

ETRUSCAN BRONZE BELT CLASPS WITH IRON INLAY

(Con le tavv. VII-IX f. t.)

In the Department of Greek and Roman Antiquities of the British Museum there are three bronze belt clasps of considerable technical and cultural interest. Although two of them have been in the collection for some forty years, while the third was acquired in the early nineteenth century, they have only recently been correctly identified.

A) The clasp consists of a rectangular bronze frame on either side of which are two ring-shaped eyes joined together where their circumferences meet. The whole is slightly convex in section. In the centre of the frame is an openwork design showing a stylized fawn with head turned backwards, grasping its tail in its mouth. There are also five thin sections of bronze, two linking the curve of the tail to either side of the top left-hand corner, one extending from the muzzle to the centre of the top of the frame and two springing from the back of the fawn's head (ears?) to either side of the top right-hand corner. These sections balance the pattern formed by the animal's legs to give the design a symmetrical appearance.

IRON INLAY:

On the frame: a thin band of inlay running along all four sides approximately 1.5 mm. from the outer edge; within this rectangle of inlay are lunate shapes, ten in all, arranged with the points facing outward, two on the top and bottom and three on the right and left sides of the frame. Towards the inner edge of the frame between the curves of the crescents and also pointing outward are triangular shapes with two concave sides, one in the centre at top and bottom and two each on either side.

On the eyes: a ring of iron inlay runs through the middle section of each eye.

I should like to thank Professor G. Camporeale of Florence University for providing various references also Mr. B. F. Cook and Mr. K. S. Painter, both of the Department of Greek and Roman Antiquities, British Museum, for comments and suggestions for this paper.

On the fawn: one leaf-shaped section running down from a blunt end below the head, through the neck and shoulder into the upper near foreleg finishing in a point. Another leaf-shaped section going along the body, starting from a blunt end behind the shoulder, running round the haunch and finishing in a point in the upper near hindleg. The upper section of the far hindleg took an inverted, pear-shaped inlay. The eye of the fawn was bored right through, presumably also to receive iron inlay.

Registration number 1824.4-99.25 (previously registered in the Department of Prehistoric and Romano-British Antiquities as 1936.12-11.3).

Dimensions: frame, l. 7.35, w. 8.5; openwork, 1.4.0, w. 4.7.

Bequeathed to the British Museum in the collection of Richard Payne Knight.

Jewellery through 7,000 Years (catalogue of the exhibition held at the British Museum 1976), no. 130, p. 102; (*tav. VII a e b*).

B) The clasp consists of a rectangular bronze frame, to the right of which are two ring-shaped eyes, joined together where their circumferences meet. To the left of the frame is a strip of bronze cast in one piece with the frame, joined by struts at the top and bottom to provide a slit through which to insert the belt. In the centre of the frame is an openwork design showing a fawn, as in A), but with only three thin sections of bronze linking the fawn to the upper part of the frame, one rising from the curve of the tail going straight into the upper left-hand corner and two springing from the back of the head (again, ears?).

IRON INLAY:

On the frame and the fawn the inlay corresponds with A).

On the eyes: a ring of iron inlay runs through the middle section of each eye, as in A).

Registration number 1977.2-14.3 (previously registered in the Department of Prehistoric and Romano-British Antiquities as 1942.10-8.2).

Dimension: frame, 1.8.45, w. 7.8; openwork 1.4.35, w. 4.5.

From Lord Grantley's Collection, *Glendinings Sale Catalogue* 9th September 1942, lot 32, where it was purchased by the Christy Trustees to be presented to the British Museum; *The Arts in Early England*, III, *Saxon Art and Industry in the Pagan Period*, G. Baldwin Brown, p. 36 and pl. LXXVII, where it is said to have belonged formerly to the Forman Collection, perhaps lot 659 in *Sotheby's Sale Catalogue* of the Forman Collection, 2-5 July 1900: «buckle with curious form of animal decoration»; F. W. von Hase, *Gürtelschliessen des 7 und 6 Jahrhunderts v. Chr. in Mittelitalien*, *JdI* LXXXVI, 1971, p. 49; (*tav. VIII a e b*).

C) The clasp consists of a rectangular bronze frame to the right of which are two solid bronze hooks in the shape of stylized horses' heads and necks, the muzzles formed by two broad-based truncated cones with three grooves running horizontally across the middle of each, the central one deeper to receive inlay. Above the horses' eyes are raised brows, and below are three narrow grooves giving the appearance of wrinkles. The ears are small, pointed

and inclined forwards. From the top of each head and down the back of the neck runs a raised edge forming the crest of the mane, with a deep channel to receive inlay running down its centre and a shallower channel on either side of it. To the left of the frame is a strip of bronze cast in one piece with the frame, joined by struts at the top and bottom as in B) to provide a slit through which to insert the belt. In the centre of the frame is an openwork design identical with B) above.

IRON INLAY:

On the frame and the fawn the inlay corresponds with A) and B). On the horses' head hooks, one band of iron inlay runs horizontally across the flat bases of the muzzles in the deep channel mentioned above, with two round dots of inlay (nostrils?) above it in holes which pierce through the edge of the muzzle and one slightly larger round dot of inlay below. Holes bored for inlay accommodated the horses' eyes. A band of inlay runs down each crest.

Registration number 1977.2-14.4 (previously registered in the Department of Prehistoric and Romano-British Antiquities as 1942.10-8.2a).

Dimensions: frame, 1.8.45, w. 7.85; openwork 1.4.5, w. 4.6.

From Lord Grantley's Collection, *Glendinings Sale Catalogue* 9th September 1942, lot 32, where it was purchased by the Christy Trustees to be presented to the British Museum; *The Arts in Early England*, III, *Saxon Art and Industry in the Pagan Period*, G. Baldwin Brown, p. 36 and pl. LXXVII, where it is said to have belonged formerly to the Forman Collection, perhaps lot 659 in *Sotheby's Sale Catalogue* of the Forman Collection, 2-5 July 1900, « buckle with curious form of animal decoration »; F. W. von Hase, *Gürtelschliessen des 7 und 6 Jahrhunderts v. Chr. in Mittelitalien*, *JdI* LXXXVI, 1971, p. 49; (*tav.* IX a e b).

The provenience of none of the clasps is known; B) and C) had in fact featured amongst Lord Grantley's distinguished collection of early English antiquities, although at the time they were thought to be perhaps an import from northern France, dated to the eighth century A. D. (1). Until very recently all three clasps were held by the Department of Prehistoric and Romano-British Antiquities, but their origin had long been in doubt and when A) was displayed in the British Museum exhibition, *Jewellery Through 7,000 Years*, it was tentatively ascribed to Central Asia (2). Fortunately during the exhibition the clasp was seen by Professor Kyle M. Phillips and identified as Etruscan, of the archaic period, on the basis of comparable examples from Siena (3).

(1) G. BALDWIN BROWN, *The Arts in Early England*, III. *Saxon Art and Industry in the Pagan Period*, p. 36.

(2) *Jewellery through 7000 Years*, Catalogue of the British Museum exhibition 1976, no. 130.

(3) From Castelnuovo Berardenga: Siena Arch. Museum. A. MINTO, *NS*, 1930,

The technique of iron inlay is rare and interesting. It is known from a number of Etruscan examples of the seventh and sixth centuries B. C.; perhaps the best known are the attachments of the war-chariot found in the Great Chariot Tumulus of the necropolis at Podere di S. Cerbone, Populonia (4). Technical details of the British Museum clasps are given in the accompanying paper by Dr. Paul Craddock of the Research Laboratory of the British Museum, but it will be useful to point out here two misapprehensions which have existed in the past about the technique in general. Firstly, concerning the clasps from Castelnuovo Berardenga, Minto (5) describes the procedure as follows:

« in laminette di ferro, ritagliate a traforo, incastonate in pezzi di bronzo fuso, *entro vani espressamente scavati ad unghietta* ».

This may be doubted, for the British Museum clasps revealed very little tooling in the recesses for iron inlay, perhaps only undercutting to ensure a snug fit. The recesses were obviously cast in the bronze; to cut them out by cold-working would require a great deal of unnecessary labour, and in addition the thin plate of bronze (approximately 2.5 mm) would be unlikely to withstand the pressure caused by such cutting. The backs are quite smooth (*tav. VII b*), *VIII b*) and *X b*) and show no traces of pressure from the opposite side. The same chiselling out of recesses is suggested by Jucker for the lion protome from Praeneste, but surely these too were included in the casting (6). The second misapprehension, in fact commonly held, in also

pp. 294-296, fig. 2. F. W. VON HASE, *Gürtelschliessen des 7 und 6 Jahrhunderts v. Chr. von Mittelitalien*, *JdI* LXXXVI, 1971 (hereafter HASE), p. 18, fig. 19. The bronzes from Murlo are the subject of a forthcoming thesis by P. Gregory Warden of Bryn Mawr College. From Poggio Civitate: Siena Arch. Museum Inv. nos. 2837, 2838, 2839. *Poggio Civitate, The Archaic Sanctuary* (Catalogue of the exhibition held at the Florence Archaeological Museum 1970); pp. 15 ff. nos. 8s, 9s, 10s, pl. IV-V; R. BIANCHI BANDINELLI, *NS*, 1926, p. 167, fig. 2; HASE, figs. 20, 21; H. MÜHLESTEIN, *Die Kunst der Etrusker*, fig. 142, pp. 225-6.

(4) A. MINTO, *Populonia*, 1943, pp. 118 ff., with illustrations; BANTI, *Mondo Etr.*, p. 191; F. NICOSIA, *Radiografie di bronzi antichi*, *St. Etr.* XXXV, 1967, pp. 248 ff. figs. 4-5, pl. 43. Other Etruscan examples: lion protome from Praeneste, W. L. BROWN, *The Etruscan Lion*, 1960, pp. 21 ff. pl. 10a 1-2; H. MÜHLESTEIN, *Die Kunst der Etrusker*, 1929, fig. 114, pp. 208-9; H. JUCKER, in *Art and Technology, A Symposium on Classical Bronzes*, 1970, pp. 195 ff., figs. 4a-b; lion's head protome said to have been found in Serre di Rapolano, JUCKER, *op. cit.*, 196 ff., fig. 5. Examples of iron inlay from elsewhere: see n. 17 below and JUCKER, *op. cit.*, pp. 196 ff. and pp. 235; A. RIETH, *Anfänge und Entwicklung der Tauschieretechnik, Eurasia Septentrionalis Antiqua* X, 1936, p. 189 fig. 3. For belt clasps of the same type as A, B, C see n. 8 below and for others similar, ns, 11, 13 below.

(5) MINTO, *Populonia*, p. 123.

(6) JUCKER, *op. cit.*, n. 4, pp. 196 ff., fig. 5.

demonstrated by Jucker (7), who remarks upon « the satisfaction and pleasure in technical experimentation » displayed by this technique, since « it is easier to inlay hard metal into softer metal than vice versa ». Etruscan metalworkers were unquestionably fond of innovation, but Dr. Craddock informs me that iron is indeed softer than bronze with a high tin content, and that the bronze of the British Museum clasps, with an average tin content of about four per cent, would be probably of a very similar hardness to the iron; thus no exceptional difficulty would be encountered during such inlay work.

The most important evidence provided by the metal analysis, however, is that the clasps were all cast within a short span of time. Two, A) and C), are from the same mix, and the third, B) is from an alloy so similar in formula that it must have been cast at about the same time, perhaps on the same day. The same template was used for the frame and openwork of B) and C) since the openwork is identical and the inlaid crescents on the frames show precisely the same irregularities (*Tav. VIII a*) and *IX a*). It is also apparent that the template was showing signs of deterioration, since in B) the backs of two of the crescents are breaking through the inner edge of the frame (centre of left side of the frame and left bottom of the frame).

The other known clasps of this type have been assembled by F. W. von Hase in his survey *Gürtelschliessen des 7 und 6 Jahrhunderts v. Chr., in Mittelitalien* (8). It is satisfying to be able both to add one further example, A), to the six listed by him and also to identify the last item in the section, designated « Verbleib unbekannt. Ehemals Lord Grantley's Collection » with our B) and C). All of the clasps in this group are so similar that they must have been produced during a short period, a conclusion which is supported by the proximity of the known find-spots, three at Poggio Civitate and one at Castelnuovo Berardenga. One clasp in the group, in the Trento Museum, is said to have come from the Southern Tyrol, but this seems an improbable provenience (9). The close relationship in the casting of the British Museum examples has been demonstrated, and it would of course be of the utmost interest to have scientific analyses of the remaining members of the group. In all likelihood, the same « specialist » workshop, almost certainly situated in the neighbourhood of Siena, produced the other known Etruscan examples of iron inlay work belonging to this period (10), most notably the several iron-inlaid clasps of similar design but with a different animal motif in the

(7) *Ibidem*.

(8) HASE, pp. 17-21, figs. 19-21 Variant II, p. 49 and map II p. 50.

(9) HASE, p. 49; *Mon. Inst.* X, pl. 37, 8a, b; *Ann. Inst.* XLIX, 1877, p. 389.

(10) See above, n. 4.

openwork section. Two of these are listed by Hase (11): one, formerly in the Chigi collection, was found at Castellina in Chianti, Siena; here the openwork consists of a rearing, long-tailed quadruped (perhaps a lion). The other, now in the Paris Army Museum, Inv. no. E 23, is said to have been found at Lyon, though the evidence for this provenience is not beyond doubt (12). The openwork of this clasp is formed by two standing fawns, confronted but with heads turned backwards. One further example, not mentioned by Hase, is said to have come from Cerveteri; the openwork features a running or struggling deer with head turned backwards, but the frame seems to differ from the rest in that it has dots of inlay in place of crescents (13).

With regard to the date of the clasps, the examples from Castelnuovo Berardenga and Poggio Civitate (14) indicate a date in the late seventh or early sixth century B. C. The influence of oriental metalwork has already been noted by some (15), and Jucker plausibly suggests direct contact with sources of orientaling art particularly bearing in mind the iron-inlaid club-heads from Iran, Lindos and Samos (16). It is perhaps also significant that the clasps from Poggio Civitate appear to have been accompanied in the graves by Etrusco-Corinthian *aryballoi* (17). But the technique of iron inlay was favoured by the Koban culture of the Caucasus, which also produced bronze belt clasps with iron decoration (18). The metal-rich region of the Koban had given rise to a flourishing trade with the Orient and the dual influence of art from the Orient and metalworking technique from the Koban must be considered a strong possibility (19). The ready availability of iron and copper in Etruria, combined with the distribution of the clasps, makes it likely that the workshop for these particular clasps were located in Etruria itself, and leaves open the nationality of the craftsmen, be they Eastern or Etruscan.

(11) HASE, p. 20, figs. 22, 23 a-b, Variant III p. 50.

(12) HASE, p. 20, n. 62.

(13) *Mon. Inst.* X, pl. 24, 1e. *Ann. Inst.* XLVII, 1875, p. 222; I am grateful to Mr. Warden for drawing my attention to this clasp.

(14) See above, n. 3.

(15) eg. MINTO, *Populonia*, p. 120, HASE, *op. cit.*, n. 8, p. 18.

(16) JUCKER, *op. cit.*, n. 4, pp. 196, 236.

(17) *Poggio Civitate, The Archaic Sanctuary* (Exhibition Catalogue 1970), p. 13, n. 1.

(18) F. HANCAR, *Kaukasus-Luristan, Eurasia Septentrionalis Antiqua* IX, 1934, p. 103, fig. 46; RIETH, *op. cit.*, n. 4, pp. 188-9; BROWN, *The Etruscan Lion*, p. 21; E. CHANTRE, *Recherches Anthropologiques dans le Caucase* II, 53, pl. 10, 1-4; *Historische Schätze aus der Sowjetunion*, exhibition at Kunsthhaus, Zurich, Dec. 17 1966-Feb. 26 1977, no. 131 (I have not yet been able to obtain an illustration of this clasp, but the catalogue describes it as bronze, decorated with two fawns in iron and dated to the beginning of the first millennium B. C.).

(19) BROWN, *The Etruscan Lion*, p. 21; for Caucasian origin of Praeneste lion protome, P. JACOBSTHAL, *JRS* XXVIII, 1938, p. 104.

Lastly, a word about the possible function of the clasps. Similar heavy bronze clasps of the same period (though without iron inlay) have been found in the rich graves of Etruscan aristocracy (20), both men and women, and often placed at the right side of the deceased (21). Bianchi Bandinelli's suggestion that the clasps must have been used only as part of horse-trappings therefore seems unnecessary (22). In one example, from the necropolis of S. Cerbone (23), the clasps were found in the region of the pelvis. Unfortunately the terracotta statuettes which Hase cites as evidence for the use of such clasps on the shoulder (24) are wearing not bronze clasps of this type but « comb » brooches for pinning the cloth together (25). Use on the shoulder, however, would have suited the peculiarity of our B) and C), for when the clasps are fitted together the fawns are upside down in relation to each other, a feature less noticeable on the shoulder than when worn as a belt. The clasp may well have belonged to a kind of bandolier, as seems to be indicated by the position of the clasp found in the Tumulo della Pietrera, Vetulonia (26). If this is not the explanation for B) and C), for in fact the other clasps which survive complete have both openwork animals standing upright (27), we may attribute the fault to the carelessness of a craftsman. At the time when the clasps were thought to be of northern European origin, it was assessed that « the blunder in the casting looks more like one of our native artificers trying his hand at an unfamiliar kind of work » (28); the nationality of the craftsman was certainly different from that imagined at the time, but the argument corresponds well with the idea of an Etruscan making an attempt at an artifact unfamiliar to him, probably based on the prototypes suggested above. Whatever the purpose of the clasps, the two metals in their pristine state must indeed have formed a pleasing colour contrast, and metalwork in this technique was obviously highly prized.

JUDITH SWADDLING

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- (20) HASE, p. 36.
(21) HASE, p. 2, n. 4.
(22) BIANCHI BANDINELLI, *NS*, 1926, p. 167, n. 3.
(23) I. FALCHI, *NS*, 1893, p. 506.
(24) *BM Terracottas* nos. 219, 220.
(25) Cf. *BM Jewell*. no. 1372.
(26) HASE, p. 35, fig. 38.
(27) For examples, see above, n. 3.
(28) BALDWIN BROWN, *op. cit.*, n. 1.

REPORT ON THE CONSTRUCTION AND COMPOSITION OF THE BELT CLASPS

The three belt clasps Reg. Nos. 1824.4-99.25, 1977.2-14.3 and 1977.2-14.4, to be called A), B), and C) respectively as in the foregoing paper, were examined visually under the microscope and sampled for analysis. The iron, where present, appeared totally corroded and this was confirmed by its failure to attract a magnet.

The bronzes were cast with little subsequent working. Even the cells into which the iron was inlaid were cast with only a little tooling to sharpen and slightly undercut the edges for the iron. Although none of the iron remains as metal, the forging process for manufacturing iron in the first millennium B. C. in the West would automatically have produced a wrought iron suitable for inlay. This iron would have been hammered into the cells spreading it into the undercuts thus mechanically securing it to the bronze. There is no evidence of any metallurgical join. The iron would almost certainly have been originally flush with the edge of the cells, although now the iron has spread over the edges and is raised proud of the surface in several instances. This swelling is caused by corrosion of the iron and is a common feature of corroded iron.

Samples of metal each weighing about twenty mgms. were drilled from the three clasps and analyzed by atomic absorption spectrometry (1). The results are given below. Each element was detectable down to at least 0.005 per cent in the metal, and the precision of the analyses is ± 1 per cent. for the major elements and ± 20 per cent. for the trace elements.

<i>Sample</i>	Cu	Pb	Sn	Ag	Fe	Sb	Ni
A)	81.5	11.6	4.9	.16	.35	.60	.165
B)	84.0	7.70	4.5	.24	.095	1.3	.22
C)	84.0	11.0	3.7	.12	.50	.50	.10
	Au	Co	As	Cd	Bi	Zn	Mn
	—	.030	.95	—	.025	.090	—
	—	.010	.80	—	.030	.006	—
	—	.008	.80	—	.025	.140	—

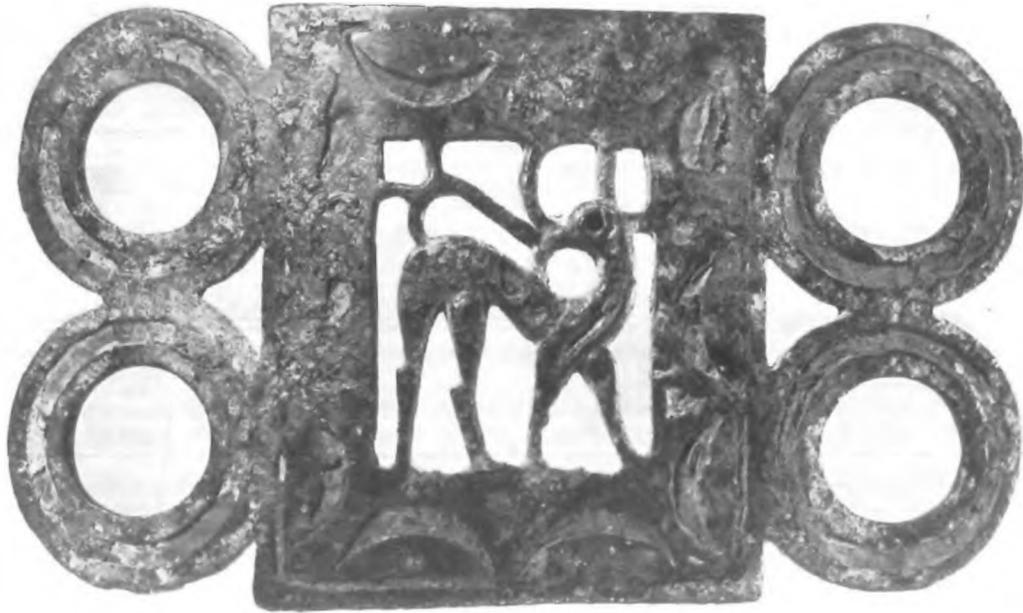
(1) The precise details of the methodology are given in HUGHES - COWELL - CRADDOCK, *Atomic Absorption Techniques in Archaeology, Archaeometry*, 18:1, 1976, pp. 19-37.

The belt clasps are all of leaded tin bronze typical of the archaic period. Other undecorated belt fittings were also analyzed and were similarly found to be of leaded tin bronze (2). The composition of A) and C) is very similar both in major and trace elements, and this strongly suggests that the two pieces were cast at the same time. The third piece, B) is made of the same type of alloy but the trace element content is different showing that it was cast on a separate occasion, but probably to the same formula of alloy.

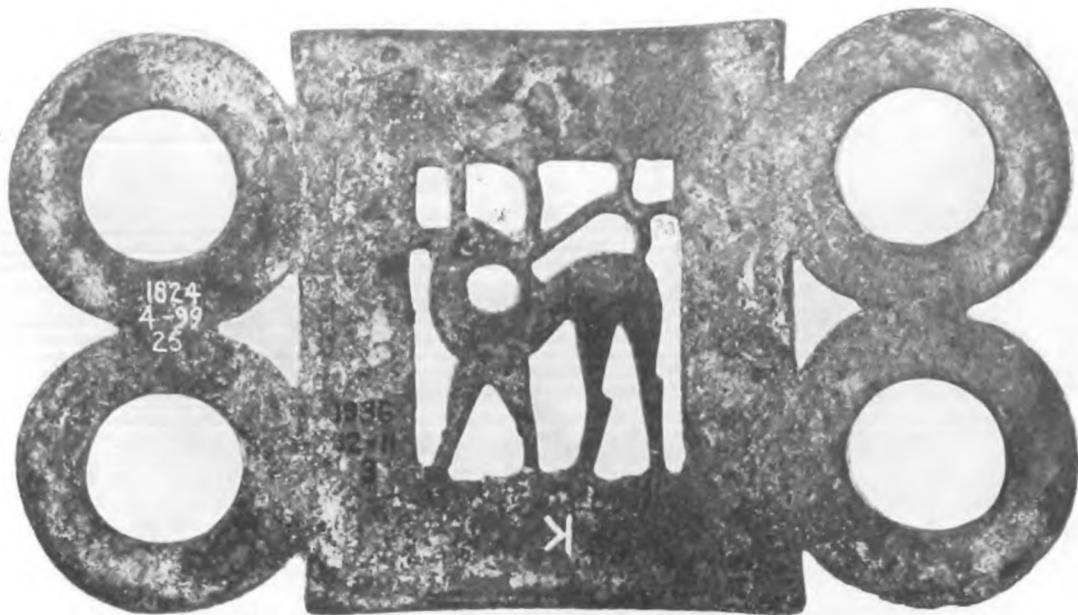
The great stylistic similarity between B) and C) suggests that the same template was used at least for the openwork design of these two pieces, and this coupled with analytical evidence suggests that all three pieces were probably made within a short period at the same workshop.

PAUL T. CRADDOCK

(2) These results will be published together with the analyses of about five hundred other Etruscan bronzes in the *Journal of Archaeological Science* in 1978 as part of a continuing series of articles on the composition of metalwork from classical antiquity.



a

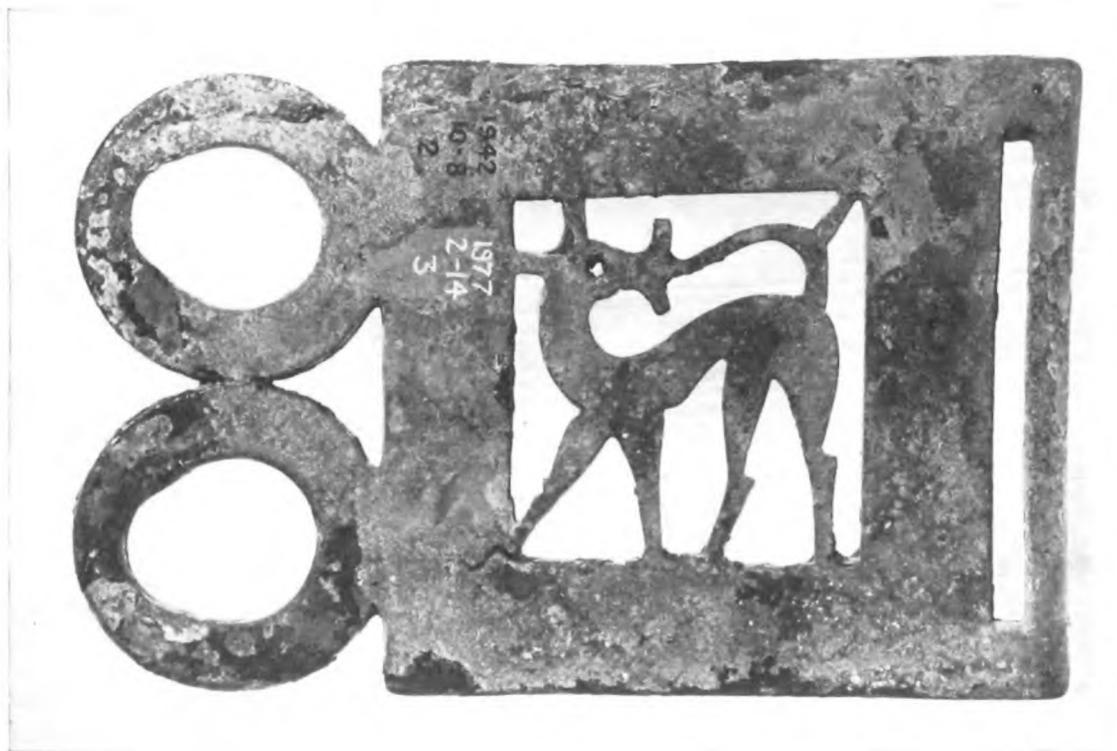


b

Belt clasp A: a) front, b) back.

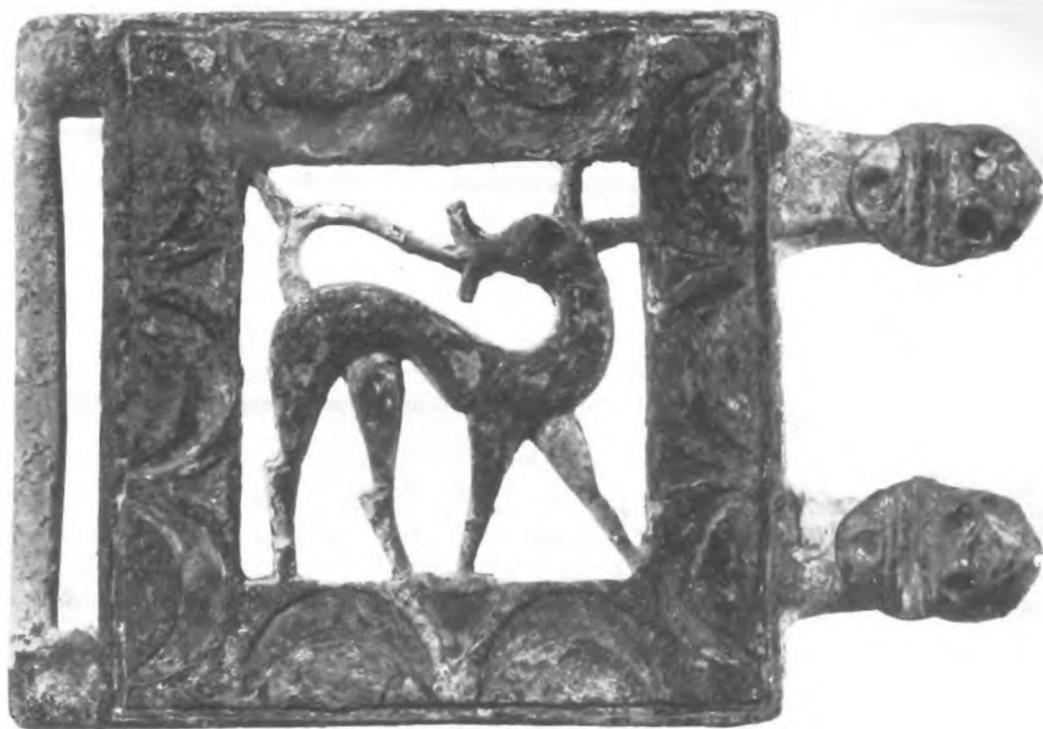


a

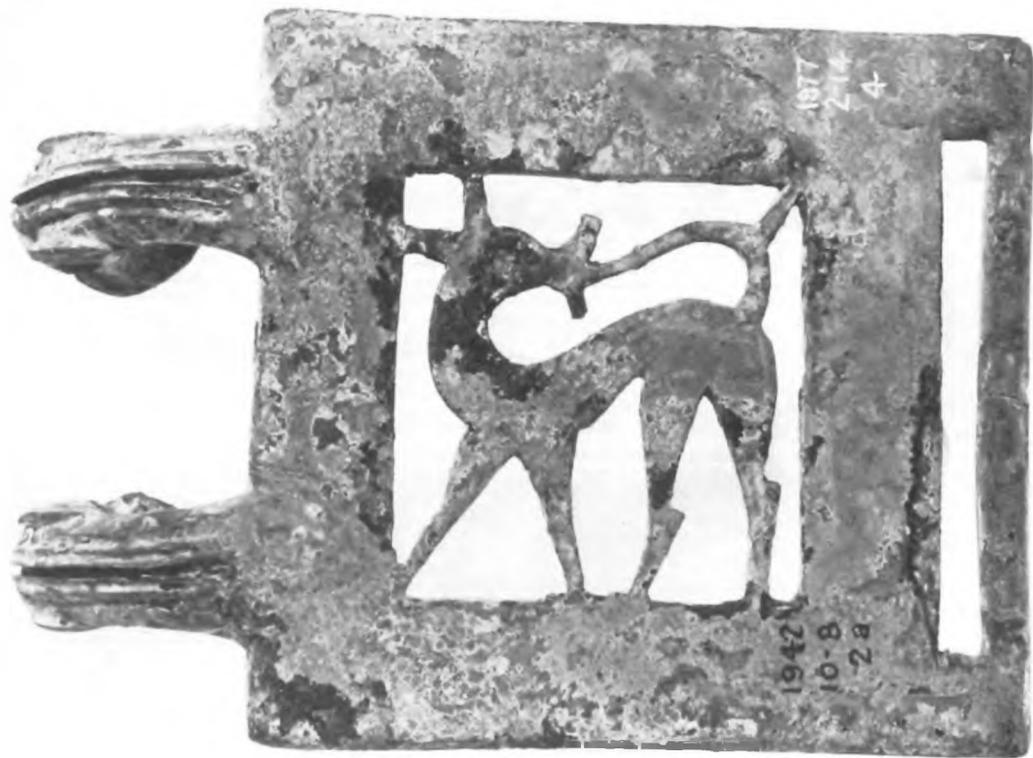


b

Belt clasp B: a) front, b) back.



a



b

Belt clasp C: a) front, b) back.