aims of this paper have been as follows: 1) synthesise the examples discussed by Robinson with the larger corpus of miniature axes reported to the Portable Antiquities Scheme (PAS) and other formally published examples, 2) formulate a coherent, comprehensive typology, 3) investigate their spatial distribution, 4) explore the possibilities of chronological variance and regionality based on the distribution of the different types. The author hopes that all of these aims have been fulfilled in the preceding text.

In conclusion, although it has been generally accepted for some time that the assumptions made by Robinson concerning these artefacts (1995) are incorrect, this re-appraisal of the evidence with an integrated approach to the data demonstrates for the first time the full extent to which these artefacts are distributed around the country. Miniature socketed axes are present in most areas of England to varying degrees (with the exception of counties in the far southwest and northwest of the country), but with the incorporation and analysis of this new data, evidently to an extent far greater than that observed by Robinson (1995). This strongly supports the notions suggested by Hingley (2009) and Farley (2011) that axes in particular were viewed in a special way during the later Iron Age and early Roman periods – particularly in the Southwest and North of England.

The presence of a few miniatures securely discovered in pre-Roman sealed contexts strongly suggests a manufacture date in the Late Bronze Age or Earliest Iron Age for the majority of these finds. As discussed earlier, the frequent association of these miniatures with artefacts and coins of Roman date on primarily Roman sites has perhaps led to a repeated (incorrect) assumption that they must also be Roman. However, the latter view does not consider the demonstrable Middle or Late Iron Age/Early Roman propensity for accumulating 'antique' metal objects and subsequently re-depositing them. As a result, it is probably more appropriate to see these miniatures as items that had a long use-life, some perhaps curated for centuries as curiosities or amulets before being deposited. The ability of the author to fit over 90% of all the known miniature socketed axes into a typology belies the presence of standardisation in their manufacture – almost inferring a degree of early 'mass production'. On the other hand, it is possible that the overall form of these objects could have been maintained and copied over a considerable length of time; a 'stock design' with a tradition of being manufactured in a certain style. What is clear is that when these objects are discovered in Late Bronze Age/Earliest Iron Age contexts, their association is clearly linked in some way to midden deposits. Conversely, when encountered at Late Iron Age or Early Roman sites – the focus shifts to areas in and around temples, shrines and other 'religious' sites.

The formation of an updated typology based on a greater number of examples has clearly revealed two main trends: Firstly, that miniature socketed axes appear to have been copied from several different types of Late Bronze Age/Early Iron Age functional full-sized examples. Whereas while over a third of the currently known examples emulate Earliest Iron Age socketed and looped iron axes, the remainder diversely copy a number of different axe-types from across Britain – including some which may be intended as renderings of Irish or Armorican pieces. The second trend which can be ascertained is that a degree of regionality can be observed in terms of what axe-types were selected for copying: whereas Classes A–C (which have their distribution centred in Wessex) primarily take after Late Bronze Age Ewart Park forms, 'southwestern' types and the rarely discovered socketed iron axes, Class D breaks with this trend by apparently emulating Early Iron Age copper-alloy types. Given that Class D axes appear to have a distribution completely distinct from all other types, and appear to copy the chronologically latest of all the prototypes, it is suggested that the type is more likely to be of Early or Middle Iron Age date than terminal Late Bronze Age or earliest Iron Age.

Finally, the new distributive analysis undertaken here clearly shows the overwhelming regional concentration of miniature socketed axe deposition in Hampshire and Wiltshire. On the one hand this may reflect a focus of belief, perhaps implying the main location of where they were being manufactured and utilised. However, it is perhaps significant that the concentration of miniatures in Wessex appears to correlate quite neatly with the trend for this region as the core metalworking area evident in the *Llyn Fawr* (Earliest Iron Age) period (O'Connor 2007). In-depth investigation of this trend is not strictly within the scope of this paper, but future work is certainly warranted in focusing specifically on the distribution of miniatures within Wiltshire/Hampshire as individual counties – perhaps comparing these with the distribution of known *Llyn Fawr* hoards or single metal finds. A more specific question which could be answered concerns the small cluster of Class D axes from East Yorkshire, which might reveal whether these are depositions within areas of settlement or are in fact grave goods associated with other cemeteries/burials (as the original 'Arras' cemetery miniature was).

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Author: Alex Bliss, Fort Cumberland, Fort Cumberland Road, Southsea, Hampshire, PO4 9LD. Email: alex.bliss@HistoricEngland.org.uk

APPENDIX: LIST OF MINIATURE AXES RECORDED BY THE PAS

PAS record ID	Type	Findspot (county)
BH-C0F800	A1	Cambridgeshire
SUR-65D3C2	A1	Hampshire
SUR-2CAF73	A1	Hampshire
LON-2C0B87	A1	Hampshire
HAMP-8A11A7 (1 of 5)	A1	Hampshire
LEIC-436D57	A1	Leicestershire
NLM-8EA33E	A1	Lincolnshire
LIN-B1B742	A1	Lincolnshire
WILT-8C5A61	A1	No findspot
OXON-F7ED94	A1	Oxfordshire
WMID-6F570A	A1	Shropshire
WILT-2A9610	A1	Swindon/Wiltshire
PUBLIC-83C3D1	A1	West Sussex
WILT-FE6E92	A1	Wiltshire
WILT-9E5024 (2 of 3)	A1	Wiltshire
WILT-9E5024 (1 of 3)	A1	Wiltshire
WILT-5CB741	A1	Wiltshire
WILT-3843D1	A1	Wiltshire
WILT-26DB43	A1	Wiltshire
BUC-5505C5	A2	Buckinghamshire
NARC-1D5924	A2	Buckinghamshire
SOM-517F02	A2	Dorset
NMGW-9B796D	A2	Dorset
YORYM-8345DF	A2	East Yorkshire
DUR-35C6C8	A2	East Yorkshire
SUSS-96190E	A2	Hampshire
SUR-D92A68	A2	Hampshire
PUBLIC-C50638	A2	Hampshire
HAMP-8A11A7 (2 of 5)	A2	Hampshire
DOR-1A98B6	A2	Hampshire
SF-080032	A2	Hampshire
WILT-393545	A2	Wiltshire
NMGW-48B6E7	A2	Wiltshire
BERK-6370F7	A2	Wiltshire
WILT-F6733D	A2	Wiltshire
OXON-8E15E0	B1	Hampshire
HAMP-8A11A7 (3 of 5)	B1	Hampshire
BERK-AFCC3F	B1	Oxfordshire
BH-15EFD4	B1	Oxfordshire

SF698	B1	Suffolk
BERK-D6C0E1	B1	West Berkshire
WILT-6FB3B4	B1	Wiltshire
HAMP-6EF338	B1	Windsor and Maidenhead/Berkshire
DOR-806006	B2	Dorset
HAMP837	B2	Hampshire
SF-838F44	B2	Norfolk
SF-631D32	B2	Suffolk
WILT-F7AB14	B2	Wiltshire
WILT-F76851	B2	Wiltshire
WILT-193FDE	B2	Wiltshire
IOW-E2E708	B3	Isle of Wight
NARC-2A7713	B3	Milton Keynes/Buckinghamshire
WILT-889E3E	B3	Swindon
HAMP-657353	B3	Swindon
WILT-33B468	B3	Wiltshire
WILT-12C795	B3	Wiltshire
HAMP-7C08D9	B4	Hampshire
SUR-D8C50A	B4	Warwickshire
SUSS-4551A0	C1	East Sussex
SUSS-966045	C1	Hampshire
HAMP-8A11A7 (5 of 5)	C1	Hampshire
HAMP-8A11A7 (4 of 5)	C1	Hampshire
NMS-CBCB34	C1	Norfolk
GLO-095477	C1	Somerset
GLO-259A17	C1	South Gloucestershire
WILT-FFCDDF	C1	Wiltshire
WILT-90DCC4	C1	Wiltshire
PAS-C327D4	C1	Wiltshire
HAMP3303	C2	Dorset
SUR-B7D7BA	C2	Hampshire
PUBLIC-5CB1D7	C2	West Berkshire
PUBLIC-83FCAD	C2	West Sussex
WILT-DD2454	C2	Wiltshire
WILT-9E5024 (3 of 3)	C2	Wiltshire
WILT-553D37	C2	Wiltshire
WILT-174ED2	C2	Wiltshire
SUR-1A5B86	C3	Buckinghamshire
WILT-FCC811	C3	Hampshire
KENT-8A22A5	C3	Kent
BERK-EFD565	C3	Oxfordshire
SUR-FA65B0	C3	Warwickshire
SUR-D8D126	C3	Warwickshire

SUR-A2EB17	D	Buckinghamshire
YORYM-731F42	D	East Yorkshire
YORYM-9A3076	D	East Yorkshire
YORYM-7DA2C1	D	East Yorkshire
YORYM-7505A8	D	East Yorkshire
SWYOR-5C21D2	D	North Yorkshire
DUR-D3DC40	D	North Yorkshire
DUR-28C451	D	North Yorkshire
SF-07E34B	D	Suffolk
SWYOR-18DAC4	D	Wakefield/West Yorkshire
SUR-DA6B09	D (broken)	Oxfordshire
BUC-1FDE42	E	Buckinghamshire
SF-34936B	E	Essex
YORYM-7B7474	E	North Yorkshire
SF-632655	uncertain, quite like C1 but has two loops	Cambridgeshire
DUR-E5DB54	uncertain	Northumberland
WAW-80FB93	uncertain	Warwickshire
WILT-E29B44	uncertain	Wiltshire
LON-40DD92	uncertain	Wiltshire
YORYM-8826A5	uncertain-cross between D/E	East Yorkshire
PUBLIC-227AA4	uncertain, probably A (picture file broken)	Gloucestershire