

## *Arms, Armor, and Other Military Objects*

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### INTRODUCTION

Although the military finds from the rescue excavations at Zeugma in 2000 form a comparatively small assemblage of material, they are nonetheless interesting.<sup>1</sup> This synoptic overview of the material includes objects of iron, copper alloy, bone, and gold. These objects are catalogued by material classification in other chapters in this volume. The focus here is the military context. The objects include items of obvious military purpose — weapons, armor, and military horse trappings; objects which probably had a less obvious military purpose — various studs and *phalera*; and objects with military associations, such as the entrenching tool. This synoptic text includes a summary catalogue of the material. For illustrations and detailed discussion, the catalogue provides a cross-reference to the finds in their material catalogues elsewhere in this volume.

After a brief look at the epigraphic and literary evidence for the military presence at Zeugma, the military finds are catalogued briefly and the various object classes discussed, expanding on the discussion of individual items in the material catalogues. Both the typological dating and provenance of the material in terms of the phasing, and the range and use of the surviving pieces of equipment and the evidence it provides for troop types at Zeugma are considered. Next, the spatial distribution in terms of structures is discussed. Finally the cultural affinities of the military material are considered and the evidence for a distinct “military community” is discussed.

### BACKGROUND — EVIDENCE FOR MILITARY PRESENCE AT ZEUGMA

In 2003 Hartmann and Speidel reviewed the evidence for the military presence at Zeugma.<sup>2</sup> They have now (Hartmann and Speidel, this volume) extended their review with a more detailed account of the finds from their recent work. It is clear from their new account that they have recovered a wide range of military finds in significant numbers, far more than were found during the 2000 PHI rescue excavations. They have discussed the location of a probable military camp, at At Meydanı, which was probably not the permanent base of *legio IIII Scythica*, but nonetheless marked by a concentration of tile stamps mainly of *legio IIII Scythica*.<sup>3</sup> They draw attention to the fact that not only was Zeugma right on the frontier, at least until A.D. 195, but that it was also a favored route through to Parthia.<sup>4</sup> *Legio IIII Scythica* was based at Zeugma from the late first

century A.D., although detachments were regularly posted elsewhere, including Dura-Europos.<sup>5</sup> In addition to *legio IIII Scythica* it is clear that detachments from other legions and auxiliary units were present or passing through Zeugma at various times.<sup>6</sup> It is not clear at what date *legio IIII Scythica* finally left Zeugma. It may have left after the destruction of the city in A.D. 252/253, but it is possible that it remained there until the reorganization of the eastern frontier under Diocletian at the end of the third century A.D.<sup>7</sup> The *Notitia Dignitatum* lists the *Praefectus legionis quartae Scythicae* at Oresa under the *Dux Syriae*. There is an inscription that suggests that in the fourth century an elite cavalry unit, the *equites scutarii Aureliaci*, was based at or near Zeugma.<sup>8</sup>

### CATALOGUE

The finds catalogued here are from the PHI rescue excavations at Zeugma in 2000. Classification draws on, but is not identical to, an unpublished catalogue of 60 objects prepared for The Packard Humanities Institute and Oxford Archaeology by Martin Hartmann and Michael Speidel in 2002 and 2003.<sup>9</sup> Finds from trenches (nos. 3, 6, 8, 14, 16, and 17) excavated by other groups in 2000 are not included here. None of the latter has been viewed by me, and no quantification has been available. Similarly, limited information is available about the “significant numbers” of military finds from research at Zeugma conducted by Hartmann and Speidel; they note that these include “arrow- and spearheads, armor scales, mail shirts, etc.”<sup>10</sup> Therefore it is not possible to say how many military finds have been recovered from Zeugma from recent excavations. For this reason any statements based on the military finds from Trenches 1, 2, 4, 5, 7, 9–13, 15, 18, and 19 and any statements concerning the military presence at Zeugma can only be tentative. Many objects catalogued in this chapter with the prefix ML are also catalogued elsewhere in this volume with objects of like material. Cross-references to these are as follows: BR refers to the chapter on copper alloy objects, and IR to iron, BI to bone and ivory, and GD to gold, respectively. In the catalogue, an asterisk with a cross-reference indicates that the object is illustrated in the companion chapter.

### Helmets

Although the almost complete helmet (ML1) is not precisely paralleled, it is of a form that can broadly be dated to the late second or early third century on typological grounds.

The possibility that it has Greek elements in its design has been noted (see my chapter on the iron objects, in this volume, IR1).<sup>11</sup> The two small helmet fragments (ML2-3) cannot be identified to form nor dated closely, because too little of either survives. All three pieces are from the same mid-third-century destruction deposit in the peristyle court in the House of the Helmets.<sup>12</sup>

There is a further facemask from a parade helmet, which is thought possibly to be from Zeugma. It is now in the British Museum and said to be from "Aintab" (= Gaziantep). It has been published by Garbsch in his catalogue of parade armor and was included by Kennedy in his recent monograph on Zeugma. It can be dated on typological grounds to the end of the first century or the very beginning of the second century A.D.<sup>13</sup>

**ML1** (SF 2076) context 2008, HS28 = IR1\*

**Parade helmet**

Facemask: H. 230 mm; W. 157 mm

Skull: H. 220 mm; B. 185 mm

Iron comprising a facemask and a skull, both of which are largely complete.

Date: mid-third century A.D.

**ML2** context 2008 = IR2\*

**Helmet fragment**

L. 65 mm

Part of the earpiece from a cavalry helmet or parade helmet.

Date: mid-third century A.D.

**ML3** context 2008, HS29 = IR3

**Possible helmet fragment with repoussé decoration**

L. 52 mm; W. 43 mm

Date: mid-third century A.D.

**Shield Bosses**

The two shield bosses are from mid-third-century deposits. The boss with the slightly oval bowl (ML4) is from Room 9A in the House of the Tesserae and the larger circular boss (ML5) from Room 18A in the Mud-brick House. The latter was probably attached to an oval or near-circular shield with a curved board, such as the surviving examples from Dura-Europos.<sup>14</sup> The other boss, which is not a common form, was possibly attached to a shield with flat board, again probably oval.

**ML4** (SF 59) context 9073, HS26 = IR4\*

**Shield boss with deep bowl slightly oval in plan**

L. 140 mm; H. 55 mm

Date: mid-third century A.D.

Shield boss with deep bowl slightly oval in plan. The flange is incomplete, although detached fragments survive. The flange may well not have been concentric with the bowl.

No nail holes could be identified, but much of the flange was damaged or missing. The precise shape of the flange is not certain, but it is not concentric but wider at the ends (possibly even squared off). There are a small number of examples of bosses with nonconcentric flanges. There is a fragment from Dura-Europos (James 2004, 175, and fig. 95:607) best interpreted as a boss. Other examples come from Carnuntum (von Groller 1902, 97, and pl. viii: 8-9) and Trentholme Drive, York (Wenham 1968, 95 and fig. 37:1). There is a possible parallel for this form of boss dating to the first century A.D. from Mainz (Mittelrheinisches Landesmuseum).

**ML5** context 18108, HS27 = IR5\*

**Shield boss**

D. ca. 305 mm; overall H. of boss at least 65 mm;

D. of bowl 135 mm

Date: mid-third century A.D.

Large fragmentary boss, with broad bowl and wide-angled flange curved in cross section.

**Scale Armor**

Three fragments of copper alloy scale armor were found in the trenches published here from the rescue excavations of 2000.<sup>15</sup> One fragment (ML6) was from context 10001 in Trench 10 and is not datable by context, the other two fragments (ML7-8) came from mid-third-century destruction contexts in Room 11D in the House of the Fountain in Trench 11.

The scale armor, although fragmentary, is undoubtedly of second- to third-century date. The scales from context 11038 (ML7 = BR25) were linked in horizontal rows, but attached to a leather backing garment by means of cords or stitching through the large circular hole. They conform to von Groller's class iii and would have formed a flexible armor.<sup>16</sup> Scales of this type have been recovered from Newstead and from Straubing on the Danube.<sup>17</sup> The scales from context 11039 (ML8), though fragmentary, are probably of the same type.

The scales from context 10001 (ML6 = BR26) conform to von Groller's class iv and were designed to be wired together horizontally. The evidence of the scale armor found in excavations at Carpow in Scotland shows that the scales were wired together in horizontal rows and the rows then attached by threads to horizontal linen cords laid on top of the scales, and to a linen backing. There was evidence on the Carpow fragment for leather bindings or edgings. The resulting armor would have been flexible. A fragment of similar scale armor was recovered from the Caerleon fortress bathhouse.<sup>18</sup>

In addition to the scales found in the 2000 excavations, Kennedy published a photograph of a sizable fragment of copper alloy scale armor from Zeugma now in Gaziantep Museum.<sup>19</sup> The scales appear to be of a third form, with

four pairs of vertically aligned small holes at the top, bottom, and sides of each scale (von Groller's class vii). This fragment may have been part of a rigid form of scale armor comparable to fragments from Mušov, Czech Republic, and from Hrušica (Roman Ad Pirum) in Slovenia. The idea of forming rigid armor in this way seems to have been introduced in the mid-second century A.D.<sup>20</sup>

However, the Zeugma fragment published in 1998 is tantalizing because it appears to show not just scales, but also to include longer strips of copper alloy wired to the scales. A single elongated strip similar to the Zeugma examples has been published from Dura-Europos.<sup>21</sup> A possible interpretation is that the armor fragment is a part of a cataphract armor such as that shown in contemporary graffiti from Dura-Europos.<sup>22</sup>

**ML6** (SF 822) context 10001, HS35 = BR26\*

**Armor scales**

L. 28 mm; W. 16 mm; Th. 0.7 mm

Date: unknown

Two copper alloy scales of similar size, square at one end and rounded at the other, and each pierced with six holes: two in the center of the square top and two pairs lower down on the right and left edges. Two thin looped wires are inserted into the lower pairs of holes, fastening the scales together. Von Groller class iv scales.

**ML7** (SF 244) context 11038, HS37 = BR25\*

**Armor scales**

L. 25 mm; W. 10 mm and 11 mm; D. 0.7 mm

Date: mid-third century A.D.

Fragment of copper alloy scale armor comprising three elongated scales with one square and one rounded end. Each has a large round hole in the center of the square end and two pairs lower down on the right and left edges. They are linked by thin wire passing through the lower pairs of holes. Von Groller class iii scales.

**ML8** (SF 32) context 11039, HS36

**Armor scales**

L. 12 mm; W. 10 mm; Th. 0.7 mm

Date: mid-third century A.D.

Fragments of three copper alloy armor scales, square at the surviving end. The square end has a central hole, and there are pairs of holes on the long sides. Probably von Groller class iii scales.

**Possible Strip Armor Fragments**

All fragments of possible strip armor are from Trench 18, from either Rooms 18A and 18B in the Mud-brick House (ML11-14) or from context 18001, a deposit over the entire trench (ML9-10, 15-16). The identification of some of the

strip as armor fragments (particularly ML16) is uncertain. Even where the identification is more certain, the fragments are small, and it is not possible to identify with any confidence the form of armor to which they might have belonged. The possibility that some at least of the fragmentary strips are from articulated arm guards, or *manicae*, has been suggested (see my chapter on the iron objects, in this volume).

There is some archaeological evidence for the survival of segmental loricae of Newstead type into the third century, but the evidence is predominantly from the western parts of the empire.<sup>23</sup> The Zeugma fragments are too narrow to be parts of a Newstead-type lorica. Another possibility is that they are parts of a late form of *lorica segmentata*, such as Bishop's suggested Alba Iulia type, but it is also possible that some of the Zeugma fragments formed parts of some other type of armor.<sup>24</sup> The Dura-Europos graffiti, for example, show armored cavalry (*clibanarii* or *cataphracti*) with what appears to be composite armor comprised of scales protecting the shoulders and vertical strips protecting the abdomen.<sup>25</sup> However, this form of armor is more likely to be formed from narrow strips of copper alloy, as seen of the armor fragment published by Kennedy in 1998.<sup>26</sup>

**ML9** context 18001, HS32 = IR6\*

**Possible fragment of segmented armor**

L. 46 mm; W. 34 mm

Date: mid-third century A.D. or later.

Thin curved strip with two nail holes. Found with ML10.

**ML10** context 18001 = IR7\*

**Possible fragment of segmented armor**

W. 30 mm

Date: mid-third century A.D. or later.

Strip, with rounded end and centrally placed nail or rivet hole. Found with ML9.

**ML11** context 18070, HS34 = IR8\*

**Possible fragment of segmented armor**

L. 60 mm; W. 34 mm

Date: mid-third century A.D.

Strip with three nail holes near one edge and a further one on the opposite side. Similar to ML12.

**ML12** context 18070 = IR9\*

**Possible fragments of segmented armor**

L. 37 mm; W. 32 mm

Date: mid-third century A.D.

Similar to ML11. Fragment of one strip has a square end with a single nail hole surviving.

**ML13** context 18108 = IR10\*

**Possible fragment of segmented armor**

L. 29 mm; W. 37 mm

Date: mid-third century A.D.

Possible fragment of segmented armor comprising small length of strip with slightly rounded end. There are four nail holes in two pairs close to one edge.

**ML14** context 18108 = IR11\*

**Possible fragment of segmented armor**

L. 115 mm

Date: mid-third century A.D.

Fragment comprising at least five overlapping curved strips.

**ML15** context 18001, HS30 = IR12\*

**Possible fragment of segmented armor**

L. 65 mm; W. 30 mm

Date: mid-third century A.D. or later.

Thin strip with one rounded end; broken at other end. Near the rounded end there is a pair of small holes and then a line of a further three holes along the length of the strip, in a slight arc.

**ML16** context 18001, HS31 = IR13\*

**Possible fragment of segmented armor**

L. 68 mm

Date: mid-third century A.D. or later.

Five curved overlapping strips with a radius of ca. 45 mm. The way the plates are laid suggests segmented armor, but the radius of the curve is too tight for this to be a realistic possibility. No visible nail or rivet holes. The identification as armor is not certain.

### Spearheads

Four of the spearheads are from Trench 2, three (ML17–19) from the House of the Helmets (peristyle court and Room 2H) and one (ML20) from the House of the Bull (Rooms 2J and 2K). Two further spearheads are from Room 11D in the House of the Fountain in Trench 11 (ML21, ML24), and two spearheads are from Trench 18, one (ML22) from overall deposits and the other from Room 18B in the Mud-brick House.

Seven, possibly eight spear- or lanceheads have been identified. One is a slim head with a tapering square-section point (ML23). Another is a socket, probably from a spearhead, but of unknown form (ML24). The remaining six heads include four with slim leaf-shaped blades of lenticular cross section (ML18, 20–22). This form of spearhead seems to have been common from the mid-second century onwards across the empire.<sup>27</sup> The examples from the 2000 Zeugma excavations range in size from 137 to 275 mm long.

Generally, the wide range of sizes and forms of spear-

heads creates problems for interpreting their use.<sup>28</sup> Densem studied a small sample of spearheads from Roman Britain and applied statistical analysis to his material.<sup>29</sup> A simpler approach was employed by Manning in his republication of the first-century spearheads from Hod Hill. He plotted the length of the spear *blades*, rather than overall length, against the width and concluded the spears fell into four identifiable groups. Group I—small spears with blades 45 mm to 65 mm long; Group II—spears with blades 80 mm to 100 mm long; Group III—long narrow blades measuring between 130 mm and 150 mm in length and 18 mm to 23 mm wide; and Group IV—large spearheads with blades between 170 mm and 250 mm long and 30 mm to 40 mm wide.<sup>30</sup>

The spearheads from Zeugma, with the exception of ML19, seem to conform to Manning's broad groupings:

- Group I: not present
- Group II: ML17
- Group III: ML18, ML21, ML22
- Group IV: ML20

Although ML19 is large, its blade is comparatively short (L. 139 mm). It is also very heavy, and it is likely that it was a hunting spear rather than a weapon of war.

Such groupings are useful descriptive tools, but they do not of themselves provide any indication of the use to which different spearheads were put. It is a reasonable assumption that the different sizes and forms of spearhead reflect different uses, but the problem is to identify the use. An additional problem is that we have a number of terms used in ancient sources for thrown weapons, for hand-held thrusting spears for infantry, and for cavalry weapons, as well as more generalized terms.<sup>31</sup> It was this problem of function and terminology that Marchant attempted to address in a brief paper.<sup>32</sup> It is a problem that perhaps cannot be addressed satisfactorily, but certainly no attempt can be made until the functions of the different forms of spears have been convincingly established.

We can propose that Group I spearheads were for javelin or missile heads, for use by both cavalry and infantry, and that the slightly larger Group II heads could be used either as missile heads or as the heads of thrusting/stabbing weapons, again either on foot or on horseback. The long slim Group III weapon heads were stabbing/thrusting weapons for use on horseback. Finally, the large broad heads of Group IV make most sense as thrusting/stabbing weapons for use on foot.

The tapering square-section head (ML23) is most likely to be a thrusting spearhead for use from horseback, that is, a lancehead in more recent military terminology.

**ML17** (SF 2062) context 2008, HS2 = IR14\*

**Spearhead**

L. 104 mm; W. of blade 37 mm

Date: mid-third century A.D.

Small leaf-shaped spearhead with rounded shoulders and lenticular cross section. The socket is missing.

ML18 (SF 2097) context 2029, HS10 = IR15\*

**Spearhead**

L. 215 mm; W. of blade 24 mm; Th. 7 mm;

D. of socket 16 mm

Date: mid-third century A.D.

Slim leaf-shaped spearhead of lenticular cross section with a closed socket.

ML19 (SF 2127) context 2075, HS11 = IR16\*

**Spearhead**

L. 300 mm; W. of blade 64 mm; Th. 17 mm;

D. of socket 27 mm

Date: mid-third century A.D. or later.

Large spearhead of diamond cross section, gently curving edges, and angular shoulders with long closed socket.

ML20 (SF 2273) context 2275, HS12 = IR17\*

**Spearhead or lancehead**

L. 275 mm, W. of blade 30 mm; Th. 14 mm;

D. of socket 19 mm

Date: mid-third century A.D. or later.

Spearhead or lancehead of elongated leaf-shape form. The blade is of thick lenticular cross section. The shoulders are slightly rounded and quite sharp. It has a short split socket with a single nail hole opposite the split.

ML21 (SF 25) context 11031 = IR18\*

**Spearhead**

L. 137 mm

Date: mid-third century A.D.

Slim leaf-shaped spearhead of lenticular section. Socket is missing.

ML22 context 18001, HS15 = IR19\*

**Spearhead fragment**

L. 205 mm

Date: mid-third century A.D. or later.

Slim leaf-shaped blade. Heavily corroded. The tip is missing, but the break reveals its lenticular cross section.

ML23 (SF 3467) context 18143, HS14 = IR20\*

**Lancehead**

L. 184 mm; L. of point 139 mm; W. of point 17 mm; D. of socket 22 mm

Date: Early Imperial to Augustan/Tiberian.

Lancehead with tapering square-section head with slight step to a short closed socket.

ML24 context 11034, HS13 = IR21\*

**Spearhead?**

L. 75 mm; W. 18 mm

Date: mid-third century A.D.

Possible spearhead fragment comprising long tapering narrow socket with split. No obvious nail or nail hole.

***Pila* and bolt heads**

There are three possible *pila* heads (ML25–27) and two *pila* or bolt heads (ML28–29). Three are from Trench 2, one from an unphased context 2223 (ML25), and two from Room 2A in the House of the Pelta Mosaic (ML26–27). Two *pila* or bolt heads are from Trench 18, one from an overall deposit (ML28) and one from Room 18A in the Mud-brick House.

Distinguishing between the heads of incomplete *pila* or bolt heads and the tangs of broken drill bits is difficult. Many drill bits have tangs of rectangular section, but others have square cross-section tangs closely resembling some *pila* heads. *Pila* heads tend to be longer and slimmer than drill-bit tangs.<sup>33</sup> None of the heads from Zeugma can be identified with complete confidence, with the possible exception of ML25 and ML28, but it is more likely that they are weapon heads than the tangs of drill bits.

According to Bishop and Coulston, the archaeological and iconographic evidence shows clearly that *pila* were only used by legionaries.<sup>34</sup> *Pila* were certainly still in use in the third century,<sup>35</sup> and although there is little or no evidence for the use of *pila* as such during the Dominate, a range of missile weapons was still used, and some of these are very similar to the earlier *pila* in form. There is iconographic evidence for the use of new forms of missile weapon during the third century A.D.<sup>36</sup> It is perhaps to be expected that with the reform of the army under Diocletian and his successors, and the consequent disappearance of any significant distinction between legions and *auxilia*, the *pila* of the Republic and Principate should also disappear, in name at least.

There is a single bolt head (ML30), which is from Room 18A in the Mud-brick House in Trench 18. Although the form of the head is obscured by corrosion products, its identification as a bolt head is certain. Comparable bolt heads have been found in numbers at Vindonissa in Switzerland and at Dura-Europos, for example.<sup>37</sup>

ML25 (SF 2243) context 2223, HS20 = IR22\*

***Pilum* head?**

L. 105 mm; L. of point 76 mm; W. of point 14 mm;

D. of shaft 10 mm

Date: unknown

Possible *pilum* head, comprising tapering square-section point with distinct step to round-section shank.

ML26 context 2006, HS21 = IR23\*

**Pilum head?**

L. 62 mm; W. 12 mm; D. of stem 8 mm

Date: mid-third century A.D. or later.

Possible *pilum* head. Its identification uncertain; it may be part of a drill bit.

ML27 context 2006, HS7 = IR24\*

**Possible pilum head**

L. 68 mm; W. of point 16 mm; D. of stem 10 mm

Date: mid-third century A.D. or later.

Its identification less certain, and it may be part of a drill bit.

**Bolt or pila heads**

ML28 context 18001, HS23 = IR25\*

**Pilum or bolt head?**

L. 103 mm; L. of head 89 mm; W. 13 mm; D. of stem or shaft 10 mm

Date: mid-third century A.D. or later.

Possible *pilum* or bolt head. Tapering square-section point with broken shaft or stem of circular section. The length of the point suggests that it is a bolt head rather than a *pilum* head.

ML29 context 18108, HS25 = IR26\*

**Pilum or bolt head?**

L. 54 mm; W. 13 mm; D. of shaft or stem 11 mm

Date: mid-third century A.D.

Possible *pilum* or bolt head. Incomplete tapering square-section point with broken shaft or stem of circular section. The identification is uncertain.

**Bolt head**

ML30 context 18108, HS24 = IR27\*

**Catapult bolt head**

L. 100 mm; D. of socket 16 mm

Date: mid-third century A.D.

Catapult bolt head comprising elongated pyramidal point and a narrow socket. The precise form of the head is obscured by heavy encrustations, but the square-section tip is clearly visible, as is the end of the socket. The socket appears to be split.

**Arrowheads**

There are five possible arrowheads, although the identification of the kite-shaped blade (ML31) as an arrowhead is perhaps questionable, and the two socketed arrowheads (ML34–35) might be small bolt heads. The tanged arrowheads are of a form that occurs widely.<sup>38</sup> The socketed arrowheads may well be bolt heads rather than arrowheads,

and certainly ML35 is comparable to heads from Dura-Europos identified as bolt heads by James.<sup>39</sup>

The kite-shaped arrowhead (ML31) is from the courtyard in the House of the Bull. One of the socketed arrowheads (ML34) is also from the House of the Bull and was found in a deposit that occurred in the courtyard and Room 2J. Both are from mid-third-century contexts. The second socketed arrowhead (ML35) is from an unphased deposit. The tanged arrowheads (ML32–33) are both from Trench 7. One (ML32) comes from a deposit dated to an Early Imperial phase in Room 7A on Terrace A, the other (ML33) from a context of Late Imperial date in the west corridor of the Peristyle House.

*Kite-Shaped Arrowhead*

ML31 (SF 2332) context 2278 = IR28\*

**Kite-shaped arrowhead**

L. 66 mm

Date: mid third century A.D.

Kite-shaped arrowhead with no sharp edges. There is an expansion forming a lip at the base of the blade, and the remains of a tang.

*Tanged and Barbed Arrowheads*

ML32 (SF 486) context 7007, HS17 = IR29\*

**Tanged and barbed arrowhead**

L. 33 mm; W. of blade 14 mm

Date: late first century A.D.

Tanged and barbed arrowhead with three barbs. The tang is missing.

ML33 (SF 610) context 7061, HS18 = IR30\*

**Tanged arrowhead**

L. 70 mm; W. of blade 21 mm

Date: sixth to seventh century A.D.

Tanged arrowhead with three triangular lobes, not barbed.

*Socketed Arrowheads*

ML34 context 2009, HS16 = IR31\*

**Small bolt head or large socketed arrowhead**

L. 54 mm; W. of blade 17 mm; D. of socket 13 mm

Date: mid-third century A.D. or later.

Small bolt head or large socketed arrowhead with pyramidal point.

ML35 context 15296, HS19 = IR32\*

**Socketed arrowhead**

L. 60 mm; L. of point 42 mm; W. of point 15 mm;

D. of socket 14 mm

Date: unknown.

Socketed arrowhead with a point of elongated diamond shape with a diamond cross section. It has a short socket.

### Swords and daggers

The sword fragments and dagger are all from mid-third-century destruction deposits. ML36 is from context 2008 in the peristyle court in the House of the Helmets. ML37 and ML38 are from Rooms 18B and 18A, respectively in the Mud-brick House. The dagger or short sword (ML39) is from Room 9G in the House of the Hoards.

Both ML36 and ML37 are swords with narrow blades (ca. 30 mm) of lenticular section. Only part of ML36 survives and its original length is uncertain. More of ML37 survives; although very poorly preserved, it was at least 720 mm long. Ulbert has discussed later Roman swords and defined two types: the long narrow Straubing/Nydam type and the shorter broader Lauriacum/Hromowka type. However, the two types are not the only forms of later Roman sword, since some swords do not neatly fit into these two categories.<sup>40</sup> Both ML36 and ML37 were probably long swords of the Straubing/Nydam type.

ML38 is less readily explained. Although only the tip of the blade survives, there is enough to identify it as part of a Mainz type *gladius*.<sup>41</sup> The broad blade, long tapering point, and the thick section are distinctive. Mainz-type *gladii* went out of use in the mid-first century, which means that this weapon was either redeposited in its mid-third-century context, or was a keepsake or antique. ML39 is probably a dagger, although the identification is not completely certain.

In addition to these fragments there is a complete dagger from the so-called Ergeç Villa that was illustrated and briefly discussed in 1998.<sup>42</sup> The form of the handle and the waisted blade are distinctive, but it is uncertain whether the dagger is a first-century or a third-century type.<sup>43</sup> Although broadly similar in shape, the two forms of dagger are distinct. The most obvious difference is that third-century daggers are generally larger, but there are other features—in particular, details of the construction of the handle and the cross section of the blade—that help to distinguish the later daggers from the first-century form. In the absence of a scale it is not possible to determine from the photograph the length of the dagger, and therefore its date is uncertain. The corrosion visible on the dagger also obscures some of the detail.

#### Swords

ML36 (SF 2056) context 2008, HS1 = IR33\*

##### Sword blade fragment

L. 332 mm; W. 32 mm; Thickness 8 mm

Date: mid-third century A.D.

Sword blade fragment, from a parallel-sided sword of lenticular cross section with a slightly rounded point.

ML37 context 18070 = IR34\*

##### Sword

L. ca. 720 mm; W. ca. 30 mm

Date: mid-third century A.D.

Sword. Nine pieces of very badly corroded iron, but where broken clearly of lenticular cross section appropriate to a sword. Although heavily corroded, it is possible to identify what is probably the handle end (although incomplete) and what is clearly the point of the sword.

ML38 context 18108, HS3 = IR35\*

##### Mainz type *gladius* fragment

L. 155 mm; W. 62 mm; Th. 13 mm

Date: mid-third century A.D.

Mainz-type *gladius* fragment with distinctive broad, elongated point.

#### Dagger or short sword

ML39 (SF 438) context 9144, HS6 = IR36\*

##### Tanged dagger fragment

L. 300 mm; W. 69 mm; Th. 8 mm

Date: mid-third century A.D.

Tanged dagger fragment. The blade appears to taper to a point, although much of the edge of the blade below the shoulders is eroded. The cross section is lentoidal and lacks any obvious midrib.

### Other Equipment

Entrenching tools have military associations, best illustrated by the examples in the mid-third-century Künzing hoard where they are associated with *dolabrae*, *falces*, and numerous swords, daggers, and spear and bolt heads.<sup>44</sup>

ML40 (SF 5) context 11034 = IR39\*

##### Mattock?

L. 220 mm

Date: mid-third century A.D.

Mattock or entrenching tool with strongly curved square blade.

### Belt Fittings

Three of the possible belt fittings (ML41–42 and ML44) are from a mid-third-century destruction deposit in the courtyard in the House of the Bull. ML45 is from a layer of burning dated to the mid-third century and overlying mud-brick and tile collapse layers in Room 9G in the House of the Hoards in Trench 9. ML47 is from an overall colluvial deposit of mid-third-century or later date in Trench 9. ML43 is from a late first-century context in Room 7B on Terrace A in Trench 7. ML48 is from an unphased context in Trench 15. ML46 is from Trench 18 but unstratified.

The belt plates (ML41–43) are all undecorated and ML41 and ML42 are poorly preserved. The identification is not completely certain. If they are belt plates, they are probably first-century types. The cast openwork belt plate (ML44) is a second- to third-century type.

The two large copper alloy rings (ML45–46) can only be tentatively identified as *Ringschnallen*. The rings could have been used on their own or in conjunction with fungiform studs (cf. ML69) to secure the military belt.<sup>45</sup> Two smaller rings from Trenches 7 and 2, respectively (see Khamis, this volume, BR108–109), both with diameters of 44 mm, are probably just too small to be *Ringschnalle*. For that reason they, together with a number of smaller rings (BR110–142) have been omitted from this discussion.<sup>46</sup>

The D-shaped buckle (ML47) with chip-carved decoration on the tongue is comparable to a buckle loop from a late Roman grave from Altenstadt that dates to the fourth-century A.D.<sup>47</sup> The rectangular buckle (ML48) is unphased but can be compared to similar plain cast buckle frames of fourth-century date found on the Danube frontier but also further afield, as shown by the examples from Richborough, Kent.<sup>48</sup>

#### *Belt Plates*

**ML41** (SF 2307) context 2295, HS39 = BR86\*

##### **Belt plate?**

L. 48 mm; W. 46 mm

Date: mid-third century or later.

Possible belt plate, undecorated, copper alloy. Comprises folded square copper alloy plate with a nail hole in the center. One edge appears to have been rolled.

**ML42** (SF 2311) context 2295, HS40 = BR85\*

##### **Belt plate?**

L. 47 mm; W. 37 mm

Date: mid-third century or later.

Possible belt plate, copper alloy, with iron nail in the center.

**ML43** (SF 621) context 7022, HS41 = BR83\*

##### **Rectangular belt plate**

L. 59 mm; W. 21 mm

Date: late first century A.D.

Rectangular belt plate with a flat-headed rivet at each corner. Undecorated.

**ML44** (SF 2321) context 2269, = BR27\*

##### **Belt plate**

L. 38 mm; W. 18 mm

Date: mid-third century or later.

Belt plate. Cast copper alloy riveted plate, violin-body-shaped, with an openwork decoration following the outer

contours. At both ends of the back are two projections for fastening it to a leather strap.

#### *Buckles*

**ML45** (SF 456) context 9137, = BR106\*

##### **Ring buckle?**

D. 630 mm; Th. 11 mm

Date: mid-third century A.D.

Possible ring buckle (*Ringschnalle*). Large copper alloy ring, round in section.

**ML46** (SF 931) context u/s, = BR107\*

D. 60.5 mm; Th. 6 mm

Date: unknown.

Possible ring buckle (*Ringschnalle*). Large copper alloy ring, elliptical in section. Well preserved, surface covered by green patina.

**ML47** (SF 369) context 9000, HS43 = BR42\*

##### **Belt buckle**

L. 25 mm; W. 23 mm; pin L. 28 mm

Date: mid-third century or later.

Belt buckle, copper alloy, D-shaped or oval frame, with decorated tongue. This is comparable to a buckle loop from a late Roman grave from Altenstadt (Keller 1971, 64 and Taf. 34.1) that dates to the fourth century A.D. Originally, it probably had an oval buckle plate (cf. Keller 1971, Taf. 25.4 [München-Harlaching]; 34.10 and 35.5 [Altenstadt]). Examples were also found at Intercissa, Hungary (e.g., Alföldi et al., 1957, 467 no. 58 [with oval buckle plate], 471 no. 152 [without buckle plate], Abb. 104:10–11; Vágó and Bóna 1976, 20 Grab 25, Taf. 3 and Taf. xxxvii:7). A buckle with an oval plate but a buckle loop of different form was recovered in a Byzantine context at Sardis (Waldbaum 1983, cat. 702).

**ML48** (SF 3665) context 15186, HS44 = BR41\*

##### **Belt buckle frame**

L. 44 mm; W. 29 mm; Th. 10 mm

Date: unknown.

Belt buckle frame, rectangular, with narrow section at the center of one side for the attachment of the tongue, which is now missing. There are similar plain cast rectangular buckles from fourth-century contexts at Richborough (Lyne 1999, 103, 106 and figs. 27–33), but they are widely distributed on the Danube frontier (Simpson 1976, 197–8).

**Harness Fittings/Cavalry Equipment**

The horse pendants (ML49–50) are both from the House of the Helmets, ML50 from a mid-third-century context in the peristyle court and ML49 from mid-third-century or later context in the peristyle court and 2H. The hinged harness fitting (ML52) is from a mid-third-century or later context in Room 9I of the House of the Hoards. The horse-shoe-shaped decorative plate (ML51) is from a context of Late Imperial (fifth to seventh century) date in Trench 15. One of the harness bells (ML53) is from a late first-century context in the House of the Helmets (Room 2I). ML54 is from a fourth context in Room 9G of the House of the Hoards, and ML55 from a mid-third-century context in Room 18B of the Mud-brick House.

*Harness pendants*

ML49 (SF 2036) context 2007, HS45 = BR29\*

**Harness pendant**

L. 41 mm; W. 25 mm; D. 1 mm  
Date: mid-third century or later.

Harness pendant, copper alloy. Lobed, heart-shaped pendant. The suspension loop is formed from a long rolled strip.

ML50 (SF 2359) context 2251, HS46 = BR28\*

**Harness pendant**

L. 51 mm; D. of pendant 45 mm  
Date: mid-third century A.D.

Harness pendant, copper alloy. Flat, cast, crescent-shaped pendant with knobbed terminals and central rib. There is a rectangular projection for suspension at the top. Two small, round holes below the projection were probably used for hanging additional pendants.

ML51 (SF 463), context 9175 = BR30

**Possible heart-shaped harness pendant**

L. 39 mm; W. 28.5 mm; Th. 1.5 mm.  
Date: not later than A.D. 235.

Copper alloy heart-shaped plate with elegant rounded tip. Possibly a harness pendant but missing the suspension loop. The profile is slightly curved.

*Other harness fitting*

ML52 context 9194, HS38 = IR83\*

**Harness fitting**

L. 46 mm; W. 38 mm  
Date: mid-third century or later.

Harness fitting, iron, comprising pelta-shaped terminal with three nails, one of which is extant. There is a half-round ridge, which may be a hinge pivot, and originally it may have been symmetrical with a second pelta-shaped plate. Hinge or junction plate.

*Harness bells*

ML53 (SF 2304) context 2283 = BR104\*

**Small harness bell**

H. 23 mm; D. 31 mm  
Date: late first century A.D.

Small hemispherical copper alloy bell with suspension loop at the top. Traces of the clapper are still visible inside the bell.

ML54 (SF 465) context 9179 = BR105\*

**Small harness bell?**

H. 12 mm; D. 18 mm  
Date: fourth century A.D.

Small dome-shaped copper alloy bell with small round hole at the top for hanging the (missing) clapper.

ML55 (SF 3406) context 18070 = BR103\*

**Harness bell**

H. 34.5 mm; D. 29 mm  
Date: mid-third century A.D.

Harness bell with remains of iron clapper and cast angular suspension loop.

**Decorative Fittings**

The *phalerae* (ML56–59) are from the House of the Helmets, Room 2F (ML56), the House of the Bull, Rooms 2K, 2J (ML57), the House of the Pelta Mosaic, Room 2A (ML58), and from Room 7B in building on Terrace A of Trench 7 (ML59). The possible *phalerae* come from Room 2D in the House of the Peopled Plaster (ML60) and from Room 11A in the House of the Fountain (ML61). ML59 and ML60 are from deposits of late first century, the remainder from mid-third-century contexts.

The miscellaneous decorative fittings (ML62–67) are from mid-third-century, or mid-third-century and later contexts except for ML62 (eighth to ninth century) and ML65 (unphased). The objects come from Trench 1 (ML62), Trench 2 from a colluvial deposit (ML63) and from a destruction deposit in the House of the Helmets, the peristyle court (ML66). From Trench 9, Room 9G in the House of the Hoards (ML64), and Trench 18 unstratified (ML65), and from the Mud-brick House, Room 18B (ML67).

These fittings are often identified as military, but there are some examples that may simply represent decorative fittings for furniture. The *phalerae* (ML56–59) and possible *phalerae* (ML60–61) are generally identified as military fittings.<sup>49</sup> The other decorative roundels (ML62–65) and other miscellaneous plaques (ML66–67) are not necessarily military and could be decorative fittings for furnishings and household goods. Their associations are predominantly but not exclusively military.

*Phalerae*

**ML56** (SF 2111) context 2269, HS48 = **BR72\***

*Phalera*

D. 45 mm

Date: mid-third century or later.

Flat copper alloy disc decorated with two pairs of incised concentric circles, one at the margins and the other near the center. There is a small nail hole in the center.

**ML57** (SF 2330) context 2379, HS53 = **BR73\***

*Phalera*

D 34 mm; Th. 1 mm

Date: mid-third century or later.

Flat copper alloy disc decorated with two double incised concentric circles. There is nail hole in the center.

**ML58** (SF 2370) context 2158, HS54 = **BR74\***

*Phalera*

D. 35 mm; Th. 1 mm

Date: mid-third century or later.

Domed copper alloy disc decorated with two pairs of incised concentric circles, one at the margins and the other in the center. There is nail hole in the center.

**ML59** (SF 619) context 7023, HS50 = **BR71\***

*Phalera*

D. 62 mm; Th. 1 mm

Date: late first century A.D.

Slightly dished copper alloy disc decorated with groups of concentric circles. There is a nail hole in the center of the plaque and three more around the edge.

*Possible Phalerae*

**ML60** (SF 2277) context 2279 = **BR77\***

*Possible phalera*

D. 34 mm

Date: late first century A.D.

Circular copper alloy plaque, incomplete, and heavily corroded.

**ML61** (SF 581) context 11054 = **BR76\***

*Possible phalera*

D. 28 mm

Date: early to mid-third century A.D.

Circular copper alloy plaque with small central nail hole. Part damaged and heavily corroded.

*Other Decorative roundels*

**ML62** (SF 1030) context 1010, HS57

*Circular plate or stud*

D. 22 mm

Date: eighth to ninth century A.D.

Circular plate or stud, copper alloy with central nail. Decorated with nicks around the edge and with notched onion-shaped knob in the center. No Early or Middle Imperial parallel known.

**ML63** (SF 2158) context 2001, HS49 = **BR69\***

*Possible phalera or roundel*

D. 39 mm; Th. 1 mm

Date: mid-third century or later.

Possible *phalera* or roundel, copper alloy. It is domed and decorated on the inside with double incised concentric groups of circular lines and on the outside with three concentric lines. Partly damaged.

**ML64** (SF 792) context 9175 = **BR75\***

*Small roundel*

D. 26 mm

Date: mid-third century A.D.

Small copper alloy roundel with central nail hole and slightly raised outer border.

**ML65** (SF 929), unstratified, Trench 18, HS59 = **B17\***

*Small roundel*

D. 30 mm; Th. 5 mm

Date: unknown.

Decorative bone roundel with central perforation. Decorated with three incised rings.

*Miscellaneous Decorative Plaques*

**ML66** (SF 2059) context 2008, HS49 = **BR70\***

*Small square plaque*

L. 26 mm; W. 26 mm

Date: mid-third century A.D.

Small square plaque with domed center pierced by a nail hole.

**ML67** (SF 3407a) context 18070, HS56

*Fitting or plate*

D. 19 mm; Th. 0.8 mm

Date: mid-third century A.D.

Domed and decorated at the center; copper alloy. Little survives and its identification and function are uncertain. Khamis, this volume, gives different measurements.

### Fastenings

The fastenings are all from mid-third-century, or mid-third-century and later deposits. The bone toggle (ML68) is from the House of the Helmets, Room 2I, and the other two pieces are from the House of the Tesserae, Room 9B (ML69) and the House of the Hoards, Room 9J (ML70) in Trench 9.

The toggle (ML68) and the fungiform stud (ML69) are second- to third-century forms.<sup>50</sup> The identity of the possible large stud (ML70) is less certain.

**ML68** (SF 2088) context 2011, HS51 = B18\*

#### Toggle

L. 26 mm; D. of head 12 mm

Date: mid-third century or later.

Worked bone (or horn?) toggle with elongated domed head with short neck and flat circular base. The head and the base are of approximately the same diameter. There is a small indent at the top of the dome of the toggle and a small convex circle at the center of the base. Black and highly polished.

**ML69** (SF 115) context 9076, HS52 = BR31\*

#### Copper alloy fungiform stud

D. 14 mm; H. 12 mm

Date: mid-third century A.D.

**ML70** (SF 712) context 9108 = BR168\*

#### Large stud?

D. of larger disc 55 mm; D. of smaller disc 28 mm

Date: mid-third century or later

Two copper alloy discs, large and small, connected together by a short stem. The smaller disc has a rectangular recess at one edge. Part of the larger disc is missing. Traces of carbonized wood. Identification uncertain. Khamis, this volume, calls this a mechanical object.

### Studs and Tacks

The studs and tacks are all from mid-third-century contexts. The pegged stud (ML71) is from Room 9I in the House of the Hoards, the domed tack or stud head (ML72) is from a colluvial deposit sealing Trench 2, and the two flat-headed tacks or studs are from Room 18B in the Mudbrick House. The pegged stud (ML71) is a distinctive and widely occurring form of second- to third-century date.<sup>51</sup>

**ML71** (SF 443) context 9143, HS55 = BR161\*

#### Stud with pegged stem

D. 30 mm; Stem L. 18 mm

Date: mid-third century A.D.

Khamis, this volume, calls this a mirror handle with a round, flat head.

**ML72** (SF 2008) context 2001, HS58 = BR91\*

#### Copper alloy tack or stud with domed head

D. 13 mm; L. 7 mm

Date: mid-third century or later.

**ML73** (SF 3401) context 18070 = BR95\*

#### Tack or stud

D. 27 mm; L. 15 mm

Date: mid-third century A.D.

Tack or stud, copper alloy, with wide, flat, circular head, partly missing. The shaft has a square section and a broken tip.

**ML74** (SF 3402) context 18070 = BR94\*

#### Decorative disc with nail

L. 24 mm; D. 20 mm

Date: mid-third century A.D.

Decorative disc with nail, copper alloy. The flat circular disc has an incised groove near the edge. The nail is centrally placed.

### Brooches and Ring

The brooches are included here because they have military associations. The iron crossbow brooch (ML75) is from a third-century context in Room 9B in the House of the Tesserae, and the Aucissa brooch (ML76) is from the upper terrace in Trench 13 in a context that has been dated to the late Augustan to Flavian period. The gold ring (ML77) is from a room in the House of the Helmets.

The Aucissa brooch (ML76) is an early brooch form that dates to the mid-first century A.D. The type is widely distributed (see Khamis, this volume, BR44). Its occurrence in a first-century context at Zeugma can perhaps be linked with the movement of troops or drafts of troops from the west to the east. The crossbow brooch is a third-century form and was widely found at Dura-Europos.<sup>52</sup>

The gold ring (ML77), although not a military object as such, is included because of the Capricorn engraved on the intaglio. The Capricorn, symbolizing good, was an important emblem for Augustus and was granted to a number of legions, including *legio IIII Scythica*, as their badge. The coins with the Capricorn emblem were issued at Zeugma in the third century A.D. It is tempting to make the link between the owner of the ring and the legion based at or near Zeugma.

ML75 context 9079, HS60 = IR88\*

**Crossbow brooch**

L. 48 mm

Date: mid-third century A.D.

Crossbow brooch, iron. Small brooch formed from oval-section rod. It has a strongly curved bow and a neatly formed catch plate. The pin and pin assembly missing. At the pin end there is a trace of copper alloy. Although the wings of the crossbow are missing, the strongly curved bow and the catch plate are distinctive and paralleled in copper alloy crossbow brooches. See, for example, the simple brooches among examples from Dura-Europos (Frisch and Toll 1949, 51–61 and pls. 11–5). The trace of copper alloy suggests that this brooch might have been of composite construction.

ML76 (SF 848) context 13006 = BR44\*

**Aucissa brooch**

L. 58 mm

Date: Late Augustan to Flavian.

ML77 (SF 2283) context 2276 = GDI\*

Gold finger ring

L. 25 mm; internal D. 17 mm. Intaglio L. 10 mm;

W. 8 mm

Date: mid-third century A.D.

Finger ring with intaglio engraved with a Capricorn and crescent moon. The ring is plain though heavy. The intaglio is layered from top down red/maroon; white/very pale blue; red/maroon; dark red/maroon.

The heavy gold ring is plain and therefore difficult to date closely. Rings of comparable form have been dated to the second and third centuries A.D. See for example rings exhibited in Zürich in 1995 (Galerie Nefer, 1995, nos. 93–4 and 103). Another ring of similar form in gold leaf from Palmyra is dated to the second century A.D. although the intaglio showing the head of Isis (?) is dated to the first century B.C. (Charles-Gaffiot et al. 2001, 186, 317–8, no. 12). The Capricorn is the badge of Augustus and was used as a badge by a number of legions, including *legio IIII Scythica*, which was stationed at Zeugma.

## DATING THE MILITARY FINDS

Much of the material is not closely datable typologically and is therefore only securely dated by its context. Phases have been assigned the following numbers in tables 1–6.<sup>53</sup>

- 1 = Hellenistic
- 2 = Late Hellenistic
- 3 = Late Augustan/Tiberian
- 4 = Flavian

- 5 = Early to mid-third-century
- 6 = Mid-third-century
- 6 = Destruction deposits
- 7 = Fourth-century
- 8 = Fifth-century
- 9 = Sixth- to seventh-century
- 10 = Eighth- to ninth-century

The military finds are predominantly from mid-third-century deposits (59 items, or 76.6 percent by number). There is also a single object from an early to mid-third-century context. In addition to the mid-third-century material there are seven items from contexts of Early Imperial date, four pieces from Late Imperial or later phases, and six items that are unphased. The stratigraphic distribution is reflected in the typological dating of the majority of the finds (table 1).

The finds from contexts of Early Imperial date (ML23, ML32, ML43, ML53, ML59–60, and ML76) are all objects that are typologically early (e.g., ML76), possibly early (ML59 and ML60), or are not typologically dateable (e.g., ML23, ML32, ML53). In addition to these early finds there are some finds of Early Imperial date from later contexts, most notably the Mainz-type *gladius* tip (ML38). The *phalera* (ML56–58 and ML61) perhaps should be dated to the Early Imperial period, and therefore they would have to be considered to be residual. However, the dating of these objects is not that certain. The plain bow brooch (ML75) is also of Early Imperial date.

The bulk of the finds are datable to the Middle Imperial period and in particular to the mid-third century and the destruction of the city by the Sasanians. The finds include a helmet (ML1) and helmet fragments (ML2–3), shield bosses (ML4–5), body armor (ML6–16), spears (ML17–22, 24), *pilum* heads (ML25–29), a bolt head (ML30), arrowheads (ML31, 34–35), swords and daggers (ML36–37, 39), and an entrenching tool (ML40). In addition there are a number of small copper alloy belt fittings, buckles, and the like, and some bone items. The belt fittings comprise a cast belt plate (ML44) and two possible *Ringschnallen* (ML45–46). There are two, possibly three, harness fittings (ML49–50, 52) and a number of miscellaneous decorative plates or appliques (ML63–67), a bone toggle or stud (ML68), and a fungiform stud, possibly from a belt (ML69). There are a number of studs or tacks (ML70–74) including one with a pegged stem (ML71). One final object of Middle Imperial date is the heavy gold ring with Capricorn intaglio (ML77).

There are two pieces that are of fourth-century date (ML47, a D-shaped buckle with chip-carved decoration on the pin, and ML48, a cast rectangular buckle). The D-shaped buckle is from a colluvial deposit (context 9000), which postdates the mid-third-century destruction, and the rectangular buckle is from an unphased context (context 15186). Their typological dating is certain, and they would seem to confirm the presence of a late Roman unit, or units, at Zeugma. Two other objects—a horseshoe-

shaped decorative plate (ML51) and a circular plate or stud with upstanding decorated knob (ML62) — are from late contexts, but cannot be closely dated typologically.

### RANGE AND FUNCTION OF THE MILITARY FINDS

The Early Imperial finds include a *gladius* tip (ML38, residual), a possible lancehead or large bolt head (ML23), and an arrowhead (ML32). No armor, helmet, or shield fragments were recovered. Other pieces included a belt plate (ML43), a bell — possibly from a harness (ML53), some *phalerae* (ML56–61, some residual), and an Aucissa brooch (ML76). The range of material is limited and, with possible exception of the *gladius* fragment, gives little indication of the type of unit(s) present, but would fit in a legionary setting.

Much of the Middle Imperial military material could be either cavalry or infantry equipment. One of the few pieces that can be identified confidently as cavalry equipment is the parade helmet (ML1). There are also two helmet fragments (ML2–3). The scale armor fragments (ML6–8) cannot be assigned to particular types of units because by the

third century scale armor was widely used, particularly in the East.<sup>54</sup> Much of the strip armor (ML9–16) is only tentatively identified, and its use is not certain. It could have formed parts of a late form of segmental lorica (i.e., Bishop's suggested Alba Iulia type) or could be parts of arm protectors. Some of the spearheads were probably cavalry weapons (notably ML18, ML21–22), but the problem of identifying the function of the different sizes and forms of spearheads has been noted above. The small fittings are not distinctive of any particular unit type. Although the harness fittings (ML49–55) are probably cavalry gear, they could simply represent officers' equipment.

Although fragments of swords and buckles and belt fittings are found, three associated classes of objects are noticeable by their absence: scabbard-slides, chapes, and baldric fittings, all of which are amongst the most common and distinctive of the late second- and third-century military equipment finds.<sup>55</sup> The significance of their absence will be considered below.

The two buckles (ML47 and ML48) are of forms with a wide distribution particularly along the Danube frontier, but also found further west. It is likely that they represent equipment of cavalry but are not exclusive to cavalry.

Trench	House	Phase								Totals	
		3	4	5	6	7	9	10	Unknown		Unphased
2	House of the Pelta Mosaic	–	–	–	3	–	–	–	–	–	3
	House of the Peopled Plaster	–	1	–	–	–	–	–	–	–	1
	House of the Helmets	–	1	–	13	–	–	–	–	–	14
	House of the Bull	–	–	–	7	–	–	–	–	–	7
	all	–	–	–	2	–	–	–	–	–	2
	unknown	–	–	–	–	–	–	–	1	–	1
	<b>Subtotals</b>	–	2	–	25	–	–	–	1	–	28
7	Terrace A structure	–	3	–	–	–	–	–	–	–	3
	Peristyle house	–	–	–	–	–	1	–	–	–	1
	<b>Subtotals</b>	–	3	–	–	–	1	–	–	–	4
9	House of the Mosaicist	–	–	–	3	–	–	–	–	–	3
	House of the Hoards	–	–	–	6	1	–	–	–	–	7
	all	–	–	–	1	–	–	–	–	–	1
	<b>Subtotals</b>	–	–	–	10	1	–	–	–	–	11
11	House of the Fountain	–	–	1	5	–	–	–	–	–	6
	<b>Subtotals</b>	–	–	1	5	–	–	–	–	–	6
18	Mud-brick House	1	–	–	13	–	–	–	–	–	14
	all	–	–	–	6	–	–	–	–	–	6
	unknown	–	–	–	–	–	–	–	–	2	2
	<b>Subtotals</b>	1	–	–	19	–	–	–	–	2	22
	<b>Totals</b>	1	5	1	59	1	1	0	1	2	71

Table 1. Military finds from Trenches 2, 7, 9, 11, and 18: Summary distribution by structure and phase.

SPATIAL DISTRIBUTION OF  
MILITARY FINDS

What is particularly interesting is the distribution of the military fittings. They are concentrated in certain structures or buildings (tables 2–6). The finds are largely concentrated in Trenches 2, 9, and 18, with smaller quantities in Trenches 7 and 11. Broadly speaking, the trenches with the most military finds are those trenches that have produced the most metal small finds. These five trenches account for 70 of the 26 items. The remaining 6 items are found in Trenches 1 (one item), 10 (one item), 13 (one item), and 15 (three items), and these items are either from very late or unphased contexts, with the exception of the Aucissa fibula (ML76) from Trench 13, which is from a context of Early Imperial date.

The majority of the finds from the main trench assemblages are from identifiable structures (table 1). Descriptions of the architecture and archaeological deposits can be found in the chapter by Tobin in volume 1, organized by trench.

Trench 2

*House of the Pelta Mosaic and House of the Peopled Plaster*

These two structures, which were only partially uncovered, have produced only four military pieces between them (table 2). They comprise two possible *pila* points and a *phalera* (ML26–27 and ML58) from the House of the Pelta Mosaic and a *phalera* (ML60) from the House of the Peopled Plaster. The *phalera* from the latter structure is of Early Imperial date.

*House of the Helmets*

This building has produced 14 military items, including the most notable piece of military metalwork, namely the almost complete parade helmet (ML1). It also produced the gold ring with Capricorn intaglio (ML77). With the exception of a harness bell from a context of Early Imperial date, all the military material from this structure is from mid-third-century destruction deposits. The material includes the complete parade helmet (ML1), two helmet fragments (ML2–3), three spearheads (ML17–19), part of a sword blade (ML36), two harness pendants (ML49–50), a *phalera* (ML56) that may be residual, a possible decorative plate (ML66), and a bone toggle (ML68). The collection of hel-

House	Room	Phase	Description/comments	Catalogue no.
House of the Pelta Mosaic	2A	6	<i>pilum</i> head, iron	ML26
	2A	6	<i>pilum</i> head, iron	ML27
	2A	6	<i>phalera</i> , copper alloy	ML58
House of the Peopled Plaster	2D	4	<i>phalera</i> , copper alloy	ML60
House of the Helmets	peristyle court	6	parade helmet, iron	ML1
	peristyle court	6	helmet fragment, iron	ML2
	peristyle court	6	helmet fragment, iron	ML3
	peristyle court	6	spearhead, iron	ML17
	peristyle court	6	spearhead, iron	ML18
	peristyle court	6	sword blade, iron	ML36
	peristyle court	6	harness pendant, copper alloy	ML50
	peristyle court	6	small domed square plate, copper alloy	ML66
	2F	6	<i>phalera</i> , copper alloy	ML56
	2I	4	harness bell, copper alloy	ML53
	2I	6	toggle, bone	ML68
	2H	6	spearhead, iron	ML19
	peristyle court, 2H	6	harness pendant, copper alloy	ML49
	unknown	6	finger ring, gold	ML77
House of the Bull	courtyard	6	tanged kite-shaped arrow head, iron	ML31
	courtyard	6	belt plate, copper alloy	ML41
	courtyard	6	belt plate, copper alloy	ML42
	courtyard	6	belt plate, copper alloy	ML44
	2K, 2J	6	<i>phalera</i> , copper alloy	ML57
	2K, 2J	6	spearhead, iron	ML20
	2J, courtyard	6	socketed arrow head, iron	ML34
all	all	6	possible <i>phalera</i> , copper alloy	ML63
	all	6	stud/tack, copper alloy	ML72
unknown	unknown	unphased	<i>pilum</i> head, iron	ML25

Table 2. Trench 2: Summary of military finds by house, room, and phase.

ments, though not body armor, of shafted weapons and a sword fragment, of horse gear and other fittings represents much of the panoply of a Roman soldier, or officer, albeit in fragmentary form. A proportion of this material was recovered from a single context: ML1-3, ML17, ML36, and ML66 were all found in context 2008, comprising a burnt layer overlying the mosaic M6 in the peristyle. Other material was recovered from this context. This suggests that valuable objects had been removed from the house and gathered in the courtyard prior to their removal; whether this was by fleeing inhabitants or looting attackers is open to question.

#### *House of the Bull*

This building to the south of the House of the Helmets produced fewer military finds (seven items). All but one piece were recovered from mid-third-century deposits. They included a spearhead (ML20), a kite-shaped arrowhead (ML31), a socketed arrowhead (ML34), two possible belt plates (ML41-42), which may be of Early Imperial date

and therefore residual, a second- to third-century belt plate (ML44), and a *phalera* (ML57). The latter may be residual. The range of military material is not a great as from the House of the Helmets, but is nonetheless significant.

#### Trench 7

This trench produced a small number of military pieces, in this instance from contexts of Early Imperial date (table 3). They include a barbed and tanged arrowhead (ML32), an undecorated belt plate (ML43) of Early Imperial type,<sup>56</sup> and a *phalera* (ML59). These three items were recovered from the building on Terrace A. Another barbed and tanged arrowhead (ML33) was found in a Late Imperial context in the late peristyle house.

#### Trench 9

This trench produced a limited number of military items (11 items), which were almost all from third-century con-

House	Room	Phase	Description/comments	Catalogue no.
Terrace A structure	7A	4	tanged and barbed arrowhead, iron	ML32
	7B	4	belt plate, copper alloy	ML43
	7B	4	<i>phalera</i> , copper alloy	ML59
Peristyle house	W corridor	9	tanged and barbed arrowhead, iron	ML33

Table 3. Trench 7: Summary of military finds by house, room, and phase.

House	Room	Phase	Description/comments	Catalogue no.
House of the Tesserae	9B	6	fungiform stud, copper alloy	ML69
	9B	6	crossbow brooch, iron	ML75
House of the Hoards	9I	6	pegged stud, copper alloy	ML71
	9I	6	harness fitting, hinged, iron	ML52
	9K	6	large stud? copper alloy	ML70
	9G	6	dagger, iron	ML39
	9G	6	possible <i>Ringschnalle</i>	ML45
	9G	6	small roundel, copper alloy	ML64
all	9G	7	harness bell, copper alloy	ML54
	all	6	buckle, copper alloy	ML47

Table 4. Trench 9: Summary of military finds by house, room, and phase.

House	Room	Phase	Description/comments	Catalogue no.
House of the Fountain	11A	5	<i>phalera</i> , copper alloy	ML61
	11D	6	scale armor, copper alloy	ML7
	11D	6	scale armor, copper alloy	ML8
	11D	6	spearhead, iron	ML21
	11D	6	possible spearhead, iron	ML24
	11D	6	Entrenching tool, iron	ML40

Table 5. Trench 11: Summary of military finds from the House of the Fountain by room and phase.

texts, and from within the two houses identified in the trench (table 4). One item — a buckle (ML47) — was from an overlying colluvial deposit.

*The Lower Terrace — House of the Tesserae*

This building produced two items of military equipment — a shield boss (ML4) and a stud (ML69) — as well as an iron fibula (ML75), which is arguably an object with military associations. All three objects are from mid-third-century deposits.

*The Upper Terrace — House of the Hoards*

The military finds (seven items) here include a dagger (ML39), a possible ring buckle (*Ringschnalle*) (ML45), a possible harness fitting (ML52), a harness bell (ML54), a small decorative roundel (ML64) that might have been used to decorate a harness leather, a possible large stud (ML70), and a fungiform stud (ML71), which may have secured a belt in association with a ring buckle (*Ringschnalle*).<sup>57</sup> The range of objects is limited, but their presence may be significant.

**Trench 11**

*House of the Fountain*

This building produced six military items from early or mid-third-century contexts (table 5). These included two pieces of scale armor (ML7–8), a spearhead (ML21) as well

as a possible spearhead (ML24), a probable *phalera* (ML61), and an entrenching tool (ML40). Again the numbers are small but the mere presence of military equipment could be significant.

**Trench 18**

This trench produced almost as many military finds as Trench 2, and one building, the Mud-brick House, produced the most military pieces of any single building (table 6).

Some military finds were recovered from mud-brick collapse (context 18001), which dates to the mid-third-century destruction and covers much of Trench 18, and these comprise possible strip armor fragments (ML9–10, 15–16), a spearhead (ML22), and the point of *pilum* or bolt (ML28). Two items from Trench 18, a possible ring buckle (ML46) and a worked bone roundel (ML65), were unstratified.

*Mud-brick House*

The building produced the most military pieces (14 items) of any excavated in 2000 by Oxford Archaeology. One spearhead or lancehead (ML23) was recovered from an Early Imperial context in Room 18B, but most of the finds were from mid-third-century contexts. Room 18A contained a shield boss (ML5), pieces of possible strip armor (ML13–14), the point of a *pilum* or bolt (ML29) and a complete bolt head (ML30), and sword blade fragment (ML38).

House	Room	Phase	Description/comments	Catalogue no.
Mud-brick House	18A	6	shield boss, iron	ML5
	18A	6	possible strip armor, iron	ML13
	18A	6	possible strip armor, iron	ML14
	18A	6	<i>pilum</i> , or bolt, head, iron	ML29
	18A	6	bolt head, iron	ML30
	18A	6	Mainz-type <i>gladius</i> blade [frag.], iron	ML38
	18B	3	spearhead/lancehead, iron	ML23
	18B	6	possible strip armor, iron	ML11
	18B	6	possible strip armor, iron	ML12
	18B	6	sword blade, iron	ML37
	18B	6	harness bell, copper alloy	ML55
	18B	6	decorative plate? copper alloy	ML67
	18B	6	decorative stud/nail? copper alloy	ML73
	18B	6	decorative stud/nail? copper alloy	ML74
unknown	unknown	unphased	possible <i>Ringschnalle</i>	ML46
	unknown	unphased	roundel, bone	ML65
all	all	6	possible strip armor, iron	ML9
	all	6	possible strip armor, iron	ML10
	all	6	possible strip armor, iron	ML15
	all	6	possible strip armor, iron	ML16
	all	6	spearhead, iron	ML22
	all	6	<i>pilum</i> , or bolt, head, iron	ML28

Table 6. Trench 18: Summary of military finds by house, room, and phase.

The latter is almost certainly residual as it is the tip of a Mainz-type *gladius*, a type that went out of use in the mid-first century A.D. Contexts in Room 18B produced possible strip armor (ML11–12), a large part of a poorly preserved sword (ML37), a harness bell (ML55), a decorative plate (ML67), and two decorative studs or nails (ML73–74).

## CULTURAL AFFINITIES

The Early Imperial material is limited in quantity and therefore can tell us little of cultural affinities. However, the Aucissa brooch is a form that had its origins in the West. Its presence at Zeugma at a period when military units were regularly passing through is scarcely to be wondered at.

The Middle Imperial military fittings are more extensive but still do not form a large assemblage. The absence of such key elements as scabbard-slides, chapes, and baldric fittings—pieces that do show some regional patterning of distribution—limits the information that can be gleaned. Detailed links cannot be defined on the basis of the archaeological finds, but much of the new equipment adopted by the Roman forces from the second century onwards seems to have been influenced by the equipment of the tribes that Rome was facing on the Danube frontier. Generally, the Middle Imperial military equipment shows the influence of the forces on the Danube frontier. The increasingly widespread reach of long swords, the adoption of the baldric and scabbard-slide combination for suspending swords, the displacement of the rectangular *scutum* by the broad oval shield, even the phasing out of segmental armor, are all features that can be traced back to the fighting on the Danube and peoples to the north of the river. Although we cannot establish detailed links between the garrison at Zeugma and specific provinces from the evidence of military equipment from the excavations, there is clear epigraphic evidence linking the troops and units at Zeugma with the Danube frontier, and in particular with Pannonia, as Hartmann and Speidel have demonstrated.<sup>58</sup>

## A MILITARY COMMUNITY?

Stoll has recently drawn attention to a group of dedications to Silvanus from the quarries at Arulis.<sup>59</sup> There are ten inscriptions known from Arulis, including five dedications to Silvanus, two certainly set up by soldiers of *legio IIII Scythica*.<sup>60</sup> Stoll has argued that these inscriptions are important because they show that transfer of religious cults was not limited to the spread of eastern cults to the West. He argues further that these dedications with their military associations represent a cult maintained by the military, and in particular by *legio IIII Scythica*, at Zeugma.

The idea that there was a specific cult linked with *legio IIII Scythica* also hints that there may have been a distinct “military community” at Zeugma. Hartmann and Speidel

have reiterated that Greek was the official language of the eastern part of the empire, and noted that the use of Latin inscriptions was linked to distinct Latin-speaking communities—soldiers, veterans, and staff and officials of the provincial government.<sup>61</sup> Latin was used not only for official inscriptions, such as building inscriptions and legionary tile stamps, but also for military tombstones. By contrast the tombstones of the civilian inhabitants of Zeugma have Greek inscriptions.<sup>62</sup> While it seems a reasonable hypothesis to suggest that the soldiers kept themselves apart and maintained distinctions between themselves and the civil population, even if some of the soldiers were marrying Greek-speaking local women,<sup>63</sup> there is evidence that links between Zeugma and the Danubian provinces were not limited to military personnel, but seem to have included civilians from Zeugma as well, who set up inscriptions in the Danubian provinces.<sup>64</sup> This raises questions about the nature of the relationship between soldiers and civilians at Zeugma. It would seem that there were some strong ties between military personnel and the civilian population and that while these ties went deeper than propinquity, for official purposes the two communities were distinguished by the languages that they used.

## DISCUSSION

What significance should we give to the presence of military equipment within the town? Since the majority of the equipment is from mid-third-century destruction deposits, it would be easy to explain it away as merely the detritus of combat, that is, weapons and equipment damaged, lost, or discarded during the onslaught of the Sasanian attackers. But perhaps there is a more interesting explanation?

The first-century equipment—both the material from contexts of Early Imperial date and items dated typologically—cannot be so readily explained. The quantities are small, but they must represent some form of military presence. It is unlikely that they represent billeting in the Early Imperial period, but they may represent a military presence, perhaps as a sort of police force within the town, or simply individuals with family links in the town.

The third-century material is more extensive, but given the history of the site and the circumstances of the destruction of the town in the mid-third century, this is perhaps unsurprising. The overall total quantity of small finds is considerably greater than would be expected if no destruction had taken place.

Is there evidence that the presence of the military equipment represents more than the presence of soldiers during the attack on the town? There is a pattern observable across the empire of small but significant finds of military equipment within towns and other civil settlements. Bishop has drawn attention to the phenomenon of finds of military equipment from British towns that had no known military garrisons and cited some examples.<sup>65</sup> Dawson published a

similar survey of finds from Dacian civil settlements.<sup>66</sup> It is not just larger towns that have produced such evidence: for example, recent excavations on a Romano-British settlement at Birdlip Quarry, Gloucestershire, not far from the major urban site of Cirencester-Corinium produced a small copper alloy assemblage that included part of scabbard-slide, a damaged sword chape, an openwork belt plate fragment, and a lorica girdle tie-ring.<sup>67</sup> The position of the site adjacent to a major Roman road might provide a context for the presence of soldiers.

Bishop considered the various possible explanations for the presence of second- and third-century equipment: 1) garrisoning and billeting of soldiers; 2) the equipment belonged to some form of local levy or militia; 3) the equipment is evidence for its manufacture in the locality; and 4) *beneficiarii* were stationed in small detachments in way stations, outposts, and larger centers.<sup>68</sup>

So far as Zeugma is concerned there is a known military garrison in the immediate locality, and it is unlikely that local militia would be as well equipped as the regular army and probably unlikely that they would have armor—certainly not parade helmets. We can discount the idea of local levies as a significant factor to explain the military equipment from the Zeugma excavations. The idea that equipment was being manufactured locally cannot be dismissed out of hand. Generally in the later empire, there is evidence for local manufacture particularly of small copper alloy fittings once Roman rule had been established,<sup>69</sup> but the PHI rescue excavations of 2000 produced little or no direct evidence for such production. The finds recovered were finished equipment, not unfinished or half-finished products of manufacturing. That leaves two possibilities: either we are dealing with soldiers billeted within the town or with *beneficiarii* or similar detachments.

Even if it is accepted that it is possible that troops were billeted or that *beneficiarii* stationed within the town, there is still the fact that the military equipment could simply reflect fighting within the town. The military equipment in the House of the Fountain (Trench 11, table 5) comprises a *phalera*, pieces of scale armor, one or possibly two spearheads, and an entrenching tool. These are probably best explained as combat losses. The finds from the House of Tesserae and the House of the Hoards (Trench 9, table 4) might be similarly explained. With the exception of the shield boss from the House of the Tesserae, none of these finds is large and as a result could have been readily lost.

The finds from the Mud-brick House in Trench 18 are not so easily explained away (table 6). The number of finds is greater than in Trenches 9 and 11, and they are concentrated in two locations. However, apart from a shield boss, none of the objects is very large and they could therefore be losses, perhaps in combat. The key finds are those from the House of the Helmets, which produced not only a wide range of material including an almost complete parade helmet, but also a concentration of material in a destruction deposit (context 2008) in the peristyle court. This material

contained nonmilitary pieces, including two hemispherical iron bowls with copper alloy fittings (IR119–120) and other items, as well as the armor and weapons. This has the look of material gathered up from the house and ready for removal, rather than simple loss or abandonment, and suggests that the arms and armor were part of the contents of the building. If this argument is accepted, then it does support the idea of soldiers living in or billeted in the town. The evidence is suggestive rather than conclusive. The gold ring (ML77) with Capricorn intaglio is another piece of evidence from this house. It could be an officer's ring, but it is not easily explained as a combat loss. It suggests that the owner had military connections and perhaps lived in the House of the Helmets. M.P. Speidel has published a tombstone from Zeugma with an inscription in Greek. Speidel has argued that the dedicatee was a soldier and from his rank or office, likely to be a legionary.<sup>70</sup> The fact that the inscription is in Greek rather than Latin suggests that the dedicatee and his parents who set up the stone were local residents and probably people of some standing. The quantity of finds from the Zeugma excavations are sufficient to raise some questions about the place of the military within the city, but insufficient to provide answers that we can confidently propose.<sup>71</sup>

## NOTES

1. This chapter concerns the following trenches from the 2000 rescue excavations: 1, 2, 4, 5, 9, 10, 11, 12, 13, 15, 18, 19. In this chapter, the term "PHI excavations" refers to these trenches, which were excavated and recorded by Oxford Archaeology.
2. Hartmann and Speidel 2003.
3. Hartmann and Speidel 2003, 103–11. See M.A. Speidel 1998 for *legio IV Scythica*.
4. Hartmann and Speidel 2003, 101–2. For Roman garrisons in the Khabur Valley from the campaigns of Lucius Verus, see Kennedy 1987.
5. For detachments see M.A. Speidel 1998, 163, and 176–97, especially documents 4–13 (Arulis) and 14–25 (Dura-Europos). See also the discussion of the garrison of Dura-Europos: James 2004, 16–25.
6. Hartmann and Speidel 2003, 123; legions: *I Adiutrix*, *II Adiutrix*, *X Gemina*, *XIV Gemina* (?) (all from Pannonia); *IV Flavia* (?), *VII Claudia pia fidelis* (from the Danube frontier), *III Augusta* (from North Africa), auxiliaries: *cohors* ∞ *Maurorum* (from the Danube frontier); and "unnamed (i.e. local) units."
7. M.A. Speidel 1998, 176.
8. (*Equites scutarii*) *Aureliaci*: Speidel 1984, 401–3; originally published by Wagner (1976, 262). Speidel 1984 uses a revised reading of the inscription (*AE* 1977, 818). See also M.A. Speidel 1998, 176, and Hartmann and Speidel 2003, 103.
9. The unpublished catalogue, in German, contains identifications, measurements, archaeological context information, but not commentary or bibliography. Hartmann-Speidel (HS) catalogue numbers are given here following the context number for each object.
10. Hartmann and Speidel 2003, 103 and 109.
11. The influence of Greek and Hellenistic art on the depiction of weapons and equipment in Roman art has been argued with conviction by Waurick in a series of studies: 1983, 1986, 1988, 1989.
12. For a description of this and other contexts described below, see Tobin, volume 1.
13. Garbsch 1978, 68 and Taf. 23, O30; see also Bishop, in Kennedy 1998, 135, fig. 8.13.
14. James 2004, 176–82, nos. 616–28 and figs. 92, 97–105; see also Rostovzeff et al. 1939, 327–31, and Bishop and Coulston 1993, 149 and fig. 107.
15. For scale armor in general, see Bishop and Coulston 1993, 85, figs. 49–51; 116–7, fig. 77:3–4; 141–5, figs. 100–2.
16. For the classification of scales see von Groller 1901, 86, Taf. 15, i–ix; see also Bishop and Coulston 1993, fig. 51, 1.
17. Newstead: Bishop and Coulston 1993, fig. 77, 4; see also the photograph of the Newstead scales reproduced in Goldsworthy 2003, 128; Straubing: Walke 1965, Taf. 103, 1.
18. Carpow, third century: Coulston 1999; see also Wild 1981 and Coulston 1992. Caerleon, from a late third-century context: Brewer 1986, 186 and fig. 6, 155.
19. Bishop in Kennedy 1998, 137, fig. 8.14.
20. Mušov: Tejral 1990, Abb. 1, A; see also Bishop and Coulston 1993, fig. 77, 3. Hrušica: Petru 1974, fig. 1; see also Garbsch 1978, 79, Pl. 8, Taf. 35, 2. On rigid scale armor generally and its introduction, see Bishop and Coulston 1993, 117.
21. James 2004, 139 and figs. 82–83; 508.
22. Dura-Europos graffiti: James 2004, fig. 23; see also Baur et al. 1933, pl. 2, 2; Rostovzeff et al. 1936, pl. 22, 2; Bishop and Coulston 1993, fig. 113; Gamber 1964, illus. 22; Gamber 1966, illus. 79; and Gamber 1968, illus. 43.
23. For example the fragments of Newstead-type lorica from Eining in a context dated to A.D. 226/229 to ca. A.D. 260, Fischer and Spindler (1984, 58–62); see also Bishop and Coulston 1993, 145. James (2004, 114–5) has noted the absence of segmental body armor from Dura and has suggested that the use of this type of armor in the east was limited.
24. For the Alba Iulia-type lorica see Bishop 2002, 62–7 and fig. 7.2. It is interesting that some of the fragments (e.g., ML11–13, 15) are comparable to the armor strips from a typical late Medieval brigandine (cf. Eaves 1989, pls. 46–7), which "was a body-defence composed of small overlapping iron plates riveted to the interior of a canvas doublet" (Eaves 1989, 83).
25. See note 22.
26. See note 19.
27. See for example Caerleon, spearheads from the rampart building, late third century: Nash Williams 1931, 126–33; 1932, 69, fig. 17, 1–9; Richborough, third century or later(?): Bushe-Fox 1949, 152–3, pl. 58, 277–8, 285; and Künzing hoard, mid-third century: Herrmann 1969, Abb. 4, 1–9.
28. See Bishop and Coulston 1993, 52–3, fig. 22; 69, fig. 35; 109–11, fig. 68; 123–6, fig. 84; 160–2, fig. 115. Various attempts have been made to bring order to this mass of information, e.g., Barker 1975, Densem 1976, Scott 1980, Manning 1985, and Marchant 1990.
29. Densem 1976, 15–31. Densem initially identified 14 groups within his sample, although he lumped some of these together in his discussion (Densem 1976, 23–7). Orton used Densem's work as an example in his book on *Mathematics in Archaeology* (1980, 38, 54–64 and figs. 2.13–2.14, 2.27, 2.29–2.35), and identified six or seven clusters. However he concluded that "the clusters, although useful for descriptive purposes, do not seem to be analytically useful."
30. Manning 1985, 161–70, fig. 33.
31. Bishop and Coulston 1993, 69.
32. Marchant 1990; his paper is not altogether convincing.
33. But see Manning 1985, pl. 11, B51–54 and pl. 12, B55–64 (drill bits), and pl. 75, V20–24 (*pila*).
34. *Pila* as the weapon of the legions: Bishop and Coulston 1993, 206–9.
35. Third-century *pila*: Bishop and Coulston 1993, 123, fig. 83; missile weapons of the Dominate: Bishop and Coulston 1993, 160–2, fig. 115.
36. Tombstones of *legio II Parthica* from Apamea and dating to the third century include a number that show *lanctarii* holding bundles of missile weapons with small heads (Balty and van Rengen 1993, pls. 3–5).
37. Vindonissa: Unz and Deschler-Erb 1997, Taf. 20, 385–7, Taf. 23, 459–510; Dura-Europos: James 2004, 216–30 and figs. 129–38. The role of torsion artillery has been discussed by Baatz (1966). On Roman artillery in general see Marsden 1969, 1971. For recent work see in particular Baatz 1978 and 1994. For a discussion of the evidence for artillery from Dura-Europos see James 2004, 209–15. For further evidence for torsion artillery at Zeugma see Hartmann and Speidel, this volume.
38. Erdmann 1976. For archers and their equipment see Coulston 1985; for tanged and barbed arrowheads see Erdmann 1976, and for socketed arrowheads, Erdmann 1982.
39. James 2004, 220 and fig. 130:795–803; James (2004, 215) notes that these resemble Medieval crossbow boltheads suggests that they may have been for a similar purpose.
40. Ulbert 1974. The Nydam and Vimose bog finds have produced some of the best examples of Roman swords, and at least three forms of sword are observable (Vimose: Engelhardt 1869, pl. 6: short broad Lauriacum/Hromowka type: nos. 14–5; long narrow Straubing/Nydam: nos. 9, 11–2; long broad swords: nos. 7–8; Nydam: Engelhardt 1865, pls. vi–vii; long narrow Straubing/Nydam: nos. 5, 14, 16–8; long broad swords: nos. 1–4).
41. Ulbert 1969a, 118–25.
42. Ergeç 1998, 88 and fig. 5.9; and Bishop in Kennedy 1998, 135–7.

43. For first-century Roman daggers see now Obmann 2000; see also Scott 1985. Reuter 1999 briefly discusses the second- and third-century daggers; for examples of third-century daggers from Künzing see Herrmann 1969, 133 and Abb. 3.
44. Herrmann 1969, 136–7, and Abb. 6.
45. A comparable copper alloy ring (D. = 67 mm) from Dormagen (Müller 1979, 74, Inv Nr 79 and Taf. 79, 4) was identified as a probable *Ringschnalle*. For a discussion of different forms of *Ringschnallen* and reconstruction of their appearance and use with fungiform studs see Oldenstein 1976, 167–9 and Abb. 2, and 218–19 and Abb. 8; see also Eibl 1994, Abb. 10. *Ringschnalle* are widely represented on third-century tombstones but even on the well-executed reliefs there is little evidence for the use of studs with the ring buckle—see for example the tombstones of Aurelius Ingenuus (Apamea: legionary *tesserarius*—Balty and van Rengen 1993, 44–5, pl. 19), an unknown soldier from Cologne (Noelke 1986, Abb. 1–2), Ulpius Victorinus (Rome: *equus Singularis Augusti*; M.P. Speidel 1994, 289, no. 529) and an unknown *equus singularis Augusti* (Rome: M.P. Speidel 1994, 290–1, no. 531). The tombstones of (Aurelius?) Fronto an *equus Singularis Augusti* (Rome: M.P. Speidel 1994, 293–4 n. 535) and of an unidentified centurion from Aquileia (Noelke 1986, Abb. 8) do however show apparent studs.
46. Pace James, who has suggested that the larger copper alloy rings (D. = 49–60 mm) from Dura-Europos were used for horse harness rather than as belt buckles (James 2004, 76 and fig. 37:42–6). However, the presence of a large ivory ring of 52 mm diameter and interpreted as a ring buckle would suggest otherwise (James 2004, 76 and fig. 37:47).
47. Keller 1971, 64, and Taf. 34, 1.
48. Richborough: Lyne 1999, 103, 106, and figs. 27–33; see, more generally, Simpson 1976, 197–8.
49. See for example Vindonissa: Unz and Deschler-Erb 1997, 48, and Taf. 66, 1887–9.
50. See Oldenstein 1976, Taf. 46, 473–5, and 47, 490–502 respectively.
51. See for example Caerleon: Webster 1992, 133–4, no. 134; 136–7, nos. 143–9; Straubing: Walke 1965, 148–9, and Taf. 98, 9, 12–3; Oberstimm: Schönberger 1978, 171, and Taf. 21, B133–4; see also Oldenstein 1976, 258–9 and Taf. 50.
52. Frisch and Toll 1949, 51–61, and pls. xi–xv.
53. For the evidence behind this phasing, see chapters by Aylward, Butcher, Kenrick, and Tobin in these volumes.
54. James (2004, 114–5) notes that evidence for true segmental armor from the eastern parts of the empire is limited.
55. See for example Oldenstein 1976.
56. See Vindonissa: Unz and Deschler-Erb 1997, Taf. 42–3.
57. See Oldenstein 1976, Abb. 2, 8, and 9.
58. Most of the units attested epigraphically at Zeugma were from Pannonia or the Danube frontier (see note 6 above); indeed, all the Danubian legions are represented (Hartmann and Speidel 2003, 123). Furthermore, all known inscriptions set up outside Syria by citizens of Zeugma are found in the Danubian provinces (Hartmann and Speidel, 123, no. 81).
59. Stoll 2001.
60. The inscriptions from the quarries at Arulis are listed by M.A. Speidel (1998, nos. 4–13, see especially nos. 4–5, 7–8, and 11).
61. Hartmann and Speidel 2003, 111.
62. For inscriptions from Zeugma, see Wagner 1976, 147–273. For recent discoveries of inscriptions and tile stamps see Hartmann and Speidel 112–21. For earlier discoveries of tile stamps see Kennedy and French, in Kennedy 1998, 133ff. There is one tombstone with a Greek inscription that commemorates a possible legionary *librarius* (M.P. Speidel 1998).
63. See for example the quit-claim between M. Aurelius Antiochus, a soldier of *legio IIII Scythica* based at Dura-Europos, and his former wife, Aurelia Amimma, a local woman (M.A. Speidel 1998, 183 n. 25). The document is drawn up in Greek.
64. See n. 58.
65. Bishop 1991.
66. Dawson 1990.
67. Scott 1999, 387–8 and fig. 7.23, 538–41; see also Bishop 1991, 25.
68. Bishop 1991, *passim*.
69. For evidence of localized production of copper alloy fittings: Oldenstein 1974 and 1985.
70. See above, n. 60.
71. These conclusions are based on the evidence from trenches excavated by Oxford Archaeology during The Packard Humanities Institute rescue excavations of 2000 (Trenches 1, 2, 4, 5, 7, 9–13, 15, 18, and 19). Evidence from the 2000 French and Turkish trenches and the finds from the on-going Swiss investigations may raise more questions and perhaps provide more answers. For military finds from the Swiss investigations see Hartmann and Speidel, this volume.

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