

## COIN MOULDS THAT HAVE PRODUCED THE SO-CALLED “LIMESFALSA” AT CARNUNTUM\*

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**Abstract:** Seven fragments of coin moulds were identified amongst other artefacts found in the so-called "Zivilstadt", a civilian quarter of *municipium Aelium Carnuntum*. Such moulds were used to cast bronze coins, also known as *limesfalsa*. The article deals with the technique involve the dating of moulds and the "pitfalls" for archaeologists when they have to rely on the cast coin dating.

**Keywords:** coin moulds, cast techniques, dating, archaeological context.

The cast coins of Roman times have been always regarded with a special interest by scholars as these coins had something mysterious: legal or illegal statute; who have used them and for how long; signs for moments of financial difficulties.

Various aspects on this special category of coinage were topics to many scholars, and most recently, they were magisterially analyzed in detail by M. Pfisterer<sup>1</sup>.

Therefore, the main aim of this study is to present the recent discoveries of special interest from Carnuntum.

It has been almost a century since the first so-called *limesfalsa* were noticed at Carnuntum together with fragments of matrices<sup>2</sup>. The moulds to cast bronze coins in the Roman period are well known today in various parts of the territory of the Roman Empire and sometimes they were found in large quantities<sup>3</sup>.

At the first sight, in Carnuntum, one may think that we deal with a paradox. Over 800 pieces assigned to the category of the so-called “*limesfalsa*” were found at this large Roman site<sup>4</sup>. Still, since the discovery of segments of casting chains by Kubitschek at the beginning of the 20<sup>th</sup> century no other similar finds were recorded. There could have been multiple reasons (e.g. the state of research, the material that can be easily broken (and the technique to produce cast coin led to such destruction)).

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<sup>1</sup> Pfisterer 2007, 643-913.

<sup>2</sup> For a complete excursion in the history of the topic, see Pfisterer 2007, 648-651, 664-665.

<sup>3</sup> Lallemand 1994, 163-173; King 1996, 237-263; Pilon 2004, 290-307.

<sup>4</sup> Pfisterer 2007, 678.

In 2001, the archaeological excavations on the “Weststrasse” at the Roman site of Carnuntum were restarted after a break of circa 50 years. The previous excavations took place between 1948 and 1957 under the supervision of E. Swoboda.

The so-called “Weststrasse” is located in today Open Air Museum Petronell-Carnuntum, in the area known as “Spaziergarten” (see fig. 1).

The main task of these excavations was to retrieve the archaeological information on the sewer (K 14) adjacent to the street, which it was one of the main S-N drainage sewers of the former Roman *colonia* of Carnuntum.

The excavation of this sewer provides a rich archaeological material consisting of large variety of artefacts.<sup>5</sup>

Seven fragments of coin moulds were identified amongst these artefacts. Such moulds were used to cast bronze coins, also known as *limesfalsa*.

The coin moulds were all made of burnt clay of reddish (6 fragments) and grey colour (1 fragment).

### **The technique**

A detailed description of casting Roman coins has been offered by M. Pfisterer in his work<sup>6</sup>, therefore, here is given a simplified version of the technological process

The process starts with making two moulds, one for the obverse and one for the reverse. In order for the producer to pour the molten metal, a fill hole or channel has to be cut in the mould for pouring. The two halves are then placed together and the metal poured. When the metal cools, the halves are separated and the finished coin removed.

The most well preserved fragment of the coin moulds (Inv. No. 4469-3016/2002) may suggest that the panel contains two moulds. Furthermore, the other fragments reveal the fact that the moulds were placed one next to the other and not through a junction channel. Therefore, the cast coins produced in such moulds came out one stuck to the other, like in the following example<sup>7</sup>:

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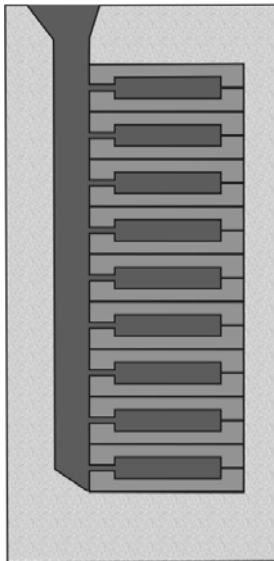
<sup>5</sup> The excavations were supervised by Dr. Beatrix Petznek and MA Silvia Radbauer.

<sup>6</sup> Pfisterer 2007, 658-664.

<sup>7</sup> Pfisterer 2007, 661, Abb. 11.7.



At the moment three main techniques to produce cast coins are known:  
 a) one coin mould above the other<sup>8</sup>

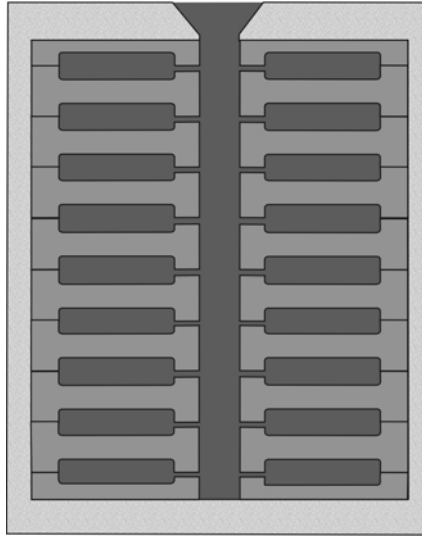


b) similar to previous type but the intermediary panels present moulds on both sides<sup>9</sup>

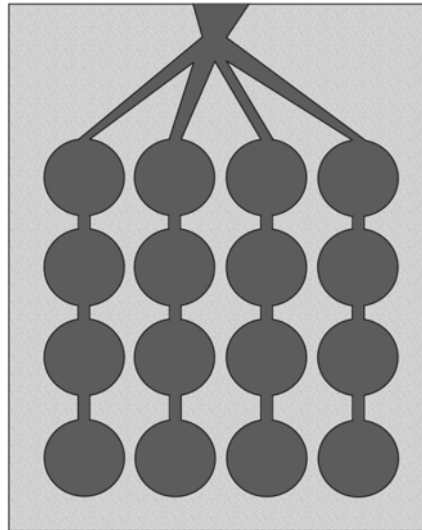
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<sup>8</sup> After Pfisterer 2007, 659, Abb. 11.4.

<sup>9</sup> After Pfisterer 2007, 660, Abb. 11.5.



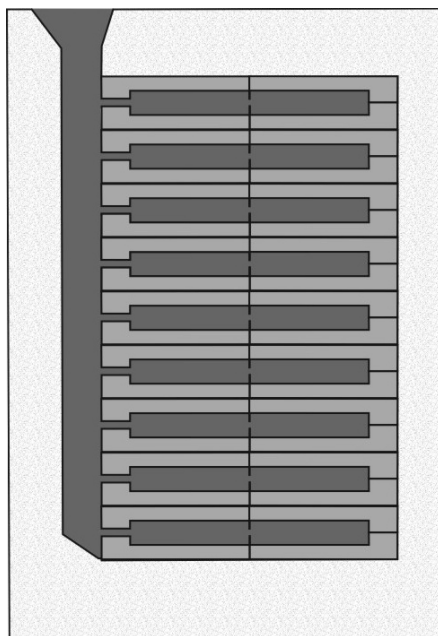
c) multiple moulds on a panel connected through channels<sup>10</sup>



In the case of the coin moulds under study their shape indicate that they not belonged to a quadrant panel with multiple moulds but to separate panels with 2 or more moulds one next to the other. The fragments preserved indicate that the moulds were only on one side of the panel (see the catalogue). Therefore, a hypothetical technological line for these moulds may have looked something like in the representation below.

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<sup>10</sup> After Pfisterer 2007, 661, Abb. 11.6.



### The dating of moulds

The dating of these coin moulds is a difficult task. The obverses depicted on the moulds show portraits of emperors Trajan, Antoninus Pius and Caracalla (?). In the cases of the reverses, they are specific to the reign of Severans (*Victoria Britannicae*) and to the empresses' reverse coin type (*Juno*) up to the time of Julia Maesa.

According to G. Boon the production of cast coin began during the first half of the 3<sup>rd</sup> century AD and last until 282-283 when such coins were not requested anymore.<sup>11</sup>

The increase of discoveries of coin moulds has led scholars to have a more accurate opinion on the dating of the use of coin moulds at various sites where they were discovered.

As it is known, due to the technique characteristics, such moulds were used for only one series of cast coins and then destroyed in the process of removing new coins from moulds.

After the most recent monetary types found – AD 240, the analogies as those from Saint-Mard (Belgium) indicate a very short term of manufacture. The moulds depict obverses and reverses of Gordian III<sup>12</sup>. At Corseul (France), the moulds were dated after the reign of Aurelian due to the retrieving of two valves mould depicting a denarius of Julia Domna and an antoninianus of Aurelianus.<sup>13</sup>

<sup>11</sup> Boon 1988, 124-126.

<sup>12</sup> Lallemand 1994, 146.

<sup>13</sup> Aubin, 1990, 259-263.

Based on these aspects we could suggest for the moulds under discussions *a terminus post quem* after AD 220. The fact that all the moulds were found much-closed one to the other suggests that they may have been in use at the same time.

The archaeological context in which these moulds were found consists of sand that filled up the sewer and led to the abandonment of it. This layer was rich in archaeological material. Based on the pottery provided by this layer the context was dated around AD 280.<sup>14</sup>

Most probable the coin moulds were in use somewhere in the first half of the 3<sup>rd</sup> century. Once they were no good of any use they were thrown in the sewer where they remained in the filling up layer of the sewer for another circa 30/50 years.

Again, based on the catalogue in the work by M. Pfisterer, it was possible to identify which cast coins could have been produced by some of these moulds.

- for moulds inv. no. 124-1064/2002: possible, the obverses of Pfisterer's catalogue nos. 54-61 (for Trajan) and 104-105 (for Antoninus Pius);<sup>15</sup>
- for mould inv. no. 1240-1055/2002: possible, the reverses of Pfisterer's catalogue nos. 248;<sup>16</sup>
- for mould inv. no. 4467-3016/2002: possible, the reverses of Pfisterer's catalogue nos. 246, 248, 268;<sup>17</sup>
- for mould inv. no. 4469-3016/2002: possible, the reverses of Pfisterer's catalogue nos. 299-300;<sup>18</sup>

At the same time, it must be pointed out that the large majority of these cast coins were found at Carnuntum.<sup>19</sup>

## CATALOGUE

### Inv. No. 124-1064/2002

#### “Zivilstadt Carnuntum”

**Westrasse 2002, quadrant: 2, context: 346; layer of sand that filled up the sewer.**

**Material:** reddish clay

#### **Description:**

Fragment of reddish clay of rectangular shape, (preserved size: 40.5 x 38.8 mm). This artefact preserves in a fragmentary state two moulds from two coin obverses. The two moulds are nearly stuck one to the other to allow the pouring of the molten bronze from one mould to other.

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<sup>14</sup> Information MA Silvia Radbauer.

<sup>15</sup> Pfisterer 2007, 783-784; p. 792-793; Taf. 85-86, 88.

<sup>16</sup> Pfisterer 2007, 819; Taf. 97.

<sup>17</sup> Pfisterer 2007, 819, 823; Taf. 97-98.

<sup>18</sup> Pfisterer 2007, 830; Taf. 100.

<sup>19</sup> See n. 14-17.

Holding the artefact in vertical position, with the obverses in a logical display of the imperial portraits the description starts with the mould at the bottom.



*The moulds*



*Positive copy*



*The rear side*

### **TRAIANVS**

The preserved part of this mould depicts in negative the upper part of the head to left of the emperor Trajan wearing the laureate wreath. From the inscription still can be observed letters **N/MO AV – [imp caes(ar) nervae traia]NO AV[g...]** or **[imp caes(ar) nervae traiano opti]MO AV[g...]**.

Taking into consideration the mould diameter, 26.3 mm, it can be said that the mould has produced cast coin of bronze denomination, probably the *as*.

Following the portrait features and the preserved letters of the inscription the mould was based on a genuine bronze coin of Trajan issued in the period of AD 103-117.

### **ANTONINVS PIVS**

The upper mould depicts in negative the neck and the chin of the emperor Antoninus Pius. The letters preserved are **TONIN** and **S P P IMP II**. The location of these letters allow us to complete the inscription of the obverse as: **[an]TONIN[us aug piu]S P P IMP II**. Following the period when the second acclamation (*imperator II*) appeared on the coins of this emperor it can be affirmed that the mould was made based on a genuine obverse issued in the period of AD 143-161. The preserved diameter, 26.4 mm indicates that the cast coin produced by this mould was one of bronze, probably an *as*.

**Inv. No. 4470-3016/2002**

**“Zivilstadt Carnuntum”**

**Westrasse 2002, quadrant: 3, context: 346; layer of sand that filled up the sewer.**

**Material:** reddish clay

**Description:**

Fragment of reddish clay of trapezoidal shape, (sizes: 22.7 x 17.9 mm).

This artefact preserves in a fragmentary state a coin mould, from a coin obverse; the state of preservation is extremely low.



*The mould*



*Positive copy*



*The rear side*

### **TRAIANVS/HADRIANVS?**

The image on the mould depicts the rear half of an emperor bust profile to left: the laurel wreath with its knot, and the right shoulder. The very poor state of preservation does not allow a precise identification of the emperor.

**Inv. No. 4466-3016/2002**

**“Zivilstadt Carnuntum”**

**Westrasse 2002, quadrant: 3, context: 346; layer of sand that filled up the sewer.**

**Material:** reddish clay

### **Description:**

Fragment of reddish clay of rectangular shape, (preserved size: 43.1 x 41.9 mm). The fragment represents the end of what was probably a panel of coin moulds. This artefact presents a coin mould from a coin obverse, almost entirely preserved.



*The mould*



*Positive copy*



*The rear side*

### **CARACALLA?**

The mould depicts a bust to left of an emperor wearing the laureate wreath. The features of the portrait may indicate a coin portrait of Caracalla that appeared on the genuine bronze coins around AD 200.

**Inv. No. 1240-1055/2002**

**Westrasse 2002, quadrant: 2, context: 346; layer of sand that filled up the sewer.**



**Material:** reddish clay

**Description:**

Fragment of reddish clay of irregular shape, (sizes: 34.6 x 25.7 mm).

This artefact preserves in a fragmentary state two moulds from two coins, one, for certain, a reverse type. One of the moulds is represented, in fact, just by the junction spot with the other mould.



*The mould*



*Positive copy*



*The rear side*

**VICTORIAE BRITANNICAE**

The preserved part of this mould depicts in negative a Victory standing right, fastening a shield on palm-tree, at foot of which there is a captive. From the inscription still can be observed letters **BRITTANNICAE** or [**victoriae**]

**BRITTANNICAE.**

This monetary type was minted by the official mint of Rome in the time of Septimius Severus. According to the RIC IV.1 this type was issued in the period of AD 202-210 for the male persons of the imperial house: Septimius Severus (RIC IV.1, p. 202, no. 818); Caracalla (RIC IV.1, p. 288, no. 465 (a-b); Geta (RIC IV.1, p. 339, no. 167).

According to the RIC IV.1 in all mentioned cases from above the denomination was sestertius. In addition, the diameter of the mould, 25.7 mm, may suggest that this mould has produced cast coin of bronze, which could have passed as a *sestertius*.

**Inv. No. 4467-3016/2002**

**Westrasse 2002, quadrant: 3, context: 346; layer of sand that filled up the sewer.**

**Material:** reddish clay

**Description:**

Fragment of reddish clay of irregular shape, (sizes: 24.1 x 19.7 mm).

This artefact preserves in a fragmentary state a coin mould from a coin reverse; the state of preservation is extremely low.



*The mould*



*Positive copy*



*The rear side*

### **VICTORIAE BRITANNICAE type?**

The preserved part of this mould seems to depict in negative a Victory standing right. From the inscription, one may read **RITTANN?** – [victoriae] **BRITTANICAE**.

If the reading is correct then we have another mould of the same monetary type like the coin mould with the inv. no. 1055/2002. Therefore the description and analyze of the previous mould applies also in this case.

### **Inv. No. 4469-3016/2002**

**Westrasse 2002, quadrant: 3, context: 346; layer of sand that filled up the sewer.**

**Material:** grey clay

### **Description:**

Fragment of grey clay of irregular shape with a round end, (preserved size: 53.3 x 36.4 mm).

This artefact preserves in a fragmentary state two fragmentary coin moulds in negative; the state of preservation is extremely low.

Regarding the mould at the breaking of the artefact, nothing can be identified on its surface. The other mould, next to the original round end of the artefact, though in a fragmentary state of preservation, one can still notice the upper part of a silhouette standing, the head, and the torso. Therefore, we have here a reverse coin mould.

On the upper part, right, a letter **V** can also be observed.



*The moulds*



*Positive copy*



*The rear side*

## **IVNO**

If we take into consideration the location of this letter **V** in comparison with the silhouette; the fact that no other letter is nearby, and the analogies for such a display then we may conclude that the inscription was **IVNO**.

Such a reverse with the inscription, **IVNO**, and the representation, most probably depicting in negative, Juno standing right, holding patera and sceptre, was amongst ordinary monetary types for the coins issued for the empresses of the mid-2<sup>nd</sup> century AD up to circa AD 220. The diameter of the coin mould (27.7 mm) indicates that the mould was used to cast a bronze coin.

Such a coin type can be easily noticed for the bronze issues starting with Faustina I (RIC III, p. 165, 168); Faustina II, (RIC III, p. 193) (under Antoninus Pius), (RIC III, p. 345) (under Marcus Aurelius); Lucilla, (RIC III, p. 352); Crispina, (RIC III, p. 443); Julia Domna, (RIC IV.1, p. 310, 312 – both in the period of the reign of Carracalla, AD 211-217); Julia Maesa (RIC IV.2, p. 61).

## **Inv. No. 4468-3016/2002**

**Westrasse 2002, quadrant: 3, context: 346; layer of sand that filled up the sewer.**

**Material:** reddish clay

### **Description:**

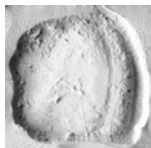
Fragment of irregular shape, (preserved size: 18.3 x 16.6 mm).

This artefact preserves in a fragmentary state a coin mould, maybe from a coin obverse; the state of preservation is extremely low.

The image on the mould seems to depict a head to right of an emperor (?). The very poor state of preservation does not allow a precise identification of the monetary type.



*The mould*



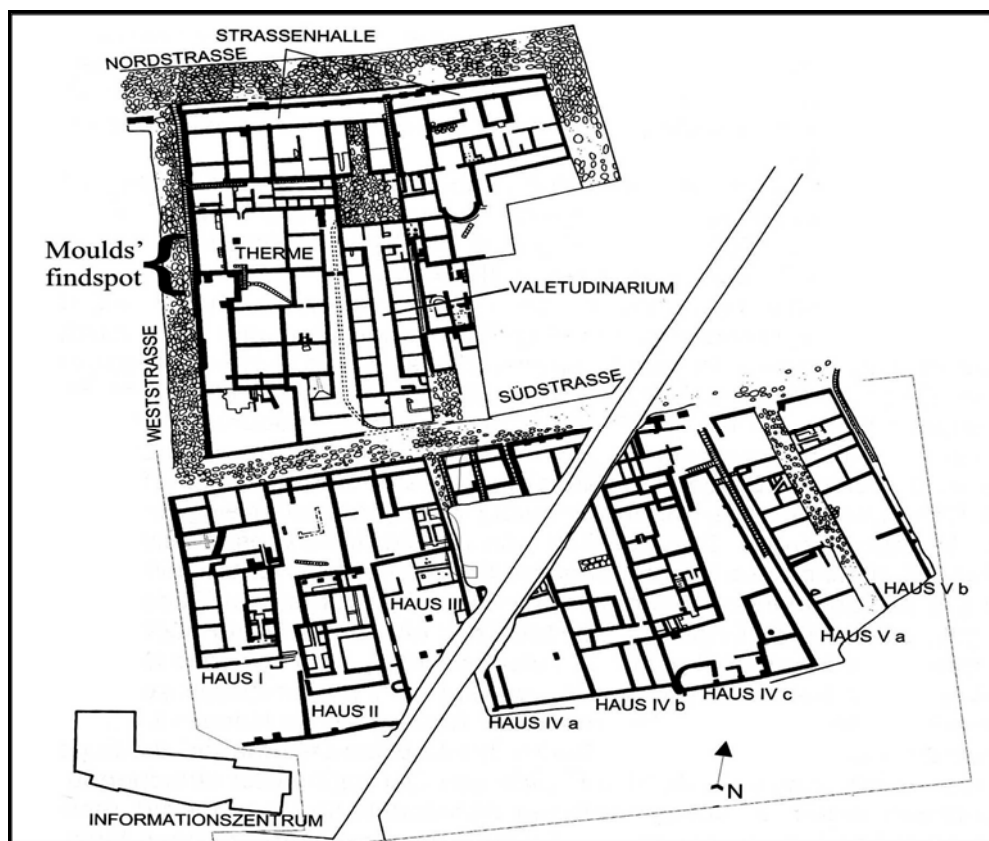
*Positive copy*



*The rear side*

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**Fig.1:** The Open Air Museum Petronell-Carnuntum pointing out the moulds' findspot (based on Humer – Konecny – Maschek 2004, 91, Abb. 1)

