

Schweizerische
Numismatische Rundschau

Revue Suisse
de Numismatique

Rivista Svizzera
di Numismatica

BAND / TOME / VOLUME 99

BERN 2021

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Layout und Produktion: Ediprim AG, Biel/Bienne
Druck auf umweltfreundliches FSC-Papier

ISSN (print) 0035-4163

ISSN (online) 2624-8204

ISSN-L 0035-4163

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Mitglied der Schweizerischen Akademie
der Geistes- und Sozialwissenschaften
www.sagw.ch



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THE COINAGE OF THE KINGDOM OF ITALY UNDER CHARLEMAGNE (773/4–814): A REASSESSMENT*

A methodological premise

At the workshop *Swiss and Italian Monetary relations* (Lugano, 29 September 2018), Michael Matzke raised an important question: if there were no mints in the territories that today fall within modern Switzerland until the late Carolingian era, where did the money they needed come from? In his answer, Matzke looked to the *Regnum Italiae* as the natural place of origin of the coinage used in the regions south of the Rhine river¹.

The question, and even more so its answer, revived a debate about the monetary uses of the coinage of the *Regnum Italiae* that had never been concluded, which was itself part of a wider discussion about the level of the monetization of economy and trade in Europe that had seen scholars take positions that were often radically different from each other.

Michael Metcalf's analyses in his short essay *The Prosperity of North-Western Europe in the Eighth and Ninth centuries* (1967)² painted a picture of a Carolingian world in which money was a central element of trade, leading researchers to a more dynamic vision of the economy of Carolingian Europe than had previously been held by scholars of the calibre of Adolf Dopsch, Henri Pirenne or Maurice Lombard. The debate over the true role of money then continued, with new voices joining the fray which, sometimes in agreement with Metcalf's view – although with some distinctions³ – sometimes in clear opposition⁴, nevertheless attributed to money a key role in understanding economic and trade structures, supported by a much wider range of data than was available only a few decades ago. The idea of a Carolingian world essentially based on a subsistence economy, the expression of small territorial realities, closed, limited in the movement of goods and people, which had long predominated in historiographic debate, was contrasted by recon-

* I am grateful to Simon Coupland, William R. Day jr., Jens-Christian Moesgaard and Guillaume Sarah for the inspiring comments and the helpful suggestions on the many, many drafts of this paper.

¹ MATZKE 2020. The article, unfortunately, remained incomplete due to the premature death of the author.

² METCALF 1967.

³ MCCORMICK 2001; VERHULST 2002. More specifically, on the use of coins in the Carolingian empire, see COUPLAND 2014.

⁴ HODGES 1989 and HODGES 2012 for an analysis mainly based on archaeological evidence; WICKHAM 2005 for a more historically oriented view. Among the Italian scholars, see the view of Gian Piero Boggetti (1944) and Vito Fumagalli (1978, 1980a, 1980b).

structions under the banner of dynamism, in which the economy was sustained by deep-rooted networks of exchanges and the wide circulation of money. The first decades of the 9th century, with Charlemagne and Louis the Pious, were therefore seen as an era of significant economic and monetary expansion.

On a strictly numismatic level, previous research has focused on coin finds as well as attestations of money in contemporary written sources in order to define the actual degree of monetization and the level of development of trade both within and outside the *Regnum*. These two distinct research directions have revealed apparent contradictions on multiple occasions. The most obvious one, and the one on which the debate has focused most, is the substantial inconsistency between the high frequency of coin references in the documents and the scarce evidence coming from finds, which in the *Regnum Italiae* area are modest and limited to specific territorial areas, while Carolingian specimens – also of Italian origin – emerge in greater numbers outside the *Regnum*.⁵ How, then, can an economy be considered «dynamic» if it has left little archaeological evidence of coinage in the *Regnum Italiae*? How can we justify the prevalence of money essentially in regions north of the Alps, if not with the idea of a *Regnum Italiae* whose economy was at a lower level than that of the Frankish kingdom? What role could the Carolingian silver coinage find in everyday life, given that its value appears objectively too high for use in small payments? How productive were the Italian mints?

The answers to these and similar questions were inevitably influenced by the unique expertise in archaeology, history, or diplomatics of those who have addressed them. In formulating these considerations, great emphasis was placed on the excavated materials, but not so much on the totality of the specimens known today, whether in public or private collections, which proved to be the majority.³ For Charlemagne, it was possible to identify just under 600 specimens from the mints of northern Italy⁶. For only about 40 % of them, we have a definite find provenance: this percentage rises to 75 % in the case of the gold tremisses thanks to the predominant contribution of a single hoard, but the proportion falls to below 30 % in the case of the heavy deniers struck during the last production phase, which represents well over half of all the coins identified. More than 20 % of these specimens have appeared on the antiquities market only in the last twenty years.

We sometimes forget that we only have evidence of finds from the last 150 years or so, which is a relatively short time given that Charlemagne died almost 1,200 years ago. We must presume that a considerable fraction of the coins now in public and private collections are the result of unidentified findings. All indications of their context and stratigraphy have been lost (elements that are often not sufficiently accurate, if not completely missing, even for those finds of which we have evidence), but this does not diminish their statistical relevance when we want to examine their weight, or the sequence of dies to estimate the volume of the coins

⁵ ROVELLI 2000, pp. 207–208 and ROVELLI 2009, pp. 57–59. See also SACCOCCI 2005a.

⁶ The inventory of Charlemagne's coins is part of a larger project, still in progress, aimed at registering all known coins of the *Regnum Italiae* from the Carolingian conquest (773/4) to Adalbert II of Ivrea (961). A public presentation of the project is forthcoming.

stroke⁷. The antiquities trade, on the other hand, make available a number of specimens with previously unknown characteristics, which represent a wide range of coinage used.

A method that takes into account all known specimens requires us to evaluate a coin as an economic instrument before examining it as a historical or archaeological object: it means investigating the coinage of the *Regnum Italiae* by contextualizing it in its economy, its society, and its territory. Any movement of men, goods, and coins necessitates the existence of specific trade routes based, in turn, on adequate infrastructures, which must be conditioned by factors such as physical geography of the land and seasonal climatic variations, which linked the urban centres and the *emporia* towards which these men and goods converged or from which they departed, and where the coins found their most natural use. The production of these coins required bullion, which had to be supplied to the mints. Workers with very specific technical skills provided for its transformation, working to exact standards and subject to a system of supervision to ensure the quality of what they produced, which always remained an object of exclusive royal prerogative regardless of the distance of the place of production from the Carolingian power centres.

It therefore becomes necessary to reassess our current knowledge of the money of the *Regnum Italiae*, its production and its diffusion within the Carolingian dominions, to separate objective evidence from conjectures today taken for granted, as if they were absolute truths, to retrieve direct documentary sources, to include the innovations that have emerged in recent years, and to understand how much of the older knowledge base remains valid and how much requires reinterpretation.

Desiderius' gold tremisses of the «flavia» series and Carolingian continuity

With the last Lombard king, Desiderius (757–774), the gold coinage was reformed by extending to the whole *Regnum Langobardorum* the tremissis modelled on those in use only in Tuscia, characterized by the presence of the attribute «flavia» in the legend followed by the name of a town or village. The specimens known today bear the names of Brescia, Castelnovate⁸, Castelseprio, Ivrea, Milan, Pavia, Piacenza, Pombia, Reggio Emilia, Treviso, Vercelli, and Vicenza in the Po Valley area of the kingdom, and of Pisa and Lucca in Tuscia.

⁷ This is confirmed by the models for estimating the number of dies used for an issue, which are all based on the number of specimens and dies known today, regardless of the origin of the specimens involved (ESTY 1986; ESTY, CARTER 1991–92; ESTY 2006).

⁸ In the past, the search for the locality to which the coins with the FLAVIA NOVATARI legend could be referred led to Novara (PELLEGRINO 1966), Ovada (BERNAREGGI 1960, where the attribution to Castelnovate was contested), Novate Milanese (BERNAREGGI 1972), Novate Mezzola (PARDI 1999, p. 255) and a fictitious *Nova Tari* (PELLEGRINO 1952). Today, however, we can safely link this name to Castelnovate, part of the municipality of Vizzola Ticino (MEC 1, pp. 60–61; PARDI 2003, p. 127; see below for more details).

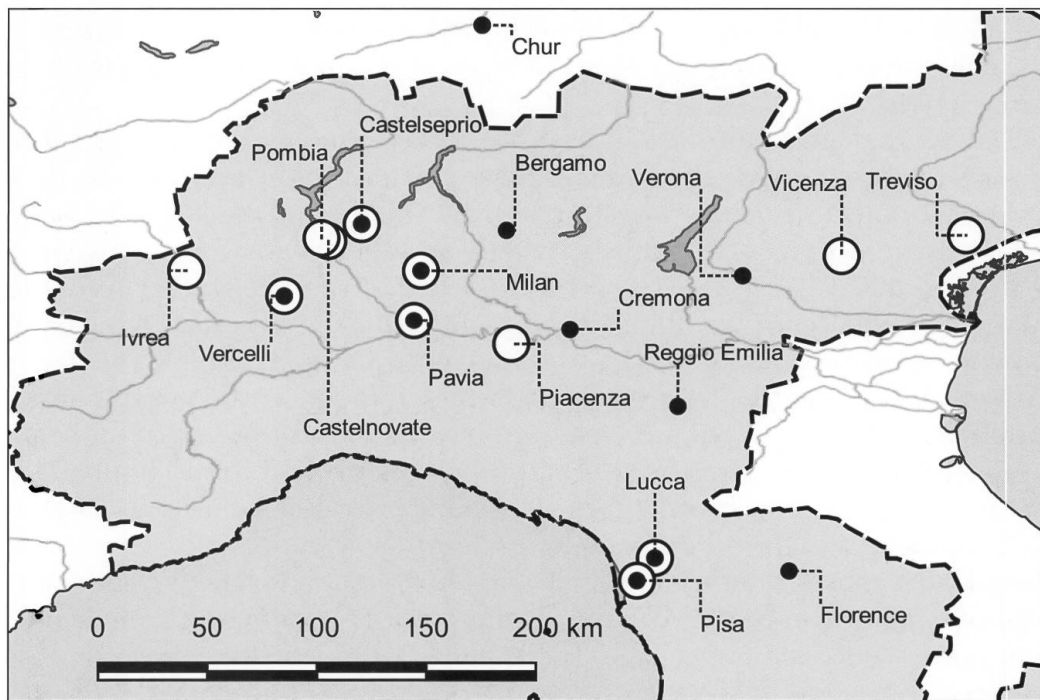


Fig. 1 Mints of Desiderius (white spots) and Charlemagne (black spots).

After the conquest of the Lombard kingdom, Charlemagne struck gold tremisses in continuity with Desiderius, with the same figurative characteristics, in which the localities of Castelseprio, Lucca, Milan, and Pavia are again named, now with the addition of Bergamo and Parma⁹ (Fig. 1). These coins are mainly known thanks to the hoard that came to light in Ilanz (Canton Grisons, Switzerland), originally¹⁰ containing no less than 40 Lombard tremisses and as many in the name of Charlemagne¹¹. Previously, we knew only two specimens from the mint of Lucca of uncertain provenance, whose authenticity had even been questioned¹², together with one from Pisa and one from Milan found just a few years earlier in Telti (Italy, northern Sardinia)¹³. Over the years, the series of tremisses in the name of Charlemagne has been supplemented with the discovery of a small number of pieces, some of which still found in Sardinia and Corsica, bringing the total number of specimens of certain authenticity known today to 67, from 44 distinct obverse and 46 reverse dies.

⁹ Chur, documented by a tremissis found in Ilanz and at least one other specimen on the antiquities market, has been intentionally excluded from the list, as the locality is jurisdictionally outside the *Regnum Italiae*.

¹⁰ *REPERTORIO* n. 8271. See now SARAH 2020 for a review of the coins in the hoard, which overcomes the ambiguities and contradictions of previous publications.

¹¹ In addition to the 80 tremisses, there was also an unknown number of fragments of tremisses, some of which were lost at the time of discovery or used for destructive tests of the alloy.

¹² BERNAREGGI 1983, p. 117.

¹³ *REPERTORIO* n. 7235.

The difference in the number of localities mentioned in the issues of Desiderius compared to those of Charlemagne is clear, but this may be due to the bias of the data due to the Ilanz hoard, from which come two-thirds of the 67 known Carolingian tremisses. Among these, 30 specimens recall a single locality: Milan. This means that less than half of the known specimens represent the remaining mints. On the other hand, 145 specimens from no less than 98 dies in the name of Desiderius are attested, together with another 15 specimens that have recently appeared on the antiquarian market, whose authenticity must be questioned¹⁴. The hoard with the largest number of specimens of Desiderius is that of Mezzomerico¹⁵. Although it is important in documenting mints such as Castelnovate (3 specimens out of 6/7 known)¹⁶ and Ivrea (1 specimen, the only one known today for this mint)¹⁷, it contributes to the total number of tremisses of the «flavia» series known for the last Lombard king with only 15 pieces (c. 10 %).

Interpreting the name of the locality after the attribute «flavia» as the place where the coin was struck, we would be faced with a distributed system of mints under both Desiderius and Charlemagne. This hypothesis has been challenged on numerous occasions. The perception of a significant stylistic consistency across coins bearing the name of the same sovereign has suggested that the fabrication of the dies, when not the minting itself, took place in a single centre, and thus that the names proposed on the coins served an essentially celebratory purpose.

This, however, does not appear to be a viable option with Desiderius. The coins bearing his name are stylistically so distinct that it cannot be presumed that the dies for the several localities were engraved by a single hand (*Fig. 2*). Furthermore, a document of 773 attests in Treviso a building of the *monita pupliga* (i.e., the mint) and a *monetarius* named Lopulo¹⁸, thus supporting the idea of local minting.

Some stylistic similarities can rather be observed with Charlemagne, with the specimens from Milan in Ilanz having a homogeneous style. But when they are compared with another specimen from the same locality kept in a private collection, unequivocal differences emerge, leading to question such an assumption (*Fig. 3*). We can also detect the use of an identical obverse¹⁹ minting for the production of a tremissis from Milan and one from Pavia, both from the Ilanz hoard²⁰

¹⁴ The surface of these coins is studded with small metal outgrowths that are not usually found on any specimen discovered in finds. Curiously, most of these coins of dubious authenticity have only appeared on the antiquities market for the first time in the last 15–20 years.

¹⁵ *REPERTORIO* n. 6956.

¹⁶ The uncertainty about the total number of known specimens is due to the doubts that must be expressed about the authenticity of a piece on the market today.

¹⁷ CUNIETTI–GONNET 1929.

¹⁸ *CDL* 2, n. 278 (773 January, Treviso; Ebune master shoemaker sells to *Lopulo monetario* a land near the *Monita pupliga*): *Constat me Aebune magistro calegario hab hac die vindedis et vindedit atque tradedis et tradedi tibi Lopulo monetario aliquantula terra, qui est astar fora ex porta, scilicet ad iuxta Monita pupliga*.

¹⁹ In disagreement with BERNAREGGI 1983, it is preferred here to indicate as «obverse» the side of the coin that shows the name of Charlemagne.

²⁰ SARAH 2020, p. 78. The die links between a coin from Milan and three from Bergamo indicated in the past (BERNAREGGI 1983, p. 121) are now disproved by a deeper re-examination of the coins in the Ilanz hoard.

can be identified: an event that can perhaps most easily be explained by the minting of the two coins in the same place.



Fig. 2 Gold tremisses of Desiderius: a) mint of Castelseprio (priv. coll., ex Numismatica Ars Classica AG 56, lot 551); b) mint of Piacenza (priv. coll., ex Fritz Rudolf Künker GmbH & Co. KG 227, lot 2107) mint of Lucca (priv. coll., ex Sincona 29, lot 1590).
Pictures in scale 1.5:1.



Fig. 3 Gold tremisses of Charlemagne: a) mint of Pavia (priv. coll., ex Sincona 50, lot 1121); b) mint of Parma (Sardinia (?) find; CRUSAFONT I SABATER 2004); c) mint of Lucca (Berlin, Staatliche Museen, inv. 18202710); d) mint of Lucca (priv. coll., ex Sincona 29, lot 1591). Pictures in scale 1.5:1.

We must note, however, that in these coins the name of Charlemagne appears without the title of «rex» (DOMNVS CAROLVS): a situation that can only be observed on a second tremissis for Pavia (the only one known today for this mint apart from the one at Ilanz)²¹ and on three others for Milan²². The absence of the royal title on these coins suggested to Ernesto Bernareggi the idea that some issues of Charlemagne may have been struck even before the final conquest of the *Regnum Langobardorum*²³, which culminated in June 774 with the fall of Pavia after a siege of about nine months. The tremisses with the title of «dominus» could have been produced during the military campaign, that is, before he was formally conferred the title of «rex Langobardorum» and an issue in his name began in other localities. We would thus be faced with an itinerant mint, which travelled from Milan to Pavia following the Carolingian army, when not with an issue made in a place other than Pavia, where the name of the city was proposed on the coin only for its strong symbolic value as capital of the *Regnum*, even in potential overlap with the issues of Desiderius. However, even if we were to admit a single centre for minting or die engraving, we must point out that it would not have produced the coinage for Lucca, since the coins in the name of Charlemagne with the FLAVIA LVCA legend show a much wider variety of types and a clearer stylistic discontinuity than any other issue referring to northern Italy.

The idea of a single centre of production of the tremisses of the «flavia» series must be counterbalanced by the evidence that the localities mentioned on the coins correspond to urban centres in northern Italy and Tuscia located along what were still important roadways in Late Antiquity, or that at the turn of the Lombard and Carolingian eras certainly had ports²⁴ or markets²⁵. Even three centres such as Castelnovate, Castelseprio and Pombia, which to a modern observer may appear to be of modest importance, from this perspective have the same relevance as much larger urban centres. The toponyms of *Plumbia* and *Sibrium* appear in the *Cosmographia* compiled by an anonymous author from Ravenna in the 8th century, in the list of the *civitates ad partem inferiorem Italiae*, together with cities of more established importance between Late Antiquity and the Middle Ages, such as *Vercelli* (*Vercellis*), *Novara* (*Novania*, to be corrected in *Novaria*), *Como* (*Comum*) and *Milan* (*Mediolanum*)²⁶. Castelnovate, Castelseprio and Pombia were three *castra*, part of a larger defensive system of late Roman or Byzantine origin that was still in place in the Lombard period, but they were also three localities that played a key role in a more articulated supra-regional communication system, as well as in the supply of gold.

²¹ Private collection (Classical Numismatic Group LLC 100, lot 467; Peus 348 lot 889, Lawrence A. Adams collection; Sincona 50, lot 1121).

²² In addition to the three specimens from Ilanz, there is a further coin in a private collection (Classical Numismatic Group LLC Mail Bid Sale 61, lot 2199).

²³ BERNAREGGI 1983, pp. 118–120.

²⁴ BANZI 1999, for a discussion that covers large parts of the western area of the Po basin and the Alps.

²⁵ PARDI 2003, p. 71.

²⁶ SCHNETZ 1940, p. 67 (V.30).

Philip Grierson and Mark Blackburn have already suggested that the bullion needed for the minting of some of the Lombard tremisses might have come from alluvial gold²⁷. The sands of the Ticino river and other nearby watercourses, such as the Sesia in the Vercelli area and the Cervo in the Biella area, are still particularly rich in gold, allowing the extraction of up to three grams of metal from each cubic meter of sand, at a purity of over 90 %²⁸. In the vicinity of Pombia and the neighbouring Biella area, there are traces of *aurifodine* in use at least since Roman times.²⁹ The *Honorantiae Civitatis Papiæ* (compiled at the beginning of the 11th century, partly taking up older texts) attest to the fact that gold collected from numerous rivers in northern Italy converged in Pavia, including watercourses in the area near Pombia and Castelnovate, such as the Sesia, the Bormida and the Agogna, as well as, of course, that part of the Ticino which runs from the outlet of Lake Maggiore to its entry into the Po³⁰. Ideally, therefore, at least in certain areas of the *Regnum Langobardorum* gold was easier to supply than silver, of which there do not seem to have been any significant mines in operation in northern Italy during the period investigated here³¹.

Castelnovate, Castelseprio and Pombia were in an important position along the *Novaria–Sibrium–Comum* route. It connected the *via Galliarum*, which passed through Novara, with the *via Regina* and other alpine routes that led from Como over the Septimerpass and the Lukmanierpass to the Rhine valley, and from there to the continental areas of the Carolingian kingdom. The *Novaria–Sibrium–Comum* intersected other roads: the *via Mediolanum–Verbanus* (also known as the *via Severiana Augusta*), which led from Milan to Lake Maggiore and from there to Domodossola and other routes that passed through the Alps, the *Mediolanum–Bilitio*, which led to Bellinzona and gave access to other passes, crossing Chur³²,

²⁷ MEC 1, p. 61.

²⁸ FANTONI *et al.* 2017, pp. 56, 67.

²⁹ PIPINO 2002; PIPINO 2006.

³⁰ MGH ss 30.2, pp. 1454–1455 (*Instituta regalia et ministeria camerae regum Langobardorum et Honoranti-ae Civitatis Papiæ*, caput 10): *Sunt etiam omnes auri levatores, qui mittunt rationem ad cameram Papiæ et nunquam debent alicui aurum venumdare per sacramentum et debent ad illum consignare et camerario. Et debent omne illud aurum comprare, gradinam solidos duos, idest octava pars unzie, idest denariorum duorum cum dimidio, soldi sedecim, alias undecim unzie, in fluminibus ubi aurum levant, quae sunt hec: Padus, Ticinus, Dorica, Sicida, Stura, Misturla, flumen Octo, Amalone et Amalona, Celo, Duria, Blavum, Urba, Sal-vus, Sesedia, Burmia, Agonia, Ticinus a Lacu Maiori ubi intrat in Padum.* See also BRÜHL, VIOLANTE 1983, pp. 20–21 (text), 58–60 (commentary).

³¹ Paola Marina De Marchi (2013, p. 39) mentions silver mines close to the Cavallizza river, near Cuasso al Monte (province of Varese). See also DI GANGI 2001, ROVELLI 2004 and – for Tuscan mines only – BIANCHI, ROVELLI 2018.

³² Awareness of the existence of such an articulated road system in the late Roman age and still – realistically – in full operation even in the Lombard period is a recent achievement. The positions expressed by Alfredo Passerini (1953), who denied the existence of such an infrastructure, were challenged by Pier Giuseppe Sironi (1964 and 1968), who hypothesised the existence of a link between Milan and Lake Maggiore based on historical cartography, arriving at the delineation of a route that largely followed what is now the Strada Statale 33 «del Sempione». Sironi's theories were later confirmed by archaeological research, which brought to light remains of the *via Mediolanum–*

and other itineraries of more established Roman tradition which, along the Po Valley, led to Aquileia.

All the localities mentioned on the tremisses of the «flavia» series thus appear to have been part of a system of road and river communication, of which we are perhaps not yet fully aware³³. Rather than for their strategic position to control the passes, or in general for their military heritage³⁴, we should perhaps look at these localities thinking about their role in a complex and multiform economic and commercial system.

A simple statistical analysis of the known specimens and attested dies, combined with the exceptional circumstances that led to the discovery of large numbers of tremisses, as in the case of the Ilanz hoard, makes it almost certain that the list of localities mentioned in both Desiderius' and Charlemagne's «flavia» issues will be expanded in the future. The probability of encountering a new die (and therefore, potentially, the attestation of a new locality) on the discovery of a new specimen is over 65 % for both sovereigns³⁵. We must therefore expect to see further dies that have not yet been documented in the specimens that may be discovered in the future, which would not only extend the lists of localities listed on the tremisses but, more importantly, our current perspective of the gold coin production system. This seems especially more likely for Charlemagne, where data is biased by a single find.

If we really want to see in the names proposed on the coins the places of production, and if we really support the hypothesis of a link between these places of production and a wider system of communication, it would not be surprising to discover in the future coins with references to places such as Piacenza, Mantua, and Cremona (for the presence of river ports and a particularly important role, for example, in the salt trade with Comacchio)³⁶, Como (for its proximity to the Alpine routes), or even Florence (as an ideal continuation of the route that went from Lucca to Pisa, then crossing the Apennines to reach Ravenna, the Adriatic

Verbanus at Somma Lombardo (SIMONE 1984; BRANDOLINI 2003–04) and Arsago Seprio (MARIOTTI 1994). Sironi (1985–86, pp. 173–174) is also responsible for the idea of the road *Novaria–Sibrium–Comum* passing through Castelnovate, thanks to its proximity to Pombia and the presence of a *portus*. For an updated and documented investigation on the road network of the *comitatus sepriensis* see FACCHI-NETTI, MIEDICO 2014, while for a more specific study of the local road network see MONTANARI 2004, *passim*, DE MARCHI 2013, pp. 16–23 and DE MARCHI 2017, pp. 92–95.

³³ The assertion in PARDI 2003, p. 125, that the northern Italian localities found on «flavia» coins were chief towns of Lombard duchies is challenged by the evidence we have concerning Pombia (BALBI 1991; VENTURINO 1998; AA.VV. 2000), Castelnovate (BERTOLONE 1934; BALBI 1991) and Castelseprio (see note 32).

³⁴ In PARDI 1999, p. 251, the strategic position of these localities is underlined by mentioning only their proximity to the Po river (Pavia, Piacenza, Vercelli), their role in controlling the Alpine passes (Castelseprio, Ivrea, Treviso, Vicenza) and their past as border *castrum* (Castelseprio), without explicitly proposing any economic contextualisation.

³⁵ The estimate is obtained by comparing the number of dies represented by a single coin with the total number of known coins, as suggested by Irving Good (ESTY 1986, formula J1).

³⁶ BERNAREGGI 1960, pp. 56–59; MCCORMICK 2001, pp. 631–633.

and the sea trade routes that developed along with it)³⁷. With Florence, in particular, a possible gold coin in the name of Charlemagne would complement a light denier assigned to this mint³⁸. The same could perhaps also be said of Cremona although, in this case, the attribution of a silver coin with the letters C E in the field³⁹ to this mint is more uncertain.

A link to the communication routes also seems to emerge from the finds. Ilanz, as discussed, is located along the road to Chur and the Rhine basin: should the coins in this hoard, therefore, be related to the payment of the *teloneum* documented in the vicinity of Chur⁴⁰? A tremissis from Piacenza came to light in Novalesa⁴¹, therefore along the road that, passing over the Mont Cenis pass, connected the Susa valley with the Maurienne, from where it was possible to reach places like Grenoble or Chambéry, and from there to continue further, crossing other roads. A tremissis from Vicenza was found in Darfo⁴², a locality in the lower Val Camonica from which it is possible to travel up to other passes in the Rhaetian Alps. With Charlemagne, finally, we have a tremissis of Lucca from the Confession of St Peter, from where various contemporary materials related to pilgrimages to Rome also derive⁴³.

The only certain attestations of «flavia» tremisses of Desiderius and Charlemagne outside of the *Regnum Langobardorum*, apart from Ilanz and Rome, are in Corsica⁴⁴ and Sardinia⁴⁵. Except for a tremissis of Charlemagne attributed to the mint of Parma, all of these coins are from Tuscia mints. The increased number of coins from Lucca does not appear to be coincidental, since both under Desiderius and Charlemagne it proved to be the most active mint in the region. To date, no fewer than 47 specimens are known from Lucca for the last Lombard king (none of which can be connected with certainty to a find), as well as a dozen fragments: quantities that far outnumber evidence from any mint in northern Italy. The same goes for the issues in the name of Charlemagne: the 15 known coins from Lucca are less than the 33 known from Milan, but while for the Milanese mint we have a clear distortion due to the Ilanz hoard (30 specimens), we now have that 5 coins from Lucca come from finds⁴⁶. Furthermore, the variety of types offered by the coins of Lucca are an indication of their production, which is plausible to have lasted quite a long time⁴⁷.

³⁷ This route was already partly marked out in Roman times by the *via Quinctia* (MOSCA 1992; MOSCA 1999), whose route is also recorded in the *Tabula Peutingeriana*.

³⁸ GARIEL 1883–84, pl. XII n. 171; *CNI* 12, p. 1 n. 1; MORRISON, GRUNTHAL 1967, n. 225.

³⁹ GARIEL 1883–84, pl. XI n. 164; PROU 1896, n. 893; *CNI* 5, p. 6 n. 34; MORRISON, GRUNTHAL 1967, n. 231.

⁴⁰ MCCORMICK 2001, p. 642.

⁴¹ *REPERTORIO* n. 6976.

⁴² *REPERTORIO* n. 6608.

⁴³ *REPERTORIO* n. 6452.

⁴⁴ *REPERTORIO* nn. 7130, 7138 (for Desiderius); 5630 (for Charlemagne).

⁴⁵ *REPERTORIO* nn. 7237, 7130, 7135–6 (for Charlemagne).

⁴⁶ Two specimens from two distinct localities not otherwise known in Sardinia (*REPERTORIO* nn. 7130 and 7135), plus one specimen from southern Corsica (Sari-d'Orcino, Punta San Damiano; *REPERTORIO* n. 5630), one from Ilanz (*REPERTORIO* n. 8271) and one from the Confession of Peter in Vatican City (*REPERTORIO* n. 6452).

⁴⁷ TRAVAINI 1999.

The scant evidence implies that under Desiderius, the mint of Lucca played a prominent role in Tuscia, and that this role was preserved under Charlemagne during the period when it continued to make gold coins. There are various justifications why specimens from Lucca, and more broadly from Tuscia, appear more frequently in Corsica and Sardinia.

We can first assume that Tuscia had more relations with the two islands than with the northern area of the *Regnum*. These relations could certainly have been economic, as they were influenced by contacts with the Byzantine and Arab worlds via the Mediterranean Sea that were much stronger than those that the cities of the Po basin had⁴⁸, but the presence of Lombard and Carolingian *élites* of Tuscan origin in Sardinia and Corsica, together with the fact that coins have been found in tombs, suggests that relations between Tuscia and the two isles were not limited to the commercial sphere⁴⁹.

Furthermore, it should be noted that Sardinia belonged neither to the Lombard kingdom nor to the Carolingian domination, whereas Charlemagne conquered Corsica only after overcoming the Lombards. As a result, any demonetization of gold and the introduction of silver money would have had an indirect impact on these territories due to linkages with locations where such a transition had been enforced by decree. As a result, gold money might have continued to be used even after silver money became the reference coinage for the *Regnum Langobardorum*'s territories. However, this is a complex issue, because these considerations must be accompanied by the different path followed by these two islands compared to the *Regnum*, as far as the continuity of urban settlements and the development of cities in the late Middle Ages and modern times are concerned, which could have led to the discovery of specimens in more ancient times without any memory of their find, as already discussed.

The importance attributed here to all the centres mentioned on the tremisses of Desiderius and Charlemagne also leads to new considerations regarding the meaning of the term «flavia» proposed on them. The predominant position has wanted to see in this attribute the expression of some royal prerogatives granted to the town or village, based on the fact that title «flavius» was of exclusive pertinence to the king, according to a long tradition of Roman origin⁵⁰.

⁴⁸ As suggested by the nature of the monetary finds observed in Sardinia, which is characterised by a much higher number of Byzantine and Arabic coins than those observed in the Po Valley area of the *Regnum Langobardorum* (McCORMICK 2001, pp. 354–357; *REPERTORIO*, *passim*).

⁴⁹ Monica Baldassarri (2020, p. 135) cautiously proposes the idea that part of the tremisses reached Corsica and Sardinia through members of the Tuscan aristocracy who acquired goods and made donations to the churches on the islands.

⁵⁰ The question has seen scholars over the years expressing often very divergent opinions. For a synthesis of positions see BERNAREGGI 1983, pp. 105–110 and PARDI 2003, pp. 104–106.

Paul the Deacon reports how the Lombard dukes, after the interregnum, elected Autari as their king (584) calling him «flavius»⁵¹. More generally, we can observe how in Lombard documents the term «flavius» is widely used, but exclusively associated with the name of the king. The *Codice Diplomatico Longobardo* provides several cases wherein the incipit of the document the sovereign who promulgates it is systematically called «flavius vir excellentissimus rex»⁵². In the *Sillabus seu catalogus regum Longobardum* all kings from Autari onwards are called «flavi»⁵³. The term is also used by the Visigoths, again preceding the name of the «rex», sometimes accompanied by «gloriosus»⁵⁴.

But the term «flavia» can also easily be associated with money itself, as proposed by Ugo Monneret de Villard⁵⁵: is not the *ius cudendi*, the right to mint money, one of the main prerogatives of a king? Rotari's edict of 643 expressly states (caput 242) that the issuing of gold coins without the king's permission (*sine iussione regis*) or the counterfeiting of coins should be punished by the cutting off of the hand⁵⁶. According to this reading, an inscription such as FLA [via] MEDIOLANO should be read as *flavia moneta in Mediolano excussa*. There would be a gender concordance of the term «flavia» with *moneta*, which is not the case with most of the names of localities, justifying the systematic use of the ablative. It is the coin that is «flavia», i.e. struck in the name of the *flavius Desiderius vir excellentissimus rex*, not the city or *castrum*. The cities and *castra* mentioned were the places where the minting of coinage took place, irrespective of special juridical merits or royal concessions: they simply operated on behalf of *flavius rex* by minting *flavia moneta*.

In the contemporary written sources, no evidence has been found in which the name of a locality was accompanied by the attribute «flavia». This is the case, for example, in the list of places proposed in the *Cosmographia* mentioned above, or more generally in the large set of collected documents that are part of the *Codex Diplomaticus Langobardiae*, the *Monumenta Germaniae Historica*, and the *Codice Diplomatico Longobardo*. It should be noted that in the modern publications that have examined Castelnovate, Castelseprio, or Pombia in a variety of contexts, it is precisely the coins of the «flavia» series that have been indicated as proof of the attribution of a similar title in the Lombard age to these sites⁵⁷.

⁵¹ MGH ss rer. Lang. 1, pp. 100–101 (*Pauli Historia Langobardorum*, III.16): *At vero Langobardi cum per annos decem sub potestate ducum fuissent, tandem communi consilio Authari, Clephonis filium supra memorati principis, regem sibi statuerunt. Quem etiam ob dignitatem Flavium appellarunt.*

⁵² CDL 3.1, *passim*.

⁵³ MGH SS rer. Lang. 1, pp. 501–504 (*Catalogi regum Langobardorum et Italicorum Brixensis et Nonantolanus*).

⁵⁴ MGH LL nat. Germ. 1 (*Leges Visigothorum*). See also Mócsy 1964, pp. 261–263.

⁵⁵ MONNERET DE VILLARD 1920, p. 188. However, his interpretation was not substantially taken into consideration by modern scholars (see for example BERNAREGGI 1983, pp. 108–109 and PARDI 2003, pp. 106–110).

⁵⁶ HPM 8, *Edicta regum Langobardorum*, 1, col. 57, caput 242: *Si quis sine iussione regis aurum figuraverit aut moneta confixerit, manus ei incidatur.*

⁵⁷ As, for example, in DE MARCHI *et al.* 2004, p. 113, DE MARCHI 2014, p. 199 and DE MARCHI 2017, p. 93.

The scenario in which the coinage took place locally does not conflict with the idea of a centralized – in whole or in part – production of dies. Precisely because the coinage was «flavia», and as such an object made under the control of the king, the engraving of the dies could be made in one place and then distributed wherever there was a need to produce the coins, for example, because these places had economic or commercial importance⁵⁸. The minting may not necessarily have been carried out continuously, but perhaps only for limited periods: when the need for minting ceased to exist, the dies could return to the centre where they had been made. The reverse dies, without the explicit indication of the locality, could at this point be reused in different mints⁵⁹. However, the idea of a discontinuous minting would risk conflicting with an economic scenario characterized by dynamism and the widespread use of money.

The transition between the gold tremissis and the silver denier

Castelseprio, Milan, and Pavia appear to be the places in northern Italy where the production of gold coinage under Desiderius would have been concentrated. For Castelseprio we know 28 specimens from 15 distinct obverse dies and the same number of reverse dies⁶⁰. We have 21 specimens from 16 distinct obverse and 17 reverse dies for Milan, and 19 specimens from 13 distinct obverse and 12 reverse dies for Pavia, but the actual number of specimens for these two mints is likely to be greatly reduced, with 6–8 specimens less for each mint, due to concerns about the authenticity of some coins that have appeared on the market in recent years. If we include the Pombia and Castelnovate issues, more than two-thirds of the known coins – excluding those produced at Tuscia – would be connected to just five mints, and only those of Milan and Pavia can be traced back to a prominent urban centre.

Starting from these numbers, it can be estimated⁶¹ that the minting of tremisses for Castelseprio took place with 19 to 21 dies⁶². Assuming that between 10,000

⁵⁸ SPUFFORD 1988, pp. 22–23.

⁵⁹ Uses of identical dies on coins from different mints have also been observed with the Franks (SPUFFORD 1988, p. 23), for example between the mints of Saint-Martin and Saint-Maurice de Tours in the 8th century (LAFaurie 1976), and even more frequently during the reign of Charles the Bald (LAFaurie 1968).

⁶⁰ Included in the count are two specimens of dubious authenticity, each from a pair of dies not otherwise observed on other issues.

⁶¹ There are several models for estimating the number of coinage used in an issue (see note 6), each based on specific assumptions, which often give indications very different from each other. It is precisely this extreme variability of results, together with the reservations I have about some of these methods (in particular, the formulas empirically developed by Carter and the idea of a negative binomial distribution of coin frequencies), that lead me to base the evaluations proposed here mainly on the formulas of Stewart Lyon (1965) and George Th. Guilbaud (1974), which are shown to produce the most conservative estimates.

⁶² If we exclude the two specimens mentioned in note 60 and consider all those surveyed without reservations about their authenticity, the estimate is reduced to 17–19 dies.

and 30,000 tremisses could have been minted from a single die, we obtain that the production in the name of Desiderius for Castelseprio would have been between 190,000 and 630,000 pieces. These numbers are almost tripled if we add the potential production of Milan and Pavia, and can become even ten times greater if we extend the estimations to include all the coins and dies identified to date for Desiderius⁶³.

The inventory of the tremisses of Lombard kings carried out by Giorgio Fusconi identified 62 coins struck with 12 distinct obverse dies for Cunipert (688–700), 110 coins with 41 obverse dies for Aripert II (702–712), and 409 coins with 220 distinct dies for Liutprand (712–744)⁶⁴. If we restrict the analysis to Liutprand only, the production of tremisses originally would have been carried out with 295 dies⁶⁵, or even in the order of 380 dies by adopting less conservative criteria⁶⁶, with a total number of tremisses produced that would consequently range between three and nine to ten million examples⁶⁷. To such a mass of money produced locally, if it really got into circulation and not exported outside the Lombard Italy, we must also add all the coins coming from outside the *Regnum Langobardorum* (e.g. Byzantine solidi, Arab *dīnār*), whose diffusion, however, appears more difficult to be quantified based on the available data⁶⁸.

On the eve of the Carolingian conquest, therefore, the *Regnum Langobardorum* could have had theoretically at its disposal a substantial amount of gold coins. This does not appear to be at odds with either the large number of documentary citations or the amounts of money proposed in them. There is also evidence in the Mezzomerico and Ilanz hoards of pieces struck by Desiderius' predecessors, further confirming their presence in circulation even many years after the death of the king who had issued them. The Mezzomerico hoard is even more significant than the Ilanz one, since its concealment predates any demonetization of gold that may have been carried out under Charlemagne, and it came to light inside the *Regnum Langobardorum*.

These estimates do not imply that the entirety of the coinage produced under Cunipert, Aripert II, Liutprand, and Desiderius was in circulation under Charlemagne. We must consider recoinage using metal from previous issues, which means that only a portion of their coins were still available when Charlemagne's tremisses were produced. However, we might imagine that at the dawn of the Carolingian dominance over the *Regnum*, the number of tremisses of Lombard inheritance potentially in circulation was in the millions: between five and fif-

⁶³ At the moment it has been possible to identify more than 150 specimens (some of which, however, are of dubious authenticity) and no less than 90 dies, extending what has been surveyed by Ermanno A. Arslan (1998, pp. 679–680; 2000, p. 205).

⁶⁴ FUSCONI 2020, p. 50.

⁶⁵ Using the criteria expressed in LYON 1966 and GUILBAUD 1974.

⁶⁶ If the criteria of Carter (1983) were to be adopted.

⁶⁷ The two indications on the number of specimens produced are again obtained by considering a volume of about 10,000 or 30,000 pieces per die, respectively.

⁶⁸ The picture painted by Maurice Lombard (1947) of a massive diffusion of Arab coinage is not reflected in the finds of *dīnār*, which appear to be completely absent in the Po Valley area. The only exception is given by a few cases in Veneto and Friuli (v. *REPERTORIO, passim*), which can, however, be traced back to trade with Venice.

teen, we could speculate, based on the evaluations just stated, but with caution. The introduction of Frankish silver denier, therefore, took place in a context in which the presence of local gold coinage in the *Regnum* could have been significant.

There is agreement among scholars that the changeover from gold to silver currency took place rapidly in northern Italy from 1 August 781. However, we must not forget that this date, and even the same operation of demonetization of gold, are the result of an interpretation proposed by Philip Grierson of a single sentence (*De moneta, ut nullus post Kalendas Augusti istos denarios quos modo habere visi sumus dare audeat aut recipere; si quis hoc fecerit, bannum nostrum componat*) taken from a capitulary which has come down to us incomplete, issued in Mantua at *Kalende Augusti* of a year not proposed in the document⁶⁹.

Although there is no explicit mention of tremisses in this document, the expression *ipsos denarios* was read without hesitation as a reference to gold coinage. The dating of the document to 781 was determined by the fact that in that year Charlemagne had made a visit to Italy, during which he had the opportunity to issue other important capitularies and administrative acts⁷⁰. This is not the only time Charlemagne was in Italy, of course, since we also know of a visit that he made in 776 and another in 786/7. But if the first moment seems implausible to place a change of currency, because it would excessively restrict the moment of production of tremisses in his name, the option of 786/7 was considered by Grierson too late and too close to a new reform which, shortly afterwards, would lead to a more radical replacement of light silver denier by a new heavier denier which would affect all the Carolingian dominions⁷¹.

The dating of the capitulary of Mantua and Grierson's interpretation of the *ipsos denarios* have, however, been challenged by Stanisław Suchodolski, who considered it more realistic not only to postpone the issue of the document to 787, but also to see it as an act of exchange concerning silver money, and not as a demonetization of gold⁷².

Leaving aside the uncertainties surrounding the chronology and the actual reference to the tremisses in the aforementioned document, it is crucial to consider what would have been involved in replacing the gold tremisses with Frankish silver money. Whatever the real level of trade development or the economic vigor of the cities, we cannot see the territories of the *Regnum Langobardorum* being able to do without gold coinage just after radical ban. These tremisses must have been actively used in the buying and selling of real estates and the composition of family assets (well documented)⁷³, in commercial exchanges (which can

⁶⁹ *MGH Capit.* 1, n. 90, caput 9.

⁷⁰ See in particular *MGH Capit.* 1.

⁷¹ Grierson shows here that he endorses the dating of the document already put forward by Alfred Boretius, editor of the volume in the series of the *Monumenta Germaniae Historica* in which the capitulary is transcribed.

⁷² SUCHODOLSKI 1981.

⁷³ Particularly well documented is the case of the family of Totone da Campione, whose history stretches from the end of the Lombard times to the Carolingian era (GASPARRI, LA ROCCA 2005).

be assumed based on the attestations of *negotiantes*, *negotiatores*, and *mercatores* in the documents)⁷⁴, and partly remained hoarded (an aspect on which neither the documents nor the monetary finds⁷⁵ seem to provide a clear contribution). The numbers estimated above seem too high to imagine that a change-over of the gold tremisses to another currency could have taken place without considering a transitional phase during which the two currencies coexisted. It is also difficult to imagine that the Italian regions of the Carolingian dominion received all the quantities needed for an immediate substitution: we would be talking about millions and millions of pieces, of which there do not seem to be any evident traces left in the finds.

The examination of the documents and statements about the amounts of money used in payments seems to point towards a shift from gold to silver which, at least in northern Italy, took place only from the mid-780s onwards⁷⁶. In a deed of sale of a vineyard, drawn up on 5 May 785 in Bergamo, a payment of *duodecim soldos argenteos* is made after a previous payment of *quinque soldos auro*⁷⁷. Asti (16 August 788: *accepisse et accepi ad te Augustino Clericus dinarios argenteos numeri trigenta fenido precio*)⁷⁸ and Trevano di Uggiate (10 July 789: *ad te iam dicto Totune laoneghild argentum dinarii in soledus dece, ad duodice dinarius per soledus*) also attest to the use of the silver currency⁷⁹.

The transition from gold to silver may have been slower in Tuscia and the Italian areas outside the *Regnum*. Ugo Monneret de Villard recalled that even in 799,

⁷⁴ Bernareggi (1960) was the first to emphasise the presence in the *Regnum Langobardorum* of an industry (pp. 41–49) alongside agricultural production and above all trade (pp. 51–60), pointing out the presence of *negotiatores* (pp. 54–60) and sketching a very innovative picture of the Lombard economy for the times in which he conducted his studies. More recently, Stefano Gasparri (2018, p. 44) remarked that the appearance of these *negotiatores/negotiantes* in the subscriptions of documents does not seem particularly widespread. But for a more up-to-date and complete picture see now McCORMICK 2001 (especially pp. 12–15 for a possible explanation of the scarce attestation of merchants and traders in the sources).

⁷⁵ For a survey of gold coin finds in the territory of the *Regnum Langobardorum* see McCORMICK 2001, pp. 834–850 (only for hoards) and *REPERTORIO* (for a survey including single finds).

⁷⁶ According to Vincenzo Capobianchi (1892, p. 80), the last evidence of gold solidi and tremisses in documents for Lombardy dates back to 782, but in stating this he cites a document of 2 February 781 (FUMAGALLI 1805, doc. xvi). Ernesto Bernareggi (1971, p. 151) reports a mention of solidi in a deed of April 805 drawn up in Bergamo (*CDLang*, doc. LXXIX) and in a *decretum* of 4 June 813 (*CDLang*, doc. LXXXVIII), but it must be recognized that in both cases there is a generic mention of *solido*, without giving other indications about the metal. In the *decretum*, on the contrary, *denarii* are expressly mentioned, but above all *quindecim libris argenti*, while there are no references to gold. More recently, William R. Day jr. (1997) has shown the gradual pace of the changeover from gold to silver in Italy, starting in the North first, then moving to the centre and finally making in-roads in the South before pulling back definitively in the 10th century, after the arrival of the Fatimids.

⁷⁷ *CDLang*, doc. LX. The document is also mentioned by Grierson (1954, p. 51) to support his hypothesis of an introduction of light silver deniers in 781.

⁷⁸ *HPM* 1, *Chartarum*, 1, doc. XIII.

⁷⁹ FUMAGALLI 1805, doc. XVIII; *ChLA* XXVII, doc. 856.

in Lucca, gold payments were still mentioned in documents, although the first silver payments had already been recorded in 787⁸⁰. In Farfa (in Latium, today in the locality of Fara in Sabina) mentions of silver coinage appear for the first time in a deed of sale of August 805⁸¹, while previously the amounts were expressed exclusively in gold solidi and tremisses, mancusi of gold⁸², or at most simply in solidi, without specifying the metal. In a document of April 806 we find both an annuity expressed in deniers (*persolvamus vobis, seu successoribus vel posteri vestris, pensioni nomine denarios VI*), and therefore in silver coin, and an amount in gold mancusi (*Et si de ipsis rebus aliquid alienare aut negligere voluerimus, componamus vobis solidos mancosos in auro LXX*), but relating to the penalty to be paid as a result of a *causatio*⁸³. A similar situation appears again in later documents⁸⁴, but in a deed of 2 March 819 the non-performance clause is indicated in *solidos franciscos CCC*⁸⁵, an expression in which we can presumably recognize the Carolingian silver deniers⁸⁶.

The most common attestation in documents on silver money must be due to an easier supply of silver coins, i.e. a better circulation of silver money, ideally more than gold coins; If it is not, it would not be explained why it was necessary to specify amounts in a money that would not have been easy to obtain. The expression of an amount in gold coins in the documents survives the longest in correspondence with *causationes* and *sanctiones*, i.e. the penalties to be paid in the event of a breach of contract: it is therefore not a question of a payment that materially occurs, but only expresses an eventuality that would not have occurred otherwise.⁸⁷ Silver is expressly used when the currency refers to a payment of an agreed amount for a sale or in exchange for an annuity.

However, where is all this silver coinage? How much of that is still in circulation, and how much of it was produced by the mints of the *Regnum Italiae*? We have evidence of deniers that explicitly bear the names of Lucca, Milan, and Parma, as well as others that have the names of Castelseprio and Florence, but their quantity appears to be objectively modest: with the exception of Lucca, each mint is attested by one or two specimens at most. The mint of Milan is known only for the specimen in the Ilanz hoard⁸⁸, which also returned one of the two known deniers of Parma⁸⁹. To Castelseprio is attributed a coin which has the letters

⁸⁰ MONNERET DE VILLARD 1919, p. 27.

⁸¹ GIORGI, BALZANI 1879–1914, II, doc. 177 (XCXIII), anticipating the indication of 806 given by Ugo Monneret de Villard (1919, p. 28) by one year.

⁸² It is not the purpose of this research to examine the multiple aspects involved in the identification of the *mancuso*, its value and its use. For an understanding of the complex issues involved, see ROVELLI 1992 and especially McCORMICK 2001, pp. 323–342.

⁸³ GIORGI, BALZANI 1879–1914, II, doc. 181 (CXCVIII).

⁸⁴ Thus again, for example, in a document of 18 July 813 (GIORGI, BALZANI 1879–1914, II, doc. 203 (CCXX)), where a *pensio* is expressed in terms of *denarios xx* but in correspondence with the amount relating to the *sanctio* there is mention of *auri solidos mancosos CCC*.

⁸⁵ GIORGI, BALZANI 1879–1914, II, doc. 239 (CCLVII).

⁸⁶ CAPOBIANCHI 1892, pp. 82–83.

⁸⁷ Not to mention that penalty clauses usually lag behind stipulations of price or payment clauses, and price stipulations usually lag behind actual practice.

⁸⁸ JECKLIN 1906–07, n. 77; CNI 5, p. 6 n. 33; MORRISON, GRUNTHAL 1967, n. 211.

⁸⁹ JECKLIN 1906–07, n. 79; CNI 9, p. 39 n. 5; MORRISON, GRUNTHAL 1967, n. 206 (who mention a second specimen in the Koninklijk Penningkabinet).

S–E–B–R–O displayed in the shape of a cross joined by a lozenge⁹⁰, one specimen of which came to light around 1910 in Grono (Canton Grisons, Switzerland)⁹¹, and a second specimen is kept in a private collection. Finally, the mint of Florence is represented by a coin with the inscription FLOR–ENT⁹², the authenticity of which, however, cannot be completely certain.

Much more numerous (*c.* 70 specimens identified to date, from no less than 61 different dies) are, however, other coins marked on the obverse with the words CARO–LVS on two lines, and on the reverse with the monogram RXF, usually accompanied by other letters (*Fig. 4*). The identification of the mints of origin of these coins has not always led to shared positions. If for the specimens – the most numerous in the series – showing on the reverse the letters ME or MED linked to form a monogram there has been a substantial convergence of opinions in believing that they come from the mint of Milan, for other specimens have been proposed attributions that, probably drawing inspiration from the locations mentioned on the gold tremisses of Desiderius and Charlemagne, looked at the mints of Bergamo, Cremona, Ivrea, Mantua, Parma, Pavia, Piacenza, Turin, Treviso and Vercelli, or have limited themselves to proposing an «Italian origin» for some specimens without additional letters, but which show the inscription CARO–LVS on two lines and the monogram RXF made with letters ending in spikes⁹³.



⁹⁰ MORRISON, GRUNTHAL 1967, n. 231.

⁹¹ *REPERTORIO* N. 8329.

⁹² See note 38.

⁹³ For a summary of the attributions: ROVELLI 2008, pp. 125–132 and bibliography cited therein. For an update of positions on the coins with the monogram *Karolos* in Greek, however, see now COUPLAND 2020.



Fig. 4 Light deniers of Charlemagne with RxF and letters: a) letters C E, mint of Cremona (?) (Berlin, Staatliche Museen, inv. 18245066); b) letters PLA, mint of Piacenza (?) (Paris, Bibliothèque Nationale de France, inv. CAR-1406); c) letter v, mint of Vercelli (?) (Paris, Bibliothèque Nationale de France, inv. CAR-1403; PROU 1896, no. 894); d) letter v, mint of Treviso (?) (Carvico find; ASOLATI 2016). Pictures in scale 1.5:1.

In re-examining the hoard traditionally referred to as «Sarzana-Luni»⁹⁴, where some of these deniers with the monogram ME/MED were found together with others judged to be from the Italian area, Jean Lafaurie⁹⁵ has put forward a proposal for the chronology of the light Italian deniers, developing a hypothesis already advanced – more tentatively – by Philip Grierson in 1965⁹⁶. Lafaurie pointed out that the two specimens from Milan and Parma with the explicit indication of the name of the mint of origin in the field were found only in the Ilanz hoard, where there are also light deniers with the monogram RXF, while they are absent in other hoards containing deniers with RXF of presumed Italian origin, such as those from Bel Air⁹⁷ and Imphy⁹⁸. The fact that the closing date of the Ilanz hoard is certainly later than that of the other hoards mentioned by Lafaurie, due to the presence of a new heavy denier from Pavia, has led Lafaurie to believe that

⁹⁴ *REPERTORIO* n. 6522.

⁹⁵ LAFaurie 1975.

⁹⁶ GRIERSON 1965, pp. 507–515.

⁹⁷ *REPERTORIO* n. 10101.

⁹⁸ *REPERTORIO* n. 9752.

the deniers with RXF were made before the deniers with the name of the mint in the field and to see in the journey to Italy undertaken by Charlemagne in 786/7 the moment of caesura between the two series. Furthermore, the fact that some specimens considered to be of Italian origin in the Ilanz and Sarzana-Luni hoards have flans usually *c.* 2–3 mm greater compared both to other specimens of the same series and to other light deniers of Frankish origin, has also led Lafaurie to propose a further subdivision of the series of deniers with RXF, considering those of reduced module to be struck before those of increased module.

If we accept Lafaurie's chronology and combine it with Grierson's reading and the dating of the Mantua capitulary to 781, we should conclude, based on the pieces known today, that the supposed demonetization of gold would have been followed by a period of intense coin production by Milan, flanked by other mints (Cremona? Vercelli?) where the volumes would have been much lower. To be able to make a quick change-over, such an intensive minting would fit well with the need for silver coins to replace the gold coins used in the territories up to that time. If this had been the case, the operation would have been completed in just five years, but it would have ended in a rather singular way, with a radical change in typology and, more importantly, a clear downsizing of minting operations right at the time when the documents show how the use of silver money definitively took root in payments.

This discontinuity appears even more surprising when we observe how, after the introduction of the new heavy denier, the activity of the mint of Milan reached peaks even higher than those estimated for deniers with the letters ME/MED. Moreover, it would have been joined by Pavia (not documented among those striking light deniers), which in turn produced considerable quantities of coins, comparable to those produced in the Milanese mint⁹⁹.

If, on the other hand, it was assumed that the coins with the mint name in the field preceded the series with the monogram RXF, this discontinuity would disappear. On the contrary, there would be a point of contact with Stanisław Suchodolski's reflections on the capitulary of Mantua, where he linked the document to a change in silver coinage only¹⁰⁰. The word *denarios* in the capitulary should not be read at this point as a generic reference to gold coinage, but rather as a reference to the silver *denarius*: perhaps a change from deniers with the mint name in the field to those with RXF? If so, there would be an intriguing continuity of production of mints that were already producing gold tremisses under Charlemagne (Castelseprio, Milan, and Parma). We would be confronted with evidence that the transition from gold to silver coinage did not correspond to a radical rationalization of the mints, but that they continued with a production that we could define as more local, in further continuity with what had already been achieved with the issue of gold tremisses.

The lack of an explicit act of gold demonetization would justify the attestation of tremisses and solidi in documents well after 781, and would also explain the limited production of light deniers in the *Regnum* just discussed: gold, inherited

⁹⁹ For more details about the volumes produced by these mints, refer to the paragraph *The introduction of the new denier*.

¹⁰⁰ SUCHODOLSKI 1981, pp. 402, 405–407.

in not insignificant quantities from the time of Desiderius, had remained in use until after 781, then gradually being ousted by silver due to increased availability of new money, even more marked – as will be seen below – after the introduction of heavy coinage in 792/3.¹⁰¹

Accepting this reading, we would have the striking of the deniers with the mint name in the field falling between 773/4 and 781, probably limited to a period around 781 since, in the preceding years, tremisses in the name of Charlemagne had also been issued, with a more abundant variety of types than is recognizable in these deniers¹⁰². Consequently, the series of deniers bearing the monogram RXF would end up being minted between 781 and 792/3: a wider interval than follows from the chronology of Grierson and Lafaurie, perhaps more appropriate to the number of specimens and dies detectable at least in the series bearing the letter ME/MED.

Furthermore, if we accept that the deniers marked with a monogram that can be interpreted as PLA are products of the mint of Piacenza¹⁰³ (Fig. 4.b), the indications regarding the figure of a *monetarius*¹⁰⁴ coming from a sales deed drawn up in 788¹⁰⁵ would confirm the idea of the series with RXF later than that proposed by Grierson and Lafaurie.¹⁰⁶

¹⁰¹ Ildar H. Garipzanov (2016) attributes the introduction of the new denier to the period between the autumn of 792 and the early autumn of 793, during the presence of Charlemagne's court in Regensburg.

¹⁰² This can also be seen in the classification of the tremisses of Charlemagne by Ernesto Bernareggi (1983, pp. 118–119), where four different «issues» are distinguished and differences between one mint and another are highlighted.

¹⁰³ Again, the type is represented in the Ilanz hoard with two specimens (JECKLIN 1906–07, nn. 94–95).

¹⁰⁴ Roberto Sabatino Lopez (1953 and 1991) highlighted how the *monetarii* constituted an *élite* in Lombard and Carolingian society, being among the richest craftsmen recorded in documents. Andrea Castagnetti (2010) has confirmed their high wealth by recalling (p. 24) how in the purchase of goods made by Teodoro, *monetarius* of the city of Pavia, in Saronno in 849 the amount at stake (12 silver *lire*) was the highest among those attested at the time in sales in the Milanese territory. Moreover (*ibidem*, p. 27) he saw the signing of a deed concerning a count by the *monetarius* Donusdei as proof that he occupied a position in society that was not among the lowest. This evidence overcomes the view of Ernesto Bernareggi (1983, p. 71), who considered *monetarii* to be merely humble, unassuming workers (*umili, modesti operai*). In examining the Merovingian *monetarii*, Arent Pol (2020, pp. 34–35) has pointed out that their role in the minting process is unclear, excluding any tasks of die engraving and thinking of them essentially as officials for the control of the quality of the coins.

¹⁰⁵ 788 March 16, church of San Savino in Piacenza: Loboaldo, son of the late Lopone, leases land in *Rutiliano* and two vineyards in Felegario for twenty years from Senepert, deacon and custodian of the church of San Savino, with the permission of the bishop of Piacenza, Giuliano. Among the witnesses: + *Ego Ambrosius filius Aldoni monetario uhic peditorio rogatus ad Loboald testis suscripsi [...]* + *Ego Davet monedario uhic petitorio rogatus ad Loboald testes suscripsi* + *Ego Ariberto monedario uhic peditorio rogatus ad Lopoaldo testes suscripsi* (GALETTI, PETRACCO–SICARDI 1978, doc. 2; *ChLA* xxvii, doc. 829).

¹⁰⁶ We have evidence of *monetarii* in the territory of Piacenza in three distinct sales deeds: 788 March 16 (see pre-vius note), 791 July 6 (Carpaneto Piacentino: exchange of land in Carpaneto Piacentino with land in *Fortiniaco* and *Albareto* between Lopone, son of

At the same time, introducing this series of deniers later would appear inconsistent with the rest of the Carolingian kingdom, where the mint name substituted earlier designs, matching those proposed on Pippin's coinage with the monogram RXP: why would Char-lemagne be doing the opposite in Italy?



Fig. 5 Light deniers of Charlemagne with RxF and letters ME/MED, mint of Milan (?): a) small module, plain letters (Berlin, Staatliche Museen, inv. 18245065); b) large module, letters ending with spikes (priv. coll., ex Numismatica Ars Classica AG 44, lot 675).

Pictures in scale 1.5:1.

the late Teudoaldo, and Count Aroin. Among the witnesses: *Signum + manus Donu[s] dei qui fuet monetario testis*; GALETTI, PETRACCO–SICARDI 1978, doc. 3; *ChLA* xxvii, doc. 830); 796 January 22 (Piacenza: Teofuso, son of the late Paulone, donates to Aidolfo, Gastaldo of the city of Piacenza, some goods located in Folignano and in Centovera. Among the witnesses: + *Signum + manus Giselpert filii quondam Davit monetario testis* [...] + *Ego Adelperst aurefex uhic cartolae donationis rogatus Teofuso testis suscripsi*; GALETTI, PETRACCO–SICARDI 1978, doc. 5; *ChLA* xxvii, doc. 832). Only the first is related to a *monetarius* potentially in charge, while the second mentions a former *monetarius* (*qui fuet monetarius*) and the third the son of a *monetarius* (*filii quondam Davit monetario*). See also CASTAGNETTI 2010, p. 27.

The dispute over the chronology and temporal extent of the coinage must also be accompanied by a more general reflection on the actual provenance of the deniers with RXF. The attribution of the specimens with the monogram ME/MED to the mint of Milan is due to William Boyne, who in 1886 published an essay¹⁰⁷ in which he questioned what had previously been proposed by Adrien De Longpérier¹⁰⁸ and then by Ernest Gariel¹⁰⁹. Their Italian origin has been conjectured based on stylistic elements (such as the presence of letters ending in spikes) and of the fact that they appear to have been minted on a flan with a larger diameter than that found both on the deniers of Frankish provenance and on the Italian issues just discussed, on the locations where they were discovered or on hypotheses of interpretation of the monograms and symbols proposed on the reverse.¹¹⁰ However, the criteria based on the presence or absence of letters ending in spikes, or on the size of the flan, are not unambiguous.

Among the deniers with the initials ME/MED, some have been identified in which the letters are not ending in spikes, or are made on flans that do not exceed 18/9 mm in diameter¹¹¹ (Fig. 5). Similar discrepancies in the style of the letters can also be observed on deniers bearing a monogram that can be interpreted as PLA and traced back to the mint of Piacenza¹¹². With a coin showing a letter v, struck on a flan with a slightly larger diameter than other examples from the Frankish area¹¹³, we have a hybrid situation, where the letters of the inscription CARO-LVS on the obverse end in spikes, while those of the monogram RXF on the reverse proposes more rounded ends. Only specimens with the letters C E (Fig. 4.a) tend to have systematically prominent spikes on both obverse and reverse, together with a diameter in the range of 18/9 mm. Besides, we know of other specimens of uncertain origin with a slightly larger flan where the letters end in spikes, such as

¹⁰⁷ BOYNE 1886.

¹⁰⁸ DE LONGPÉRIER 1868.

¹⁰⁹ GARIEL 1883–84.

¹¹⁰ What other mint should we look to if we want to give new meaning to the initials ME/MED? The only credible alternative to Milan would seem to be Melle, which on other Charlemagne coins is attested as both *Metulum* and *Medulum*, and which was indeed one of the most active mints of the time, if not the most productive in an absolute sense. But such a reading would have other implications, firstly making it necessary to rethink the seriation of Melle coins, since other types are known for this mint. The idea of Mayenne (*Medena*) seems fragile, considering that this mint did not mint before Charles the Bald. More interesting appears the option of Meaux (*Meldis*), to which coins of Pepin the Short, Louis the Pious and his successors are attributed, but not of Charlemagne. This is, in any case, a further element of complexity, which must be taken into consideration, and examined with prudence, should it be necessary to review the attribution of these coins to Milan.

¹¹¹ As an example, see the specimens in the Ilanz hoard (in particular, JECKLIN 1906–07, nn. 102–103).

¹¹² Here again, the type is represented in the Ilanz hoard, with two specimens (JECKLIN 1906–07, nn. 94–95).

¹¹³ The specimen found in Vercelli is perhaps the only one with these characteristics known today, kept at the Bibliothèque Nationale de France in Paris (GARIEL 1883–84, pl. XI n. 168; PROU 1896, n. 894; MORRISON, GRUNTHAL 1967, n. 232).

a coin in the Sarzana–Luni hoard¹¹⁴ (Fig. 6.a), or a coin with the inscription +TRE on the reverse¹¹⁵ (Fig. 6.b) attributed to the mint of Trier.¹¹⁶



Fig. 6 Light deniers of Charlemagne: a) uncertain mint, Italian area? («Sarzana–Luni» find; Paris, Bibliothèque Nationale de France, inv. CAR-1405); b) mint of Treviri (?) (priv. coll.; ex iNumis Mail Bid Sale 29, lot 444; but forgery?). Pictures in scale 1.5:1.

Of all the deniers with RXF, variously believed to be of Italian origin, those with the letter T¹¹⁷ in the field are certainly the most discordant (Fig. 4.d). A coin with these characteristics in the Imphy hoard was considered by Lafaurie to support his hypothesis about the chronology of the deniers with RXF. However, all the deniers with letter T found during this research systematically show a reduced flan and inscriptions without spikes, and thus appear not dissimilar to other deniers of undetermined origin but not usually attributed to the *Regnum*.

The deniers with ME/MED form the most numerous series (more than 45 specimens identified so far) and the most stylistically diversified, with a varied prolifer-

¹¹⁴ GARIEL 1883–84, pl. XI n. 160; PROU 1896, n. 895a; VÖLCKERS 1965, n. XXVI/6; MORRISON, GRUNTHAL 1967, n. 225; LAFAURIE 1975, n. 5.

¹¹⁵ MORRISON, GRUNTHAL 1967, n. 114.

¹¹⁶ MORRISON, GRUNTHAL 1967, *find* n. 164.

¹¹⁷ GARIEL 1883–84, pl. XI n. 167 var.

eration of pellets in various points of the reverse field, isolated or in small groups. Their meaning remains uncertain (distinction of the issues, of the production lines or the workers?) but they anticipate what will be observed a few years later with the new heavy deniers of Milan, Pavia, and – to a lesser extent and with different solutions – Treviso: a peculiarity that we do not find with the same variety in the coins produced in mints in the Frankish area, with the possible exception of the mint of Arles¹¹⁸.

It is also the series that appears most frequently in finds. Besides Sarzana-Luni (7 specimens) and Ilanz (12 specimens), other coins came to light in Aosta (1 specimen)¹¹⁹, Bonn (1 specimen)¹²⁰, Chiusi (1 specimen)¹²¹, Domburg (1 specimen)¹²², Grosseto-Roselle (1 specimen)¹²³ and Vercelli (1+ specimens)¹²⁴.

The number of other deniers with RXF is much lower. Deniers with letters PLA come only from Ilanz (2 specimens), with letters PAR-MA (Parma?)¹²⁵ from Domburg (1 specimen)¹²⁶. We have only one coin with a letter v from a find in Vercelli¹²⁷. For those with a letter T, we have records from Zwentendorf an der Donau (1 specimen)¹²⁸– Krinkberg (1 specimen)¹²⁹. Carvico (1 specimen)¹³⁰, again Vercelli (1 specimen) and Imphy (1 specimen)¹³¹. These data are too scarce and heterogeneous to propose a region of origin alternative to the Italian one.

In the discussions so far about silver deniers, Treviso has been mentioned only incidentally. The reason for this is the fact that the coins from this mint are very distinct from those from any other mint – ascertained or presumed – in the Italian area. It was possible to track down no less than 21 specimens of light deniers from 19 different dies, all explicitly bearing the name of Treviso, belonging to at least six different types (*Fig. 7*).

The same Ilanz hoard that returned specimens from Milan and Parma with the inscription on the reverse also contains two coins of Treviso in which the name of Charlemagne appears in monogram, with the letters of the word *Karolus* arranged in a cross and joined to a lozenge¹³², and a further one with the name CARO-LVS in two lines¹³³.

¹¹⁸ MONNERET DE VILLARD 1921, p. 216

¹¹⁹ *REPERTORIO* n. 7818.

¹²⁰ *REPERTORIO* n. 10159.

¹²¹ *REPERTORIO* n. 7660.

¹²² *REPERTORIO* n. 8146.

¹²³ *REPERTORIO* n. 7572.

¹²⁴ *REPERTORIO* n. 7015.

¹²⁵ GARIEL 1883–84, pl. XI n. 166; *CNI* 9, p. 395 nn. 2–4; MORRISON, GRUNTHAL 1967, n. 204.

¹²⁶ *REPERTORIO* n. 8146.

¹²⁷ *REPERTORIO* n. 7015.

¹²⁸ *REPERTORIO* n. 9754.

¹²⁹ *REPERTORIO* n. 9753.

¹³⁰ *REPERTORIO* n. 6568.

¹³¹ *REPERTORIO* n. 9752.

¹³² GARIEL 1883–84, pl. XII n. 183; *CNI* 6, p. 227 nn. 8–10, 12; MORRISON, GRUNTHAL 1967, nn. 216–217.

¹³³ GARIEL 1883–84, pl. XII n. 181; MORRISON, GRUNTHAL 1967, n. 214.





Fig. 7 Light deniers of Charlemagne, mint of Treviso (a: Berlin, Staatlich Museen, inv. 18202703; b: Wijk bij Duurstede find, 1992; c: priv. coll. ex Fritz Rudolf Künker GmbH & Co. 227, lot 2097; d: *CNI* VI.227, 14; e: Berlin, Staatlich Museen, inv. 18245014; f: Berlin, Staatlich Museen, inv. 18245015). Pictures in scale 1.5:1.

An even different typology from its predecessors, with the name *CARO-LVS* on two lines on the obverse and the legend *TARVISIVS* around a cross on the reverse¹³⁴, could also have been present in the Vercelli hoard¹³⁵, which we know to have returned a denier with the monogram *RXF* accompanied by the letter *T* and a second denier with the letter *V*. Other coins have only emerged in recent years, both on the antiquities market and in finds. From recent excavations at Wijk bij Duurstede (the ancient emporium of *Dorestad*, in Frisia) came three coins of Treviso¹³⁶, two of which belonged to unpublished types. About half of the known specimens feature the *Karolus* monogram on the obverse, which has not been found on any other coin of Italian origin.

We might wonder if the adoption of this monogram was in response to peculiar requirements. Treviso was the seat of a river port and was located along a road that led to modern Austria after crossing the *Tarvisio* pass. From there it was possible to intercept other lines of traffic, with potential points of contact with the amber route that connected the northern Italian regions with the Byzantine

¹³⁴ GARIEL 1883–84, pl. XII n. 180; *CNI* VI, pp. 226–227 nn. 1–7; MORRISON, GRUNTHAL 1967, n. 213.

¹³⁵ MORRISON, GRUNTHAL 1967, *find* n. 8.

¹³⁶ *REPERTORIO* nn. 10138 e 10087.

world in Eastern Europe¹³⁷, accessing territories and commercial outlets different from those that would have been accessible for example from the passes that, through Chur, gave access to the Rhine river basin.

The introduction of the new denier

The change in silver coinage, with the introduction of a heavier denier, implied a coexistence between the first light deniers and the new deniers. In the Como area, we find a ratio of 1:12 between *solidus* and *denarius* both before the hypothetical introduction of the new denier, in the deed of sale of 10 July 789 just mentioned¹³⁸, and after, in another deed of sale signed in Como on 13 August 807 (*accepi ad te Totone, filius bone memorie Arogis, comanentes vigo Campellioni, emptore meo, argento solidos tregenta ad duodicem dinarii per solidum, finidum precio*)¹³⁹, when therefore the minting of light money had already been replaced by that of new money. For Tuscia the indications refer only to the area of Lucca and are all subsequent to the introduction of the new denier, but here, while confirming the ratio of 1:12 between the *solidus* and the *denarius*, the latter term frequently appears accompanied by the adjective *grossus*¹⁴⁰, evidently for the need to distinguish it from another «parvus» denier for which this ratio was not valid. Extending then the look again in the Italian areas outside the *Regnum*, we have that in Farfa we find more frequently amounts generically expressed *in argento*, without giving explicit indications of the number of deniers equivalent to a *solidus*, with only one exception given by a deed of sale of May 816 in which is mentioned an amount in terms of *argenti* [solidos] *cxx ana novem denariorum per solidum de moneta sancti petri finitum pretium*¹⁴¹. According to the scholars, the expression provides evidence that in some regions light deniers circulated in a ratio of 12:9 to heavy new deniers¹⁴². It does not, however, refer to the two types of Carolingian deniers, but more explicitly to the so-called papal *antiquiores* deniers of the Roman mint (*moneta sancti petri*), which were still minted according to the light money standard throughout the pontificate of Pope Adrian I (772–795) and for part of that of Leo III (795–816)¹⁴³.

At the same time as the new silver money was introduced, the number of active mints in the Carolingian dominions decreased: whereas we can identify about a hundred mints for light deniers, the production of new heavy deniers is concentrated in only about forty mints.¹⁴⁴ This decrease, however, did not correspond to a decrease in the volume of coinage produced. On the contrary, with the introduction of new heavy deniers, there has been a consistent increase in mint activity,

¹³⁷ MCCORMICK 2001, pp. 369–379.

¹³⁸ See note 79.

¹³⁹ FUMAGALLI 1805, doc. XXVIII; NATALE 1970, I, doc. 39.

¹⁴⁰ CAPOBIANCHI 1892, pp. 82–85.

¹⁴¹ GIORGI, BALZANI 1879–1914, II, doc. 219 (CCXXXVII).

¹⁴² GRIERSON 1965, p. 525; SPUFFORD 1988, p. 43 (citing Grierson); MEC 1, p. 206.

¹⁴³ FUSCONI 2012, nn. 1–2; FUSCONI 2016, nn. 1–6 (Hadrian I), 7–9 (Leo III). The adoption of the standard of heavy deniers seems to have taken place at the same time as Charlemagne's coronation as emperor (25 December 800).

¹⁴⁴ SPUFFORD 1988, pp. 43–44.

as evidenced by finds, the absolute number of specimens with these characteristics, and the dies that can be identified today, which is significantly higher than that of light deniers.

In the territories of what had been the *Regnum Langobardorum*, the active mints were reduced to five: Lucca, Milan, Pavia, Pisa and Treviso. There was a marked change in the balance of production. Milan and Pavia became the two main mints, while Treviso remained at much lower levels¹⁴⁵. What had been Lombard Tuscia, where with Desiderius and the first issues of Charlemagne a significant production of coins on important volumes is attested, is instead relegated to a marginal role. Lucca continued minting in the first part of the reign of Louis the Pious, but striking a smaller number of coins than the other mints located in the Po Valley basin¹⁴⁶, recovering its lost leadership role in the region only two centuries later, when the Saxon dynasty ruled Italy. For Pisa, instead, Charlemagne's money would have been the last issue before a productive silence destined to be interrupted only in the 12th century.

Milan may even have become the second most productive mint among those active in the Carolingian dominions, behind Melle, albeit with volumes four to five times lower¹⁴⁷. Pavia resumed minting after the apparent¹⁴⁸ interruption that occurred in the years immediately following the Carolingian conquest of the *Regnum Langobardorum*, when a minting of tremisses in the name of Charlemagne does not seem to have been followed by any issue of light deniers. Its return to production, however, proves to be outstanding, with volumes comparable to those already considerable estimated for Milan.

This simultaneous intensity on the production of both Milan and Pavia may appear surprising: the two cities are only about 30 kilometres apart, and it is very likely that at the time, they were still very well connected by communication routes of Roman heritage, allowing easy and rapid movements between the two localities. In an ideal project of rationalization of the places of issue, such as that

¹⁴⁵ The number of specimens and dies found is of the same order of magnitude as for the light deniers, suggesting – with caution, and assuming that no specific demonetization actions took place – that the production volumes did not undergo any particular changes. The subordination of the mint of Treviso to the mints of Milan and Pavia also emerges from the documents concerning the area of Lucca for the years 813–814 mentioned by Vincenzo Capobianchi (1892, p. 85), where, besides the coins of the mint of Lucca, those of Milan and Pavia are expressly mentioned (*de moneta de Papia et Mediolano seu lucana*), but not those of Treviso.

¹⁴⁶ As far as we have been able to ascertain, none of the coins of Lucca comes from finds.

¹⁴⁷ COUPLAND 2018, p. 447 (*table 3*).

¹⁴⁸ This term is deliberate: the absence of light deniers attributable to Pavia known today cannot exclude the possibility that they may be discovered in the future, especially given the extreme rarity of light deniers known for other mints of the *Regnum* and the lack of absolute certainty regarding the mint of origin of specimens with the RXF monogram (e.g., those bearing the letter T, which is being represented by the initial of *Ticinum*). Pavia had been the capital of the Lombard kingdom, but after the Carolingian conquest, it fell into disgrace, according to some interpretations as the result of a precise plan by Charlemagne to punish the last stronghold of Lombard resistance. This opinion, however, needs to be rebalanced with the evidence of tremisses with the FLAVIA PAVIA legend for Charlemagne as well.

which was implemented in a large part of the Carolingian dominions with the introduction of new deniers, the fact of having two mints so close together, both engaged in such intense minting, could only be part of a precise design: perhaps the need to proceed with a remonetization of a *Regnum Langobardorum* not yet adequately equipped with money once the possibility of using gold tremisses had disappeared?

The series of heavy deniers issued by the mints of Milan and Pavia show a good stylistic homogeneity, despite a production that would last for more than twenty years. Only occasionally we can identify specimens made in a style that is particularly at odds with the majority, without this giving rise to the suspicion that they may be forgeries.



Fig. 8 Post-reform deniers of Charlemagne, mint of Pavia: a) cross hummetty, plain letters (priv. coll., ex Numismatica Ars Classica AG 122, lot 335); b) cross pattée, letters ending with spikes (Berlin, Staatliche Museen, inv. 18245126). Pictures in scale 1.5:1.

Within the Pavese series, we find a group of specimens – about 10% of the total observed – characterized by an overall less accurate style. The cross in the obverse field appears elongated and thin, with the ends of the arms not very pronounced. In the legends, the letters are flat and square, their terminations without spikes. On the obverse, the letter s is generally rotated, while the p on the reverse tends to

look more like a D. These characteristics have been recognized in the Pavese deniers found among the coins unearthed in Ilanz¹⁴⁹, Borne¹⁵⁰, Bungay¹⁵¹, Bunnik¹⁵² and Trier¹⁵³. Attestation in the Ilanz hoard, the deposition of which would have been only slightly later than the introduction of the heavy coins, may prudently lead to the hypothesis that this group of coarser style deniers constitutes the first chronological series produced by the mint of Pavia (*Fig. 8*).

Specimens with more primitive features, or at least obvious elements of discordance with the majority of the known pieces, can also be found in the Milan and Treviso series of deniers. In the case of Milan, we are faced with only two or three potential cases, the discontinuity appears to be limited to the obverse: the general rendering of the engraving appears less accurate, the cross at the beginning of the legend and the letter X are both made with four small triangles. In the case of Treviso, however, we find that a rough style characterizes nearly half of the known coins. In any case, we are talking about a mint whose production, based on the known dies and specimens, would have been only 20–25 percent of what the Milanese and Pavia mints produced. Neither for Milan nor Treviso, we have evidence of specimens with these characteristics in hoards with a sufficiently accurate date of deposition as that of Ilanz: any hypothesis regarding the chronology of the series is thus a matter of conjecture.

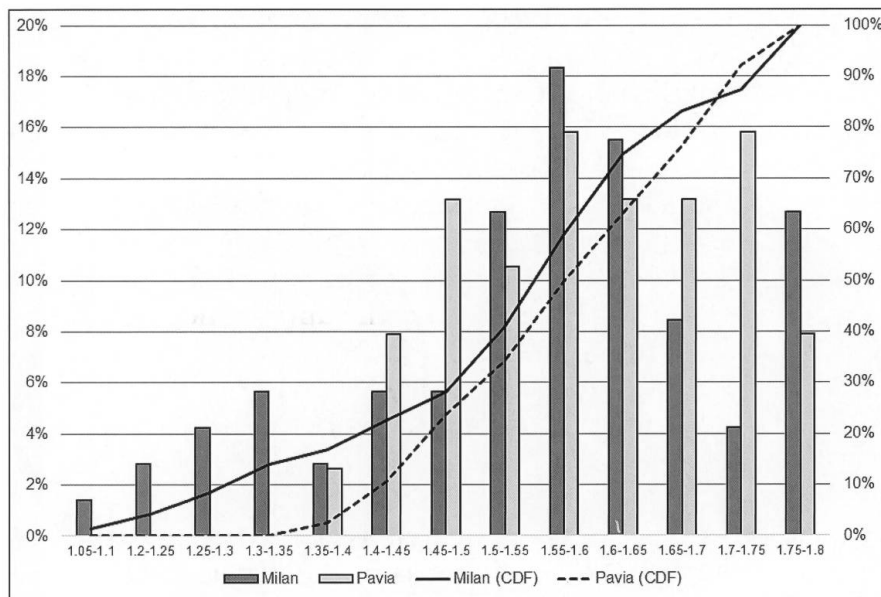


Fig. 9 Weight distribution of the post-reform deniers of Charlemagne (unchipped specimens only): percentage (primary axis) and cumulative distribution function (secondary axis).

¹⁴⁹ *REPERTORIO* n. 8271.

¹⁵⁰ *REPERTORIO* n. 10067.

¹⁵¹ *REPERTORIO* n. 10339.

¹⁵² *REPERTORIO* n. 10068.

¹⁵³ *REPERTORIO* n. 10204.

The average weight of all the specimens found is 1.53 g in the case of both the mints of Milan and Pavia, rising to 1.56 g and 1.59 g, respectively, if those coins showing flan chipped are excluded from the whole¹⁵⁴. The distribution of weights between the two mints differs considerably, with very marked effects on the variance. Pavia shows that it worked with great accuracy, producing coins with weights much more concentrated around the average than Milan, for which there is a not negligible number of specimens (22.5 %) that weighs between 1.00 g and 1.45 g (*Fig. 9*).

Although the introduction of the new denier resulted in a radical harmonization of the types of Carolingian coins minted, introducing for all of them the representation of a cross on the obverse and a monogram with Charlemagne's name on the reverse, there are important elements of originality in those of the *Regnum*. First, we note on the reverse the adoption of a monogram which translates the name of Charlemagne in a form (*Carolus*) different from that adopted elsewhere (*Karolus*). But even more evident is the use of privy marks – mainly pellets, but also stars, small dashes or wedges between the letters of the legends, at the end of the arms of the cross on the obverse, or even within the monogram – which does not find a significant correspondence in deniers issued by other Carolingian mints.

The use of privy marks is far more varied than has been recorded so far¹⁵⁵. On the coins of the Treviso mint, we see the occasional use of pellets – single or in groups – between the letters of the legend TARVIS on the reverse. However, it is the mints of Milan and Pavia that offer a larger sample, with characteristics that tend to appear peculiar to each mint. We observe most frequently the use of a single pellet between the letters MEDIOL or PAPIA, following almost all possible combinations offered by the legends (e.g. •MEDIOL, M•EDIOL, ME•DIOL, ...). The pellet can sometimes be replaced by a small triangle, but on a smaller number of specimens and in a smaller number of positions. On the coins of Pavia, a small dash, a wedge, or stars are also used (*Fig. 10*). Rarer still is the appearance of these privy marks in the obverse legend, in the form of a pellet between the letters or a small wedge placed at the end of the arm of the cross at the beginning of the legend. A pellet in one of the quarters of the cross on the obverse, or less conspicuously within the monogram *Carolus* on the reverse, has so far only been observed on specimens from Milan.

The significance of these symbols, as well as the reasons for their positioning, remain unclear. The majority of specimens in the Milanese series are devoid of any signs. So far, it has been possible to identify more than 50 specimens with no marks of any kind, whereas the Pavia mint only has five. In general, it is not possible to identify the use of the same privy mark in the same position in more than five or six specimens from the Pavia series.

¹⁵⁴ The calculation was carried out starting from the specimens for which the weight data are known: 101 for Milan (71 with unchipped flan), 92 for Pavia (79 with unchipped flan).

¹⁵⁵ This aspect has not yet been adequately studied. We can only point out the analyses of Simon Coupland (2012), relating however to coins of Louis the Pious.

An examination of all the coins of these three mints reveals no noticeable stylistic variations such as a different symbol or a different position in the legend. These symbols were undoubtedly chosen and placed for a specific purpose, to distinguish one issue from another, as they are easily recognizable even on the most worn specimens. We cannot regard them as simple fillers because the spacing of the letters is not altered in the points where these privy marks appear.





Fig. 10 Privy marks on the post-reform deniers of Charlemagne, mint of Pavia: a) pellet on the rev., end of the legend and inside the last letter A (priv. coll., ex Sincona 43, lot 2290); b) wedge on the rev., after first letter A (priv. coll., ex Varesi 68, lot 424); c) two stars on the rev. (priv. coll., ex Varesi 68, lot 421); d) pellet on the obv. after the letter L, combined with pellet on the rev. after the letter P and small dash after the first letter A (Lakenheath find, 2017). Pictures in scale 1.5:1.

New perspectives and open points

What has been presented so far would lead us to ask ourselves how it is possible to reconcile the mass of valuable money issued by the mints of the *Regnum* with the idea of a rural and stagnant economy, devoid of significant supra-regional trades. Turning the question on its head, this means asking how far this level of monetization could be consistent with an economy of the *Regnum* characterized by the dynamic movement of men and goods. The numbers involved, taking into account all the specimens that have come down to us and the recognizable dies, make the contrast that may emerge between the vision of a lively Carolingian economy, marked by supra-regional exchanges and by a moderate presence of coinage suggested by the reading of *capitularia* and other contemporary documents, less strident. A vision, such as that expressed by Gian Piero Bognetti in the 1940s, of an economy so depressed that it required the use of goods in kind for exchange¹⁵⁶ does not fit with the quantities of money estimated here, nor with the documents that attest to the mobility of goods and people along precise routes, covering distances of hundreds and hundreds of kilometres. Such an interpretation seems reductive in the light of the data available to us today, but which – it must be stressed – authors such as Bognetti could not have had at their disposal in their time.

The question can still be expressed in yet another way, by giving centrality to the currency itself: what economy should we expect in the presence of such an estimated money supply? We have estimated that there could have been more than five million Lombard tremisses potentially in circulation, or even more. Ac-

¹⁵⁶ BOGNETTI 1944.

according to monetarist macroeconomic theories, such a presence of money could not be reconciled with a situation of general stagnation and closure of trade. On the other hand, if we preferred a more Keynesian interpretation of the data, we would be unable to form an opinion on the health of the Carolingian economy without first determining the extent of demand for goods and services that could have been paid for with the available money on in goods based on monetary valuations.

A full assessment of the adequacy of this money supply to the economy appears complex since we do not have a precise idea of, for example, how many inhabitants there were in the *Regnum* to which this money supply should be compared in order to determine the actual average availability of money per inhabitant. Any consideration of this matter must be expressed in the light of a new awareness of the degree of development of communication infrastructures, traffic routes across the Alps, ports¹⁵⁷ and markets, and the attestation of *negotiatores*. And it must be reconciled with the evidence that comes from coin finds, which are mostly absent beyond what, to abuse a modern term that certainly had less value at the time than it does today, were the «borders» of the *Regnum Langobardur*¹⁵⁸.

Even in the absence of such assessments, it is difficult to see why payments for goods and services (i.e. in a context where there was a demand for these goods and services) should be made in kind when money was available to make the payment. The idea that coinage played a marginal role in the *Regnum* can be partly attributed to a certain historiographical tradition that paid much attention to the organization and consequent economic structure of the *curtes*¹⁵⁹. The limited evidence of coinage in the documents relating to this specific context, secondary to the lists of material goods or services provided by the men (*corvées*), may have led scholars to make generalizations about the economy of the entire *Regnum*, to the detriment of the contribution of the towns. The limited importance of money in the *curtes* is in many ways plausible and expected since they were structures devoted mainly to agricultural production. But even in these structures, there was money, and the payment of annual fees – in some cases of a substantial amount – presupposed that this money was supplied in some way¹⁶⁰, since it could not be produced locally in the same way as any agricultural commodity. Therefore, even in the *curtes* there had to be external trade. On this basis, these exchanges did not take place entirely in the form of goods against goods but had to involve the use of money, at least partially.

Coins played a more active role in towns, in the large markets located near urban centres. They travelled along trade routes – both roads and rivers – which

¹⁵⁷ A possible link between the location of mints and the development of their coinage with river and sea ports has also been examined by Cécile Morrisson (2008).

¹⁵⁸ But the same argument also applies to Merovingian coinage, which appears marginally in Italy (see *REPERTORIO*, *passim*), where the mints of Susa (POL 2020) and Aosta also operated.

¹⁵⁹ This aspect was also implicitly pointed out by Pierre Toubert (1983, pp. 34–35, 43–44), author of an in-depth study on the «curtense» system.

¹⁶⁰ TOUBERT 1983, pp. 43–44, 51–56.

intersected at these towns, crossed fords and passes, came across toll stations¹⁶¹. Ilanz is the most striking example of this, but with it there are dozens of other minor finds throughout the Alps that cannot be traced back to the accidental loss of pilgrims¹⁶², but which are more in keeping with the vitality of long-distance trade, which documentary sources tend to confirm more and more. International relations put distant realities in contact with each other, leading to an exchange of ideas and contamination even regarding the production of coins. The fact that a light silver denier produced in the mint of Lucca¹⁶³ takes up the types of the penny of Offa¹⁶⁴ suggests that there was some familiarity with Anglo-Saxon coins in the region, attributable to possible commercial relations but also – if not above all – to the transit through the city of pilgrims, prelates, diplomats, etc. from across the Channel on their way to Rome¹⁶⁵. This is not surprising, considering the discovery of several Anglo-Saxon coins in Italy¹⁶⁶.

In a scenario where coinage is mainly concentrated in towns, the modest amount of coin finds in Italy may appear less surprising, given that the cities of the Po basin, like the major centres of Tuscia, have had significant settlement continuity from the late Roman period to the present day. The urban transformations and expansions of the settlements, which began in the late Middle Ages and accelerated in the industrial age, may have brought materials to light before they were excavated with modern criteria. This hypothesis is supported by the fact that the number of pieces known today in public and private collections is far greater than what has been documented by excavations. All of this is exacerbated by the fact that metal detectors are rarely used in archaeological excavations, as well as by Italian legislation on metal detector private searches, which is stricter than in other countries where the number of coin finds is, not unexpectedly, much higher.

There are still some unclear points concerning the currency used in transactions for which not only the gold tremissis but also silver denier would have

¹⁶¹ MCCORMICK 2001, pp. 642, 678–681. In addition to the already mentioned *teloneum* in Chur (see above), we have evidence of similar payment points in the Susa and Aosta valleys, in the vicinity of the Moncenisio pass and the two Alpine passes of Piccolo and Gran San Bernardo respectively.

¹⁶² SACCOCCI 2005b, providing new data confirming the picture outlined by Michael McCormick (2001, pp. 681–687) concerning the movement of money across the Alps.

¹⁶³ GARIEL 1883–84, pl. XII nn. 174–175; *CNI* 11, p. 59 nn. 9–12.

¹⁶⁴ MONNERET DE VILLARD 1921, pp. 204–209.

¹⁶⁵ *MEC* I, p. 208.

¹⁶⁶ From Italy, we have Anglo-Saxon coins dating back to the 8th–10th centuries which have been found in Aosta (*REPERTORIO* n. 7821, but probably an imitation), Ariccia (n. 6361), Bagnoregio (n. 10130, unconfirmed presence), Catania (n. 7288), Firenze (n. 7538), Fossato di Vico (n. 7793), Lucca (n. 7603), Modena (nn. 6078–6079), Roma (nn. 6382–6383, 6387–6389, 6413, 6416, 9070), Saint-Pierre (n. 8460), Tivoli (n. 6450), as well as some of undocumented provenance but probably of Italian origin (nn. 5723, 5728, 6397, 6423) and those found in the territory of what is now Vatican City (nn. 6438, 6452). The list is to be considered provisional and subject to future revisions and additions.

been too valuable¹⁶⁷. If with the predecessors of Desiderius we are certain of the production of small silver coins weighing *c.* 0.2 g, objectively more suitable for everyday needs than tremisses and deniers, we have no evidence of their use under Desiderius or Charlemagne. It is not inconceivable that similar silver specimens of Desiderius' predecessors survived in circulation, but the archaeological evidence we have does not confirm their use beyond the middle of the 8th century¹⁶⁸. The question must also be seen concerning the possible use of bullion, particularly bronze¹⁶⁹, to the longevity of Roman bronze coinage¹⁷⁰, to the actual diffusion of Byzantine coinage in the *Regnum*¹⁷¹, and to the uncertainties surrounding the role of bronze specimens characterized by a particularly crude style, which differs from that recognizable in coins produced by official mints of the Roman Empire¹⁷². Roman bronze coins are frequently found in Lombard graves¹⁷³: a very specific and defined context, suggesting that they are certainly used for ritual purposes and therefore do not allow us to state that such coins were also used in everyday economic transactions. However, this is an element that cannot be completely ignored and must be addressed¹⁷⁴.

¹⁶⁷ Toubert (1983, p. 46) also acknowledges the problem but believes that the introduction of silver money and its half (which, however, would never have been minted in the *Regnum*) may have provided at least a partial answer to this need. This statement is in contrast with the opinion of other scholars (ROVELLI 2000, p. 207) who consider money to be still too valuable to be used in everyday life. This second position seems to be more acceptable if we compare the silver content of the Carolingian money to that of the small silver coins minted under Liutprand.

¹⁶⁸ As suggested by the *terminus post quem* of the Biella hoard (*REPERTORIO* n. 6929), where *c.* 1,600 specimens were found in association with tremisses of Liutprand, who died in January 744.

¹⁶⁹ PASSERA 2018, pp. 66–83 for an extensive summary of the different positions taken by scholars on this issue.

¹⁷⁰ This aspect is also underlined by Toubert (1983, p. 54), who emphasises, in particular, the so-called *minimi* of the late imperial age, and remarked upon by Andrea Saccocci (1997; 2005a, pp. 1038–39) and Ermanno A. Arslan (2002, p. 298). See now BOMPAIRE *et al.* 2015–16 for updated considerations, and PASSERA 2018 for a critical review of the previous hypotheses.

¹⁷¹ Finds of Byzantine coins in northern Italy appear to be quite widespread (*REPERTORIO*, *passim*), but the lack of precise stratigraphic analysis does not always allow us to place them in the late Lombard or Carolingian periods. According to Saccocci (2005a, p. 1043), Byzantine coinage maintained an accounting role in the *Regnum Italiae*. See also CALLEGHER 1994 for an analysis of the presence of anonymous Byzantine *folles* that also covers the years following the domination of Charlemagne.

¹⁷² By way of example, mention should be made of eight small coins in a very poor state of preservation that emerged in the area of the *castrum* of Castelseprio (*REPERTORIO* n. 6816), believed to be counterfeits of imperial Roman coins, possibly from an irregular mint (CHIARAVALLE 2009; CHIARAVALLE 2013, pp. 587–588, 593–594).

¹⁷³ But it must be acknowledged that the excavations were more extensive and better documented in the necropolis than in other contexts, and therefore the data may be deeply distorted.

¹⁷⁴ The case of the Anglo-Saxon world may be significant, where, following the collapse of the Roman administration and the abandonment of Britain, the production of money in *loco* was interrupted, without, however, a return to bartering, but using Roman coins issued even several centuries earlier (*MEC* 8, pp. 28–38).

The harmonization of the *Regnum* with the rest of the Carolingian domain was progressive. If there was discontinuity from an administrative point of view, with a new Frankish *élite* taking over from the Lombards in the administration of the territory, this would not necessarily have happened from a more strictly monetary point of view. The production of gold tremisses by Charlemagne took place within the Lombard tradition, and although its scale in terms of volume and time is still to be fully understood, it can be traced back to the precise need to ensure continuity in an economic context that was anything but depressed¹⁷⁵.

The coexistence of gold tremisses and silver denier may have lasted even longer than previously thought. The continuation of a gold-based monetary system long after the conquest of the *Regnum* could have been a compromise choice for a specific territory with a long monetary tradition very different from that of the Frankish area, dictated also by the impossibility of replacing gold money with silver money due to the numbers involved. We might wonder if the transition from gold to silver truly represented the discontinuity that, as we have seen, did not occur during the Carolingian conquest, or if it was more of a «velvet revolution». This was facilitated by an expansion of the markets due to the entry of the *Regnum Langobardorum* into the larger ensemble of Carolingian dominions and – an aspect which is far from being negligible – by the fact that with the new rulers a supply of silver became ideally easier than it had been in the Lombard period, thanks to the presence in the Frankish territory of very productive silver mines, above all that of Melle.

The deed of sale drawn up in Bergamo in 785, mentioned above, attests to an explicit equivalence between the *solidus* in gold coins and the *solidus* in silver coins. In mentioning the two payments made to complete the transaction, respectively in the terms of 5 gold solidi and 12 silver solidi, it is expressly stated *qui sunt toti in simul soldos decem et septem*¹⁷⁶. The hypothesis that the Lombard solidus, intended as a money of account made up of three tremisses, became exactly equal to the Carolingian solidus of twelve deniers with the increasing diffusion of silver money has an immediate accounting consequence, as a perfect correspondence between the silver money and a quarter of tremisses is established. This is an interesting aspect, with multiple implications, because it would offer a new interpretation of the simultaneous presence of tremisses and deniers in the Ilanz hoard¹⁷⁷, as well as of the widespread presence of fractional tremisses in public and private collections¹⁷⁸, suggesting a possible explanation as to why the Carolingian conquest would not be followed by a radical work of remonetization of the *Regnum* with light silver deniers: it simply would not have been an urgent operation, given

¹⁷⁵ This is also the opinion of Pierre Toubert (1983, p. 45), who cites Charlemagne's production of tremisses as being dictated by the economic vitality of the *Regnum*.

¹⁷⁶ See note 77.

¹⁷⁷ Perhaps also in the Mezzomerico hoard, if there was also a silver denier of Charlemagne inside it (PARDI 2003, p. 27; see *REPERTORIO* n. 6956).

¹⁷⁸ Fragments may also have been present in the find from Ossi (*REPERTORIO* n. 7215). Other fragments, all referring to coins of Desiderius of the «flavia» series, are also present in the Museo Correr in Venice, and several other specimens without part of the obverse are in the Civiche Raccolte Archeologiche di Milano or have been found in private collections.

the role that the tremisses with their fractions (as well as other silver and bronze coins?) could play. The references to fractions of tremisses in the deeds of sale, although not very frequent, appear too precise to suggest that there was not an intentional practice of cutting the tremisses to obtain coins of reduced value¹⁷⁹.

It would also prompt a broader discussion of the actual value of the Lombard tremissis in comparison to the Carolingian light denier, as well as the actual use of silver and bronze coins in situations where the tremissis and its fractions were considered to be only money of account. A prolonged coexistence would have resulted in a bimetallic system, or rather a system in which monometallism was rendered virtual by the precise value correspondence between two identical monetary units expressed with coins of a different metal. This could be maintained over time if the gold coin and silver coin were perfectly balanced, i.e. neither coin was overvalued in comparison to the other. Gresham's law would otherwise cause the undervalued coin to vanish. Should the scarcity of Charlemagne's gold pieces that have come down to us be evidence of this silver overvaluation? But, if that's the case, why do we still have so many (over 600 pieces) for Liutprand and Desiderius? Shouldn't they have vanished like Charlemagne's? Instead, we find Desiderius pieces in Ilanz in the last decade of the 8th century, in the same number as Charlemagne's gold tremisses. Is it plausible to assume that they circulated only as bullion?

¹⁷⁹ BERNAREGGI 1983, pp. 128–129. As an example, see *CDL* 1, nn. 52 (735 January 19, Vianino – Borgo San Don-nino; Gudemone with his brother Crespolo, Munari, Gudaldo, Osdeleva, Vuilliari, Teodo and Natale sell various pieces of land in the casale Cavallionano to the church of San Pietro in Varsi: *Eum emit mancipioquid accepit Romoald presbiter ex saccolo basilice Beati Petri apostoli situm Varsio de Gudemone viro honesto vinditure auri tremisse numero duos et tres portionis de tremisse. Crespolus germano suprascripto Gudemoni vindedit in ipso loco perteca una, de lato est pedis duos, cum uigenti quattuor pertecas in longitudinem; et accepit precio ab empture quarta parte de tremisse*), 64 (737 December 19, Vianino – Borgo San Donnino; Beneoato and Godesteo, sons of the late Godilano, sell to the church of San Pietro in Varsi, for five gold tremisses and the fourth part of a sixth tremisse, a piece of land in the hamlet of Varsi, between the lake and the public road, and three pieces of field: *Eam emit mancipioque accepit Romoald vir venerabilis presbiter ex accolo basilice Beatissimi Petri apostoli situm in suprascripto Varissio de Benenato et Godesteo viris honestis germanis et vindituris filiis quondam Godilani auri tremisse numero quinque et quarta parte de sexto tremisse*), 79 (742 September 6, Varsi; Auda, widow of Venerio, sells land in Varsi near the lake to the church of S. Pietro di Varsi for four and a half gold tremisses: *Eam emit mancipioque accepit Romoald vir venerabilis presbiter ex accolo basilice Beati Petri apostoli situm suprascripto Varissio de Audane honesta femina relecta quondam Venerio auri tremisse quattuor et medio*), 119 (754 September – 755 August, Asti territory; Teodenando sells a vineyard to Iobiune, to whom his nephews Teodoro and Vidale, brothers, also sell a vineyard (contiguous to that one), for two and a half tremisses: *retulerunt suprascrip[ti] T[h]eod[er]o et Vidale germanis precio pro ipsa suprascripta vinea ad te Iobiune [empturi accepisse] tremesses duos et medio, finido precio*) e *CDL* 2, n. 130 (758 September 25, Piacenza; Gunderada, widow of Godeperto, sells her portion of land in the casale Furtiniaco and in Mocomero to Eldeperto of the late Lorenzino for a gold solidus and a half tremissis and arable land in Carpaneto: *Eam emit mancipioque accepit Heldepert vir devotus filius quondam Laurentino de suprascripta Guoderada honesta femina Romana mulier, una cum voluntate et consensu Domnini iucalis ipseius, auri solido uno et medio tremisse*).

If the tremissis of Lombard inheritance was perfectly comparable to the Carolingian denier in terms of 4:1, should we not also assume that this relationship was deliberate, i.e. that the Lombard coinage was intentionally modelled on the Carolingian money? After all, Desiderius' coinage reform, with the adoption of the tremissis of the «flavia» series for the entire *Regnum*, comes only slightly after Pepin's reform of silver money in the Frankish kingdom (754/5). However, given the conflicting relations between the Franks and the Lombards, the possibility of the two coins being linked to each other appears implausible.

Faced with this evidence, and following a more thorough re-examination that goes beyond the partial readings provided thus far by scholars, each for their specific field of expertise, it no longer appears possible to regard the *Regnum* as a territory in which the role of money was marginal. On the contrary, we must note that, despite its geographical isolation from Carolingian dominions that developed primarily north of the Alps and had their administrative heart in Aachen, coinage in the *Regnum* was produced in significant quantities. If we look at the location of the mints that struck coins under Charlemagne and tries to estimate their production from individual finds, we can see that the most productive sites are concentrated in the northernmost regions of modern France. There is no evidence of mints in the territories of today's Germany south of Trier and Mainz. As a result, Milan and Pavia became the most active mints in the Carolingian dominions' southeastern region, potentially supplying the monetary needs of territories that had no mints at all, such as the Alpine regions north of them, up to the Rhine river basin. This is an indirect confirmation of Michael Matzke's intuitions, discussed in the introduction, about its diffusion outside the *Regnum* itself, which would have led to it playing a primary role in a large part of a territory such as modern Switzerland, which was devoid of mints during the early Carolingian period.

The position of the mints in correspondence with the main urban centres or the ports along the river Po can be justified by the need to have money in the most strategic commercial locations. An increase in the production of mints, especially after the introduction of heavy money, fits perfectly with the vision of an expanding economy, destined to grow again with Louis the Pious in the 820s and 830s¹⁸⁰.

The economy showed a supra-regional dimension: goods, people, and coins crossed the Alps, reached the great river routes on the continent, travelled up to the northernmost and easternmost parts of Europe, to the *emporium* on the North Sea. Already Jean Lafaurie had thought that the spread of the coins of the *Regnum* could be traced back to the trade routes from Italy to Frisia¹⁸¹. His hypothesis was subsequently confirmed, for example by Michael McCormick's research¹⁸², and is now further confirmed by the availability of new data on coin finds and by the quantitative analysis carried out here, although still in a preliminary form and necessarily perfectible in content with the development of a more accurate study on the dies.

¹⁸⁰ As shown, for example, by Simon Coupland's (2010) analysis of single finds.

¹⁸¹ LAFAURIE 1958.

¹⁸² MCCORMICK 2001, in particular pp. 357–361 (for the route that relied on the Rhine river), 474–481 (for the journeys to Italy), 614–638 (for the role of merchants in northern Italy) and 653–656 (again for trade and mobility along the Rhine river).

Abstract

The increased availability of data over the last decades has led historians of the Carolingian age to formulate new interpretations of the actual level of development of the economy, implying a reality based on large-scale movement of goods and people in which money played a central role, and was therefore more dynamic than previously thought. For the Kingdom of Italy, such an interpretation clashes with the territory's significant lack of coin finds: how could the economy of an area with no significant archaeo-logical evidence of coinage be developed and monetised?

In this paper, we attempt to demonstrate, through a quantitative analysis of known monetary materials – not only from excavations, but also from public and private collections – and a more meticulous re-examination of the documentary sources, how even the territories of the Kingdom of Italy, during the transition from Lombard to Carolingian rule, could have had volumes of money consistent with the idea of a dynamic and significantly monetised economy.

Riassunto

L'accresciuta disponibilità di dati verificatasi nel corso degli ultimi decenni ha portato gli storici dell'età carolingia a formulare nuove letture circa l'effettivo livello di sviluppo dell'economia, propendendo per una realtà all'insegna del movimento di uomini e merci su larga scala in cui la moneta trovava un ruolo centrale, dunque più dinamica di quanto ritenuto in un recente passato. Per il *Regnum Italiae*, una simile interpretazione si scontra con una sostanziale assenza di ritrovamenti monetari dal territorio: come poteva essere sviluppata e monetizzata l'economia di un'area per la quale non vi sono significative evidenze archeologiche di moneta?

In questo contributo si cerca di dimostrare, passando attraverso un'analisi quantitativa dei materiali monetari noti – non solo da scavo, ma anche presenti in collezioni pubbliche e private – e un più attento riesame delle fonti documentarie, come anche i territori del *Regnum Italiae*, negli anni di passaggio dal dominio longobardo a quello carolingio, avrebbero in teoria potuto disporre di volumi di moneta coerenti con l'idea di una economia dinamica e significativamente monetizzata.

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Abbreviations

<i>CDL</i>	<i>Codice Diplomatico Longobardo</i>
<i>CDLang</i>	see <i>HPM</i> 13
<i>ChLa</i> xxvii	<i>Chartae Latinae Antiquiores</i> <i>Italy VIII</i> , ed. J.O. TJÄDER (Dietikon–Zürich, 1992)
<i>CNI</i>	<i>Corpus Nummorum Italicorum. Primo tentativo di un catalogo generale delle monete medioevali e moderne coniate in Italia o da Italiani in altri Paesi</i>
5	<i>Lombardia (Milano)</i> (Roma, 1914)
9	<i>Emilia (parte prima) – Parma e Piacenza – Modena e Reggio</i> (Milano, 1925)
11	<i>Toscana (zecche minori)</i> (Roma, 1929)
12	<i>Toscana (Firenze)</i> (Roma, 1930)
<i>HPM</i>	<i>Historia Patria Monumenta</i>
1	<i>Chartarum. I</i> (Augustae Taurinorum, 1836)
8	<i>Edicta Regum Langobardorum. I</i> (Augustae Taurinorum, 1855)
13	<i>Codex Diplomaticus Langobardiae</i> (Augustae Taurinorum, 1873)
<i>MGH</i>	<i>Monumenta Germaniae Historica</i>
<i>Capit.</i>	<i>Capitularia Regum Francorum</i>
I	ed. A. BORETIUS (Hannoverae, 1883)
II	ed. A. BORETIUS, V. KRAUSE (Hannoverae, 1897)
<i>REPERTORIO</i>	<i>Repertorio dei ritrovamenti monetari</i> , ed. L. GIANAZZA, digital edition available at https://www.sibrium.org/Materiali/

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