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### OVERSTRIKING ON ROMAN COINAGE IN THE THIRD CENTURY AD: AN OVERVIEW

Abstract – In rare instances during the 3<sup>rd</sup> century AD, some Roman mints overstruck higher denominations on lower ones (antoniniani on denarii, double sestertii on sestertii). This happened during the reigns of Trajan Decius, Postumus and Regalian. It looks as if the mint officials were looking for profit by doubling the purchasing power of their coins without producing new ones with a higher intrinsic value. But was this really worthwhile doing and was this what really happened? It will be argued that in most cases the metal value of the coins in the 3<sup>rd</sup> century was to a certain degree of secondary importance and that as long as the coins looked as made of 'good' silver, they were probably accepted at their official value. This explains why surviving coins of a given type, even with little or no wear, show an impressively broad range of weights.

**W**ay Roman imperial coins AS COIN BLANKS or overstriking is not the usual way Roman imperial coins were made. The phenomenon is extremely rare for the coinage of the emperors, whether minted in Rome or at the branch mints in the provinces directly dependent on the imperial financial administration. On provincial coins it occurs occasionally, even systematically in some series; the best-documented example is without doubt the cistophoric coinage of the emperor Hadrian<sup>[1]</sup>.



Fig. 1 – Enlargement (scale 250%) of a 'radiate' coin of Dryantilla (AD 260) overstruck on a denarius of Severus Alexander (Numismatica Ars Classica, Auction 80, 20/X/2014, lot 207)

<sup>\*</sup> I would like to thank Bruno Foucray, David Wigg-Wolf and Bernhard Woytek for their advice, as well as Derian Gysels for having allowed me to use the data of his MA thesis.

<sup>&</sup>lt;sup>[1]</sup> Metcalf 1980 and Woytek 2018 (this volume).

The examples of overstriking discussed in this contribution are all from the second half of the third century AD, and it is therefore not far-fetched to link the phenomenon with the well-documented monetary problems or experiments of the period.

Accidental overstrikes or even double strikes are of little interest unless there is a difference in types between the original coin and the newly produced one, as documented for Gordian III in Antioch, for example. Once in a while, however, higher denominations were overstruck on a lower one; the examples discussed in this paper are antoniniani (or double denarii) overstruck on denarii, as well as double sestertii overstruck on sestertii<sup>[2]</sup>.

The questions we have to answer are straightforward. Why and by whom was this done? And what can we learn from this about the way the Romans fixed the value of their coins? Do these overstrikes provide information about the degree to which the coins were fiduciary, or the relation between the face value and the intrinsic value?

The three cases studied below are already known in numismatic literature. However, they were never the subject of a separate paper. The first two cases concern the overstriking of denarii with dies used to produce antoniniani or radiates. This occurred during the reigns of Trajan Decius (249-251) and his successor Trebonianus Gallus (251-253), and also during the reign of the usurper Regalian who ruled briefly in AD 260. Finally, there are the bronze coins of Postumus (260-269), during whose reign double sestertii were overstruck on sestertii.



Fig. 2 – Obverse of a local imitation of a double sestertius of Postumus (enlargement scale 200%) overstruck on a sestertius of Trajan (AD 98-117) (Royal Library of Belgium, Elverdinghe (B) hoard, inv. 11.55.631))

<sup>&</sup>lt;sup>[2]</sup> van Heesch 1993 for Gordian III; see also Callu 1969, p. 355 for antoniniani of Carausius.

These overstruck coins are rather rare. The material used here for Trajan Decius and Trebonianus Gallus was collected by my former student Derian Gysels, who presented an MA thesis on part of the subject<sup>[3]</sup>. The coins of Regalian and his wife Dryantilla have been studied in detail by the late Robert Göbl in 1970, by Günther Dembski who published several addenda to Göbl's book, and recently by Dembski, Winter & Woytek<sup>[4]</sup>. For the coinage of Postumus the catalogue published by Pierre Bastien in 1967 still is a very useful and rich collection of material<sup>[5]</sup>. Harold Mattingly, in his publication of the great Dorchester hoard in the *Numismatic Chronicle* of 1939, was one of the first to draw our attention to the strange series of antoniniani of Trajan Decius and members of his family overstruck on older denarii<sup>[6]</sup>. The dies used to mint these coins are perfectly authentic, and the underlying types were in several cases identified as denarii of the Severan dynasty.

Table 1 - Overstrikes of antoniniani on denarii, Regalian and Dryantilla excepted (data provided by Gysels 2014: based on Schaad 1992, Mattingly 1939 and the following hoards: Cravent, Reignac, Rue/Clamerey, Chalfont St. Peter [Gallienus], Saint-Jean-d'Ardières and also the British Museum – Coin department; supplemented with Göbl 1970, p. 31, n. 32-33)<sup>[7]</sup>

Emperor	Number
Trajan Decius (249-251)	28
Trajan Decius for Etruscilla	5
Trajan Decius for Herennius Etruscus	11
Trajan Decius for Hostilianus	5
Trebonianus Gallus (251-253)	5
Trebonianus Gallus for Volusianus	1
Valerian & Gallienus (254-260), Cologne & Rome <sup>[8]</sup>	2
Total	56

<sup>&</sup>lt;sup>[3]</sup> Gysels 2014.

<sup>[4]</sup> Göbl 1970 and for a full bibliography see Dembski, Winter & Woytek 2007.

<sup>&</sup>lt;sup>[5]</sup> Bastien 1967.

<sup>&</sup>lt;sup>[6]</sup> Mattingly 1939.

<sup>[7]</sup> British hoards see *Coin Hoards from Roman Britain* IX, London 1992 (Chalfont); French hoards see *Trésors Monétaires* 15 (Cravent), 19 (Reignac), 25 (Saint-Jean-d'Ardières). For Rue see the summary in *Revue archéologique de Picardie* 1989, nos. 3-4, p. 87-91. See also Woytek in this volume.

<sup>&</sup>lt;sup>[8]</sup> For the radiate of Valerian I see Woytek in this volume and Leu Numismatik AG, Web Auction 1 (25/VI/2017), 1187.

The first case are the overstruck denarii from the mid-third century, mostly of Decius and Gallus (Table 1). The number of examples is small. This is not only due to their rarity, for overstrikes are not always easy to discern and the identification of an undertype is sometimes extremely tricky.

Derian Gysels catalogued 52 coins and a few further examples have been added. Most come from two large coin deposits: the Dorchester hoard (UK) of more than 22,000 coins, and the Éauze hoard (F) which contained more than 28,000 pieces. Dorchester has 25 overstrikes, Éauze 13; but it is certain that many more remained unnoticed. Of the known overstrikes, 49 out of the 56 documented examples (or 88%) are antoniniani of the reign of Trajan Decius, including coins for members of the imperial family<sup>[9]</sup>.

Almost all these denarii were overstruck at the mint of Rome; only one more recent overstrike from the reign of Gallienus is from the Cologne mint, overstruck on a denarius of Severus Alexander. The denarii used as blanks (Table 2) cover the entire first half of the 3<sup>rd</sup> century; they start with Septimius Severus but coins of Severus Alexander clearly dominate.

Undertype	Number
Septimius Severus (193-211)	3
Iulia Domna	1
Geta (d.211)	2
Caracalla (d.217)	5
Iulia Mamaea	1
Iulia Maesa	1
Elagabalus (218-222)	3
Severus Alexander (222-235)	18
Maximinus I (235-238)	2
Gordian III (238-244)	2

Table 2 – Denarii used as undertypes for antoniniani, the reign of Regalian excepted (based on Gysels 2014 [see Table 1] and three coins in Göbl 1970, p. 31, n. 32-33)

The second group of overstrikes is of the usurper Regalian (Table 3). Publius Cornelius Regalian was a usurper whose short revolt took place in AD 260 on the Danube. He only minted antoniniani, or radiates, probably in the Roman town of Carnuntum, where most coins were found. Although Regalian's reign must have been very short, ten different reverse legends are known, of which three were used to strike coins for his wife Sulpicia Dryantilla.

<sup>&</sup>lt;sup>[9]</sup> Gysels 2014; Mattingly 1939 (Dorchester); Schaad 1992 (Éauze).

Undertype	Number
Septimius Severus (193-211)	23
Iulia Domna	7
Geta († 211)	3
Caracalla († 217)	13
Plautilla	1
Iulia Maesa	1
Iulia Soaemias	1
Macrinus (217-218)	2
Elagabalus (218-222)	7
Severus Alexander (222-235)	20*
Iulia Mamaea (Severus Alexander)	2
Maximinus I (235-238)	11
Pupienus (238)	3
Gordian III	2 (+ 1 ant.)

Table 3 – Undertypes for Regalian and Dryantilla(data: Dembski, Winter & Woytek 2007)

\* One Severus Alexander is a plated denarius (NZ 1977, p. 71 no. 14), suggesting that the coins were actually taken from the pool of circulating currency

All these coins are of an extremely crude style, and it is clear that no talented engraver was at hand. All but one of his coins (an antoninianus of Gordian III) were overstruck on denarii. Again, all are denarii of the third century. The undertypes range from Septimius Severus to Pupienus, who reigned briefly in AD 238, and Gordian III. That more recent denarii are lacking as undertypes is not particularly surprising, as denarii became rare under Pupienus' successor Gordian III, and almost disappeared thereafter. The most frequent undertypes are coins of Septimius Severus and Severus Alexander.

Thus overstriking on denarii occurred on two occasions, in AD 250 or thereabout, and in AD 260. The third example concerns the bronze coins of the reign of another usurper: Postumus, who reigned from AD 260 till 269. During his reign second-century sestertii were overstruck at secondary mints to transform them into double sestertii. When Postumus usurped in AD 260, his capital was probably at Cologne and he used the mint that had been opened there by the official Roman emperor Gallienus<sup>[10]</sup>. Most bronzes bear the letters SC (*Senatus Consulto*) as on the traditional Roman coins. The main monetary innovation of Postumus was the fact that he minted bronze coins outside Rome. This was exceptional for a mint located in the provinces where, until then, only gold and silver were struck. This was clearly an answer to the shortage of bronzes in northern Gaul. Indeed, from the first decades of the third century AD, bronze coins became increasingly rare in Gaul, as soldiers were paid almost exclusively in silver coins since the Severans. The result of this was that the Gauls got used to using very old and extremely worn bronzes from the first and the second century AD that continued to circulate. These old bronzes were even copied locally to provide the market with small change. A local mint that produced cast copies was excavated for example in Saint-Mard (Virton) in Belgium<sup>[11]</sup>.

When Postumus started minting bronzes, he must have realised that even the sestertius was too small a value for the price level at that time, so he decided to mint not only sestertii but also double sestertii. The latter were easy to recognise, as they all had a radiate crown on the emperor's head and not the usual laureate wreath that characterised sestertii<sup>[12]</sup>. That the radiate crown was used to mark multiples is beyond question; proof comes from the dupondii or double asses often characterised by the radiate crown, but the strongest argument about the radiate crown as a mark of value is the existence of an issue of double antoniniani of the emperor Carus minted in Lyons in AD 282-283. The coins have a mark of value on the reverse indicating a higher silver content. These coins actually have almost 10% of silver, instead of only 5% for the other coins. The mark on the reverse reads X and I; this has convincingly been explained as meaning that 10 of these coins make 1 of pure silver. On the obverse quite logically, but also rather surprisingly, the very conscientious die engraver even used a double radiate crown to draw attention to the double value of this issue<sup>[13]</sup>!

These bronze coins of Postumus, especially the radiate ones, were imitated in huge quantities in several private and perhaps even semi-official (or at least tolerated) mints. What is of importance is the emergence of overstruck sestertii of the second century AD in these local mints<sup>[14]</sup>. Old and worn sestertii were used as blanks to produce radiate bronze coins of Postumus. In fact they turned sestertii into double sestertii, and it cannot be doubted

<sup>&</sup>lt;sup>[10]</sup> The location of the mints of the Gallic emperors is a matter of debate (Trier or/and Co-logne?). See e.g. Gricourt & Hollard 2010.

<sup>&</sup>lt;sup>[11]</sup> On Saint-Mard, Lallemand 1994. On the secondary mints of Postumus see Pilon 2016; on the bronze coins of Postumus: Bastien 1967.

<sup>&</sup>lt;sup>[12]</sup> Bastien 1967.

<sup>&</sup>lt;sup>[13]</sup> Callu, Brenot & Barrandon 1979; *RIC* V·2, p. 135 no. 5 (double crown not described but illustrated on plate v, 18).

<sup>&</sup>lt;sup>[14]</sup> Occasionally dupondii.

that this was done with the sole intention of profit. Sometimes no effort was even made to restrike a sestertius with a die, but a radiate crown was simply engraved on top of the laurel crown of an old sestertius<sup>[15]</sup>. Were these coins generally accepted? The fraud was easy to spot. It would seem that nobody really bothered. Roman bronze coinage was at the time apparently a token coinage with a value imposed by the government or by mutual agreement. This can easily be demonstrated when we look at the weights of the official bronze coins of Postumus (Fig. 3).



• HS • 2 HS

*Fig.* 3 – *Histogram of the weights (in g) of the sestertii (HS – dark gray) and double sestertii (2 HS – light gray) of Postumus (based on Bastien 1967)* 

Though the diameters of the double sestertii are a little bit larger than those of the sestertii, their weights behave quite similarly. In spite of the fact that some double sestertii are a little heavier, the graph shows that the weight was considered to be of no importance for determining the value of these coins! Double sestertii are not heavier than sestertii.

<sup>&</sup>lt;sup>[15]</sup> See Bastien 1967 for the data.

One should however be careful not to extrapolate this for all coins minted by Rome during other reigns. The exceptional double sestertii of Trajan Decius, for example, minted about AD 250 or a decade earlier, have a weight of *c*. 38 g and weigh almost exactly twice as much as his sestertii<sup>[16]</sup>.

Overstriking double sestertii on blanks of sestertii was clearly an easy way to make a profit. Was this also the case and the motive of the Roman government or its moneyers when they overstruck denarii to produce antoniniani?

It is generally accepted nowadays that the antoninianus was a double denarius (introduced by Caracalla in AD 215); the new coin had the same silver fineness as the denarius but – and this is important – although it was a double denarius, the coin weighed only 1.5 times as much as a denarius! This already was a clear step towards a token coinage. It was an excellent remedy to cover the growing cost of the Roman army and a way to overcome the increasing shortage of silver. It should not surprise us that this experiment had no success at all and was fairly short-lived. The minting of these first radiates lasted only five years. But as prices and expenses rose, Gordian III decided to reintroduce this double denarius in AD 238. He also decided to stop minting denarii altogether, somewhere between AD 241 and 243. So from about 238 huge numbers of silver antoniniani flooded the Roman Empire and coin users were confronted with the choice between two silver denominations of unequal intrinsic value, the denarius and the antoninianus!

Did this disparity affect the value of the denarius? In other words, was it circulating at a slightly higher value expressed in money of account? For example, if an antoninianus was worth 8 sestertii and a denarius originally 4, was it now rated on the free market at 5 sestertii because two separate denarii contained more silver than one radiate? Did the antoninianus drive the denarius out of circulation? Or did it not matter at all, because coins were counted and not weighed, as the Roman jurist Gaius writes <sup>[17]</sup>?

But let us first look at the overstrikes of Regalian (Table 2); what do they tell us? His coins, minted in AD 260, are extremely crude and the product of a usurper wanting to legalise his coup by striking his own coins to pay his soldiers. He must have had access to a large stock of old denarii. This is confirmed by the hoards from his territory, which contain fairly large quantities<sup>[18]</sup>. It is then not unlikely either that denarii were present in the strong-boxes of the army or in those of the local *fiscus* or tax depots.

A rather surprising conclusion can be drawn from the comparison between the silver content of the overstruck denarii of Regalian and the alloy of the antoniniani minted by the official emperor Gallienus (Fig. 4)!

<sup>&</sup>lt;sup>[16]</sup> Bastien 1967, p. 26.

<sup>&</sup>lt;sup>[17]</sup> The Roman jurist clearly says that coins were not weighed but counted: Counting not weighing of coins: Gaius, *Institutes* I, 123. See also the important, but rarely used book by Hasler 1980.

<sup>&</sup>lt;sup>[18]</sup> Dembski 1977 and the volumes of *Die Fundmünzen der römischen Zeit in Österreich*.



Denarius Antoninianus



These old denarii contain twice as much silver (c. 1.2 g) as the coins of Gallienus (c. 0.6 g in AD 260). So in fact Regalian could have melted them down and made twice as many coins from the same stock of metal instead of reusing them directly. If he only wanted his name on the coins, it would have been much more profitable to overstrike the coins of the legal emperor Gallienus. But he did not do that! What does this mean?

Was Regalian incredibly naive? Or did he want to offer his soldiers a good silver coinage instead of the poor quality issues that they were used to? There are parallels in the history of Roman coinage: Domitian for example at the end of the first century AD also improved the silver content of his denarii and the weight of the aurei.

Another possibility is that the commercial value of the old denarii was officially or unofficially raised once the antoninianus was in circulation, and that they were accepted as antoniniani or perhaps even more ... Or did it simply make no difference at all how much silver there was in a coin at the time? As long as it still looked like silver, did most people perhaps not care?

<sup>&</sup>lt;sup>[19]</sup> Walker's metal analyses have been justly criticized as being too high but the relative silver contents of the coins analyzed by him are very probably still useful for general thoughts such as in this paper.

Should we simply accept that Roman coins were at the time so heavily overvalued that they were only a token coinage and their metal content was essentially (but not completely) symbolic? But why did Regalian use only denarii and not any antoniniani if the silver content was not important? This is not easy to answer. Did he have not the slightest idea about monetary matters and did he make a huge mistake?

It looks as if indeed the metal content was not so important even for these silver coins, and that the purchasing power was generally higher than the intrinsic value of the coins. We are in the middle of a period where the token – *i.e.* fiduciary – character of coinage is evolving to a level never seen before, just like the example of Postumus at exactly the same time. That Regalian only used denarii and not antoniniani might just be the result of the money he managed to lay his hands on.

Before going deeper into the matter, it is necessary to discuss briefly the oldest example, the coins of the mid-third century struck by Trajan Decius and Trebonianus Gallus.

Contrary to the coinage of Regalian, these overstruck coins are rather rare. However, we should realise that very often cataloguers are not attentive enough and that quite frequently overstrikes are not noticed. Looking at the known undertypes one has the impression that the coins of Severus Alexander were preferred to other denarii; they represent 46% of the total (Table 2). The sample, however, is very small and the denarii of Severus Alexander must have been the most common ones at the time, judging from the numbers in the Éauze hoard (Table 6). In this massive hoard from the South of France there were 4,706 denarii and 13,398 antoniniani.<sup>[20]</sup> The denarii of Severus Alexander make up 35%.

Éauze 4,706 denarii	Denarii
Septimius Severus	161
Elagabalus	936
Severus Alexander	1,642
Maximinus Thrax	647
Gordian III	266

Table 6 – The Éauze d	leposit (Fi	rance): 4	,706 denarii,
13,398 antoniniani,	bronzes,	jewelry,	silver etc.

The reign of Trajan Decius started in AD 249, some five years after the final end of the denarius coinage. It is very plausible that the Roman mint melted down or reminted large portions of these old denarii since only the

<sup>&</sup>lt;sup>[20]</sup> Schaad 1992.

antoninianus was used for the soldiers' pay, as is indicated by the huge quantities of antoniniani that survive today.

Was it worthwhile using denarii directly as blanks? Let us have a look again at the metal content in grams of the different denominations (Fig. 4).

It appears that the content in precious metal of these older denarii used as blanks was almost exactly the same as the new antoniniani. So apparently at this time these overstrikes were an easy way to skip the process of melting down old coins. They allowed the government to issue new coins that contained the required amount of silver but whose purchasing power was probably doubled. 'Probably', because we do not know for sure if old denarii circulated at a premium.

Indeed it is not unlikely that commodities which were paid for in old denarii were sold at a lower price than those paid for in lighter antoniniani. But of this there can be no certainty.

Our three examples of restriking old coins are a clear indication that Roman coinage was in distress and that the government – be it local usurpers or the emperors in Rome – had to cope with a growing demand for money and a shortage of metals. Although a detailed study of the weight of the denarius from the second and the third century would be interesting, published tables of weights confirm that there had long been a significant spread in the weights of the coins; they were struck *al marco* and not *al pezzo*, as was usual for gold. When numismatists analyse coin production, they often work with median or mean weights. But this obscures part of the reality, *viz*. that Roman silver coins show quite some variation in weight. This can be illustrated by the weights of the radiates from two hoards, one found in Givry in Hainaut (Belgium) and one from France, both buried in AD 260 (Fig. 5-6).

Almost all coins are in excellent condition, so wear is of no importance. What is amazing is the extensive range of weights. Though there is a clear target weight, the radiates of Gordian III range from 3.50 to 5 grams. As these are fairly light coins, the difference of 1.5 grams between the heaviest and the lightest coins corresponds to a difference of 30%. During the short reigns of Trajan Decius and Trebonianus Gallus (Fig. 4, Decius only), each less than two years, the ranges of weights between the lightest and the heaviest coins are even more pronounced. It looks as if the weight of a coin is not that important at all.

A comparison with medieval and 16<sup>th</sup>-century coins is also instructive<sup>[21]</sup>. The following examples are based on the specimens in the Brussels Coin department (Royal Library of Belgium). Figure 7 shows the weights of *groats* minted in France around 1300, and figure 8 of the large and heavy *daalders* struck by Philip II in Antwerp in the second half of the 16<sup>th</sup> century.

<sup>&</sup>lt;sup>[21]</sup> Contemporary official documents teach us that the spread in the coins' weight and fineness were specified within narrow margins, no doubt to guarantee the quality of the coins struck, and hence to attrack sufficient precious metal to the mints from private owners in exchange for 'good' money.



Fig. 5 – Gordian III (238-244), 352 radiates from the Givry hoard (data: documentation Coin department Royal Library of Brussels & Van Roy 2015-16, p. 76)



Fig. 6 – Trajan Decius: 403 radiates of group 2 (AD end 249-early 251) from the Saint-Jean-d'Ardières hoard. Weights between 2.17 and 5.49 g. (Data: V. DROST, TM 25)



Fig. 7 – Weights of the French gros tournois from the Bruges hoard (n: 62 coins; data: RBN 2007, p. 124-129; Coin Department, Brussels)



Fig. 8 – The weights (rounded up!) of the large silver écus or daalders struck in Antwerp between 1557 and 1558 for Philip II (n: 58 coins; Coin department Royal Library, Brussels)

All these coins are clearly struck *al pezzo* and the range and the differences in weight are very small between the individual specimens (most of the lighter coins in these tables were rather worn). This is a totally different coinage to that of the Romans. In these more 'recent' periods *seigneuriage* and *brassage* meant that coins were slightly overvalued, but in the end they remained small ingots of precious metal. The Roman coins discussed here are not really ingots, they are coins that are overvalued to a much higher degree than these later examples.

In the third century (if not earlier) the Roman officials responsible for the mint clearly tried to move towards a more explicitly token coinage. This was certainly the case when the radiate was introduced by Caracalla in AD 215, but it caused stress to the monetary system as denarii were minted simultaneously. When denarii virtually disappeared during the reign of Gordian III (238-244) the situation changed. More than in the preceding centuries, it looks as if coins derived their value from the official rate that was imposed by the state. The upper social strata of the population were probably ready to accept this symbolic coinage, but most coin users reacted with fear and got confused and started hoarding.

This move towards a coinage whose value depended to a limited extent only on its metal content, and mainly on a value imposed by the state, was not exceptional in Antiquity and is well known for the later Roman Empire. The edict found at Aphrodisias in Turkey, dated to AD 301, proves how a change in the value of coins expressed in money of account could happen overnight. In this edict the government decreed that several denominations doubled in value without changing the physical appearance of the coins.<sup>[22]</sup>

A quote from a 4<sup>th</sup>-century papyrus, possibly referring to the year AD 321, illustrates the same phenomenon and is worth repeating here: "... The divine fortune of our lords has decreed that the Italian coin (*to Italikon nomisma*) be reduced to the half of a *nummus*. Make haste, therefore, to spend all the Italian coinage (*argurion*) that you have, and purchase on my behalf, goods of every description, at whatever price you find them ..." (P. Ryl. 607). <sup>[23]</sup>

*To sum up*: Postumus introduced a token coinage of bronze, but his experiment was not very successful as the coin user was not ready to accept this way of creating money, and secondary mints inundated the markets with their products, in part with overstruck older sestertii to create double ones. Regalian reacted strangely when he started minting, as he could have made two antoniniani out of one (melted) denarius, but he did not do so. This was not some sort of very short-lived emergency coinage: several different reverses were used and they show that these coin issues were produced over a 'longer' period of time. It is possible, though less probable, that he wanted to make a better currency than the ruling official emperor Gallienus, just to please his

<sup>&</sup>lt;sup>[22]</sup> See now and with good bibliography Kropff 2017.

<sup>&</sup>lt;sup>[23]</sup> Translation Hendy 1985, p. 464.

sol-diers. But it is very well possible that he simply wanted radiates and not denarii to pay his soldiers and that he used an available stock of old denarii to do so. The purchasing power of these new coins, their nominal value, was such that the actual metal content was not that important anymore as long as the coins looked like silver.

Trajan Decius and Trebonianus probably reminted large stocks of old denarii. This might explain also the wide range of weights of their radiates, but they actually raised the coins' value by transforming denarii into antoniniani. As the weights of their radiates are fairly erratic, it seems as if they must have been heavily overvalued and that the intrinsic value was of secondary importance.

What we witness in the third century is the emergence of two different ways coins were conceived. From the government's point of view a legal purchasing power was probably officially imposed for the silver coins (their rate or value). Thus coins, with the exception of gold, were not just silver or bronze ingots; they were coins that were counted, not weighed.<sup>[24]</sup> If the printing press would have been invented by the Romans, they surely would have been the first to print paper money ...

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<sup>[24]</sup> At least from the 2<sup>nd</sup> c. onwards, most coins were counted and not weighed, see Gaius, *Institutes* I, 123 and III, 90. This was probably so for bronze and silver coins. For gold coins this seems difficult to accept as their weight range is often large because worn aurei of Nero circulated side by side with unworn aurei till c. AD 200.

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