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# ROMAN BRONZE APPLIQUÉS WITH HALF-PIERCED LOOP. SEMI-FINISHED OR FINAL PRODUCTS?<sup>1</sup>

**Silvia Mustață**

**Keywords:** *Roman bronze vessels, semi finished products, fastening systems*

## **Introduction**

Even if in a small number, the evidence regarding the production of Roman bronze vessels – moulds, semi finished products, production waste etc. – represents a crucial starting point in understanding important aspects concerning the technology, the manufacturing steps, and in the end the distribution of such objects. Published in the year 2000, J. Gorecki's study regarding the production of metal vessels in Pompeii reviewed in a critical manner all the direct and indirect sources from the Roman Empire that are indicatives of metal vessels manufacturing<sup>2</sup>. Due to the identification of new objects displaying similar characteristics, the present paper aims to reevaluate one category of artefacts, discussed in the above mentioned paper, which was considered as comprising semi finished products for a type of appliqué belonging to the handle fastening systems of Roman bronze plates or bowls: bronze appliqués with half-pierced loop<sup>3</sup>.

## **The finds**

The first two objects belonging to this category, and discussed as such in the literature, were represented by an appliqué from Augst/*Augusta Raurica* and one from Brugg/*Vindonissa*<sup>4</sup>. The piece from Augst/*Augusta Raurica* is palmetto-shaped, the surface is ornamented with incisions

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<sup>1</sup> A preliminary version of this study was published in: *Instrumentum. Bulletin du Groupe de travail européen sur l'artisanat et les productions manufacturées dans l'Antiquité (Montagnac)* 30, 2009, 24–25 (MUSTAȚĂ 2009). I would like to express my recognition to Dr. Richard Petrovsky from Historisches Museum der Pfalz, Speyer and to Dr. phil. Joachim Gorecki from the Johann Wolfgang Goethe University, Frankfurt am Main for the helpful discussions regarding this type of artefacts. The proper illustration of the object from Răcarii de Jos wouldn't have been possible without the help of Dr. Dorel Bondoc from Museum of Oltenia, Craiova. Also I would like to thank Edgar L. Owen from the Edgar L. Owen Gallery of Antiquities, New Jersey for allowing me to include the appliqué from his private collection in this article. The drawing of the object from Moigrad/*Porolissum* and the redrawing of the other pieces were done by Narcisa Șugar from the Institute of Archaeology and History of Art, Cluj-Napoca, Romania and by Lóránt Vass from „Babeș-Bolyai” University, Cluj-Napoca.

<sup>2</sup> GORECKI 2000.

<sup>3</sup> GORECKI 2000, 453.

<sup>4</sup> GORECKI 2000, 453.

forming a vegetal decoration, having in the superior part a loop, cast together with the rest of the object. Its identification as a semi finished product is supported by the still coarse exterior



Fig. 1. Detail with the half-pierced loop of the appliqué from Moigrad/*Porolisum*.

surface and by the piercing process of the loop, executed probably with the help of a drill, which was begun, but never finished<sup>5</sup>. The appliqué from Brugg/*Vindonissa* presents an anthropomorphic decoration, consisting of the head of a child (Eros), and the same half-pierced loop in the superior part<sup>6</sup>. Due to the characteristics displayed by the object from Augst/*Augusta Raurica*, it was considered that the final product should have a totally pierced loop and, taking this into account, the Brugg/*Vindonissa* piece was included in the same category of semi finished objects<sup>7</sup>. The identification of a number of three more similar artefacts, characterized by the same half pierced loop, opened a discussion in the literature about the semi finished character of these objects, the idea being suggested that it is very possible to deal with final products<sup>8</sup>.

At the moment a number of nine appliqués corresponding to the above mentioned description are known (Pl. I). From typological point of view they can be grouped in two different categories, both of them with a half-pierced loop. The first

one includes the palmetto shaped objects, with the surface ornamented with incisions forming a vegetal decoration, from Augst/*Augusta Raurica*<sup>9</sup> (cat. no. 1; Pl. II/1), Moigrad/*Porolisum*<sup>10</sup> (cat. no. 2; Pl. III/1) and Răcarii de Jos<sup>11</sup> (cat. no. 3; Pl. II/2). The second group is decorated with the head of a child (Eros) positioned among two small volutes, having in the lower part a small palmetto between two volutes. Such appliqués have been discovered at Brugg/*Vindonissa*<sup>12</sup> (cat. no. 4; Pl. IV/1), Davidovac<sup>13</sup> (cat. no. 5; Pl. IV/2), Langres<sup>14</sup> (cat. no. 6; Pl. V/1), Neuss/*Novaesium*<sup>15</sup> (cat. no. 7; Pl. V/2) and Olympia<sup>16</sup> (cat. no. 8; Pl. V/3). A sixth object that can be included in this second category comes from a private collection: Edgar L. Owen Gallery of Antiquities, New Jersey<sup>17</sup> (cat. no. 9; Pl. V/4).

With the exception of the piece from Augst/*Augusta Raurica*, the others don't display the characteristics of a semi-finished product. The exterior surfaces were trimmed and polished, as well as the half-pierced loop (Fig. 1). The drilling traces, very much visible on the loop of the appliqué from Augst/*Augusta Raurica*, can't be observed anymore on any of the other artefacts.

<sup>5</sup> FURGER/RIEDERER 1995, 119–120, Abb. 1/11; GORECKI 2000, 453.

<sup>6</sup> HOLLIGER/HOLLIGER 1985 (1986), 11–12, no. 81, Taf. 10/81.

<sup>7</sup> GORECKI 2000, 453.

<sup>8</sup> MUSTAȚĂ 2009.

<sup>9</sup> FURGER/RIEDERER 1995, 119–120, Abb. 1/11.

<sup>10</sup> GUDEA 1989, 691, no. 3, pl. CCXXX/3.

<sup>11</sup> BONDOC/GUDEA 2009, 228, no. 672, pl. CXIII/672.

<sup>12</sup> HOLLIGER/HOLLIGER 1985 (1986), 11–12, no. 81, Taf. 10/81.

<sup>13</sup> RATKOVIĆ 2005, 121, no. 58.

<sup>14</sup> LEBEL 1965, 165–166, no. 43, Pl. XV/43.

<sup>15</sup> MENZEL 1986, 206 (no. 570), Taf. 180/570.

<sup>16</sup> GAUER 1991, 190 (Le 69), Abb. 13/11, Taf. 82/4.

<sup>17</sup> <http://edgarlowen.com/a51ar.shtml> – 02.10.2010, no. 5947.

The object from Moigrad/*Porolissum* presents on the superior part of the loop a small casting fault, still it could not have affected its functional character. Moreover, on the back of the same piece, soldering alloy traces have been identified, a fact that indicates that the object was functional. Unfortunately it was not possible to examine the material discovered outside Roman Dacia and at the moment of publication no reference concerning the presence or the absence of the soldering alloy was given.

Taking all this into consideration, these appliqués represent very probably final not semi-finished products and the objects from Moigrad/*Porolissum* and Răcarii de Jos are the finalized versions of the semi finished piece from Augst/*Augusta Raurica*. In this case we deal with a new type of appliqué with the loop only half-pierced<sup>18</sup>. The fact that these objects, displaying similar characteristics, have been discovered on such wide areas (Pl. I) is another strong argument for this hypothesis.

### The fastening system

The characteristics of the objects offer important elements in trying to reconstruct the type of fastening system used. Even if until now no vessel with such an appliqué attached on it was discovered, the fact that these pieces were indeed applied on bronze vessels is sustained by the curved shape and the presence of the soldering alloy on the back. Also, if we take into consideration the curve indicated by the shape of the appliqués, the type of bronze vessel to which they belong should very probably be a bowl. The hypothesis that they were applied in pairs of two under the rim of the vessel, each pair sustaining a small handle, is supported by the way the objects were pierced<sup>19</sup>. The ones from Augst/*Augusta Raurica*, Davidovac, Neuss/*Novaesium*, Olympia and New Jersey private collection have the hole on the right side and the ones from Moigrad/*Porolissum*, Răcarii de Jos, Brugg/*Vindonissa* and Langres on the left one. This reality suggests the existence of two pairs of appliqués, each one sustaining a handle, arranged directly opposite on the rim of the vessel.

The problems that arise when trying to reconstruct the exact type of fastening system used are related to the fact that until this moment no such example, using half-pierced appliqués, is known for Roman bowls. Bronze bowls with two pairs of appliqués having a totally hollowed inside loop and supporting an omega-shaped handle are quite common in the Roman world and maybe one of the best examples in this direction are the ones corresponding to the types Eggers 77–78<sup>20</sup>, massively represented inside the deposits from Neupotz (Rheinland-Pfalz, Germany)<sup>21</sup>. Other types of fastening systems for bowls consist of two appliqués positioned directly opposite, on the rim of the vessel, that have a thicker superior part, pierced on both of the exterior sides, allowing the attachment of an oval handle. This is the case for vessels like type Eggers 69 with vine leaf appliqués<sup>22</sup> or Eggers 91–92<sup>23</sup>.

In our case an oval handle which would presume a fastening system like the last one described above, even if it can't be totally excluded since no complete vessel has been discovered yet, is unlikely. At a closer look (Pl. II–V) it is visible that the part of the loop which was not pierced was very carefully polished and, sometimes, even slightly arched towards the hollowed side, fact that suggests that it was supposed to stay on the exterior of the fastening system. So, it is very probable that the handle was applied in between the inner sides of two appliqués, one

<sup>18</sup> MUSTAȚĂ 2009, 25.

<sup>19</sup> MUSTAȚĂ 2009, 25.

<sup>20</sup> EGGERS 1951, 167–168, Taf. 8/77–78.

<sup>21</sup> KÜNZL 1993.

<sup>22</sup> EGGERS 1951, 166, Taf. 8/69; SEDLMAYER 1999, 54, Taf. 22/5–7.

<sup>23</sup> EGGERS 1951, 168, Taf. 9/91–92.

half-pierced on the left side and one on the right one. The type of handle that could fit into such a fastening system, and could have been used as a vessel handle, is very rare. In our attempt of reconstruction (Pl. VI/1a-b) we used as a model a bronze handle discovered in the Roman fort

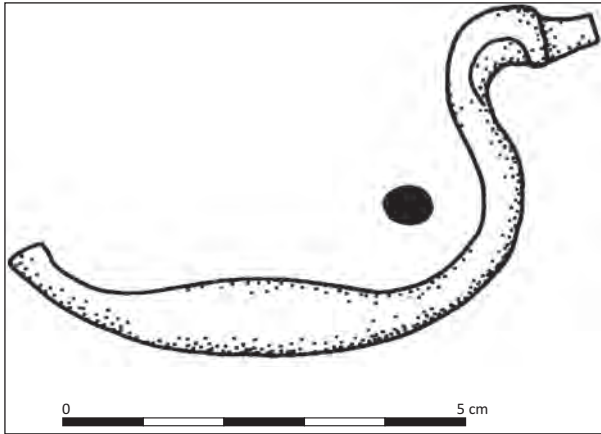


Fig. 2. Bronze handle from South Shields (redrawn after ALLASON-JONES/MIKET 1984).

from South Shields<sup>24</sup> (Fig. 2). The object was published as a helmet handle, but such an identification is questionable since the end of the handle doesn't seem broken and, until now, no fastening system with semi-pierced appliqué is known for Roman helmets. Also, the length of the handle's coarse end varies between 6 and 7 mm and the depth of the hole in the case of the Moigrad/*Porolissum* appliqué is of 6 mm. Another handle which, theoretically, could have been used for such a system is represented by a piece from the Rijksmuseum G. M. Kam, Nijmegen, Netherlands. The object was published as a very stylized version of the handles

ending in heads of sea birds or animals corresponding to bronze bowls type Eggers 97–103<sup>25</sup>, still the rough endings suggest that they were not exposed when the object was functional.

## Discussion

From an iconographical point of view, no exact parallels could be found in the Roman milieu for the appliqué with vegetal decoration, but the small dimensions palmetto which appears in the lower part of the appliqué with anthropomorphic decoration presents similar characteristics. Palmettos of this type are a very common decorative motif on the handles and appliqué of Greek bronze vessels<sup>26</sup>. The type of association between an anthropomorphic representation, Maenads or Medusa, and a small palmetto positioned under it, as in the case of the second category of objects analysed in this paper, can be found on the decorative appliqué attached to the Campanian bronze saucepans produced by *P. Cypius Polybius*<sup>27</sup> and corresponding to Eggers type 142<sup>28</sup> and on the bucket appliqué belonging to type Augst 253<sup>29</sup>. These types of representations are the closest to our appliqué from an iconographical point of view. Also, similar representations combining an Eros, a woman head or a theatrical mask with a palmetto between two small volutes, placed under, are frequent on the end of handles for flagons or amphorae produced in the Campanian workshops<sup>30</sup>.

The appliqué with vegetal decoration – at least the one from Moigrad/*Porolissum* due to the strong similarities – were produced very probably at Augst/*Augusta Raurica*, fact sustained by the discovery of the semi-finished object here. Concerning the second category with anthropomorphic representations, the present state of research doesn't allow an identification of the

<sup>24</sup> ALLASON-JONES/MIKET 1984, 166–167 (no. 427).

<sup>25</sup> DEN BOESTERD 1956, 54 (no. 184), Pl. VIII/184.

<sup>26</sup> GAUER 1991; TARDITI 1996.

<sup>27</sup> KAUFMANN-HEINIMANN 1998, 21–22, Abb. 3 with an iconographical analysis of all appliqué of this type discovered till 1998.

<sup>28</sup> EGGERS 1951, 172–173, Taf. 12/142.

<sup>29</sup> KAUFMANN-HEINIMANN 1998, 37–38, Abb. 13.

<sup>30</sup> TASSINARI 1993, Tav. CXX – CXXV; TASSINARI 1998, 93, fig. 7.

workshop. Even if we deal with rare objects there is no element to indicate that both types were manufactured in the same place.

Chronologically, the semi-finished appliqué from Augst/*Augusta Raurica* is dated, after the context of discovery, from the second half of the 2<sup>nd</sup> century to the beginning of the 3<sup>rd</sup> century AD<sup>31</sup>, situation which offers a dating for the objects from Moigrad/*Porolissum* and Răcarii de Jos. From the appliqués with anthropomorphic decoration only the one from Brugg/*Vindonissa* can be placed in time, also after the context of discovery, between 30/40 – 101 AD<sup>32</sup>. In the case of the piece from Olympia it is mentioned that it belongs to the Roman Imperial period<sup>33</sup>. This situation would suggest an anteriority of the appliqués with anthropomorphic decoration in relation with the other category. Nevertheless this hypothesis is based on little information and it should be confirmed or not by new discoveries or by reevaluating the existing data.

In conclusion it can be said that even if no complete Roman bronze vessel, with a fastening system formed from two bronze appliqués with half-pierced loop and a handle, has been discovered until the present date, the probability that these objects are indeed final products is very high. There are still questions that remain opened related to the fact that even if we know in this moment eight such artefacts, they were all discovered in different places and there is no pair coming from one site. Also, the small differences existing between the objects, especially concerning the appliqués with anthropomorphic decoration, would indicate the fact that they were produced using wax models. If this is true, it is a very interesting fact that the semi pierced hole was not created in the mould, but executed after the casting with the help of a drill, action which is more time consuming. Hopefully the identification in the future of more such objects will offer clearer answers to these questions.

### Catalogue<sup>34</sup>

#### *Appliqués with vegetal decoration:*

1. **a.** Augst/*Augusta Raurica* (Basel-Landschaft, Switzerland) (Pl. II/1); **b.** archaeological excavations from 1964, region 1, between *insulae* 22 and 28; **c.** Römermuseum Augst, inv. no.: 1964.3142; **d.** L.: 55 mm; W.: 38 mm; D<sub>loop-hole</sub>: 6 mm; Weight: 73,6 g; **e.** semi-finished product of an appliqué shaped as a palmetto ornamented with incisions forming a vegetal decoration; the exterior surface is still coarse and the piercing process of the loop (on the right side), probably using a drill, was just begun, but never finished; **f.** 2<sup>nd</sup> half of the 2<sup>nd</sup> century – beginning of the 3<sup>rd</sup> century AD; **g.** FURGER/RIEDERER 1995, 119–120, Abb. 1/11; GORECKI 2000, 453; MUSTAȚĂ 2009, 24, fig. 1.

2. **a.** Moigrad/*Porolissum* (Mirșid, Sălaj, Romania) (Pl. III/1); **b.** Pătru Popescu Nicolae Collection, stray find from the Pomet hill; **c.** National History Museum of Transylvania, Cluj-Napoca, inv. no.: IN 21514; **d.** L.: 54 mm; W.: 34 mm; D<sub>loop-hole</sub>: 9 mm; Weight: 71 g; **e.** appliqué shaped as a palmetto ornamented with incisions forming a vegetal decoration; the loop was half-pierced on the left side; on the upper part of the loop a small casting fault can be observed; it presents soldering traces on the inner side; **f.** -; **g.** GUDEA 1989, 691, nr. 3, pl. CCXXX/3; MUSTAȚĂ 2009, 24, fig. 2.

3. **a.** Răcarii de Jos (Dolj, Romania) (Pl. II/2); **b.** the auxiliary fort; **c.** Museum of Oltenia, Craiova, inv. no.: -; **d.** L.: 58 mm; W.: 35 mm; Weight: 86,5 g; **e.** appliqué shaped as a palmetto, with a

<sup>31</sup> FURGER/RIEDERER 1995, 120.

<sup>32</sup> HOLLIGER/HOLLIGER 1985 (1986), 12, no. 81.

<sup>33</sup> GAUER 1991, 190 (Le 69).

<sup>34</sup> In the description of the objects the following criteria were used: a. place of discovery, b. circumstances of discovery, c. storage place, d. dimensions, e. description, f. chronology, g. literature. Regarding the dimensions, for some of the objects it was not possible to indicate the diameter of the loop-hole or the weight, since they were not mentioned in the publications.

more elongated body, ornamented with incisions forming a vegetal decoration; the loop was half-pierced on the left side; **f.** -; **g.** BONDOC/GUDEA 2009, 228, nr. 672, pl. CXIII/672; MUSTAȚĂ 2009, 24, fig. 3.

***Appliqués with anthropomorphic decoration:***

**4. a.** Brugg/*Vindonissa* (Aargau, Switzerland) (Pl. IV/1); **b.** archaeological excavations from 1905, destruction layer of the legionary fort; **c.** Vindonissa Museum, Brugg, inv. no.: 2287 t; **d.** L.: 74 mm; W.: 52 mm; D<sub>loop-hole</sub>: 11 mm; **e.** appliqué decorated with the head of a child (Eros); in the lower part there can be observed a small palmetto between two volutes which is partially broken; the loop was half-pierced on the left side; **f.** 30/40–101 AD; **g.** HOLLIGER/HOLLIGER 1985 (1986), 11–12, nr. 81, Taf. 10/81; GORECKI 2000, 43; MUSTAȚĂ 2009, 24.

**5. a.** Davidovac (Kladovo, Bor, Serbia) (Pl. IV/2); **b.** unknown; **c.** Narodni Muzej, Beograd, inv. no.: 2681/III; **d.** L.: 81 mm; W.: 32 mm; **e.** appliqué decorated with the head of a child (Eros); in the lower part there can be observed a small palmetto between two volutes; the loop was half-pierced on the right side; **f.** -; **g.** RATKOVIĆ 2005, 121, nr. 58; MUSTAȚĂ 2009, 24.

**6. a.** Langres (Haute-Marne, Champagne-Ardenne, France) (Pl. V/1); **b.** 1969, Langres, east from Blanche-Fontaine; donation from the countess de Montangon; **c.** Musée d'Art et d'Histoire, Langres, inv. no.: -; **d.** L.: 53 mm; W.: 34 mm; **e.** appliqué decorated with the head of a child (Eros); in the lower part there can be observed a small palmetto between two volutes which is partially broken; the loop was half-pierced on the left side; **f.** -; **g.** LEBEL 1965, 165–166, no. 43, pl. XV/43.

**7. a.** Neuss/*Novaesium* (Nordrhein-Westfalen, Germany) (Pl. V/2); **b.** Neuss – Grimmlinghausen; **c.** Rheinisches Landesmuseum Bonn, inv. no.: 14143; **d.** L.: 57 mm; W.: 38 mm; **e.** appliqué decorated with the head of a child (Eros); in the lower part there can be observed a small palmetto between two volutes which is partially broken; the superior right part is also damaged; the loop was half-pierced on the right side; **f.** -; **g.** MENZEL 1986, 206 (no. 570), Taf. 180/570.

**8. a.** Olympia/*Ολυμπία* (Elis, Greece) (Pl. V/3); **b.** on the street positioned east from the Leonidaion, in the late demolition layer; **c.** Ethniko Archeologiko Mousio, Athina, inv. no.: B 3092; **d.** L.: 58 mm; W.: 33 mm; **e.** appliqué decorated with the head of a child (Eros); in the lower part there can be observed a small palmetto between two volutes; the loop was half-pierced on the right side; **f.** Roman Imperial period; **g.** GAUER 1991, 190 (Le 69), Abb. 13/11, Taf. 82/4.

**9. a.** Unknown (Pl. V/4); **b.** unknown; **c.** private collection, Edgar L. Owen Gallery of Antiquities, New Jersey, no. 5947; **d.** L.: 57 mm; W.: 33 mm; **e.** appliqué decorated with the head of a child (Eros); in the lower part there can be observed a small palmetto between two volutes; the loop was half-pierced on the right side; the decoration is very stylized, the features being just suggested; **f.** -; **g.** <http://edgarlowen.com/a51ar.shtml> – 02.10.2010, no. 5947.

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### ABBREVIATIONS AND BIBLIOGRAPHY

#### ALLASON-JONES/MIKET 1984

L. ALLASON-JONES, R. MIKET, *The catalogue of Small Finds from South Shields Roman Fort*, Monograph 2 of the Society of Antiquaries of Newcastle upon Tyne (Newcastle upon Tyne, 1984).

#### BONDOC/GUDEA 2009

D. BONDOC, N. GUDEA, *Castrul roman de la Răcari. Încercare de monografie (The Roman Auxiliary Fort from Răcari. An Attempt of Monograph)*, *Interferențe etnice și culturale în milenii I a. Chr. – I p. Chr. 14 (Cluj-Napoca, 2009)*.

#### DEN BOESTERD 1956

M. H. P. DEN BOESTERD, *The Bronze Vessels in the Rijksmuseum G. M. Kam at Nijmegen (Leiden, 1956)*.

#### EGGERS 1951

H. J. EGGERS, *Der römische Import im freien Germanien. Atlas der Urgeschichte, I–II (Hamburg, 1951)*.

#### FURGER/RIEDERER 1995

A. R. FURGER, J. RIEDERER, *Aes und aurichalcum. Empirische Beurteilungskriterien für Kupferlegierungen und metalanalytische Untersuchungen an Halbfabrikaten und Abfällen aus metalverarbeitenden Werksätten in Augusta Raurica. Jahresber. Augst u. Kaiseraugst 16, 1995, 115–180*.

#### GAUER 1991

W. GAUER, *Die Bronzegefäße von Olympia. Mit Ausnahme der geometrischen Dreifüße und der Kessel des orientalischen Stils. Teil I. Kessel und Becken mit Untersätzen, Teller, Kratere, Hydrien, Eimer, Situlen und Cisten, Schöpfhumpen und verschiedenes Gerät*, Deutsches Archäologisches Institut. *Olympische Forschungen 20 (Berlin-New York, 1991)*.

#### GORECKI 2000

J. GORECKI, *Metallgefäßproduktion in Pompei?* In R. Thomas (Hrsg.), *Antike Bronzen. Werkstattkreise: Figuren und Geräte. Akten des 14. Internationalen Kongresses für Antike Bronzen in Köln, 21. Bis 24. September 1999. Kölner Jahrb. Vor- u. Frühgesch. 33, 2000, 445–467*.

#### GUDEA 1989

N. GUDEA, *Porolissum. Un complex arheologic daco-roman la marginea de nord a Imperiului Roman I. Acta Mus. Porolissensis 13, 1989*.

#### HOLLIGER/HOLLIGER 1985 (1986)

CH. HOLLIGER, C. HOLLIGER, *Bronzegefäße aus Vindonissa. Teil 2. Jahresber. Ges. Pro Vindonissa, 1985 (1986), 5–44*.

#### KAUFMANN-HEINIMANN 1998

A. KAUFMANN-HEINIMANN, *Götter und Lararien aus Augusta Raurica. Herstellung, Fundzusammenhänge und sakrale Funktion figürlicher Bronzen in einer römischen Stadt. Forschungen in Augst 26 (Augst, 1998)*.

#### KÜNZL 1993

S. KÜNZL, *Becken, Schüsseln, Teller. In E. Künzl, Die Alamannenbeute aus dem Rhein bei Neupotz. Plünderungsgut aus dem römischen Gallien, I–IV, Römisch-Germanisches Zentralmuseum, Forschungsinstitut für Vor- und Frühgeschichte 34/1–4 (Mainz – Bonn, 1993), I: 248–254, II: 56–60, III: Taf. 310–352*.

#### LEBEL 1965

P. LEBEL, *Catalogue des bronzes figurés antiques du Musée de Langres. Mém. Soc. Hist. et Arch. Langres 5/8, 1965*.

#### MENZEL 1986

H. MENZEL, *Die römischen Bronzen aus Deutschland III. Bonn (Mainz am Rhein, 1986)*.

#### MUSTAȚĂ 2009

Ș. MUSTAȚĂ, *Semi-finished or final product?* *Bull. Instrumentum 30, 2009, 24–25*.

## RATKOVIĆ 2005

D. RATKOVIĆ, Бронзане посуде из римске народног Музеја у Београду (Roman bronze vessels in the Roman Collection of the National Museum in Belgrade), *Антика/Antiquity* 9 (Belgrade, 2005).

## SEDLMAYER 1999

H. SEDLMAYER, Die römischen Bronzegefäße in Noricum, *Monographies Instrumentum* 10 (Montagnac, 1999).

## TARDITI 1996

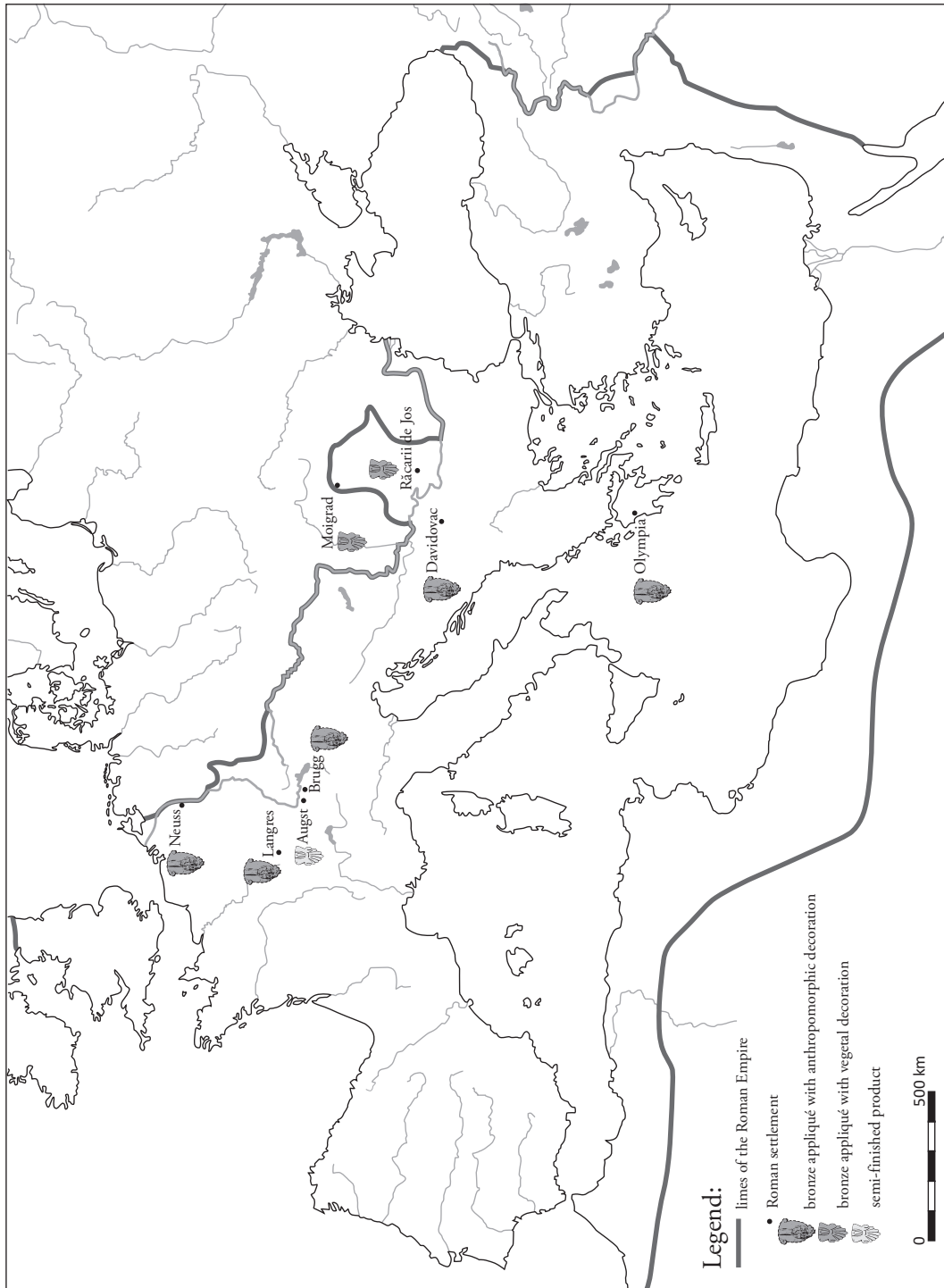
C. TARDITI, Vasi di bronzo in area Apula. Produzioni greche ed italiche di età arcaica e classica (Lecce, 1996).

## TASSINARI 1993

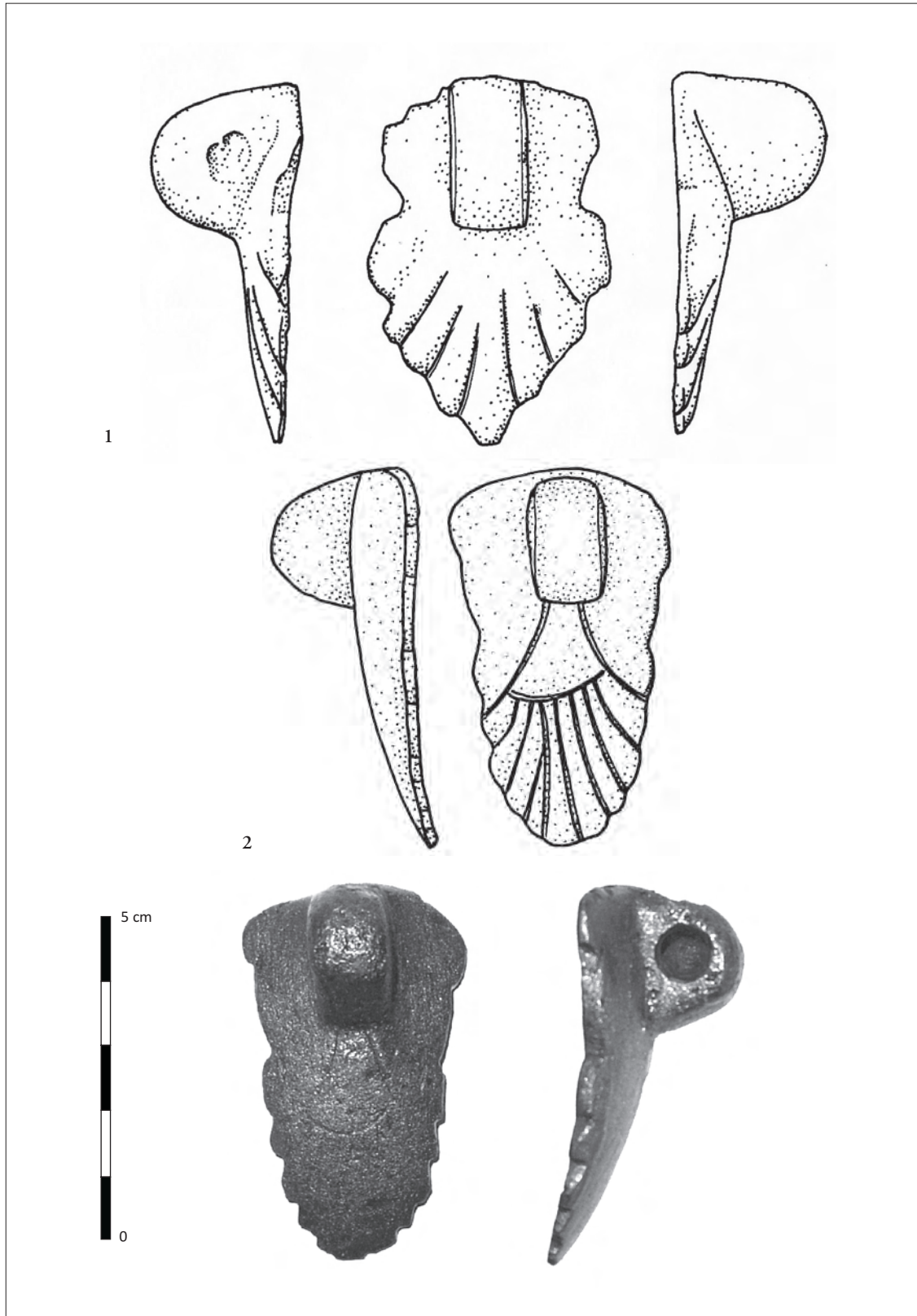
S. TASSINARI, Il vasellame bronzeo di Pompei, 1–2, Ministero per i beni culturali ed ambientali, Soprintendenza Archeologica di Pompei, *Cataloghi* 5 (Roma, 1993).

## TASSINARI 1998

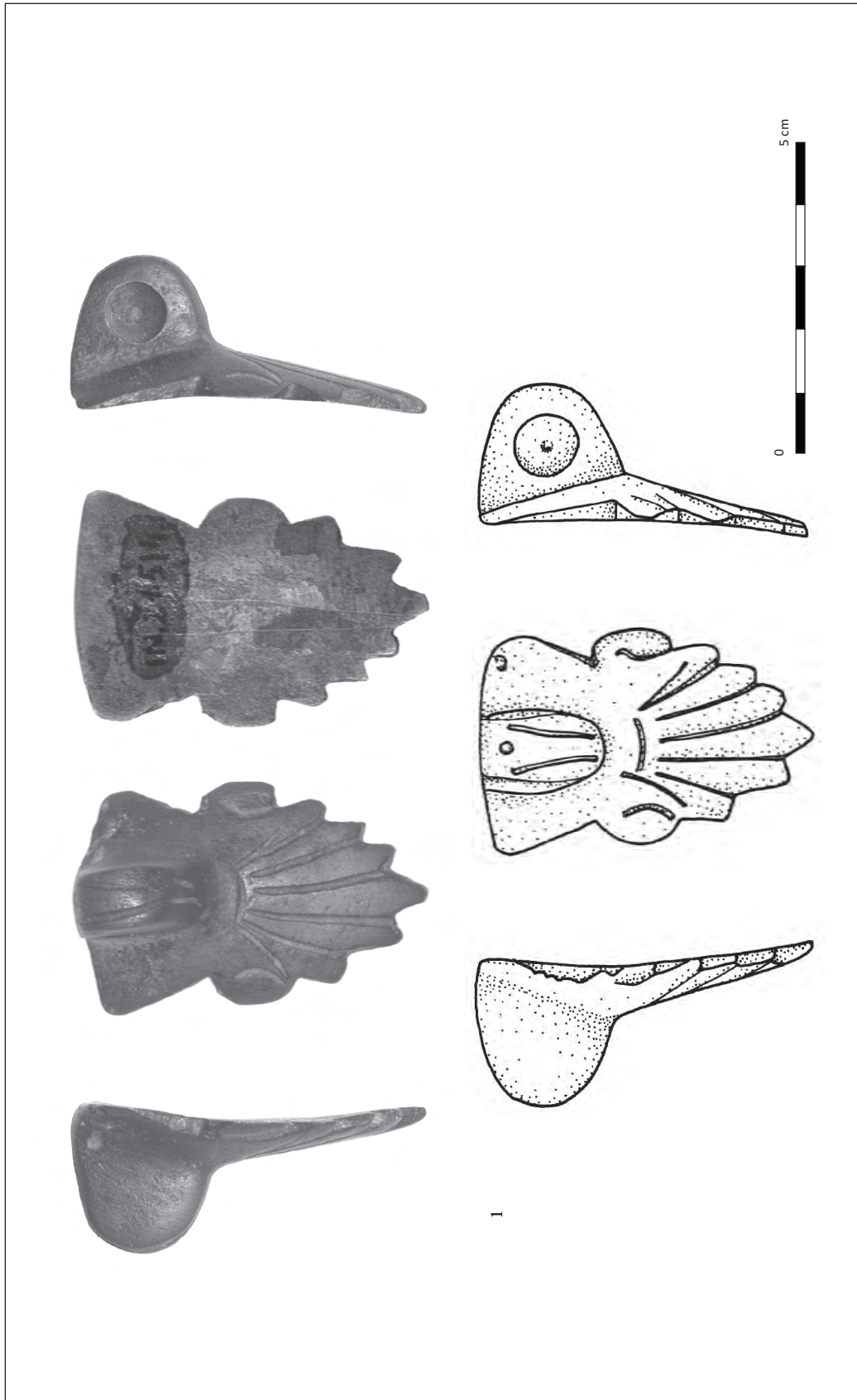
S. TASSINARI, De l'object à l'atelier. Peut-on repérer sur les récipients en bronze des traits caractéristiques suffisants pour individualiser des ateliers? In G. Nicolini, N. Dieudonné-Glad (dir.), *Les métaux antiques: travail e restauration. Actes du colloque de Poitiers*, 28–30 sept. 1998, *Monographies Instrumentum* 6 (Montagnac, 1998), 87–94.



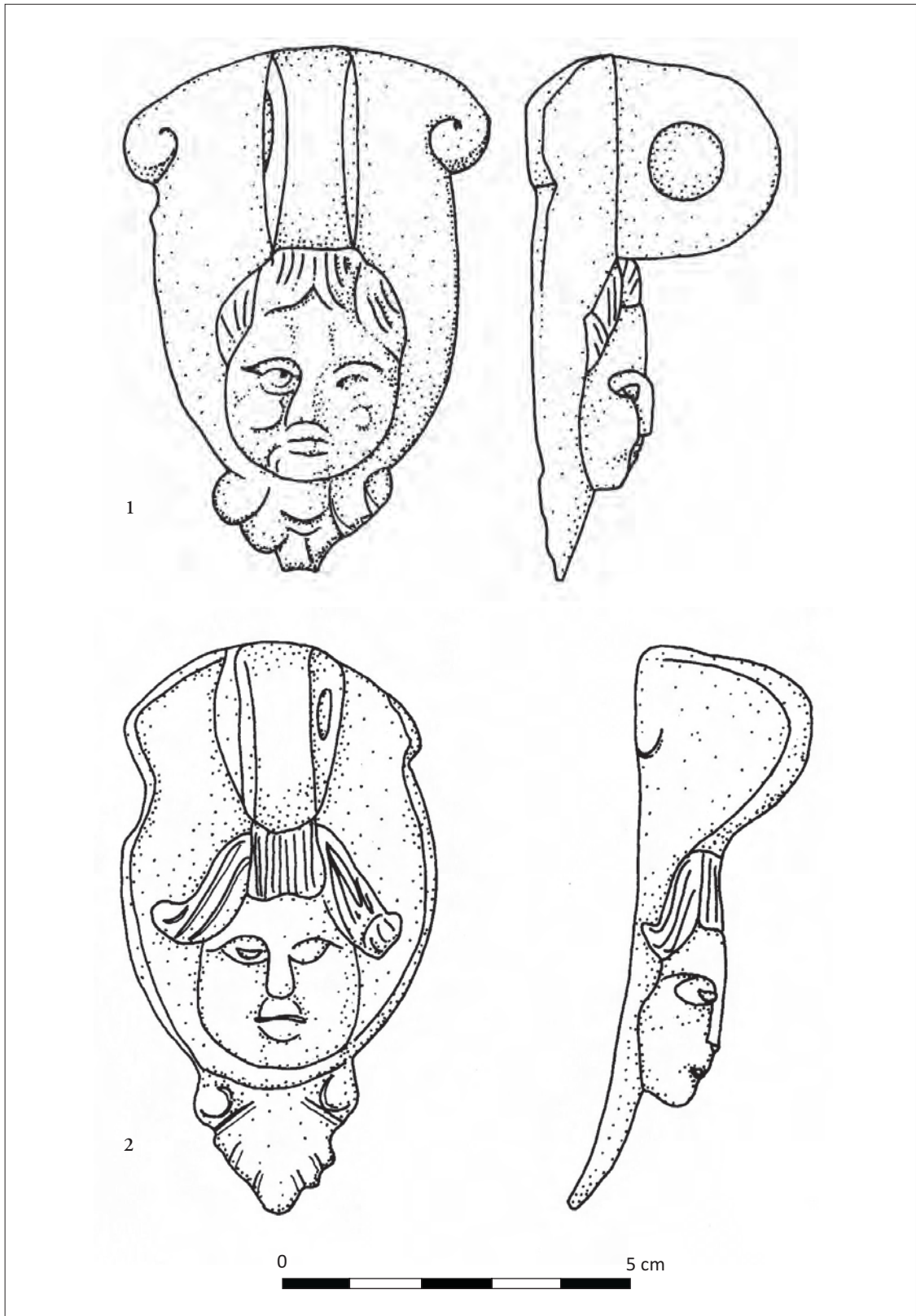
Pl. I. The distribution of bronze appliqués with semi-pierced loop in the Roman Empire.



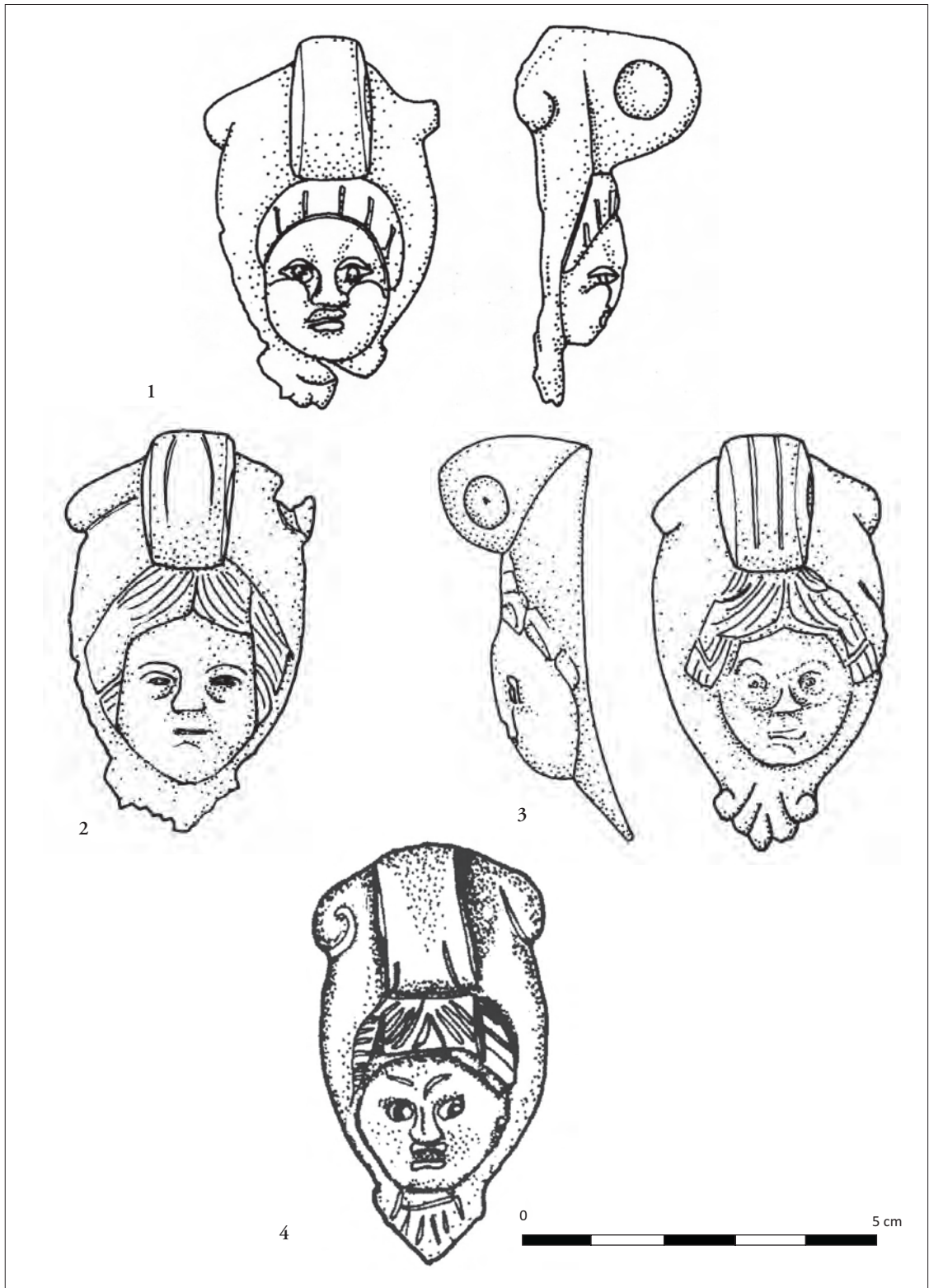
Pl. II. Appliqués with vegetal decoration. 1. Augst . Semi-finished product (redrawn after FURGER/RIEDERER 1995); 2. Răcarii de Jos (redrawn after BONDOC/GUDEA 2009; photo: Dorel Bondoc).



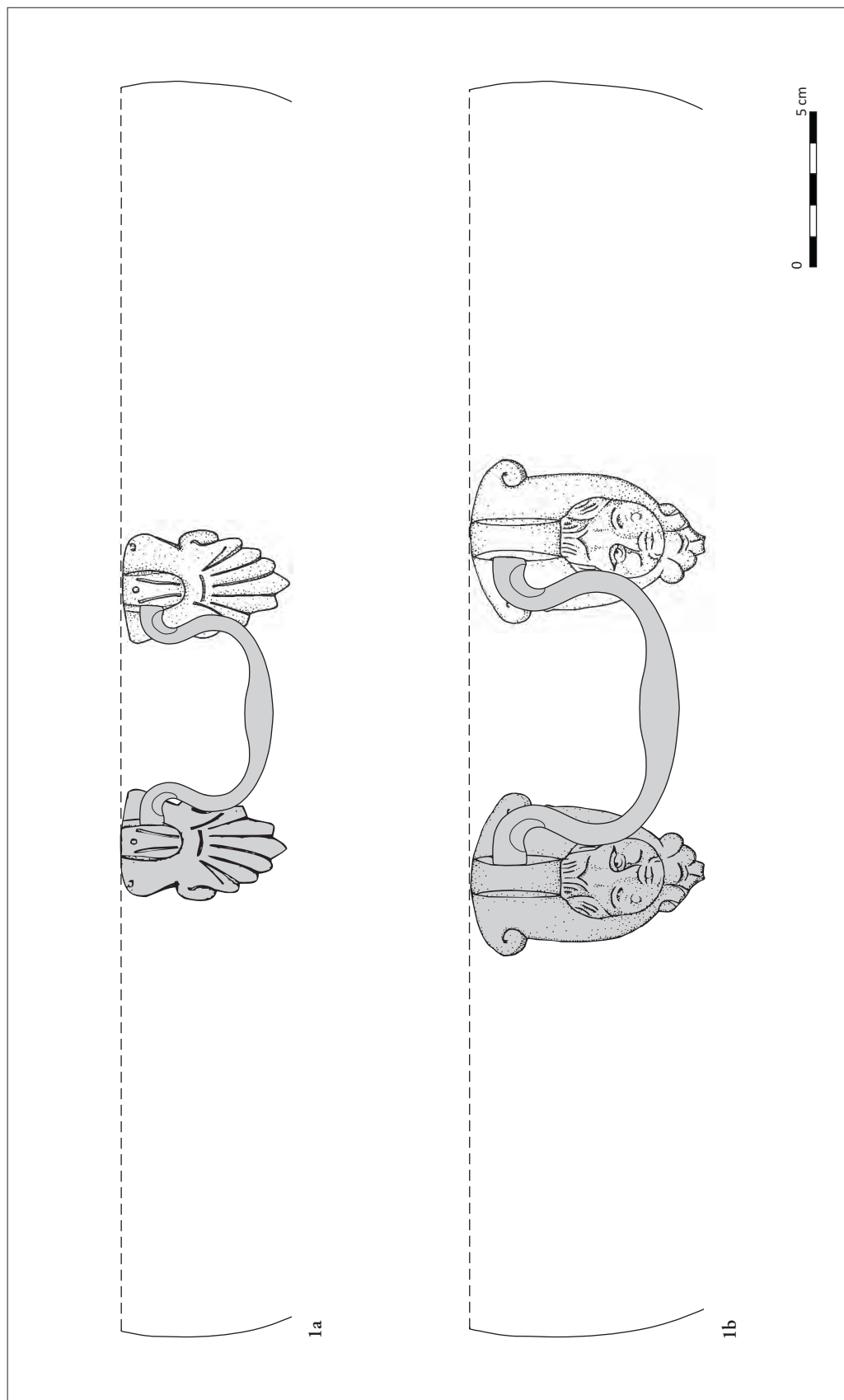
Pl. III. 1. Bronze appliqué with vegetal decoration from Porolissum.



Pl. IV. Appliqués with anthropomorphic decoration. 1. Brugg (redrawn after HOLLIGER/HOLLIGER 1986); 2. Davidovac (redrawn after RATKOVIĆ 2005).



Pl. V. 1-4. Appliqués with anthropomorphic decoration. 1. Langres (redrawn after LEBEL 1965); 2. Neuss (redrawn after MENZEL 1986); 3. Olympia (redrawn after GAUER 1991); 4. Edgar L. Owen Gallery of Antiquities, New Jersey (redrawn after <http://edgarlowen.com/a51ar.shtml> - 02.10.2010, no. 5947).



Pl. VI. 1a-b. Possible reconstruction of the fastening system.