# Seriality and Restoration: The 'Restored Coins' of the Roman Empire

# **Christoph Klose**

# **Coins and Reproduction**

Leaving aside all economic features of coinage, this paper is focussed on how coin images were reproduced. Coins constitute a well-suited material group for studies aimed at the complex modes of serial image production due to their crafting technique. Their double nature – consisting of types and die-identical sequences – results in a two-fold form of serial image production. Both forms can be seen as pivotal when discussing the serial production of images in antiquity. On the one hand, mass production by use of the same dies (estimates go up to about 30,000 or 40,000 specimens produced from a single [obverse] die);<sup>1</sup> on the other, there is the reproduction of the same images through the use of different, individually cut dies provided with the same image type.<sup>2</sup> While the former marks a simple procedure of mass duplication of an identical image via imprint, the latter is an example for antiquity's manifold phenomena of prototype copy and transfer to new objects or media.<sup>3</sup> Thus, in the case of coins, questions regarding reproduction from the Archaic to the Imperial Period are to be broken down to the operational process of minting.<sup>4</sup>

During the Late Republic and the Principate, coining was executed via two individually cut dies in between which the flan was inserted.<sup>5</sup> The obverse die was fastened on the anvil and the reverse die was set into a shaft, which was hammered on the flan in order to strike the coin. Both dies were individually cut by the die engravers, called *signatores* or *scalptores*.<sup>6</sup> Nearly all Roman dies preserved today are reckoned to be the remains of forgers' workshops and therefore, inapplicable for an investigation on serial production.<sup>7</sup> However, conclusions about the operational process of copying can be gained by a comparative approach to coins struck from different dies but showing the same image with minor variations or in a different style.

# **Restored** Coinage

One category of coins seems to be particularly appropriate for such examination, as both the prototype and the result of repetitive production are extant: the so-called restored coins of the Roman empire. This group comprises coins which reproduce (or in some cases pretend to reproduce) earlier coinage. The essential criterion of this group of issues by the emperors Titus, Domitian, Nerva, and Trajan – as defined in two influential articles by Mattingly in the 1920s – is the legend REST(ITVIT), usually on the reverse.<sup>8</sup> Besides this verbal statement of restoration, the group is rather heterogeneous in itself. Titus and Domitian issued restored

Published in: Arne Reinhardt (Ed.), Strictly Economic? Ancient Serial Production and its Premises, Panel 3.18, Archaeology and Economy in the Ancient World 20 (Heidelberg, Propylaeum 2021) 31–43. DOI: https://doi.org/10.11588/propylaeum.704

coins of all the 'good emperors' (omitting Caligula, Nero, Otho, and Vitellius) in *aes* only.<sup>9</sup> Nerva, however, minted only restored coins for Divus Augustus, in silver and *aes*.<sup>10</sup> The restored coins of Trajan are divided into two separate groups. The one issued only in *aurei* is following in the footsteps of his predecessors and restoring types of previous rulers, starting with Caesar.<sup>11</sup> But, as on the restored coinage of his predecessors, most of these types only pretend to restore the authentic prior coinage. In fact, they form an independent coinage, in which the restoration hardly exceeds single elements such as the obverse portrait, the reverse type, or parts of the legend, as the following three examples document.

1.) A *sestertius* of Titus reproduces an obverse prototype of Tiberius, showing the seated Augustus with the legend DIVVS AVGVSTVS PATER. It is combined with an imageless reverse type consisting entirely of a new legend, of which only the central S C could be considered restored.<sup>12</sup>

2.) An *aureus* of Trajan combines a portrait of Caesar with the legend DIVVS IVLIVS.<sup>13</sup> In prior coinage this legend consistently was associated with an eight-rayed comet.<sup>14</sup> So this obverse is in fact a new combination and not a restored type. Its reverse, on the other hand, showing Pax-Nemesis with a winged *caduceus* pointing at a snake is borrowed from Claudian *aurei*, and exchanges the legend PACI AVGVSTAE for Trajan's titulature.<sup>15</sup>

3.) Another *aureus* of Trajan combines a portrait of Titus with an authentic reverse type of that emperor.<sup>16</sup> The reverse shows an elaborately carved seat draped with cloth hanging in folds and on which is placed a thunderbolt. But since the obverse portrait is labelled DIVVS TITVS, this coin is not a mere reproduction of a Flavian type, but also new to some extent.

Although there are restored coins, especially of Titus and Domitian, which more faithfully copy the prototypes, most of the so-called restored coins are merely new combinations of existing reverse and/or obverse types, variations, or even new inventions. Hence the issuing of restored coins under Titus goes hand in hand with a tendency of reviving older types starting in the civil wars after Nero's death and lasting (with varying degree of intensity) until at least the Severan age. This has long since been recognized but barely studied.<sup>17</sup> From a solely iconographic perspective the phenomenon of restoration goes even back to the Late Republican period, when types were being copied for the first time.

Illuminating is the example of *denarii* issued by moneyers belonging to the noble family of the Metelli, in 127 BC and again between 82 and 80 BC.<sup>18</sup> The obverse image is subject to change: a helmeted female head in the case of the coin from the 2<sup>nd</sup> century BC, and a curly male head in a somewhat sub-archaic style on the latter coin. Both are labelled ROMA. The reverse type, however, is marvellously reproduced on the latter issue. As on the prototype, inside a laurel wreath, a Macedonian shield with an elephant's head at the centre is depicted and surrounded by the legend: M METELLVS Q F. In both issues the elephant's head makes a deliberate reference to their mutual forefather, L. Caecilius Metellus, the first Roman *imperator* to display elephants in his

triumph after victory in the first Punic War.<sup>19</sup> Thus, the latter issue clearly anticipates modes of reproduction and new combination as on the imperial restored coins.

# Trajan's restored Republican denarii

In fact, this reverse type was not copied only once during the Republic. But it is also featured among the 49 *denarii* of Trajan that are restoring Republican coinage and which constitute the second group of the Trajanic restoration series.<sup>20</sup> These restored *denarii* copy authentic old coinage much more carefully than his contemporary *aurei*.<sup>21</sup> They seem appropriate for a closer examination in order to appreciate how faithfully they were copied, to what extent alterations occur and what this kind of reproduction may tell about their manufacturing – and thus about ancient serial production in general.

Trajan's Republican *denarii* all reproduce both the obverse and reverse of their prototypes. This results in the striking absence of any emperor's portrait, which must have made these coins very conspicuous within Roman imperial coinage. Due to the reverse legend IMP CAES TRAIAN AVG GER DAC P P REST the series can be dated between 102 and 114 AD. The restorations are commonly associated with a passus in the epitome of Cassius Dio for the year 107 AD, which reports that worn out coins were melted down. But the exact nature of the relationship between that note and the restored coins remains a matter of debate.<sup>22</sup> Certainly, not every older worn-out issue was restored. The re-issue is believed to be a matter of deliberate choice, presenting parallel examples of positive rulership not only to past emperors (as in the restored coins of Titus, Domitian, Nerva, and Trajan's *aurei*), but also extending them to *summi viri* and the virtues of the Republican era.<sup>23</sup>



Fig.1: Trajan, restored denarius of 61 BC (Komnick 2001, 119 no. 26).

One *denarius* of Trajan's series reproduces a famous *denarius* of M. Aemilius Lepidus from the year 61 BC (fig. 1).<sup>24</sup> On the obverse, a veiled and laureate female head, believed to be that of the Vestal Virgin Aemilia, is accompanied by a small *simpulum* and a wreath to the left and right. Both delicate objects also appear on Trajan's carefully mastered re-issue in the exact same position. Also on the reverse, the Trajanic restoration faithfully reproduces all the details of the two-storeyed building depicted on the prototype, the Basilica Aemilia in the Forum Romanum<sup>25</sup>: five exterior and four interior columns, five shields fixed at the entablature, the details of the roof and the positioning of the original legend above, below, and to the sides of the building.

In the original prototype there also exists a variation that neither depicts *simpulum* nor wreaths on the obverse.<sup>26</sup> This form of variation does not appear in the extant examples of the Trajanic issues. Thus, it is tempting to ask whether this is just a result of mere chance, a consequence of preservation, or an intentional selection with a special appeal to details?

That a special predilection for details cannot be ascribed to Trajanic Republican *denarii* in general can be derived from the comparison of the coins of L. Scribonius Libo and their 2<sup>nd</sup> century restoration (figs. 2–5).<sup>27</sup> The obverse (fig. 2) with the diademed head labelled BON(VS) EVENT(VS) is a faithful reproduction with minor variations in style that can also be detected among the variations of the Republican prototype (figs. 3–5). The reverse (fig. 2) shows the Puteal Libonis or Scribonianum in the Forum Romanum,<sup>28</sup> and is decorated with garland and lyres at its corners; no tool is depicted as on the three Republican prototypes which feature either a hammer (fig. 3), tongs (fig. 4), or an anvil (fig. 5) in that position. So, in this case, due to the omission of the several



Fig. 2: Trajan, restored denarius of 62 BC (Komnick 2001, 118 no. 25).



Fig. 3: L. Scribonius Libo, *denarius* of 62 BC (RRC 416/1a).

available objects in the prototype, one must state a certain degree of reduction within the restored coin.

But on a couple of restored types something was added. A restored anonymous *denarius* from the end of the 3<sup>rd</sup> century BC depicts on its reverse the armed Dioscuri galloping over a shield and a war trumpet lying on the ground (fig. 6).<sup>29</sup> Besides differences in the stylistic execution and the Trajanic restoration legend, it is identical to the original type. The obverse side portrays a female head with curls falling on the shoulder wearing a



Fig. 4: L. Scribonius Libo, denarius of 62 BC (RRC 416/1b).



Fig 5: L. Scribonius Libo, *denarius* of 62 BC (RRC 416/1c).

winged helmet. Besides that, only the denomination mark for *denarius* is depicted on the prototype. On the Trajanic restoration the name DECIVS MVS is added, referring to the legendary hero of the Latin and Samnite wars. From the historical data available it can be excluded that either Decius Mus or descendants of his family were in any way connected with the striking of the prototype. By adding a name on the coin in the age of Trajan, this type was deliberately re-interpreted as material evidence of a legendary hero of Roman history.<sup>30</sup> Whereas there are other examples of re-interpreting the coins



Fig. 6: Trajan, restored *denarius*, end of 3<sup>rd</sup> century (Komnick 2001, 112 no. 3).



Fig. 7: Trajan, restored *denarius* of 115/114 BC (Komnick 2001, 113 no. 5).

by adding the names of Horatio Cocles<sup>31</sup> and Furius Camillus,<sup>32</sup> there is no example for a newly added pictorial element in Trajan's Republican *denarii*.

However, there is one example, which is unanimously accepted as a deliberate variation of an iconographic detail (fig. 7).<sup>33</sup> On the reverse of the original prototype (fig. 8), dated to 115/114 BC, Roma is resting on a heap of arms consisting of two shields and a helmet. In front of her, the she-wolf is suckling Romulus and Remus. This founding scene of Rome is complemented by two birds flying right and left which the written sources describe as helping to nourish the twins.<sup>34</sup> In the restored *denarius* 



Fig. 8: Anonymous denarius of 115/114 BC (RRC 287/1).

of Trajan the scene is depicted identically with the exception of the birds, which are uniformly believed to have been replaced by the prows of ships.<sup>35</sup> This replacement of detail would result in a quite distinctive re-semantification of the scene, which would now show not only the humble beginnings of early Rome, but also refer to the victorious future to come. While such a re-interpretation would indisputably fit well into Trajanic state art in general, with its focus on victory and virtus, the identification as prows is not convincing. Comparison with ship prows from Trajanic coinage exemplifies that the two slightly curved strokes above the supposed prows do not occur in these symbols of victory.<sup>36</sup> As tempting as it would admittedly be to see the birds being replaced by ship prows, this kind of modification would seem incompatible with the level of detail invested in the rest of the restored *denarii*. To me, the cove strokes rather seem to be rudimentary elements of the flying birds. Therefore, I would rather suggest considering these details as poorly executed - or perhaps even not fully understood - reproductions of the birds. This would offer further proof that the restored coins were manufactured using authentic older coins (sometimes, perhaps, already worn) rather than pattern books, authentic older dies, or transfer dies as a template to cut the dies.<sup>37</sup> Thus Trajan's Republican *denarii* have not a little to tell about ancient serial production.

1.) In coinage, serial production in its strictest definition can only be stated for types struck from identical dies.

2.) Apart from these, coins with the same types that are struck from different dies show variations in style, proportion, and details. This is normally seen as a result of the organisation and rationalization of the manufacturing process, as several die-engravers worked simultaneously to guarantee a sufficient output of coins.<sup>38</sup> But in the case of restored types, regardless of whether or not they are labelled REST(ITVIT), this was rather the result of cutting new dies on the model of old prototypes.

3.) The known types of Republican *denarii* restored by Trajan certainly share a mutual interest in promulgating a concept of rulership not only orientated on past exemplary emperors, but which is also deeply rooted in the history of the *res publica* and the virtues of its most eminent role models. So, whereas the general picture is clear, it is much harder to detect general tendencies regarding the way the images were reproduced. If there is a tendency, besides trying to be exact, it is probably simplification. Details were sometimes omitted, and if something was added, these were only the letters of the legends, which are easy to produce and fit into the field of the coin.<sup>39</sup> Due to the added reverse legend, this field was narrowed even further, resulting in reduced image sizes which left less space for iconographic detail and variation. Hence, the alleged deliberate shift in iconographic meaning of the restored ROMA type (figs. 7–8) much more likely turns out to be the result of the manufacturing process of copying the image on the coin. This indicates that extant earlier pieces of coinage must have played a major role in the replication of the Republican *denarii* – and perhaps also in general in the revival of types.

### Seriality and Restoration

### Notes

<sup>1</sup> Cf. RRC 578. 694–697;Kraay 1976, 18; Göbl 1978, 53 (1,000–16,000); Mørkholm 1991, 15–16 (10,000–20,000); Wolters 1999, 107–114 with note 246 (opting for up to 10,000 specimens); Metcalf 2012, 8; Mittag 2016, 30.

<sup>2</sup>Cf. Grüner 2014, 81–87 and below note 16.

<sup>3</sup>See the bibliography in Reinhardt 2020 and all the contributions of this panel.

<sup>4</sup> On production of longlasting types, reproduction and imitation in Greek coinage cf. the numerous mentions, mostly en passant, in handbooks and catalogues, for example: Kraay 1976, 2–5 (types). 73–74. 76–77 nos. 204–219 (eastern imitations of Athenian owls). 106–107 (on copies of Elean coinage in the Peloponnese, Crete, and by Philip II. For Croton cf. Mittag 2016, 132 fig. 159). 108–110 nos. 338–346 (late Archaic coinage of the Boeotian League copying reverses of Aegina). 102. 122. 223. 233–235 nos. 321–322. 406. 862–877. 1037 (copies of the head of Arethusa at Syracuse by Pheneus, Messene, Opuntian Locris, Siculo-Punic mints and Tarsus); Mørkholm 1991, 35–37 (on Hellenistic imitations, above all types of Alexander and Lysimachus). More comprehensive studies are offered by van Alfen 2005 (with emphasis on forgery) and esp. Weir 2010.

<sup>5</sup> On coining see Hill 1922; RRC 569–583; Göbl 1978, 50–55; RIC I<sup>2</sup>11–17; Wolters 1999, 100–114; cf. also Kraay 1976, 11–19; Mørkholm 1991, 12–19.

<sup>6</sup> CIL VI 44; RRC 578–579. 582; Göbl 1978, 52; RIC I<sup>2</sup> 14–15; Wolters 1999, 103–107. – For the disputed question of hubbing, cf. Hill 1922, 19–22; RRC 577–578; Göbl 1978, 52–53; RIC I<sup>2</sup>12–13; Wolters 1999, 102–103.

<sup>7</sup> In fact, this is a question of defining the few extant dies that feature types of official mints as authentic or forged. On ancient dies, cf. Hill 1922, 13–16; Vermeule 1954; Göbl 1978, 51; Wolters 1999, 82–83; Paunov 2014, 29–34.

<sup>8</sup> Mattingly 1920; Mattingly 1926; Buttrey 1972, 102–106; Gross 1981 (focus on portraits); Komnick 2001, 3–5 (definition of series); 9–26 (research history). Occasionally, later restorations appear among Hadrian, M. Aurelius, L. Verus and Traianus Decius, cf. Wolters 1999, 277–278; Komnick 2001, 3–5.

<sup>9</sup> Cf. Mattingly 1920, 179–204; RIC II 141–148 nos. 184–249 (Titus); 211–213 nos. 453–464 (Domitian); BMCRE II 281–292 nos. 261–305 (Titus); 414–417 nos. 504–512 (Domitian); Komnick 2001, 28–99 nos. Titus 1–62; Domitian 1–10 pls. 1–18. On types and selection: Mattingly 1920, 181–183; Komnick 2001, 165–171; Gallia 2012, 245–246.

<sup>10</sup> Cf. Mattingly 1920, 179–186. 204–207; RIC II 232–233 nos. 126–138; BMCRE III 28–30 nos. 149–161; Komnick 2001, 100–109 nos. 1–11 pls. 19–23. On types and selection: Mattingly 1920, 185–186; Komnick 2001, 172–175.

<sup>11</sup> Mattingly 1926; RIC II 311–313 nos. 815–836; BMCRE III 142–145 nos. 696–706; Komnick 2001, 110–111. 125–138 nos. 52–74 pls. 26–28.

<sup>12</sup>Komnick 2001, 34 no. 2 pl. 1. – Prototype RIC I<sup>2</sup> 97 no. 49.

<sup>13</sup>Komnick 2001, 126 no. 54 pl. 26; Seelentag 2004, 440-441.

<sup>14</sup> BMCRE I 59 nos. 323-328; 301 nos. 49-50.

<sup>15</sup> RIC I<sup>2</sup>122 no. 9; BMCRE I 165–174 nos. 6–7. 26–27. 39–47. 51–53. 58–59. 61–62. 68–69; 296 no. 26.

<sup>16</sup> Komnick 2001, 130–131 no. 70 pl. 27. – Reverse prototype: RIC II 119 no. 23: *aureus*, Titus, 80 AD, but legend: TR P IX IMP XV COS VIII P P.

<sup>17</sup>Wolters 1999, 268 note 46. Cf. the brief remarks of RIC II 6. 335; BMCRE II xliii. lxxvii. xcvi; Buttrey 1972; Gross 1981; 602–603; Wolters 1999, 270–271. 298–299. 315; Komnick 2001, 4–5; Winkler-Horaček 2010.

<sup>18</sup> Prototype: RRC 288 no. 263/1 pl. 38; restoration: RRC 387 no. 369 pl. 48. Two more types of 127 BC were restored between 82–80 BC. Cf. generally: Luce 1968, 34–36; Buttrey 1972, 104–105; RRC 288–290 nos. 263–265; 387–388 nos. 369–371; 745; Komnick 2001, 4.

<sup>19</sup> Cf. Luce 1968, 36; Komnick 2001, 4; RRC 287–288. In addition, the Macedonian shield is alluding to the victory of 148 BC of Q. Caecilius Metellus Macedonicus.

<sup>20</sup> Mattingly 1926; RIC II 302–313 nos. 765–814; BMCRE III 132–141 nos. 673–695; Komnick 2001, 110–124 nos. Trajan 1–49, pls. 23–25; Seelentag 2004, 413–484; Gallia 2012, 219–247. 260–270. The types Komnick 2001, 125 nos. 50–51 are restoring Augustan *denarii* struck for M. Agrippa in 12 BC, but are nonetheless often classified among the Republican *denarii* (Komnick 2001, 110; Gallia 2012, 219). – Restoration of the Metellus type: Komnick 2001, 117 no. 18 pl. 24.

<sup>21</sup> Mattingly 1926, 260; Buttrey 1972, 103; Komnick 2001, 145 with notes 415 and 416; 176; Gallia 2012, 219.
<sup>22</sup> Cass. Dio 68,15,3. Recent research has dated the series confidently to ca. 112 AD: Komnick 2001, 11–12.
20. 23–24. 137–138; Seelentag 2004, 413–418; Gallia 2012, 219–220.

<sup>23</sup> Komnick 2001, 17–26 (for a summary of previous interpretation). 159–165. 175–178 (Komnick's interpretation); Seelentag 2004, esp. 483–484; Gallia 2012, 219–247. 260-270, esp. 245–247. This interpretation does not perfectly fit among the 11 reasons for coin imitation distinguished by Weir 2010, 139–142. Restoration of past virtues and achievements is to be added – at least for the Roman era.

<sup>24</sup>Komnick 2001, 119 no. 26 pl. 24; Seelentag 2004, 439–440. – Prototype: RRC 443–444 no. 419/3b pl. 51.

<sup>25</sup> Bauer 1993; Steinby 1993; Lipps 2011, 17–22; Freyberger – Ertel 2016.

<sup>26</sup> RRC 443–444 no. 419/3a.

<sup>27</sup> Komnick 2001, 118 no. 25 pl. 24. Prototypes: RRC 441–442 nos. 416/1a–c pl. 51; Hollstein 1993, 210–215.
<sup>28</sup> Chioffi 1999.

<sup>29</sup> Komnick 2001, 112–113 no. 3 pl. 23. – Prototype: RRC 207–208 no. 128/1 pl. 23.

<sup>30</sup>Komnick 2001, 175–176; Gallia 2012, 224–226.

<sup>31</sup>Komnick 2001, 111–112 no. 1 pl 23. Similar type as for Decius Mus but with head instead of shield and war trumpet. Prototype: *denarius* 206/200 BC: RRC 207 no. 127/1.

<sup>32</sup>Komnick 2001, 112 no. 2 pl. 23. Prototype: *quadrigatus* 225/212 BC, RRC 144–147 nos. 28/3; 29/3; 30/1–34/1. pls. 2–5.

<sup>33</sup> Komnick 2001, 113 no. 5 pl. 23. Prototype: Anonymous *denarius* 115/114 BC, RRC 302 no. 287/1.

<sup>34</sup> Serv. Aen. 1,273, Non. 518 M; cf. RRC 719 note 5.

<sup>35</sup> Mattingly 1926, 237 no. 5; RIC II 306 no. 771; BMCRE III 132 no. 673; Komnick 2001, 113. 145 note 415; Gallia 2012, 261 no. 5.

<sup>36</sup> E.g. RIC II 245 no. 4; 248 no. 59.

<sup>37</sup>Buttrey 1972, 104–106; Komnick 2001, 142–145. Both the evidence from written sources and coin hoards suggests that Republican coinage was available in considerable quantities at the end of the 1<sup>st</sup> and the beginning of the 2<sup>nd</sup> century: Buttrey 1972, 102; Komnick 2001, 4. 142. 191–195. Information on coin hoards (e.g. those from Pompeii including Republican *denarii*) can now easily be collected via the Oxford Coin Hoards of the Roman Empire Project (online: <a href="http://chre.ashmus.ox.ac.uk/">http://chre.ashmus.ox.ac.uk/</a>> 30.10.2018). <sup>38</sup> Cf. Grüner 2014, 84–87.

<sup>39</sup> According with Hill 1922, 24–26: additions to a die are much easier produced than erasures or corrections.

# **Image Credits**

Fig. 1: Münzkabinett Berlin 18207127, <https://ikmk.smb.museum/object?id=18207127> (02.05.2019). – Fig. 2: Münzkabinett Berlin 18204981, <https://ikmk.smb.museum/object?lang=de&id=18204981> (02.05.2019). – Fig. 3: MünzkabinettBerlin18201835, <https://ikmk.smb.museum/object?lang=de&id=18201835> (02.05.2019). – Fig. 4: Münzkabinett Berlin 18204980, <https://ikmk.smb.museum/object?lang=de&id=18204980> (02.05.2019). – Fig. 5: Gorny & Mosch, e-auction 259 20.10.2018, lot 3599, reproduced with permission. – Fig. 6: The New York Sale, auction XVII 09.01.2008, lot 189, reproduced with permission. – Fig. 7: Paris, Bibliothèque nationale de France, département Monnaies, médailles et antiques, IMP-3028, Source: gallica. bnf.fr / BnF: <https://gallica.bnf.fr/ark:/12148/btv1b10448890h/f1.double> (02.05.2019). – Fig. 8: with permission of wildwinds.com, ex CNG auction 61, 2002, <http://www.wildwinds.com/coins/rsc/anonymous/RSC\_0176.5.jpg> (02.05.2019).

# References

#### **Bauer 1993**

LTUR I (1993) 183-187 s.v. Basilica Paul(l)i (H. Bauer).

#### Buttrey 1972

T. V. Buttrey 1972, Vespasian as Moneyer, NumChron 7. Ser. 12, 1972, 89-109.

### Chioffi 1999

LTUR IV (1999) 171-173 s.v. Puteal Libonis/Scribonianum (L. Chioffi).

### Freyberger - Ertel 2016

K. St. Freyberger - C. Ertel, Die Basilica Aemilia auf dem Forum Romanum in Rom: Bauphasen,

Rekonstruktion, Funktion und Bedeutung, Sonderschriften DAI Rom 17 (Wiesbaden 2016).

# Gallia 2012

A. B. Gallia, Remembering the Roman Republic. Culture, Politics, and History Under the Principate (Cambridge 2012).

### Göbl 1978

R. Göbl, Antike Numismatik (München 1978).

### Gross 1981

W. Gross, Augustus als Vorbild, ANRW II 12,2 (1981) 599-611.

### Grüner 2014

A. Grüner, Antike Reproduktionsmedien. Siegel und Münze zwischen Serialität und Authentizität, in: W. Cupperi (ed.), Multiples in Pre-Modern Art (Zürich 2014) 59–93.

### Hill 1922

G. F. Hill, Ancient Methods of Coining, NumChron 5. Ser. 2, 1922, 1-42.

### Hollstein 1993

W. Hollstein, Die stadtrömische Münzprägung der Jahre 78-50 v. Chr. zwischen politischer

Aktualität und Familienthematik, Quellen und Forschungen zur Antiken Welt 14 (München 1993).

# Komnick 2001

H. Komnick, Die Restitutionsmünzen der frühen Kaiserzeit. Aspekte der Kaiserlegitimation (Berlin 2001).

# Kraay 1976

C.M. Kraay, Archaic and Classical Greek Coins (New York 1976)

### Lipps 2011

J. Lipps, Die Basilica Aemilia am Forum Romanum: der kaiserzeitliche Bau und seine Ornamentik, Palilia 24 (Wiesbaden 2011).

### Luce 1968

T. J. Luce, Political Propaganda on Roman Republican Coins: circa 92-82 B.C., AJA 72, 1968, 26-39.

### Mattingly 1920

H. Mattingly, The "Restored" Coins of Titus, Domitian, and Nerva, NumChron 4. Ser. 20, 1920, 177–207.

# Mattingly 1926

H. Mattingly, The Restored Coins of Trajan, NumChron 5. Ser. 6, 1926, 232-278.

# Metcalf 2012

W.E. Metcalf, Introduction, in: W.E. Metcalf (ed.), The Oxford Handbook of Greek and Roman Coinage (Oxford 2012) 3–11.

### Mittag 2016

P.F. Mittag, Griechische Numismatik. Eine Einführung (Heidelberg 2016).

### Mørkholm 1991

O. Mørkholm, Early Hellenistic Coinage. From the Accession of Alexander to the Peace of Apamea (336–188 B.C.) (Cambridge 1991).

### Paunov 2014

E. I. Paunov, Dies for Striking Republican and Early Imperial Coins from Moesia and Thrace: Ancient Forgeries or Something Else? Journal of Ancient History and Archaeology 2014/1, 29–35.

### Reinhardt 2020

A. Reinhardt, Strictly Economic? Ancient Serial Production and its Premises: An Introduction, in: Arne Reinhardt (ed.), Strictly Economic? Ancient Serial Production and its Premises, Panel 3.18, Archaeology and Economy in the Ancient World 20 (Heidelberg, Propylaeum 2020) 1–4. DOI: https://doi.org/10.11588/propylaeum.704

### Seelentag 2004

G. Seelentag, Taten und Tugenden Traians. Herrschaftsdarstellung im Principat, Hermes Einzelschriften 91 (Stuttgart 2004).

### Steinby 1993

LTUR I (1993) 167-168 s.v. Basilica Aemilia (E.M. Steinby).

### 42

# Seriality and Restoration

#### van Alfen 2005

P. van Alfen, Problems in Ancient Imitative and Counterfeit Coinage, in Z. Archibald – J. Davies – V. Gabrielsen (eds.), Making, Moving, and Managing: The New World of Ancient Economics, 323–31 B.C. (Oxford 2005) 322–354.

# Vermeule 1954

C.C. Vermeule, Some Notes on Ancient Dies and Coining Methods (London 1954).

# Weir 2010

R. Weir, Interpretation and Imitation of Classical Greek Coin Types, MBAH 28, 2010, 123–170.

# Winkler-Horaček 2010

L. Winkler-Horaček, Parthersieg und cista mystica. ,Tradition' und ,Reduktion' in Münzbildern unter Vespasian und Titus: Zwei Fallbeispiele, in: N. Kramer – Chr. Reitz (eds.), Tradition und Erneuerung. Mediale Strategien in der Zeit der Flavier (Berlin 2010) 457–481.

# Wolters 1999

R. Wolters, Nummi Signati. Untersuchungen zur römischen Münzprägung und Geldwirtschaft, Vestigia 49 (München 1999).