

Abstract:

The story of the Frankish coinage is generally told from the Carolingian rulers' perspective as the rise and fall of royal control over minting. Increased coin finds have added nuance to this story by giving us new understanding of coin circulation and coin use. Recent studies confirm just how effectively Charlemagne and Louis the Pious controlled the Frankish coinage, which provided them with both political and economic benefits. Between 792/3 and 840, trade accelerated and the Carolingian empire became increasingly monetised, though the use and availability of coins varied between regions. Tight royal control loosened after 840, when royal coinages became far more variable in quality. Around 880, the royal monopoly on striking coins was broken. From the perspective of traders and other coin users, having access to an acceptable means of exchange was more important than the availability of specifically royal coins. Trade could and did thrive in the world of regional coin circulation before 750 and after 840. Charlemagne and Louis the Pious's close royal control of the coinage, and the empire-wide circulation of coins in 792/3-840, stand out as exceptional when set against the early medieval norm of regional coin production and circulation in Francia. The article is accompanied by an appendix introducing key resources for Carolingian numismatics.

In 794 Charlemagne had many things on his mind. The capitulary produced in connection with the synod of Frankfurt reveals concerns from the need to cement Tassilo of Bavaria's deposition and resolve ecclesiastical problems to the impact of famine and the recent introduction of a new coinage (Boretius, 1883, no. 28, pp. 73-8, esp. chapter 5, p. 74). In retrospect, the introduction of the *Karolus* monogram coinage in 792/3 (Garipzanov, 2016) marked the start of almost fifty years characterised by firm royal control of the coinage and an economic boom in Francia. A well-controlled royal coinage like that achieved by Charlemagne and Louis the Pious is an effective political vehicle, spreading the ruler's name and requiring compliance from its users. It is also an economic vehicle, generating income for the ruler while providing society with a widely accepted means of exchange that facilitates trade. The tightly controlled Carolingian coinage undoubtedly brought Charlemagne and Louis the Pious significant political and economic benefits: they were indeed coining it.

Since 1990, the later ninth-century rulers have steadily been rehabilitated, and the classic narrative of Carolingian decline replaced by an emphasis on continuity and transformation after 840, and formative Carolingian influence on developments after 888 (on the period and its legacies, see Costambeys, Innes and MacLean, 2011, pp. 379-427, and pp. 429-35; studies include Goldberg, 2006; MacLean, 2003, Nelson, 1992; and Schäpers, 2018). While every late ninth-century ruler struck coins, with all their political and representational benefits, it is much less clear whether they too were coining it, in the sense of profiting from and actively managing the coinage. Current research increasingly brings local responses to Carolingian

endeavours into the equation. For example, Chris Loveluck's comparative analysis of the economy reminds us that peasants, artisans and merchants could also act as agents for change (Loveluck, 2013, p. 4). I shall argue that the expectations and needs of coin-users, and long-standing regional differences, helped shape the trajectory the later ninth-century coinage took, in addition to changing royal priorities.

In the past, the purpose of early medieval coinage was debated between those who saw it as primarily political and representational, and limited in size, and those who emphasised its commercial role and huge scale (Coupland, 2014a, pp. 259-62, and Naismith, 2012a, pp. 252-92, provide convenient surveys of these debates, with references). The increased find evidence has now confirmed the large size of some coinages in this period, while recent research has given us new perspectives on old problems. Money is classically defined as providing a means of exchange, a store of value and a unit of account (Naismith 2012a, pp. 252-3). Coins were one convenient way of providing all three of these things in the Carolingian world, but not the only way: commodity money was also used, as were precious metals by weight. This is best described as an increasingly monetised, rather than a monetary economy (Coupland, 2014a, p. 289; Naismith 2012a, pp. 291-2, Devroey, 2015, pp. 209-23). Much of the specialist work in this field is widely dispersed. This survey thus synthesises central recent findings on Carolingian numismatics since Verhulst's (2002, pp. 117-25) brief survey and concludes with an appendix introducing key resources and methodologies.

From the first royal coins to full control of the coinage, c. 750-840

Around 750, distinctive new royal coinages were introduced in both Anglo-Saxon England and Francia (Naismith, 2012b). These coins were larger, and struck to a higher weight standard than the small, dumpy pennies they replaced. Pippin III's coins were explicitly royal: they combine the royal name or initials (and even in one case a portrait) on the obverse with a great variety of reverse designs. Some types are known only from single specimens, others were produced on a larger scale (Grierson and Blackburn 1986, pp. 203-4; Lafaurie, 1974, pp. 35-44; Kluge, 2014). From 768, Charlemagne built on Pippin's assertion of royal control over the coinage. Charlemagne's first coins gave the royal name in full, generally arranged in two lines, CARO/LVS. (See Table 1 for Charlemagne's types, with their dates). These coins were struck at over one hundred mints, including ten monasteries, while some coins named magnates such as Leutbrand, Odalricus and probably also Roland, better known for his role at Roncesvalles (the coins naming Milo of Narbonne are now thought to be nineteenth-century forgeries). This period saw royal control over the coinage gradually grow, seen for example in the standardisation of the reverse types, which increasingly gave the mint-name (Coupland, 2018c, pp. 432-3; Kluge, 2014). There are interesting parallels with the tenth-century English coinage, where a regionally varied royal coinage likewise preceded the introduction of full uniformity (Naismith, 2014).

The decades following the introduction of Charlemagne's Monogram coinage were marked by intensifying royal control over the coinage. In 792/3, the weight standard increased, and the number of mints shrank to around forty (Coupland, 2018c, pp. 442-5). Only the king was now named on coins. The coinage was repeatedly mentioned in Charlemagne's capitularies,

reflecting royal concern for good money (Emmerig, 2011, pp. 1431-2). Charlemagne's final short-lived coinage, the portrait type, has long attracted scholarly attention given its artistic quality and projection of imperial ideas (Davis, 2014; Biddle, 2014; Coupland, 2014b; Coupland, 2018c are recent contributions to the extensive literature). Portrait coins were in fact only produced in small numbers, probably from late 813 (Garipzanov, 2005). The high quality of the portrait and uniformity of the style imply that the obverse dies were cut centrally; indeed the entirety of this small coinage was perhaps produced at Aachen, including the coins nominally struck at other mints (Coupland, 2018c, pp. 427-9).

Attracted by the strong imperial messages of the portrait coinage, Louis continued striking this type upon his succession in 814. (See Table 1 for Louis's coinages.) Unlike Charlemagne's small-scale portrait coinage, Louis's coins were produced in far greater numbers (Coupland, 2018a, substantially revising Coupland, 2007b; see also Davis, 2014). In around 816, Louis instituted a thorough recoinage, removing the portrait coins and substituting coins with the mint-name in two lines on the reverse. Finally, in around 822-3, Louis introduced his third coinage, with a church or temple surrounded by the legend *Christiana religio* on the reverse (Figure 1). The coins do not name the mint; about fifteen mint attributions have now been made by close stylistic analysis, but uncertain and puzzling groups of coins remain (Coupland 2007b, pp. 35-45; Coupland, 2011b, pp. 29-31; Ilisch, 1998-99; Coupland, 2017, pp. 100-1). Analysis of the dies demonstrates that Louis the Pious's coinages were produced on a massive scale, especially at the largest mints, Dorestad in Frisia, the Italian mint of Milan (Coupland, 2014a, pp. 282-3) and the Aquitanian mint of Melle, the site of large silver mines (Coupland, 2018b; Bompaire and Sarah, 2018). More and more money was in circulation, as the rising numbers of single-finds over the first half of the ninth century demonstrate (see Figure 2; Coupland, 2010a).

Coins of Charlemagne and Louis the Pious's Class I and II were consistently of very pure silver; the close clustering of the fineness values indicates quality was carefully controlled (Figure 3; Sarah, 2018, pp. 286-7). The moneyer received one shilling for every 22 shillings struck, returning the remainder to their owner (Boretius, 1883, no. 13, chapter 5, p. 32; for discussion of this clause in Pippin's capitulary, see Emmerig, 2011, p. 1432). The written evidence indicates counts played an important part in supervising minting. Town mints were placed under counts' supervision (Boretius, 1883, no. 147, chapter 1, p. 299). The king's share of the profits from minting presumably formed one of the payments made by the count. Charles the Bald's Edict of Pitres (864) is most explicit on counts' responsibilities in implementing recoinages, including collecting the king's 'float' of silver so the mint in their county could strike the new coins (Boretius and Krause, 1897, no. 273, chapter 6, pp. 313-14). After the 822/3 recoinage, counts were expected to remove invalid coins from users, and royal *missi* were to check on the counts' success (Boretius, 1883, no. 150, chapter 20, p. 306). The almost complete absence of older Frankish coin types and of non-Frankish coins from the hoards demonstrate how successfully the circulating currency was now controlled by the Carolingians.

Coin circulation and the economy, c. 790-840

Strengthening royal control over the coinage coincided and interlocked with an economic upturn between c. 790 and 840. Once ‘Charlemagne’s conquest of Italy united the burgeoning political, cultural and economic world of transalpine Europe with that of the resurgent Po valley’ (McCormick, 2001, p. 792), Francia’s external and internal trade quickened. The empire profited in particular from its contacts with Venice. Still officially part of the Byzantine empire, the city played an increasingly important role as a trading hub supplying slaves to the Abbasid caliphate (McCormick, 2001, pp. 523-47, 733-77). Internally, active exchange was supported by the demand and buying-power of increasingly prosperous Frankish elites (Wickham, 2005, pp. 803-5). Both external and internal developments are reflected in the coinage.

Coinage was an important facilitator of external trade, and trade in turn was an important source of silver for the mints. Apart from Melle, with its silver mines, all the largest Frankish mints were at trading hubs. Dorestad’s lively trade with Scandinavia from the 790s onwards meant that silver flowed to Dorestad from elsewhere in Francia, as perhaps did the silver sceattas still produced at Ribe (Coupland, 2010b, pp. 98-101; on Danish trade, see also Coupland, 2014a, pp. 270-1). Venice, though outside the empire, shadowed the Frankish coinage from around 820, for example striking *Christiana religio* coins of slightly lower fineness on a large scale (Sarah, Bompaire, McCormick, Rovelli and Guerrot, 2008, pp. 378-81). The sheer numbers of coins produced at Milan, Pavia and Dorestad suggest the economic impact of rising trade with Venice and Scandinavia on Francia (Coupland, 2010a, pp. 311-16).

Internally, markets were developing, with coins widely available in both towns and the countryside (McCormick, 2001, pp. 639-69; Coupland, 2010a). Coins were increasingly used by everyone from members of the lay and clerical elite to wealthy traders and craftsmen, to rural women, in contexts including donations to the church, the purchase of goods and the payment of taxes (Coupland, 2014a). Oboles or half-pennies, produced on a small scale since the 792/3 reform, were struck in larger numbers from 814, especially in West Francia, indicating a smaller denomination was needed to facilitate transactions (Coupland, 2014a, pp. 283-4). The single-finds from Dorestad reveal its trade networks extended across Francia in the 790s, and widened further under Louis the Pious (Coupland, 2010b, p. 100). Finds of Louis the Pious’s mint-signed coins demonstrate just how rapidly coins moved around the Carolingian empire between 816 and 822/3 (Coupland, 2014a, pp. 267-8; Sarah, 2018, pp. 284-6). Regional economies were thus integrated into a larger scale, empire-wide economy, with people, coins and goods moving rapidly around the empire. We may deduce a symbiotic relationship between the traders who were benefiting from the economic upturn, and required coinage to facilitate their transactions, and Charlemagne and Louis the Pious’s provision of a controlled royal coinage, struck on an unprecedented scale. With coins so widely available, their use spread into all levels of Frankish society.

Nevertheless, important regional distinctions remained. Frisia had long formed part of extensive coin-using trading networks within the empire and the North Sea world. Coin use was also deeply embedded in the rich agricultural regions and towns of West Francia and Upper Lotharingia (Coupland, 2010a; Petry, 1992). Single-finds within Italy itself are

unexpectedly rare, despite the prominence of Italian mints. Alessia Rovelli argues for ‘a general scarcity of coinage’, linked to low production of coinage and limited internal and external trade (Rovelli, 2009, p. 75). Coupland’s work on the single-finds from Francia suggests higher production at Pavia and Milan, with most of the coins ‘used in long-distance trade rather than in local markets’ (Coupland, 2014a, pp. 271-3).

In contrast, East Francia remained largely outside the coin economy. There were few mints in the region (Grierson and Blackburn, 1986, pp. 225-6; Ilisch, 1998-99 adds a *Christiana religio* mint in Saxony). Most of Bavaria’s limited coin supply came from Italy and the west of the empire (Emmerig, 2004), as was also the case for the Mainz region (Coupland, forthcoming). The few Carolingian coins from Westphalia are mainly found at sites with royal connections such as Paderborn or on the route to Saxony (Ilisch, 2012, e.g. nos 501, 529, 582), suggesting that here coins were used by the Frankish elite rather than traders. Trade certainly occurred east of the Rhine: it was worth Charlemagne’s while to regulate it (Boretius, 1883, no. 44, chapter 7, p. 123). But most transactions were presumably conducted in other media, such as silver by weight (Verhulst, 2002, p. 121) and commodity money of various types (Hammer, 2018, p. 41). (On commodity money more generally, see Skre, 2011 and Kershaw, Williams, Sindbæk and Graham-Campbell, 2018.) These regional distinctions in the availability and use of coins would deepen in the next half century.

The politically troubled 830s saw the first hints of problems in the coinage (see Costambeys, Innes and MacLean, 2011, pp. 213-22 on events). The *Christiana Religio* coins analysed include some coins of lower fineness, indicating reduced control of the mints (Figure 3; Sarah, 2018, pp. 287-8). Circulation was becoming more restricted: fewer Italian coins crossed the Alps as a side effect of Lothar’s exile in Italy from 834 (Coupland, 2011b, 31-2), while the coin supply in Aquitaine began to be more regionalised (Sarah, 2018, p. 292). But even in the challenging 830s, Louis successfully kept the royal prerogative of minting firmly in his own hands: only small commemorative issues of coins were produced in his sons’ names (Coupland 2007c, pp. 160-3; Coupland, 2007d, pp. 197-9). While Lothar I may have struck a few of his own *Christiana religio* coins during the rebellion of 833-4 (Coupland, 2007c, pp. 163-4), he apparently produced no coins in his own name during his Italian exile (Coupland, 2007b, p. 48; contra Morrison and Grunthal 1967, p. 7).

840-900: loosening control

Because coinage had been established as an important royal prerogative and means of projecting royal status and legitimacy, all Louis the Pious’s successors immediately started striking their own coinages in 840. Of the heirs, Louis the German (840-76) minted on a very restricted scale, even after 870 when he had added the eastern half of Lotharingia to his realm (Coupland, 2011b, pp. 39-40). East Frankish kings first produced substantial royal coinages under Arnulf (887-99) and Louis the Child (899-911) (Grierson and Blackburn, 1986, pp. 227-8). Pippin II of Aquitaine struck coins on some scale in 845-8 (Coupland, 2007d; Sarah and Geneviève, 2018). After 840, the coinages of the Middle Kingdom and West Francia became more varied. While most of Lothar I’s (840-55) and Charles the Bald’s mints (840-77) initially continued to produce *Christiana religio* coinages, others began to issue mint-

signed types. Over time, new coin types were introduced, producing still more variety (Coupland, 2007c; 2007e). The silver content of these coins was markedly lower than the 90%+ generally achieved under Charlemagne and Louis the Pious, and in Charles the Bald's post-864 coinages (see Figure 3). Lothar's coinage demonstrated a loosening of royal control in other ways, with variable and confused inscriptions, especially on the coins produced at Dorestad (Coupland, 2007c, pp. 173-5). Foreign coins were nevertheless still generally successfully excluded from circulation (Coupland, 2011b, pp. 40-3). (The Vikings present in Frisia and West Francia, who did not abide by Frankish monetary rules, seem to be responsible for most hoards containing non-Frankish coins and non-monetary silver, for the gold imitative solidi produced in Frisia and the Danelaw, and for some Frisian imitations of Lothar I's *Christiana religio* coinage: Coupland, 2011a; Coupland, 2016, partly modifying Coupland, 2006; Coupland, 2017, pp. 102-4.)

While Louis the Pious's first recoinage took place a couple of years into his reign, none of his heirs attempted one in the same time frame, presumably given the political challenges they faced. Charles the Bald undertook the last great Carolingian recoinage in 864, which demonetised previous issues and introduced the large and successful *Gratia Dei Rex* coinage (Grierson and Blackburn, 1986, pp. 232-4). This restored the fineness of the coinage, and returned the West Frankish royal coinage to tight control until Charles the Bald's death in 877. In contrast, the coin stock in the Middle Kingdom and East Francia remained much more mixed, with old and new coins continuing to circulate alongside each other.

Overall, after 840, the average Frankish coin user was generally handling much more mixed coinage, including many older coins (especially Louis the Pious's *Christiana religio* coinage) as well as the issues of multiple contemporary rulers. Users may have perceived the coinage as less varied than modern observers. In a world of limited literacy, the general appearance of the coin was more important in making it acceptable than the inscription associating it with a specific issuer (Coupland, 2011b, p. 33; Gullbekk 2018, p. 53). A striking feature of the coinage after 840 is the continuity of older coin designs. Rulers repeatedly drew on the familiar temple, monogram, and mint-name in field types (Grierson and Blackburn, 1986, pp. 199-200; on the iconography and monograms, see Garipzanov, 2008). Familiarity was valuable both politically – it placed the ruler in the Carolingian tradition – and economically. To cite Grierson and Blackburn (1986, p. 240), 'One does not abandon a familiar coin type without good reason, for acceptability and familiarity are bound up with each other.'

The second half of the ninth century saw two accelerating trends. First, the regionalisation of coin circulation continued. The Roermond hoard, deposited c. 850-55 perhaps by a wealthy craftsman with contacts and customers in many regions, demonstrates that some individuals still had empire-wide connections (Coupland, 2011b, pp. 44-5). Dorestad, which had been so important economically, now declined (Coupland, 2010b, p. 103). The flow of coinage from Italy continued to reduce, though some trade links between Italy and Frisia survived for a time (Coupland, 2011b, p. 361; Coupland, 2006, pp. 252-3). But everywhere hoards increasingly contained coins struck locally, even in West Francia which was by far the most monetised part of the empire (on the circulation, see Bruand, 2002, pp. 173-82). The many additional mints producing Charles the Bald's *Gratia Dei Rex* coins may reflect rising local

desires for money in West Francia, where coin-use had penetrated deeply in the preceding period (Coupland, 2014a, pp. 281-2).

Secondly, the gulf between West Francia with its good access to coinage, and the north, south and east of the empire intensified from the 860s (Coupland, 2014a, pp. 278-81). Overall, the availability of coins decreased (Figure 2). The wider economic downturn of the final quarter of the ninth century, linked to the unsettled circumstances of the period, contributed to these developments (McCormick, 2001, pp. 795-6). The depredations of the Viking Great Army caused considerable dislocation and loss in Lotharingia. The single-finds indicate shrinking coin supplies in the active coin-using and coin-producing towns of Upper Lotharingia and the Rhineland (Petry, 1992, pp. 83-90; Blackburn, 1993, p. 43; Coupland, forthcoming). A group of seven oboles found in Mainz are especially interesting in this connection. Struck at Mainz at the end of the ninth century, they may represent a local response to a lack of small change (Wamers, Berghaus and Stoess, 1994, pp. 181, 188). Reduced availability of royal coinage was probably one trigger for the increasing numbers of non-royal coinages struck everywhere in Francia from the 880s.

The royal monopoly on coinage was first breached silently. For example, at Melle coins in the name of a King Charles with the *Karolus* monogram continued after Charles the Bald's death into the mid-tenth century and beyond, with subtle changes to the legends over time (Figure 4; Coupland, 2007e, p. 132; Sarah, 2010; Bruand, 2018, p. 321). Gradually, local actors such as counts and bishops began to strike coins overtly, too. For example, a previously unattested episcopal coinage of Langres of c. 900-10 emerged recently (Coupland, 2014d, pp. 331-2), while the first 'feudal' coinage seems to be that of William I of Brioude (886-918) (Geneviève and Sarah, 2013). Finally, when Carolingian hegemony was broken in 887, their successors as rulers such as King Odo (887-97) in West Francia struck Carolingian-style coinages as a matter of course (Grierson and Blackburn, 1986, p. 243).

The later ninth century in comparative perspective

Royal control over the coinage thus first reduced, then was completely breached, at the end of the ninth century. It had taken sustained royal effort to eliminate local minting, and the new non-royal coinages reflect the desire of lay and ecclesiastical magnates to gain the representational and financial benefits of striking coins – and royal willingness to accept this (see Bruand, 2018, pp. 312-19, on the process and the historiography). But did the changes have negative economic as well as political consequences? Comparing Carolingian coin circulation after 840 with the preceding and subsequent periods is illuminating in considering the likely impact on coin users.

In the late Merovingian period, silver pennies were struck at a huge number of mints in Francia. Most coins were apparently produced by individual moneyers or local authorities such as bishops, with only a few coins of Childeric II (662-75) (Grierson and Blackburn, 1986, pp. 138-54; see McCormick, 2013, pp. 358-61, on the economic context). The largest and most successful coinages responded to the needs of traders, who required a store of wealth and a convenient means of exchange. The Merovingian world thus made extensive use

of coins in thriving long-distance trade and local contexts, without much royal involvement in the coinage.

Coins were again produced and used widely in the later tenth to eleventh centuries (Petry, 1992; Hess, 1993; Spufford, 1988). Growing numbers of coin finds in Germany have overturned former assumptions that tenth and eleventh-century German coins were produced for long-distance trade with Scandinavia rather than local use (Ilisch, 2016, contra Hävernack 1955-56). As in Merovingian times, royal coins circulated alongside those produced by bishops, counts and others (see Steinbach, 2013, for further comparisons and contrasts). From the perspective of those using coinage as a medium to facilitate commercial exchanges, pay tax or tribute, or donate to the Church, what mattered was the availability of an acceptable means of payment. The availability of specifically royal coinage would only be important if payments had to be made in royal coinage. In England, where this was the case, concerns about the quality of the coins in circulation ultimately drove recoinages such as the introduction of the Short Cross coinage in 1180 and the Long Cross coinage in 1247 (Allen, 2012, pp. 49, 62). In this comparative perspective, the messy coinages after 840 represented a lost political and financial opportunity to the rulers who failed to harness their benefits as effectively as Louis the Pious or Charles the Bald in 864-77, but for Frankish society more widely, the real problems arose only in the 880s when royal coinage became less available. People had become accustomed to coins, and continued to want them. As far back as Louis the Pious's 833 diploma for Corvey and Lothar II's for Prüm in 861, the grant of the right to mint had been justified with reference to the lack of coins and markets in a particular location (Kölzer, 2016, no. 328, p. 812; Schieffer, 1966, no. 16, p. 409). In a world where kings could not, or would not, mint on a substantial scale, would-be coin issuers interested in the prestige and profits to be obtained from the coinage seem to have stepped in to supply local needs once more.

Trade could also thrive in a world of regional coin circulation. In both Merovingian times and the tenth to eleventh centuries, coin circulation had a markedly regional character and the coinage was shaped by the needs and expectations of local users and issuers. Finds indicate regional differences in the circulation of Merovingian coins, with some types circulating locally and others travelling farther afield (see Schiesser, 2017, pp. 59-82, for coin circulation in the Touraine, and Lafaurie and Pilet-Lemière, 2002, for helpful maps). Meanwhile, the small pennies known as sceattas circulated freely in Frisia, Flanders, England and Denmark, reflecting North Sea trade networks (Loveluck, 2013, pp. 194-5). However, these coins only rarely penetrated south of 'a virtual line from Le Havre to Liège/Maastricht' (Op den Velde and Metcalf, 2014, pp. 18-19). By the end of the tenth century, weight differences had emerged between the coins of regions such as Cologne and Frisia (Ilisch, 2016, pp. 52-3). Most German hoards contained only local coins (Hess, 1993). Comparison reveals that the empire-wide coin circulation of the 790s to the late 830s is highly exceptional: it is testimony to the unusual degree of control achieved by Charlemagne and Louis the Pious, who drew a deeply regional economy together temporarily. In this light, the later ninth century marks a return to the regionalised early medieval Frankish norm, in which coinage reflected local economic and political circumstances.

Conclusion: Coining it?

Royal control of the coinage steadily increased from 750, peaking under Louis the Pious. The numismatic evidence reveals just how effectively Carolingian government could achieve its ends of control and uniformity when rulers, supported on the ground by counts and *missi*, put their minds to it. More and more coinage was available between c. 790 and 840, and circulated rapidly around the empire. This increase was both symptomatic of, and contributed to, the economic upturn of the period. Traders, who were coin users of long-standing, needed coins in large numbers; in Louis the Pious's reign the royal mints expanded to supply them with royal coinage, generating profits for the crown in the process. Good availability of coinage helped coin use penetrate back into the countryside and the lower reaches of Frankish society for the first time since around 700. Nevertheless, important distinctions remained between the world beyond the Rhine, where coins remained a rare presence, and Frisia, West Francia and the major towns of Upper Lotharingia, which were markedly monetised. It currently remains unclear whether coins were used on any significant scale in Italy, although they were extensively produced there.

After 840, royal control over the coinage reduced. While rulers continued to strike the familiar Carolingian coin types, the metal content and literacy of the coins was far more varied. Charles the Bald's recoinage of 864 in West Francia stands alone in successfully replicating the quality and control achieved by Charlemagne and Louis the Pious. Otherwise, new and old coin types circulated together, and regional circulation replaced the empire-wide circulation of coins. As the ninth century wore on, money became less available outside West Francia. From the 880s, the hard-won Carolingian monopoly on striking coinage was lost. These were significant changes, but were they all for the worse? The answer may depend on whether one takes a 'bottom-up' economic or a 'top-down' political perspective on the coinage. Older scholarship was perhaps too apt to see strong royal control of coinage as the 'right' trend – for example, the uniform Anglo-Saxon coinage that emerged from a more regionalised royal coinage after c. 973 has been considered a hallmark of the successful late Anglo-Saxon state (Naismith, 2017, pp. 215-16).

The Carolingian numismatic achievements in asserting control and creating an empire-wide circulation of coinage did not last, but they did leave significant legacies: subsequent rulers of France and Germany benefited from the Carolingians' reassertion that coinage was a regalian right, while their suite of authoritative coin designs determined users' expectations of coins and influenced generations of coinages (Spufford, 1988, pp. 55-60). They re-monetised large parts of the Frankish empire, and when the royal mints were no longer supplying coins in sufficient quantity, local actors wanted and needed coins enough to step in to create regional coinages once more. In numismatics as in so many other fields, the Carolingians coined the system for their successors.

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Ruler and coinage		Dates given in Grierson and Blackburn, 1986	Revised dates, with references
Charlemagne (see Coupland, 2018c; Kluge, 2014)			
	Pre-reform (two classes, before and after 771)	768-793/4	768-792/3
	Class III: Monogram	793/4-812	792/3-812 (Garipzanov, 2016)
	Class IV: Portrait	812-814	813-814 (Garipzanov, 2005)
Louis the Pious (see Coupland, 2007b)			
	Class I: Portrait	814-819	814-816 (Coupland, 2018a)
	Class II: Mint-name in field	819-822	816-822/3 (Coupland, 2010a, pp. 299-300)
	Class III: Christiana Religio	822-840	822/3-840 (Coupland, 2011b)

Table 1. Royal coin types, 768-840, with dates and key references



Figure 1. Louis the Pious, Christiana Religio type (enlarged). The reverse legend reads XPISTIANA RELIGIO instead of giving the mint name, and mint attribution thus depends on stylistic analysis of the form of the temple and the size and placing of the cross and pellets. This is a coin of Melle (group M1: Coupland, 2018b, pp. 266-8). Private collection, reproduced by kind permission.

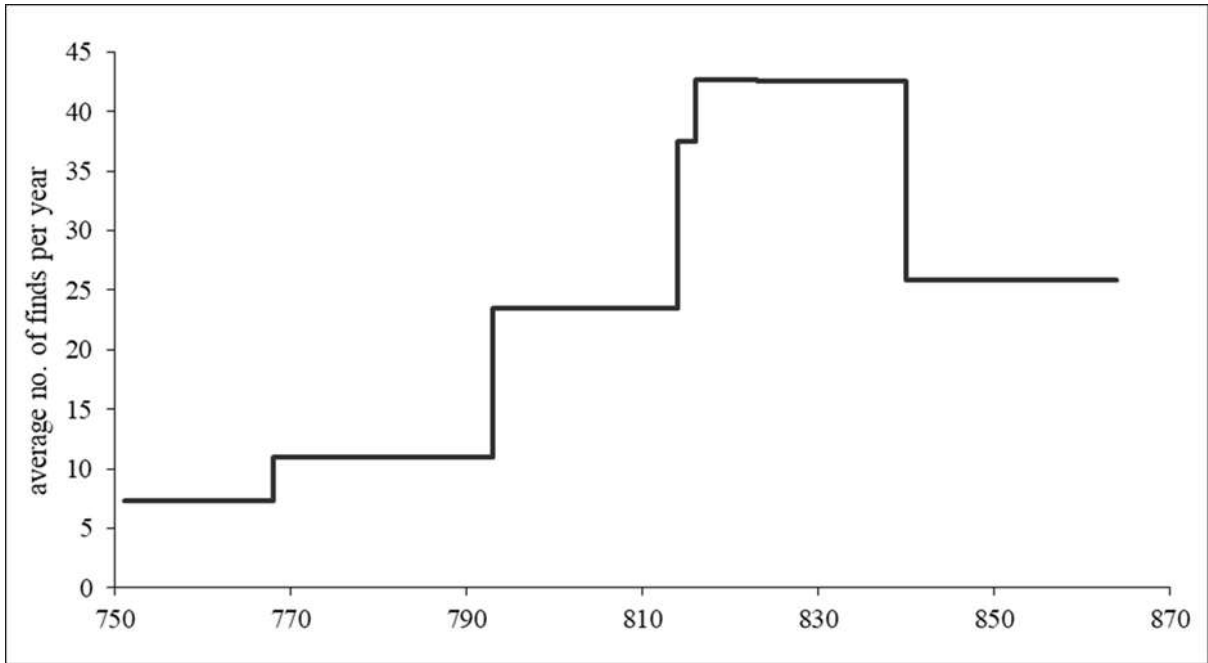


Figure 2. The changing availability of coins in the Frankish empire, c. 750-870, based on 2640 single-finds. The chart shows the average number of coins found per year, adjusted to take into account the length of circulation of each type. Compiled by S. Coupland, April 2018, and reproduced by kind permission.

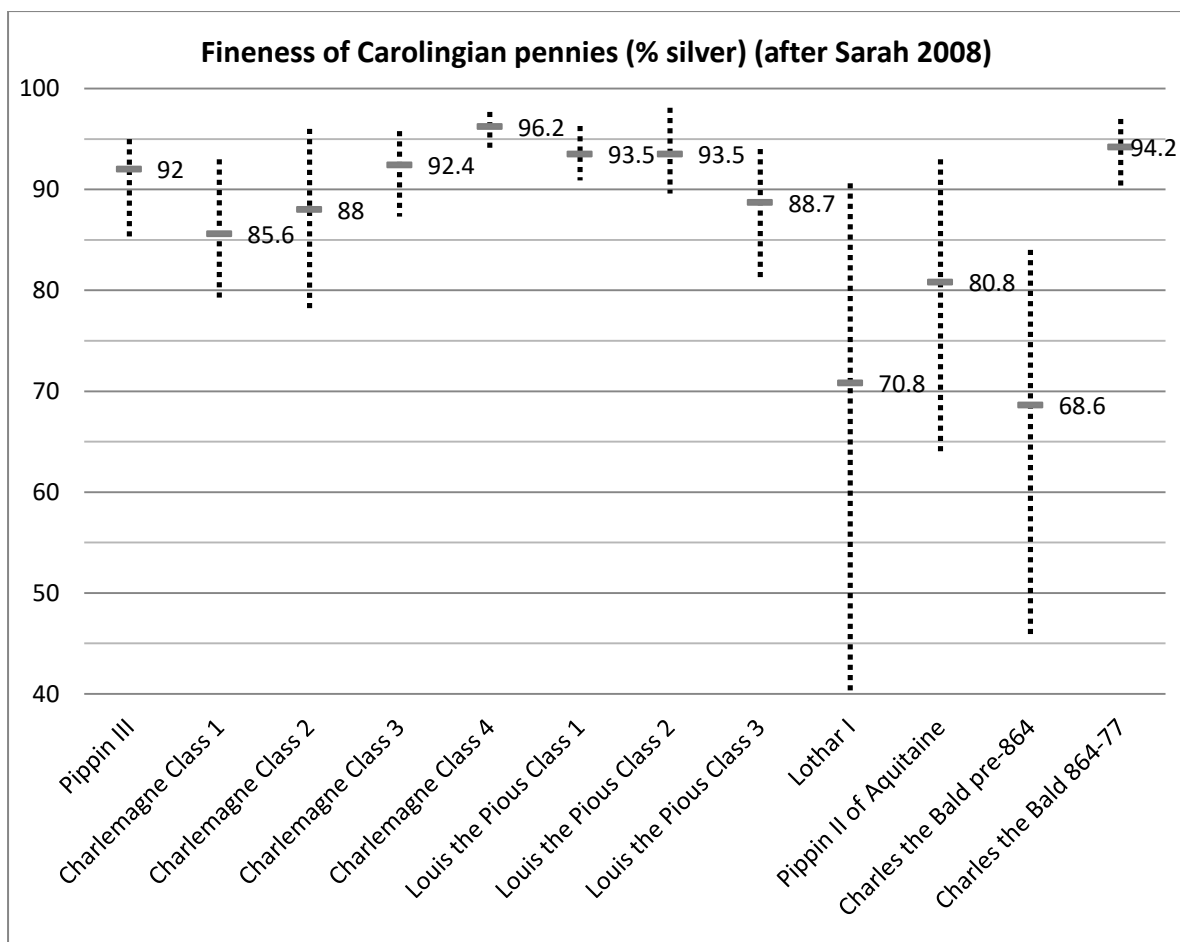


Figure 3. The changing fineness of Carolingian coin types, as demonstrated by Guillaume Sarah's metal analyses of the coins in the Bibliothèque nationale de France. The horizontal line gives the mean fineness of all coins analysed (% silver), the dotted vertical line indicates the range of finenesses found. The narrower the range, the tighter the control of minting. Data from Sarah 2008, pp. 309, 312-13, 319, 322-4, 328, 332, 335 and 341. Sarah's subsequent studies have developed his findings for individual coin types and mints.



Figure 4. *Karolus* monogram coin from Melle in the name of a King Charles (Charlemagne or Charles the Bald) with the reverse legend METVLLLO (enlarged). Charles the Simple also struck these coins, adding a crosslet into the reverse legend. (See Sarah, 2010, pp. 259-64, on the attribution of the coins to the various rulers.) From around 925, the counts of Poitou struck similar coins reading METALO into the twelfth century (Spufford, 1988, p. 56). Private collection, reproduced by kind permission.

Appendix: introduction to methodology and resources on Carolingian coinage

Bibliographies of publications in the field are published in conjunction with the International Numismatic Congress: see most recently Arnold-Biucchi and Caltabiano, 2015, pp. 310-13. Grierson and Blackburn, 1986, is a good (if now sometimes out-of-date) introduction to the coinages; on coin use, see the important survey Devroey, 2015. Kuchenbuch, 2016, discusses many written sources. Currently there is no fully satisfactory catalogue of the Carolingian coinage. The older works Prou, 1896 and Gariel, 1884 are generally cited, together with the useful but error-prone Morrison and Grunthal, 1967 (Lafaurie, 1967). Depeyrot, 2017 expands his earlier catalogues and corrects some attributions; as with Morrison and Grunthal, not all the author's interpretations are accepted. Kluge, 2014 is an important step forward (Coupland, 2015). Guillaume Sarah is preparing a new catalogue of the collection of the Bibliothèque Nationale de France, which will hopefully fill this gap.

The basic methodology for studying a coin type is to assemble as much information about the surviving specimens as possible, in particular weights, photographs and provenance details. These are used to establish the weight standard, circulation and date of the type (see Coupland, 2007a, for an accessible example). Metal and lead isotope analyses provide important information on fineness and the different metal supplies used in the coinages (e.g. Sarah, 2008; 2010; 2018). Photographs permit the dies to be studied. Each die was engraved individually, meaning all the coins it struck (die-linked coins) can be identified. Data on the number of known dies can be used to estimate how many dies were originally used to strike a particular coinage (Esty, 2006; note the caveats at pp. 361-4). The estimated number of dies, multiplied by the likely output of each coin die, may then be used to project the size of the coinage. There is no reliable figure for early medieval die output; 10,000 appears most often in the literature, but should be treated with considerable reservations (Naismith, 2012a, pp. 185-8; Allen, 2012, pp. 318-19; compare pp. 131-3, on later medieval die outputs).

The essential starting point for study of the hoards is Coupland, 2011a (with the supplement Coupland, 2014c). The Digital Atlas of Roman and Medieval Civilizations (<https://darmc.harvard.edu/>) maps the hoards; Haertle, 1997 helpfully maps the contents of individual hoards. Chance losses give the best impression of the coins that were being handled day-to-day; on the methodology of using the single-finds and cumulative finds from a single site, see Naismith, 2012a, pp. 200-2, with references. Metal-detectorists have made increasing numbers of single-finds since the 1970s. Legislation on metal-detecting differs between modern countries, with implications for our ability to build up a picture of coin use. In the Netherlands, detecting is legal and finds can be self-reported on the online database NUMIS (<https://nnc.dnb.nl/dnb-nnc-ontsluiving-frontend/#/numis/>). Practice in Germany differs between Länder. Metal-detecting is against the law in Belgium, France and Italy. Nevertheless, it continues underground and recording of the finds is hit and miss. Coupland, 2010a draws together the available evidence for Francia, with additions in Coupland, 2014a. Blackburn, 1993, assembles German finds; see Ilisch, 2012, for recent Westphalian finds. Arslan, 2005 and Arslan, 2016 present the Italian finds. The Swiss Inventory of Coin Finds (<https://www.coinfinds.ch/>) records finds from Switzerland, including single-finds.