**EDITORIAL**

This newsletter is the result of a survey carried out amongst those with an interest in the Roman Military Equipment Conferences. Its chief aim is to improve communication amongst participants, providing information about forthcoming meetings and details about the progress of the publication of past events. However, it is hoped that it will do much more than this, as this first edition will demonstrate. Contributions from archaeological units and museums are welcomed, if only as a preliminary notice of new finds prior to final publication. The newsletter will also take short papers, and will accept controversial pieces aimed at provoking discussion.

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Editorial</td>
<td>1</td>
</tr>
<tr>
<td>Roman Sling-Shot</td>
<td>9</td>
</tr>
<tr>
<td>The Next ROMEQ</td>
<td>2</td>
</tr>
<tr>
<td>Roman Corbridge</td>
<td>10</td>
</tr>
<tr>
<td>Forthcoming ROMEQ Proceedings</td>
<td>2</td>
</tr>
<tr>
<td>Notes</td>
<td>10</td>
</tr>
<tr>
<td>Archaeological Illustration</td>
<td>2</td>
</tr>
<tr>
<td>Nielloed Studs</td>
<td>10</td>
</tr>
<tr>
<td>Recent Publications</td>
<td>2</td>
</tr>
<tr>
<td>A New Mail Hook</td>
<td>11</td>
</tr>
<tr>
<td>Last Chance Books</td>
<td>3</td>
</tr>
<tr>
<td>Belt Fittings in Buxton Museum</td>
<td>11</td>
</tr>
<tr>
<td>Reconstruction Societies</td>
<td>3</td>
</tr>
<tr>
<td>A Republican Gladius</td>
<td>13</td>
</tr>
<tr>
<td>Books, Posters, and Postcards</td>
<td>3</td>
</tr>
<tr>
<td>References</td>
<td>13</td>
</tr>
<tr>
<td>New Finds</td>
<td>4</td>
</tr>
<tr>
<td>Subscription</td>
<td>14</td>
</tr>
<tr>
<td>Bibliographies</td>
<td>4</td>
</tr>
<tr>
<td>Notes For Contributors</td>
<td>14</td>
</tr>
<tr>
<td>Bibliography of Roman Military Equipment SINCE 1980</td>
<td>4</td>
</tr>
<tr>
<td>Next Issue</td>
<td>14</td>
</tr>
<tr>
<td>The Joint Expedition to the Roman Provinces of the Danube</td>
<td>8</td>
</tr>
<tr>
<td>List of Subscribers</td>
<td>14</td>
</tr>
<tr>
<td>Work in Progress</td>
<td>9</td>
</tr>
<tr>
<td>Individuals</td>
<td>14</td>
</tr>
<tr>
<td>Institutions</td>
<td>15</td>
</tr>
<tr>
<td>Editorial Board Contact Addresses</td>
<td>16</td>
</tr>
</tbody>
</table>
It goes without saying that the success of this venture depends upon the quality of the contributions (or rather, in there being contributions in the first place!). It will be tedious and unprofitable for all concerned if it ends up as a one-man-show, so if you have something to contribute, please submit it, however peripheral it may at first seem. If anybody feels moved to write to the editor, then we might even institute a letters section!

Finally, for those puzzled by the name, ARMA is not an acronym, but merely the Latin term for what interests us all—Roman military equipment. For those who do not recognise the mast-head, it is taken from the Oosterbeeck scabbard. So now you know.

**THE NEXT ROMEC**

Dr H. Ubl has kindly offered to host the next ROMEC at the Magdalensburg in Austria in 1990. The general consensus seems to be that there should be no military equipment conference in the same year as a Limeskongress (Congress of Roman Frontier Studies); hence no ROMEC in 1989. Dr Ubl will, in due course, be communicating with all those on the lists as having attended past conferences. If you are not yet on the mailing list and would like to be, contact Dr Ubl.

**FORTHCOMING ROMEC VOLUME**

The next volume of proceedings, to be produced by BAR again, will be that from the Bonn conference, held in November 1988. The overall theme will be 'Military Equipment of the Later 2nd and 3rd Centuries A.D.' It is hoped that the volume will be available later in 1989.

**ARCHAEOLOGICAL ILLUSTRATION**

The appearance of English Heritage's (the Historic Buildings and Monuments Commission for England — HBCM to all their victims) guidelines for the preparation of Academic and Specialist Publications has highlighted a problem that deserves discussion in the pages of this newsletter: how should small finds (small-finds, smallfinds) be illustrated? The centre pages of the HBCM booklet include samples of their 'house style'.

It is said that the HBCM's Ancient Monuments Illustrators' Office uses this particular style because it is easy to achieve consistency amongst various artists but, above all, it is fast, enabling the demands on their facilities presented by the HBCM's programmes of excavation and publication to be met.

This raises a number of questions which never seem to get asked, let alone answered. For whom are these illustrations intended? Experience would seem to suggest that it is finds specialists who use them, so do they find them useful? A quick straw poll in Newcastle produced very negative feelings and the exclusion of stippling from all materials except pottery, stone, and plaster is very limiting. Most important of all, how accurate a portrayal of the object do they give? Surely, if it is worth publishing, then it is worth publishing well (and why dig it in the first place if you are not going to publish it)?

We look forward to hearing your opinions on these matters.

**RECENT PUBLICATIONS**

This is not really the place to provide detailed reviews of new books (unless, of course, you would like to see them—in which case write and let us know), but it may be thought helpful if we provide details of new books and major articles which are relevant to our subject.

However, the recent publication of one book in particular is a good excuse for a heartfelt plea. Appropriately enough, Marcus Junkelmann's Die Legionen des Augustus (Philipp von Zabern, 1986) typifies the differences between British and German publishing. Illustrated with 80 black and white and colour plates and with over 300 pages of text, this volume sets out to tell the story of how a small band of enthusiasts (is that the right word?) set out to march across the Alps, equipped as Augustan legionaries, to celebrate the 2000th anniversary of the foundation of Augsburg in 1985. Full details of the reconstructions of equipment are given, along with the results of its practical use. Even the participants' motives are examined!

So where are the British publishers clamouring to print the Ermine Street
Guard's experiences? Unfortunately, British publishers are very 'faddy' and inclined to latch onto the latest trend (UK readers may remember Country Diary of an Edwardian Lady). Anyway, is there any point in pursuing this, when a 'popular' book (The Roman World) has recently appeared priced £100?


LAST CHANCE BOOKS

The Proceedings of the First Roman Military Equipment Research Seminar is now nearly out of print. Anybody desperate for a copy should contact the editor (the price is still a bargain at 90p for Britain, 65p + postage and packing for the rest of the world).

Likewise, there are only a few copies remaining of the very popular Catalogue of the Small Finds from South Shields by Lindsay Allason-Jones and Roger Mikt. Priced £30.00, copies are obtainable from Lindsay Allason-Jones, Museum of Antiquities, The Quadrangle, The University, Newcastle upon Tyne, NE1 7RU, England (tel: 091 2226000 ext.7846).

RECONSTRUCTION SOCIETIES

There are a number of Roman military reconstruction societies (none of them are 're-enactment' groups in the true sense) and details about these may be of some use. Thankfully, academic snobbery towards such societies has diminished to the point where they have now achieved respectability, although one suspects that there remains a feeling of 'harmless eccentrics' in this new tolerance.

THE ERMINE STREET GUARD: the first and biggest, taking the Flavian period as their main theme. They publish a bulletin, Exercitus, which is a little sporadic in appearance, but good value, as well as occasional newsheets with performance dates etc. Contact address: Ermine Street Guard, Oakland Farm, Dog Lane, WITCOMBE, Gloucestershire, England

ROMAN MILITARY RESEARCH SOCIETY: small and dedicated group of Northamptonians - a membership of five according to a recent Sunday Express Magazine article. Various periods. Contact address: Roman Military Research Society, 83 Watermeadow Drive, NORTHAMPTON, NN3 4ST, England

GEMINA PROJEKT: Peter de Haas and Paul Karremans, whose enthusiasm has to be seen to be believed - and the best place to see it is in their excellent newsletter, Signum. They concentrate on the legio X Gemina of the same period as the Ermine Street Guard (and have even been seen parading with them). Contact address: Gemina Project, Pharus 309, 1503 ED Zaandam, The Netherlands

QUINTA: the newest, based at Arbeia Roman fort at South Shields, in north-east England. They aim to reconstruct military equipment of the 3rd century AD, basing themselves around the cohors V Gallorum in the year 230. They publish an annual journal, Quinta, as well as newsletters. Contact address: Quinta, Arbeia Roman Fort, Baring Street, SOUTH SHIELDS, Tyne & Wear, England

BOOKS, POSTERS, AND POSTCARDS

Most readers will be familiar with the work of Peter Connolly and will be interested to know that he has produced two new books centering on the wars of Domitian and Trajan in Dacia, Tiberius Claudius Maximus, The Legionary and Tiberius Claudius Maximus, The Cavalryman, both published by Oxford at £4.95. You may obtain the two books together direct from Peter (address...
below) for £9.90, inclusive of postage and packing.

Peter has also produced a series of six glossy A1-sized posters of various scenes of Roman army life, taken from the two books. The posters, set in the context of the Dacian Wars, include a splendid cavalry charge, a pilum volley, troops on the march, a battle, life in a temporary camp, and an entrenching scene. As well as thinking about buying some yourself, try and persuade your museum bookshop to stock them. Peter has also now produced a set of 8 A5 postcards (of the 6 posters plus 2 more illustrations).

The posters are available in sets of six (for £12.00) and the postcards in sets of eight (for £2.50) from: Peter Connolly, 22 Spring Street, SPALDING, Lincs., PE11 2XW, England or you can buy them individually from enlightened museums.

NEW FINDS

One of the expressed aims of this newsletter is to carry information about, and illustrations of, new finds of Roman military equipment. For this we will need the cooperation of museums and, particularly in Britain, the regional archaeological units. If it is possible to produce 'Roman Britain in 19XX', then why not 'Roman Military Equipment in 19XX'? Send details to the editorial address.

BIBLIOGRAPHIES

Many feel it would be helpful if bibliographies on particular topics or of the work of individual scholars were produced by participants of the ROMECs. If anybody has one they would like to tackle, let us know, and it will be included. To get us off to a good start, it seems likely that a brief review of relevant material published since 1980 would be useful: if you know of any omissions, let the editor know.

BIBLIOGRAPHY OF ROMAN MILITARY EQUIPMENT SINCE 1980

The papers listed below are those that concentrate on military equipment and excavation reports that include finds of equipment are excluded. The next volume will hopefully see the first part of a bibliography of all military equipment published since 1980.


BISHOP, M.C.: 'The distribution of military equipment within Roman forts of the first century A.D.' in Studien zu den Militärgrenzen Roms III, 717-23

BONIS, E.B.: 'Das Militärhandwerk der Legio I Adiutrix in Brigitio' in Studien zu den Militärgrenzen Roms III, 301-7


DRIEL-MURRAY, C. van: 'Shoes in perspective' in Studien zu den Militärgrenzen Roms III, 139-45


FEUGÈRE, M.: 'L’équipement militaire romain dans le Département de la Loire. Contribution à l’étude de la roman-
KUNOW, J.: 'Bemerkungen zum Export römischer Waffen in das Barbaricum' in Studien zu den Militärgrenzen Roms III, 740-6

LEAHY, K.: 'A first century military pendant from Normandy, South Humberside', Lincolnshire History and Archaeology 15, 1980, 83-4


SALAMA, P.: 'Masque de parade et casque d'Ain Grimidi (Maurétanie Césarienne)' in Studien zu den Militärgrenzen Roms III, 649-56


WAURICK, G.: 'Helm und Maske' in Studien zu den Militärgrenzen Roms III, 794-8

YPEY, J.: 'Een Romeinse ijzeren helm uit het begin van onze jaartelling, gevonden bij Hedel (Gld.)', Westerheem 31, 1982, 101-3

In addition, there are the four volumes of the proceedings of ROMEC currently available from BAR and the contents of these are as follows:


ALLASON-JONES, L.: "Bell-shaped studs", 95-108

BENNETT, J.: 'A chased cheek-piece from Stanwix', 109-16

BISHOP, M.C.: 'The military fabrica and the production of arms in the early principate', 1-42

COULSTON, J.C.: 'Roman archery equipment', 220-366

DRIEL-MURRAY, C. van: 'The production and supply of military leatherwork in the first and second centuries A.D.: a review of the archaeological evidence', 43-81

FEUGERE, M.: 'Nouvelles observations sur les cabochons de bronze estampes du cingulum romain', 117-41

OLDENSTEIN, J.: 'Manufacture and supply of the Roman army with bronze fittings', 82-94

PADDOCK, J.: 'Some changes in the manufacture and supply of Roman bronze helmets under the late Republic and early Empire', 142-59

SCOTT, I.R.: 'First century military daggers and the manufacture and supply of weapons for the Roman army', 160-213

WEBSTER, G.: 'Decorated dagger scabbards found in Britain', 214-19


BARTON, P.: 'On making a Roman cornu', 29-37, with Appendix by N.P. Wickenden, 38-9


CONNOLLY, P.: 'The Roman saddle', 7-27

COULSTON, J.C.: 'Roman military equipment on third century tombstones', 141-56

DIACONESCU, A. & OPREANU, C.: 'A note on Roman military equipment from Romania', 157-66

FUENTES, N.: 'The Roman military tunic', 41-75


JAMES, S.: 'Dura-Europos and the introduction of the "Mongolian release"',
LLOYD-MORGAN, G.: 'Professor Robert Newstead and finds of Roman military metalwork from Chester', 85-97
MORGAN, L.: 'The drawn sword', 175


ALLASON-JONES, L.: 'Small finds' from turrets on Hadrian's Wall', 197-233


COULSTON, J.C.: 'Three legionaries at Croy Hill (Strathclyde)', 1-29


JAMES, S.: 'The fabricae: state arms factories of the Later Roman Empire', 257-331

POULTER, A.G.: 'Certain doubts and doubtful conclusions: the lorica segmentata from Newstead and the Antonine garrison', 31-49

WICKENDEN, N.P.: 'Some military bronzes from the Trinovantian civitas', 234-56


ALLASON-JONES, L.: 'Introductory remarks on native and Roman trade in the north of Britain', 13-24

BENNETT, J.: 'A Roman helmet in the Dominican Republic', 235-45

BISHOP, M.C.: 'O Fortuna: a sideways look at the archaeological record and Roman military equipment', 1-11

BOEKEL, G.M.E.C. van: 'Roman terracotta horse figurines as a source for the reconstruction of harnessing', 75-121

CONNOLLY, P.: 'A note on the origin of the Imperial Gallic helmet', 227-34

COULSTON, J.C.: 'The value of Trajan's Column as a source for military equipment', 31-44


DRIEL-MURRAY, C. van: 'The Vindolanda chamfrons and miscellaneous items of leather horse gear', 281-318


GRiffithS, W.B.: 'The sling and its place in the Roman Imperial Army', 255-79

KALEE, C.A.: 'Roman helmets and other militaria from Vechten', 193-226


PALGYI, S.: 'Rekonstruktionsmöglichkeiten der Pferdegeschirrfunde aus Pannonien', 123-42

SOMMER, C.S.: 'The inner and outer relation of the military vicus to its fort', 25-9

UBL, H.: 'Was trug der römische Soldat unter dem Cingulum?', 61-74

WAASDORP, J.A.: 'Roman military equipment from The Hague Holland', 157-66


WILLEMS, W.J.H.: 'An officer or a gentleman? A Late-Roman weapon-grave from a villa at Voerendaal (NL)', 143-56

WINTERBOTTOM, S.: 'Saddle covers, chamfrons and possible horse armour from Carlisle', 319-36

BAR's address is 5 Centremead, Osney
Mead, Oxford, OX2 0DQ and the prices of the four volumes (inclusive of P & P) are £275, £336, £394, £476, £23.

JOINT EXPEDITION TO THE ROMAN PROVINCES OF THE DANUBE

In September of 1987, a group set out from Britain to visit Hungary, Bulgaria, Romania, and Yugoslavia in order to carry out research into various aspects of the Roman presence in these areas. Projects included a study of the Roman building materials and techniques of the region (Dr H. Dodge), an examination of 3rd-century figued military tombstones (Mr J.C. Coulston), sling-shot from the countries visited (Mr W. Griffiths), and my own attempt at a reconnaissance of Roman military equipment behind the 'Iron Curtain'.

In Hungary, László Kocsis helped me examine material from the Budapesti Történeti Múzeum, as well as allowing me to inspect his copious and detailed notes on military equipment from Hungary. A pendant from Aquincum of Type 5a (BISHOP, 1988, Fig. 45) was later supplemented by two further examples noted in the site museum at Gorsium. The site at Albertfalva produced 'caterpillar studs' (two examples being harness junctions) similar to those from Corbridge (described below). At the Hungarian National Museum, Dr Soproni showed me material in their collection, which included a copper alloy stimulus (HNM 165,876.2), some 267mm long, from Intercisa (cf. CONNOLLY, 1975, 33 fig. for Caesarian examples from Alesia). The weapons collection in The Hungarian National Museum also includes a plumbata (59,7754) from Pégvartari, complete with weight, 133mm in length.

One of the most important results of our visit was that László Kocsis has agreed to publish a catalogue of the Roman military equipment from Hungary - judging from his notes, this includes a healthy selection of 2nd and 3rd material, as well as important 4th century items. BAR will hopefully be publishing this catalogue in 1991.

In Bulgaria, a brief visit to the museum in Plovdiv revealed a set of cart harness that included openwork phalerae, terrets, small buckles, and - it seems difficult to believe this belongs with draught harness - an Italian-type curb bit. Dr Bujukliev welcomed us to the museum at Stara Zagora and proceeded to produce some of the most astonishing items of the trip. Not only did his collection include a Ringknaufscheit and (Celtic) spcadburn with fine openwork mouth-plate, but a previously unknown (and barely recognizable) copper alloy early Imperial-Gallic helmet, from a site 3km north of Stara Zagora. Identifiable by its eyebrows and ribbing on the neck, it had lost much of the bowl and neckguard yet appeared to have a narrow flanged flange at the front. The cemetery at Chatalka (BUJUKLIEV, 1986) produced what was evidently the burial of a nobleman, but the grave (tumulus I, grave 2) included a fine masked cavalry sports helmet, cuirasses of mail (with a copper alloy necklet!), scale, and lamellar armour, two shields, two swords, six spearheads, and fifty-five arrowheads in a quiver (one item still had an arrowhead embedded in it). Openwork belt fittings show clear Sarmatian influence, whilst a jade scabbard slide suggests oriental contact.

Further north, on the banks of the Danube, we visited the joint Bulgarian and Polish excavations on the site of the fortress of Novae at Svistov, where we enjoyed the hospitality of Drs Donevsky and Sarnowski. Amongst a range of interesting finds, including bone buckles, a cavalry strap fastener, and a lunette strap terminal, were two 'lorica segmentata' fittings - a tie-hook and a hinged buckle (with an unusually large domed stud).

In Romania, Liviu Petculesscu acted as our guide and showed us some of the military material kept in the Historical Museum (Muzeul de Istorie al R.S. România) in Bucharest, one of the most interesting pieces being the cross-braced Imperial-Gallic helmet from Berzovia. Liviu is working on a catalogue of military equipment from Romania for his doctorate and his own excavations at Micia have produced at least one piece of 'lorica segmentata'.

In Yugoslavia, the Archaeological Museum at Split contained pieces of 1st century military equipment from Gardun (probably the legionary fortress of Tilurium) found before the Second World War (subsequent material apparently
going to the museum at Sinj, which we did not have time to visit). A pendant (H4617) was found in 1914 (a Type 1 with no precise parallels, but close to Type 1n - BISHOP, 1988, Fig.43), a type 5 (H3035), and a Type 5f (H4819) with elaborate niello inlay from Temljuh, 5km from Gardun in 1916. In 1893, a lead stamp inscribed LEG XI was found in Gardun (H31). Objects in Split museum with no known provenance included three pendants (H4617, the other two with no numbers) of Type 9d with internal pendants of Type 8f (BISHOP, 1988, Fig.47), and the shape of a Mainz-type sword scabbard (no number), 535mm long. Zagreb museum contains some of the material from Siscia published by Hoffiiler (1911-12), whilst in Ptuj (Poeotvilo) we found five articulated scales (32 x 26mm) of loric squama, four rows of rigid scale (24 x 8mm) like the pieces from Corbridge (FORSTER & KNOWLES, 1911, 188, Fig.41), but of particular interest was a bone sword pommel (30mm high, 48mm wide) inscribed IVSTVS OPTIO COHORTIS II AVR DACORVM.

I should like to take this opportunity to thank all the eastern European scholars who were so helpful during our trip.

WORK IN PROGRESS

It is frequently not only interesting but useful to know what other people are doing or thinking of embarking upon, so this newsletter will provide the perfect opportunity to outline in a couple of paragraphs your current project or projects. This may prove beneficial if you need help or contacts.

ROMAN SLING-SHOT

W.B. Griffiths

I am at present attempting a study of the sling, or funda, and its role in the Roman army. Archaeologically the only traces of the sling, one of the simplest of missile weapons, are the shot themselves. These shot could be of stone, clay, or lead. Stone and clay shot are known throughout the world, but lead missiles, or glanides, are unique to Greek and Roman culture. Of the two forms of lead shot known to us Type 2 (see Fig.1) appears to have been used exclusively by the Romans. Indeed it was this distinctive shape that caused the ancient authors to name lead shot glanides, or acorns.

As part of my research on the sling I am carrying out a comprehensive study of lead glanides from throughout the Empire. I hope to explore several different aspects such as regional distribution patterns, varying sizes and weights, and evidence of casting methods employed.

I would therefore be glad to hear of any examples of glanides, or indeed of any other information on the sling, pertaining to its use in the classical period or otherwise.* If possible the following information on glanides should be included:

1. Provenance
2. Length (in cm)
3. Weight (in cm)
4. Date, where possible
5. Type
6. Inscription, if any

If convenient an outline drawing, and cross sectional sketch through the centre of the shot (both scale i:i) would be of help, as would any other information considered relevant.

It is a generally held belief that the use of glanides in the Roman army gradually died out during the first century A.D. (with the exception of Britain where examples are known from as late as the fourth century; cf. GREEF, 1987, 199). Thus examples which can be dated to the second century A.D. and beyond would be of especial interest.

* Please send information to: W.B. Griffiths, 36 Duchy Road, HARROGATE, N. Yorks., HG1 2ER, England
MILITARY EQUIPMENT FROM CORBRIDGE

M.C. Bishop

The writer has been working on a catalogue of all the Roman military equipment from the site of Corbridge, Northumberland. This will form a companion volume to those dealing with the Corbridge Hoard and the 1947-80 excavations at the site. Although much-excavated, only a very small proportion of equipment from the site has been published and then only in the form of a photograph or simple drawing.

Rummaging through the stores of Corbridge Roman Site Museum has produced all kinds of surprises, including what may be the most northerly niello-inlaid belt plate in the Roman Empire (!); a previously unpublished cheekpiece from a cavalry helmet; an unfinished casting of a scabbard chape, with clay core and casting jet still in place; and large numbers of plum heads and scales from lorida squamata.

The catalogue will be published by BAR, hopefully before the end of 1989.

NOTES

NIELLOED STUDS

Lindsay Allason-Jones

There is a type of copper alloy stud, known to its friends as a 'caterpillar stud', which modern scientific analysis has suddenly revealed as being more exotic and earlier in date than previously realised. The studs are rectangular in shape with rounded ends and convex faces which are deeply scored with transverse grooves. Two shanks, often with disc heads, project from the back. Several of this type are already known in Britain and on the German Limes: see ALLASON-JONES & MIKET, 1984, Nos.3.877-8 for British examples and OLDENSTEIN, 1976, Taf.58 for German examples. They were believed to be 2nd or 3rd century in date and to be related to knobbled tubular bell fittings, a set of which is known from Verulamium (WAUGH & GOODBURN, 1972, Fig.33, No.43).

Six 'caterpillar studs' came from the excavations at Corbridge in Northumberland and it was whilst they were undergoing routine conservation prior to publication that the staff of the Ancient Monuments Laboratory of the Historic Buildings and Monuments Commission noticed that the grooves of all six examples contained niello. This had not been noticed on the other examples cited above but as the niello is not inlaid into a cell but simply introduced into grooves it cannot have been very secure and could easily have been removed by the processes of time or by enthusiastic cleaning techniques.

Further researches have revealed other studs of the same type which have traces of niello. A cruder example where the grooved area is surrounded by a flange has recently been discovered at Castleford in a Trajan or early Antonine context (BISHOP forthcoming: L255.1084) but a set of three (one with a peltate terminal similar to that from Verulamium (WAUGH & GOODBURN, 1972, Fig.33 No.43) is also known from Oberstimm (BÖHME, 1978, Taf.22, Nos.B160, 161, 152). Böhme refers to the Verulamium example cited
above which has no niello; to Paimingen which is complete with an extension looped behind the plate and attached by the two shanks, and is nielloed (DREXEL, 1911, Taf.6, No.12); to Buclumi which has no mention of niello (CHIRILA et al., 1972, Taf.CXIII, No.31) and to Xanten (STEINER, 1911, IX, 163, Abb.35,6). Examples are also known from Volubilis (BOUBE-PICCOT, 1980, Fig.23, Nos.152 and 155) and Thamusida (ibid., Fig.35, No.532).

The use of niello in Britain is described by Susan La Niece who defines it as a 'black material composed of one or more metal sulphides which is inlaid of fused into a recess in metal' (1983, 279-97). It first became popular in the 1st century A.D. although it is likely that the technique had been known previously. In Roman Britain its use is mostly confined to military equipment and harness in the 1st century A.D., making a secondary appearance on luxury tableware towards the end of the 3rd century.

It is rare to find niello used on small objects as the technique's effect relies on the contrast between the black of the niello and the surrounding metal. In these examples the effect would be of black and bronze stripes. It is also unusual to find niello used in the area of Hadrian's Wall, probably because most of the forts are of 2nd century genesis. There are, however, several nielloed studs known from Corbridge. In this cruciform mount decorated with stripes in such a way as to suggest that it forms part of a set with the 'caterpillar studs' (see Fig.2,6). Two very small disc-headed studs from the site are also of interest as niello is set into concentric rings as opposed to the more common enamel (cf. ALLASON-JONES & MIKET, 1984, No.3.7 - see Fig.2,4-5). The only other nielloed pieces known from the area are a tiger stud from Walker (Ant. J. XLIX, 1969, 394-5) and a parallel tiger stud from Corbridge (unpublished).

To sum up: 'caterpillar studs' can be found which include niello in their design and consequently should be treated with some caution in the cleaning process. Secondly the evidence for niello suggests an earlier date for the type than was previously supposed, i.e. 1st century A.D.

**BELT FITTINGS IN BUXTON MUSEUM**

Two copper alloy objects in Buxton Museum, Derbyshire, are of particular interest to the student of Roman military equipment: an embossed belt plate and a cast buckle, both of 1st century AD pattern (Fig.4). They were found loose in a box of assorted copper alloy objects collected by a local antiquary, Edward Tristram; the artefacts had evidently originally been glued onto cards with neatly handwritten captions and some were still mounted in this way. Many of the items seem to have come from Suffolk, particularly from the vicinity of Mildenhall, and they included pieces of varying dates, from prehistoric to post-medieval. Tristram moved to Buxton from Cheshire in 1910 and contributed a review article
Fig. 3: A new mail hook


The two Roman belt fittings in question still preserve traces of card and glue on their reverse faces, but no appropriate card survived upon which they may once have been mounted.

It will hopefully be clear that a local provenance for these items is far from certain and it may well be that an East Anglian origin is more likely.

The belt plate is of the embossed kind familiar from the middle decades of the first century A.D. and was clearly beaten out from sheet metal. A central, dimpled boss is surrounded by a bordered trough, a plain field, and then two raised, concentric circles. Two rivet holes survive and the intact end of the plate is doubled over in the familiar pseudo-hinge of this type of plate. Slight dishing around the rivet holes may indicate that they were punched from the upper surface. The object seems to have been damaged in antiquity, the opposite end to the pseudo-hinge being distorted, and the plate was folded along its long axis, something that has been partially rectified since the discovery of the object, to judge by the bright metal showing along the line of the fold, where the surface patina has been stretched. Close parallels can be identified from Wroxeter (hinged - ATKINSON, 1942, Pl. 48, A.4) and Rheingönheim (ULBERT, 1969, Taf. 27, 1-5, 9). The object is 48mm long and 36mm wide.

The buckle is also of a fairly unelaborate type. A stepped profile to the loop of the buckle is terminated in internal volutes, abutting a simple crossbar. The two hinge loops are

Fig. 4: The Buxton belt fittings
present and iron corrosion products indicate the remains of the iron spindle. A parallel is known from Vindonissa (GANSSER-BURCKHARDT, 1942, Abb.68,13). The object is 25mm long and 27mm wide, with an internal width of 17mm in the buckle loop.

The buckle appears to belong to the narrower form of belt, usually worn in pairs, whilst the belt plate is of the broader kind.

In 1984, the opportunity was taken by the writer to analyse samples from these fittings using atomic absorption spectroscopy to determine their composition. The results were as follows:

<table>
<thead>
<tr>
<th>% readings</th>
<th>Buckle</th>
<th>Plate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zn</td>
<td>7.92</td>
<td>16.37</td>
</tr>
<tr>
<td>Sn</td>
<td>5.73</td>
<td>0.81</td>
</tr>
<tr>
<td>Pb</td>
<td>1.69</td>
<td>0.02</td>
</tr>
<tr>
<td>Fe</td>
<td>2.93</td>
<td>0.78</td>
</tr>
<tr>
<td>Ni</td>
<td>0.07</td>
<td>0.02</td>
</tr>
<tr>
<td>Mn</td>
<td>0.02</td>
<td>0.01</td>
</tr>
<tr>
<td>Ag</td>
<td>0.06</td>
<td>0.02</td>
</tr>
<tr>
<td>Sb</td>
<td>0.17</td>
<td>0.06</td>
</tr>
</tbody>
</table>

In both cases, the totals suggest a copper content of around 81%, but the difference in composition between the wrought belt plate, which is basically copper and zinc (straightforward orichalcum), and the cast buckle (with tin and lead, the latter probably added to improve the casting qualities of the metal) are quite marked.

A REPUBLICAN GLADIUS

A lacuna in our knowledge of the history of the so-called gladius Hispaniensis has long been the fact that we do not appear to have a Roman example that predates the Augustan period. However, recent French excavations on the island of Delos may have provided an example of this Republican weapon. Discovered in a burnt deposit, which was associated by the excavators with the pirates' sack of the island in 69 B.C., the sword measured 760mm before conservation and had a wooden pommel and substantial remains of the leather sheath. Also associated with it were some belt fittings, including two copper alloy belt plates (52 x 35mm), a large buckle (height: 39mm), and two smaller ones.

REFERENCES


BISHOP forthcoming: Report on the Roman military equipment from Castleford


BUJUKLIEV 1986: H. Bujukliev, 'La necropole tumulaire Thrace pres de Catalka, region de Stara Zagora' (in Bulgarian with French resume), Fouilles et Recherches XVI, 1986


DREXEL 1911: 'Das Kastell Faimingen', Der obergermanisch-raetische Limes des Römerreiches Abt.8 Nr.66c (Berlin and Leipzig 1911)


GANSSER-BURCKHARDT 1942: A. Gansser-Burckhardt, Das Leder und seine Verarbeitung im römischen Legionslager Vindonissa, (Basel 1942)
GREEP 1987: S.J. Greep, 'Lead sling-shot from Windbridge Farm, St. Albans and the use of the sling by the Roman army in Britain', Britannia XVIII, 1987, 00-00

HOFFLILLER 1911-12: V. Hoffiller, 'Oprema rimskega vojske in prvo doba carstva', Vjesnik Hrvatskoga Arheološkoga Drustva (Zagreb) N.S. 11, 1910-11, 145-240; 12, 1912, 16-123


STEINER 1911: P. Steiner, Xanten-Sammlung des niederhessischen Altertums-Vereins, (Bonn 1911)


SUBSCRIPTIONS
The annual subscription for ARMA, which includes two issues (June and December), is as follows: £3.50 per annum for Britain, the rest of Europe, and the rest of the world. Postage is inclusive in the price, 1st class for Britain, surface mail to the rest of the world. Please make cheques (in Sterling, please) payable to 'M.C. Bishop'; alternatively, the appropriate amount can be transferred to the following British Giro account: M.C. Bishop, 639965903.

NOTES FOR CONTRIBUTORS
1. Copy dates for ARMA are 31st April (for the June edition) and 31st October (for December).
2. Anything of relevance to the study of Roman military equipment will be considered for inclusion, including details about recently published books or articles, news about finds, or information about forthcoming courses or exhibitions.

3. Contributions should preferably be in typescript in English, French, or German.

4. Illustrations should be designed to fit the text area - either landscape, portrait, a portion of the latter, or a column's width. They should also be camera-ready: i.e. should already have been reduced to the size required in reproduction.

5. If it is thought essential that a photograph should be used as an illustration, for the time being please make sure it is sent in the form of a screened print.

6. Contributions can be sent to any of the editorial board - M.C. Bishop, C. van Driel-Murray, or H.-J. Ubel (see below for addresses).

NEXT ISSUE
More analyses of the composition of military equipment.

The first in a series of guides to the military equipment on display in museums.

Military equipment published since 1980 - material from reports.

PLUS: whatever you send!

LIST OF SUBSCRIBERS
INDIVIDUALS
Mr K. Aiken, 130 Duvernet Ave., Toronto, Ontario, M4E IV4, Canada
Miss L. Allason-Jones, Museum of Antiquities, The University, Newcastle upon Tyne, NE1 7RU
Prof Dr J.E. Bogaers, Berg en Dalseweg 150, NL-6522 BZ Nijmegen, The Netherlands
Mr D.B. Campbell, 1231 Argyle Street (3/1), Glasgow, G3 8TH
Museum der Stadt Worms, Weckerlingsplatz 7, 6520 Worms, West Germany

Provinciaal Museum G.M. Kam, Museum Kamstraat 45, 6522 GB Nijmegen, The Netherlands

Saalburgmuseum, Saalburg-Kastell, D-6380 Bad Homburg 1, West Germany

Trust for Wessex Archaeology, Portway House, South Portway Estate, Old Sarum, Salisbury, Wiltshire, SP4 2EN

Universität München, Institut für Vor- u. Frühgeschichte und provinzialrömische Archäologie, Ainmillerstraße 8a, D-8000 München 40, West Germany

Wasmuth K.G., I Berlin 12, Postfach, Hardenbergstrasse 9a, West Germany

EDITORIAL BOARD CONTACT ADDRESSES

Dr M.C. Bishop, 36 Simpson Street, Crookhill, KYTON, Tyne and Wear, NE40 3EP, England

Dr C. van Driel-Murray, I.P.P., Singel 453, 1012 WP Amsterdam, The Netherlands

Dr. H. Ubl, A-3420 Kritzendorf, Schjelhammergasse 64, Austria

© 1989 The Individual Authors

Edited, produced, and published by M.C. Bishop