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MÜNZSTÄTTEN, MÜNZPRÄGUNG UND MÜNZWEGE DES MITTELALTERS IN HESSEN

ERGEBNISSE DER TAGUNG
FRANKFURT UND HESSEN
IM MONETÄREN
MITTELALTERLICHEN TRANSIT



Periodic Recoinage and Economic Development in Medieval Hessen*

Zusammenfassung Eine im Mittelalter übliche Münzpolitik war die »regelmäßige Münzverrufung«. Alte Münzen wurden für ungültig erklärt und mussten zu a priori bekannten Umtauschgebühren und -terminen gegen neue ausgetauscht werden. Diese Konvention war eine Art Geldbesteuerung des lokalen Handels und der Einwohner. In weiten Teilen West-, Mittel-, Ost- und Nordeuropas war die regelmäßige Münzverrufung 120 bis 200 Jahre lang die vorherrschende Münzpolitik. Eine solche Geldpolitik erforderte eine geografische Währungsbeschränkung und eine begrenzte Anzahl von Münzen im Umlauf. Die blattdünnen Brakteaten hatten ausgezeichnete Eigenschaften für solche Erneuerungen. Die Theorie besagt, dass die regelmäßige Münzverrufung in den frühen Entwicklungsstadien einer Region angewendet werden sollte, beispielsweise wenn die Arbeitsteilung zunimmt und lokale Märkte und Städte etabliert werden. In späteren Phasen, wenn die Spezialisierung innerhalb und zwischen Städten fortschreitet, bricht das System zusammen. Ein größeres Münzvolume macht eine Münzverrufung und Überwachung unmöglich, und der überregionale Handel löst den Währungszwang auf. Dieses Modell der regelmäßigen Münzverrufung wird auf das mittelalterliche Hessen (1150–1320) angewendet. Die Ergebnisse zeigen, dass insbesondere die Münzpolitik und die wirtschaftliche Entwicklung der Wetterau sowie der Region Marburg und Nord- und Osthessen weitgehend dieser Theorie entsprechen. Sowohl die Häufigkeit als auch die Kontinuität der Erneuerungen können jedoch zwischen den Münzstätten/Regionen und innerhalb bestimmter Münzstätten im Laufe der Zeit variieren.

Schlüsselwörter: **Brakteaten, Hessen, Münzverrufung, wirtschaftliche Entwicklung**

Abstract A common coinage policy in the Middle Ages was 'periodic recoinage'. Old coins were declared invalid and had to be exchanged for new ones at specified exchange rates and dates. This convention was a type of monetary taxation of local trade and inhabitants. Periodic recoinage was the dominant coinage policy in large parts of Western, Central, Eastern and Northern Europe for 120–200 years. Such a monetary policy required a restricted geographical currency area and a limited number of coins in circulation. The leaf-thin bracteates were ideal for such renewals. Numismatic theory predicts that periodic recoinage should be applied in the early developmental stages of a region, for example, when the division of labour increases, and local markets and cities are established. In later phases, when specialization occurs within and between cities, the system breaks down. A larger coin volume renders re-minting and monitoring impossible, and inter-regional trade disrupts local currency areas. This model of periodic recoinage is applied to medieval Hessen (1150–1320) and reveals that the coinage policies and economic development of Wetterau in particular, as well as those of the Marburg area and Northern and Eastern Hessen, largely correspond to this theory. However, both the frequency and continuity of renewals could vary between mints/regions and within specific mints over time.

Keywords: **Bracteates, Hesse, periodic recoinage, economic development**

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1. Introduction

A widespread monetary taxation policy in the Middle Ages was periodic recoinage (*renovatio monetae*), meaning that local coins were only valid for a limited time period. This tax was combined with a geographical currency constraint prohibiting the use of foreign coins. Old local coins were declared invalid and had to be exchanged for new ones according to publicly announced exchange rates and dates. The renewals were systematic and, thus, ‘periodic’ and could occur as often as once per year. A common exchange fee was four old coins for three new ones. Typical for such a system is that the main design of the coin changed across issues, whereas the monetary standard (weight, diameter, fineness, shape of the flan) remained the same.¹

Empirical evidence has shown that periodic recoinage was applied for 120–200 years in large parts of Western, Central, Eastern and Northern Europe.² Periodic recoinage started in Normandy in the 930s and lasted until c. 1100. The system was also applied in England in 973–1125, with coins renewed every sixth year from 973 to 1035 and every second or third year from 1035 to 1125. Many monetary authorities in eastern France and western Germany applied periodic recoinage in the 11th and 12th centuries. However, the best examples of periodic recoinage can be found in Central, Northern and Eastern Germany and eastern parts of Europe, where currency areas were relatively small. Here, periodic recoinage started in the middle of the 12th century and lasted until c. 1290–1320.³ Renewals were particularly frequent in areas where uni-faced bracteates were minted. In addition to England, other regions with relatively large currency areas, such as Sweden (c. 1180–1290) and Denmark (c. 1130–1330), also applied periodic recoinage.

The alternative to periodic recoinage was to issue long-lived coins. Such coins could be valid during the whole reign of the issuer or even longer.⁴ The purpose of long-lived coins was to create a high degree of acceptance for the issuer’s coins – both within and beyond his own currency area. The issuer hoped that his coins would be per-

ceived as so stable that neighbouring areas would confidently accept them as a means of payment. The coin issuer would thus gain a larger circulation area for his coins and could strike more coins to earn a higher *seignorage*. The most important source of income for minting in such a system was likely the monopoly over the exchange of foreign coins and bullion for current, local coins. Long-lived coins were most common in Western and Southern Europe, as well as in England when the sterling was introduced after the 1150s.⁵

The purpose of this chapter is to analyse how periodic recoinage was applied in three regions with separate monetary standards in medieval Hessen: Wetterau, the Marburg area and Northern and Eastern Hessen.⁶ It is especially analysed how the environment, conditions and economic development in these regions correspond with the general theory of periodic recoinage (presented in section 2).

Wolfgang Heß argued that these three closely located regions (together with Thuringia) had several similar characteristics.⁷ First, none of the regions performed any frequent coining during the Ottonian dynasty (until 1024). Minting started in Fulda, Fritzlar and Hersfeld in the 11th century. Second, the establishment of many mints in these regions occurred after 1165.⁸ Third, bracteates were the main local coin type in all of the regions during the period of c. 1155–1300. Fourth, all of the regions applied periodic recoinage during this bracteate period, mostly annual renewals. Here, Heß suggested that all mints within a monetary standard applied similar renewal patterns.⁹ However, in this chapter, we see that this truth has some modifications.

Typical for this period (900–1300) in Germany is that the king could and did delegate the minting and market rights to many different authorities, secular or ecclesiastical. Therefore, coins from different mints were issued in competition. The three regions mentioned above had different monetary standards (factories).¹⁰ Within each region, all of the mints followed this standard. However,

1 Svensson 2016, 1109.

2 Svensson 2016, 1112–1114.

3 There are some exceptions: Brunswick and Magdeburg continued with renewals until the beginning of the 15th century and the Teutonic Order in Prussia until the 1360s.

4 Sometimes, successors minted variants of the same coin type. These coins are called ‘immobilized types’, and they were valid for very long periods – occasionally centuries – and survived through the reigns of several rulers (Kluge 2007, 63).

5 Svensson 2016, 1112.

6 The Marburg area includes Marburg with its neighbouring mints, e.g., Alsfeld, Wetter and Amöneburg. Northern and Eastern Hessen include Fritzlar, Kassel, and Eschwege, as well as Hersfeld and Fulda.

7 Heß 1982b, 853–854.

8 In the Marburg area, bracteates with a specific monetary standard started to be minted in the 1230s.

9 Heß 1982b, 854.

10 Many written documents from the Middle Ages mention Wetterau, Marburg, Amöneburg, Fulda, Hersfeld and Kassel pennies (Klüßendorf 2012, 20; Heß 1982b, 855).

coins were only valid in the same city where they were struck.

There are several methods for identifying that periodic recoinage occurred.¹¹ First, written documents contain explicit information about dates of recoinage, exchange fees and/or frequencies of renewals. Second, by classifying different coin types as originating from specific coin issuers and mints, it can be established whether and how often periodic recoinage occurred. A third method is to carefully analyse the concentrations and distributions of coin types in hoards.¹²

2. Conditions and practice of periodic recoinage

2.1 Basics of medieval coins

Money in medieval Europe overwhelmingly took the form of commodity money based on silver, while fiat money did not exist in its pure form. As coins were standardized with respect to weight and fineness, they worked more effectively as a medium of exchange and a standard of value than un-minted metal. When conducting daily transactions, it is clearly more convenient to count coins than to weigh silver and to ascertain fineness. People were thus generally willing to pay a premium to have their silver transformed into standard coins, enabling the minting authority to charge a *seignorage* when minting coins.¹³

The minting authority could not strike coins without restraints. There always had to be a demand for coins as a medium of exchange and a standard of value in daily life. The surplus coins would otherwise flood the market with higher prices, and their face value would diminish towards their intrinsic value. Increasing local trade might raise the demand for coins. However, it would then be crucial to explain why local trade increased in the Middle Ages. In an economy with a limited division of labour and in which every household (peasants) was, in principle, self-supporting, there should have been no need for a local market and the associated coins for local transactions.¹⁴

In the 12th and 13th centuries, the population of Europe grew, resulting in an increased division of labour among

The chapter is organized as follows. The conditions and practice of periodic recoinage are discussed in section 2. In this section, it is explained why bracteates are so closely linked to periodic recoinage and why the system with periodic recoinage eventually failed. Hypotheses are also established. In section 3, the coinage and minting policies of Wetterau, the Marburg area and Northern and eastern Hessen are described and analysed. The monetary policies are discussed and compared to the theory in section 4, and the final section summarizes and concludes the study.

peasants, handicraftsmen and households. This *increased division of labour* had two important consequences. First, efficiency in production increased, as some people specialized in producing tools, while others specialized in producing shoes or clothes. In other words, the total production of goods and services per capita increased in the feudal economy, resulting in an economic boom. Second, specialization led to increased requirements of buying and selling goods and services in local markets.¹⁵ An increasing proportion of the surplus from farming and handicrafts was sold at local markets, increasing the demand for coins as a medium of exchange and a standard of value in local markets.¹⁶ Craftsmen had incentives to settle in growing cities and towns, since they were more dependent on the local market and transactions than peasants. This theory of labour division predicts that the demand for money will increase more rapidly than the population growth in the early development stages of cities.

Torsten Fried showed that the number of coins in circulation (based on coin hoards) increased with the number of local markets and mints in Central Germany between 1140 and 1300.¹⁷ Although the usage of coins increased over time in medieval Europe, barter and alternative payment methods (e.g., bullion) remained important for transactions for a long time.

11 Svensson 2016, 1130–1131.

12 Coin hoards from the Middle Ages can contain few or many issues from each mint represented in the hoard. If periodic recoinage has occurred, one would expect a few types to strongly dominate the composition of the hoard. These types should be relatively young, whereas older types should have a sparser representation. If there are many coin hoards from a specific coin issuer, one can expect the types in many hoards to be older and those in a few hoards to be younger (Svensson 2016, 1130–1131).

13 Sussman 1993, 50.

14 However, there might have existed regional imbalances, e.g., a lack of salt or metals, which necessitated foreign trade. This picture is in line with the society of Viking Age Scandinavia.

15 The development of local markets is a sufficient condition, or at least strong documentary evidence, that the division of labour had begun.

16 Imagine a peasant, who sells 10 % of his output on the local market, suddenly changing his profession to a baker or shoemaker. In such cases, at least 90 % of his output would be sold on the market.

17 Fried 2000, 109.

2.2 Conditions for periodic recoinage

In a system with periodic recoinage, the minting authority, in competition with other coin issuers, attempts to create a monopoly position for its coins. Laws stated that foreign coins were *ipso facto* invalid, and such coins had to be exchanged for current local coins, along with the payment of an exchange fee in an amount determined by the coin issuer (exchange monopoly).¹⁸ The geographical currency constraint increased the *seignorage*, but it also rendered the currency more uniform, facilitating daily transactions for common people.¹⁹ The frequency and exchange fee of periodic recoinage could and did vary. Periodic recoinage normally occurred on a specific date. Subsequently, the new local coins were the only valid coins for transactions in the city; the use of older local or foreign coins was prohibited.

In both long-lived and short-lived coinage systems, the following conditions must be fulfilled:

- No foreign coins can be allowed to circulate. Thus, there is a *geographical currency constraint*.
- The coin issuer has an exchange monopoly.
- The minting authority must control both the local market and the coinage. In medieval Europe, the rights to charge market customs and to mint were usually possessed by a single authority.²⁰

For a short-lived coinage system to work, some further conditions must be fulfilled:

- Only one local coin type can be considered current. Exceptions were possible if more than a single coin issuer had the right to mint in a currency area.
- Coin types representing various issues had to have clearly visible markers to differentiate them so that people could easily distinguish between valid and invalid types. In general, the main design or observable markers were changed, but the monetary standard (weight, fineness, diameter, shape of the flan) largely remained unchanged between issues.
- To complete re-minting in a currency area on a timely basis, an essential requirement was that the volume of coins in circulation was limited.²¹ This factor was es-

sential. When monetization is low, there tend to be few places where coins are used for transactions and few groups in society who use the coins. These factors facilitated close monitoring and enforcement of the periodic recoinage system.

A common characteristic for cities and regions where periodic recoinage was in force is that the local economy was relatively undeveloped.²² Historical records suggest that cities and regions with limited experience of monetary economics and with markets focused on local trade often started with periodic recoinage.²³ In the High Middle Ages, these cities and regions could be found in the central, eastern and northern parts of Europe. Thus, this theory predicts that periodic recoinage is applied in the early development stages of a region, for example, when cities are established, and town privileges are awarded.

Periodic recoinage is also facilitated by small currency areas, which make it easier to monitor coin circulation. Above all, a weak central power and strong civil and ecclesiastical authorities lead to small currency areas. Not surprisingly, the small currency areas in Germany and Poland had the highest frequencies of renewals.

Systems with periodic recoinage typically applied to only a limited area, such as the local market or the town. In Germany, the city border demarcated the area that included the jurisdiction of the city. Therefore, the right to coin, the control of the market and the right to charge market customs in effect were closely intertwined. The use of foreign and retired local coins at the city's markets was forbidden. In Merseburg, the geographical currency constraint was not limited to the city markets but rather applied to the whole area within the city border.²⁴ However, there were exceptions when citizens could use old local coin issues outside the city market but within the city border.²⁵

A document from Erfurt (1248/51) shows that only current local coins could be used for transactions in the town, but retired local coins and foreign coins were allowed for transactions outside the city border.²⁶ In 1231, the German King Henry (VII) (1222–1235) published an edict in Worms stating that, in towns in Saxony with their

18 Kluge 2007, 63.

19 Kamp 2006, 365.

20 Kluge 2007, 63.

21 Spufford 1988, 94.

22 Spufford 1988, 104.

23 Kluge 1976, 5.

24 This practice is well documented in an 1188 letter from Emperor Friedrich I (1152–1190) to the Bishop of Merseburg regarding an extension of the city. The document plainly states that the market area boundary includes the whole city and not only the physical marketplaces (Heß 2004, 16).

25 Heß 2004, 16–17.

26 Heß 2004, 16.

own mints, goods could not be exchanged for anything other than the coins from the local mint.²⁷ However, when this edict was published, a system with coins constrained through time and space had been in force for a century in large parts of Germany.

Periodic recoinage in large currency areas requires many mints and places of exchange, whereas such areas with long-lived coins require only a few mints. When the volume of coins increases in a short-lived system, there is often a transition to a long-lived coinage system, making it possible to utilize scale economies and the division of labour in coin production.²⁸ This transformation allows coining to be concentrated and centralized in selected key mints. The exemplary case is no doubt England.²⁹ Around the millennium, when England had short-lived coinage, there were more than 70 mints.³⁰ However, by the 13th century, when England had long-lived coinage, there were only two principal mints (London and Canterbury) re-

maining, along with very few others that were temporary and minor.³¹ The volume of minting was considerably larger in the latter period.³²

Another feature of systems with periodic recoinage was that debasements were very rare. Frequent recoinage provided the issuer with sufficient revenue so that debasements were unnecessary. For many regions of Germany and Scandinavia, if recoinage occurred, the silver fineness was sustained at a high level of at least 90 % until the middle or end of the 13th century.³³ Debasements were more common in systems with long-lived coins. The minting authority in systems with long-lived coins normally had limited revenues since a *gross seignorage* could only be charged when foreign coins were re-minted, or people brought their bullion to the mint. Therefore, it is hardly surprising that coin debasements, in terms of lower weight and fineness, occurred primarily in regions with long-lived coins, such as France, Spain and Italy.³⁴

2.3 Bracteates and periodic recoinage

There was an obvious relationship between bracteates and periodic recoinage in the period of 1140 to 1300. The first bracteate coins were minted in Thuringia and Saxony-Meissen in the 1120s. The breakthrough for bracteates occurred in the 1140s and the following decades, when hundreds of minting authorities in Central, Eastern and Northern Germany realized that bracteates were extraordinarily well suited for the system with periodic recoinage:³⁵

- First, the relatively large diameter of bracteates (up to 50 mm) made it possible to display various images on the coins, allowing valid and invalid coins to be quickly and reliably distinguished by common people.
- Second, old bracteates were easy to hammer out and overstrike.³⁶ Sometimes between succeeding issues, only the attributes held in the hands of the portrayed figure differed. In such cases, skilled mint masters

could directly stamp in the new attributes above the old ones on the die with punches.³⁷

- Third, only one lower die was needed, which lasts longer than an upper die. Furthermore, a lower bracteate die would last longer and could strike more coins than a lower die for two-faced coins for two reasons: the soft material cushions the hammer strike, and the recoil is smaller. The thin silver flan and the soft material require a markedly less powerful strike. Cheap bracteate technology is therefore practical and economical if many coins must be struck in a short period.
- Finally, the bracteates were fragile but were not in circulation for a long period due to routine, frequent renewals.

Empirical research has shown that bracteates often began to be minted in areas with little experience with monetary economics and where no previous monetary standard ex-

27 Mehl 2011, I, 33.

28 Spufford 1988, 191–193.

29 A similar pattern could be observed in Bohemia. In the 13th century, there were many mints because frequent recoinages occurred. In the 14th century, when the long-lived Prague groschen was introduced, minting was concentrated in Kutná Hora (Spufford 1988, 193).

30 Allen 2012, 20–21. Four or five of the mints accounted for more than 50 % of the total mint output. Many mints were likely active at the recoinages and on market days but otherwise were used sporadically.

31 Allen 2012, 396–397.

32 Bolton 2012, 25–27.

33 Periodic recoinage and debasement are not mutually exclusive and can be applied simultaneously. For example, simultaneous application was the case in Denmark during a civil war between 1260 and 1340 (Grinder-Hansen 2000).

34 Kluge 2007, 64.

35 Svensson 2016, 1123.

36 Kluge 2007, 50.

37 Mehl 2006, 30.

isted.³⁸ There were other advantages with bracteates. They were clearly more difficult to counterfeit than two-faced pennies since a specific goldsmith technology was used to produce them.³⁹ Furthermore, the large diameter made it possible to create artistically designs as marketing instruments for the rulers. The thin flan and symmetrical coin

designs facilitated cutting them into halves and quarters. The thin flan also rendered it almost impossible for silver thieves to scratch off silver from the edge without damaging the whole coin. Finally, several bracteates might have been produced simultaneously in one strike, but such practices have still not been empirically proved.⁴⁰

2.4 The breakdown of periodic recoinage

The necessary conditions for periodic recoinage to work in practice according to the theory (see section 2.2) are that there is a limited number of coins in circulation and that the minting authority can enforce the geographical currency constraint. If either of these conditions is not fulfilled, there is a risk that the periodic recoinage system will fail. In such cases, the bracteates also lose their position as the main coin type. The theory also predicts that renewals work better in small currency areas. Thus, if currency areas become larger, renewals will be more difficult to undertake.

Empirical observations have shown that the coin volume in circulation increased substantially in Central, Northern and Eastern Europe in the second half of the 13th century for two reasons. First, specialization and labour division continued within cities, requiring more coins for transactions. Second, authorities started collecting their taxes and fees in coins, rather than in naturals or services. Therefore, it became more difficult to re-mint coins on a timely basis, and when coins were used everywhere, including outside the city walls, monitoring and enforcement became costlier. Unsurprisingly, the periodic

recoinage system was abolished c. 1290–1320 in large parts of Europe.

Another reason for the system failure was the increased inter-regional trade and increased use of inter-regional coins, such as groschens and hellers. When cities reached a certain level of specialization among citizens, specialization started between cities. Goods were exported between regions, and these inter-regional goods were expressed in prices of supra-regional coins (groschen and heller). Eventually, not only were prices expressed in supra-regional coins, but also, transactions with such inter-regional goods were conducted with supra-regional coins. As a result, it became more difficult for local authorities to enforce their coin monopoly. In the 12th century, the German emperors attempted to expand their economic power by establishing more imperial mints. However, in the late 12th and the 13th centuries, another strategy was applied. The Emperor started to mint hellers with low silver fineness in Hall, Swabia. These hellers became a supra-regional coin type and started crowding out local issues in Southern and Central Germany.⁴¹

2.5 Hypotheses and expectations

Based on the theory, we expect periodic recoinage to be practiced:

- If the coin volume in circulation is relatively low, for example, when the city receives town privileges and when local markets are established and start to grow.
- If the authority has control over coinage, market and customs.
- If there is a geographical currency constraint.
- If bracteates are chosen as the main coin type.
- If currency areas are small.

It is also expected that silver fineness will remain high

(85–95 %) if frequent renewals are practiced. When the city develops, specialization among inhabitants increases the coin volume in circulation. It will then be more difficult to re-mint on a timely basis and enforce the system. Increased specialization between cities and more inter-regional trade will also render it more difficult to enforce the geographical currency constraint. Both periodic recoinage and bracteates as the main coin will then be abolished, and long-lived coins are introduced in the currency area. Thereafter, coin debasement will start. In the Late Middle Ages, hohlpfennigs are small change for higher denominations (groschen, witten).

38 Svensson 2016, 1123–1124.

39 Svensson 2019, 166–168. A written document describes how Brandenburg planned to switch from two-faced coins to bracteates (hohlpfennigs) in the 1340s, since the latter were more difficult to counterfeit (Mäkeler 2010, 36).

40 Svensson 2016, 1123.

41 Klüßendorf 2012, 27.



1–3 Three bracteates with different monetary standards from Aschaffenburg (Wetterau) [29 mm], Marburg (Marburg area) [25 mm] and Hersfeld (Northern and Eastern Hessen) [39 mm]. Photos: Roger Svensson (nos. 1, 3) and Lübke & Wiedemann (no. 2).

3. Periodic recoinage in Hessen

In this section, I analyse how the conditions and development, as well as the coinage system, in the three Hessian regions of Wetterau, the Marburg area as well as Northern and eastern Hessen correspond to the theory of periodic recoinage and economic development. These three regions had three clearly distinguishable monetary standards of their bracteates; see fig. 1–3.⁴² Within each region, all mints followed this standard. The mints in Hessen producing bracteates are shown on Map 1. The chosen period is c. 1150 to 1320. In the Wetterau and Marburg area, two-faced coins (pennies or half-pennies) based on

the Cologne monetary standard were simultaneously issued with bracteates in the period from 1175 to 1250.⁴³ However, the two-faced coins and bracteates had different functions.⁴⁴ The two-faced coins were minted for distant trade, and the mint name could be read in the legend, whereas the bracteates were used at the local markets and were subject to periodic recoinage. Bracteates were mostly anonymous without legends. The design was frequently changed on the bracteates but not on the two-faced coins. The focus of the analysis below is therefore on the bracteates.

3.1 Wetterau area

The original classification of the Wetterau bracteates was undertaken by Walter Hävernicks in 1936. His classification and dating were based on coin hoards and the specific monetary standard of the Wetterau. Furthermore, bracteates were classified into time periods according to 42 weight groups. The weights of the Wetterau bracteates decreased stepwise from c. 0.80 g in the 1170s to c. 0.51 g in the 1270s.⁴⁵ It turned out that Hävernicks was successful

in including almost all known bracteates that can be attributed to the Wetterau in the catalogue since very few new Wetterau types have turned up in coin hoards or in the collector market over the last 80 years.⁴⁶ However, many of the Wetterau bracteates were not attributed to specific mints in Hävernicks (1936).

The Hävernicks classification has been improved in two ways. First, the classification of Wetterau bracteates has

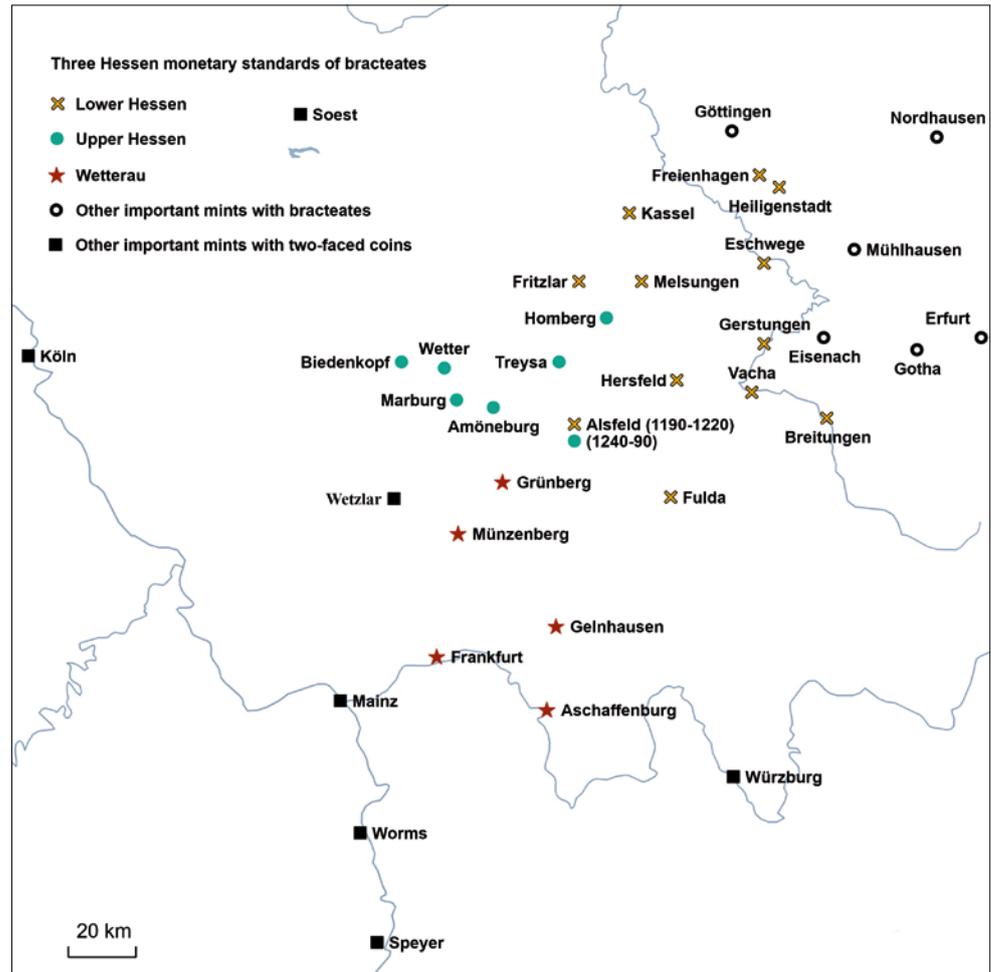
42 Klüßendorf (2012, 22) identified four separate areas of Hessen in the bracteate period: Wetterau, Upper Hessen, Lower Hessen and Fulda/Hersfeld. In this chapter, the last two areas are merged into one area – Northern and Eastern Hessen – because Lower Hessen and Fulda/Hersfeld had almost identical monetary standards. The only difference was that the bracteates of Fulda and Hersfeld had a higher artistic style.

43 Such two-faced coins following the Cologne standard could be attributed to Frankfurt, Gelnhausen, Münzenberg, Friedberg, Nidda, Grünberg, Orb and Aschaffenburg in Wetterau; to Fritzlar in Northern Hessen (Klüßendorf 2012, 25–26); and to Marburg, Frankenberg, Biedenkopf, Homberg, Wetter, Amöneburg and Wolfhagen in the Marburg area (Schütz 1993, 4–10, 20–21; Heß 1958, 99–100).

44 Heß 1972b; Foreword by Niklot Klüßendorf [2009] in the reprint of Hävernicks 1936, 25*–26*; Klüßendorf 2012, 26.

45 Hävernicks 1936, 20.

46 In fact, most new Wetterau bracteates are variants of existing Hävernicks types (Foreword by Niklot Klüßendorf [2009] in the reprint of Hävernicks 1936, 24*).



Map 1 Mints producing bracteates in Hessen c. 1150–1320.

Note: Cities where production of bracteates is dubious or cannot be proved are excluded from the map, for example, Rotenburg an der Fulda and Seligenstadt.

especially improved with respect to mints. Gerhard Blumenröder and Wolfgang Heß⁴⁷ classified the different types according to the main design: 1) a single emperor is attributed to Frankfurt; 2) a single empress and emperor together with the empress attributed to Gelnhausen; 3) secular persons attributed to Münzenberg; and 4) ecclesiastical persons attributed to Aschaffenburg. Using this method, Heß showed that the mints in Frankfurt, Gelnhausen, Münzenberg and Aschaffenburg applied annual renewals in the early period of c. 1170–1182.⁴⁸ The minting started in Frankfurt and Münzenberg and shortly thereafter in Gelnhausen and Aschaffenburg. Most of these early Wetterau bracteates from Frankfurt, Gelnhausen, Münzenberg and Aschaffenburg were included in the Lichtenberg hoard, which was buried before 1183.⁴⁹

Later, Gisela Förschner catalogued the Münzenberg bracteates.⁵⁰ However, she did not attribute many secular bracteates – not even early ones – to Münzenberg for some unclear reason.⁵¹ Furthermore, she also neglected Hävernick’s important group scheme based on weights for the dating of the bracteates.

Second, the dating of the late bracteate hoards from Schloßborn was changed from the 1270s to the 1290s by Elisabeth Nau.⁵² Walter Hävernick had only the first Schloßborn hoard available when completing his catalogue in 1936, but later, several other hoards from Schloßborn with Wetterau bracteates were found, including hellers from the end of the 13th century. Therefore, the late Wetterau bracteates have been re-dated to the 1290s.

47 Blumenröder 1969–1970 and Heß 1981.

48 Heß 1981, 106.

49 The Lichtenberg hoard contained bracteates from the mint Aschaffenburg but only types minted by the Mainz Archbishop Christian von Buch (†1183) and no types of Archbishop Konrad von Wittelsbach (1183–1200). Therefore, the hoard must have been buried before 1183 (Förschner 1995, 68).

50 Förschner 1995.

51 For example, Hävernick 1936, nos. 17–19 and 58 are missing in Förschner, although no other civil mint in Wetterau is known from this early period.

52 Foreword by Niklot Klüßendorf [2009] in the reprint of Hävernick 1936, 28*.

Period	Mint							
	Frankfurt		Gelnhausen		Münzenberg/Grünberg (after 1240)		Aschaffenburg	
	No. of types	Types per year	No. of types	Types per year	No. of types	Types per year	No. of types	Types per year
1170–1182	10	1 / 1	9	1 / 1	12	1 / 1	9	1 / 1
1182–1198	11	1 / 1–2	4	1 / 4	17	1 / 1	4	1 / 4
1198–1235	9	1 / 4	3	1 / 10	15	1 / 2	6 (?) [*]	1 / 6 (?)
1240–1250	9	1 / 1 (?)	–	–	4	1 / 2 (?)	1?	1 / 10?
1255–1290	14	1 / 2	–	–	17	1 / 2 (?)	3?	1 / 10?

Table 1 Number of bracteate issues in Wetterau mints, 1170–1290.

Note: Based on Hävernick (1936) and Heß (1981) and my own calculations. In line with Heß (1981), single emperors are attributed to Frankfurt, a single empress and emperor together with the empress are attributed to Gelnhausen, secular persons are attributed to Münzenberg, and ecclesiastical persons are attributed to Aschaffenburg. Periods are approximate. Therefore, ‘types per year’ are also approximate. Half pennies (Hälblinge) are only counted if there is no similar penny bracteate. Many of the late bracteates (Hävernick 1936, nos. 168, 238–240, 247) from Aschaffenburg after 1240 are dubiously catalogued to Wetterau since they have rarely been found in any coin hoard in this area.

^{*} Of which there are two bracteates in Dobras (2005): no. 166; and Appendix II, no. 3.

In Table 1, I have catalogued the Wetterau-bracteates of the four mints in Frankfurt, Gelnhausen, Münzenberg/Grünberg and Aschaffenburg in five time periods, and I have calculated possible frequencies of renewals.⁵³ The earliest period (1170–1182) follows Wolfgang Heß with some minor changes.⁵⁴ Here, annual renewals were applied in all four mints. However, already in the second period (1182–1198), the number of types per time period decreased, especially for Gelnhausen and Aschaffenburg. In the third period (1198–1235), there is not a single mint in Wetterau that could have applied annual renewals, since there are significantly fewer known types per time period. Wetterau bracteates from this period are rare, both in coin hoards, single finds, cumulative finds and in the collector market, indicating both low frequencies of renewal and low volumes of minting.

For the period after 1240, there are no types with a single empress or an emperor together with an empress. Furthermore, the few ecclesiastical bracteates after 1240 in Hävernick (1936) are dubiously attributed to Wetterau since only one of them has been found in any coin hoard in this area.⁵⁵ However, both renewal frequency and total minting output seem to have increased to some extent in Frankfurt after 1240. In the collector market, there are large volumes of the late Frankfurt bracteates.⁵⁶ However, the only possible period with annual renewals is Frankfurt

in 1240–1250. Nevertheless, since the periods in Table 1 are approximate, extending this period to 1235–1255, indicates renewals every second year. After 1240, a significant part of the secular bracteates might have been minted in Grünberg; many of them have similar pellets on the edges as bracteates from the Marburg area, but they have been found in hoards together with Frankfurt bracteates.⁵⁷

The economic development of the Wetterau was largely in line with the theory of periodic recoinage. No minting is known in this area before 1170. When minting started approximately 1170, both periodic recoinage and bracteates were applied. Renewals were annual and thus frequent. According to Heß, many cities received town privileges during this period.⁵⁸ There were certainly few coins in circulation, and the currency areas were small. The coinage volume increased from 1240 onwards, as evidenced by the number of coin hoards and the volume of bracteates in the collector market. However, renewals were not as frequent. Finally, both periodic recoinage and bracteates were abolished c. 1290. The silver fineness of the Wetterau bracteates was high during the whole period (1170–1290). In the 1230s, the fineness was c. 943/1000, and in the 1270–1290s, it was c. 895–920/1000, in line with frequent renewals.⁵⁹ The mysterious observation in this area are the small volumes of minting in the period of 1200 to 1240.

53 There is also one bracteate type (Hävernick 1936, no. 42), usually attributed to Seligenstadt. However, this classification is not very convincing since the production of bracteates is strongly linked to periodic recoinage. Therefore, one would expect at least a couple of types from each mint.

54 Heß 1981.

55 Hävernick 1936, no. 238 in the hoard of Schloßborn I.

56 For example, Hävernick 1936, nos. 177, 192, 204, 222 and 243 with minor variants.

57 See Schütz 1993, 55–61.

58 Heß 1981, 107–110.

59 Hävernick 1936, 20.

3.2 Marburg area

The first two-faced coins in the Marburg area were minted in Marburg in the 1140s by the landgraves of Thuringia.⁶⁰ However, for the period of 1150 to 1230, coinage in the Marburg area was presumably neither extensive nor frequent. Bracteates have been attributed to the mint in Alsfeld,⁶¹ where the landgraves of Thuringia minted bracteates in the period of c. 1190–1227.⁶² Furthermore, the counts of Ziegenhain coined bracteates in the mint at Treysa⁶³ in the period of 1184–1229. All of these early Marburg area bracteates have a large diameter, similar to those from Northern and Eastern Hessen, and they are completely different from bracteates minted in the 1240s onwards in the Marburg area. The early bracteates in the Marburg area are very rare. Renewals should have been annual in Alsfeld in the period of c. 1190–1210, based on the number of types in the large private and public bracteate collections and some important coin hoards.⁶⁴

Similar to the Wetterau area, the Marburg area also minted two-faced half pennies for distant trade linked to the Cologne standard.⁶⁵ Compared to the neighbouring areas, the minting of bracteates and the creation of a specific Marburg area monetary standard started relatively late – in the 1230s. The first known bracteate from this factory is a bracteate from the 1230s in Amöneburg. According to Wolfgang Heß several cities in this area received town privileges relatively late, in the 1220s–1240s.⁶⁶ The specific characteristic of the bracteates from the Marburg area is that they have legends, pellets or a combination of pellets and legends (abbreviations) on the edge. They have a somewhat higher weight (c. 0.60–0.65 g) than those from Wetterau (0.51–0.65 g) in the period of 1240 to 1290. In the literature, it has been claimed that the Upper Hessen bracteates had a weight of 0.80 g and that four Wetterau bracteates were exchanged for three Upper Hessen bracteates, but it has never been specified for which time period.⁶⁷ It is difficult to find any Marburg bracteates with a weight of 0.80 g. Indeed, according to my calcula-

tions, the average weight of the Marburg bracteates in Schütz (1993, 11–66) is 0.60 g for non-damaged bracteate pennies (excluding half pennies) – such as Wetterau-bracteates from this period.

Classification of the Marburg area bracteates to different mints is not an easy task, and it has still not been determined how many mints existed in this area. The Marburg area bracteates are very rare in the collector market, and most of the bracteates were found in the Marburg hoard (buried c. 1290). Some were also found in the Mosa hoard (buried 1265/70) and in the Ohrdruf II hoard (buried c. 1290). In total, there are c. 180 different bracteate types minted during a period of approximately 50 years (1240–1290). Furthermore, there are some bracteates that could have been minted in either Münzenberg or Grünberg.⁶⁸ The very logical weight grouping of Wetterau bracteates over time by Hävernick (1936) has never been undertaken for the Marburg area bracteates. One would expect that both the weight and diameter decreased over time, as was common for almost all currency areas with bracteates.⁶⁹ For example, three groups of Marburg area bracteates that should be early – Sophia bracteates (Schütz, nos. 10–27), Sophia and Heinrich bracteates (Schütz, nos. 28–32) and bracteates with legends (Schütz, nos. 36–53) – have average weights of 0.60, 0.66 and 0.70 g, respectively, which are mostly greater than the average of Marburg area bracteates.

Thanks to legends, we know with certainty that minting of bracteates occurred in Marburg (Schütz, nos. 23, 36–46), Alsfeld (Schütz, nos. 47–51), Biedenkopf (Schütz, no. 52), Homberg (Schütz, no. 53) and Amöneburg (Dobras 2005, no. 198). In general, an ecclesiastical person is attributed to Amöneburg (archbishops of Mainz), where bracteates were minted since the 1230s.⁷⁰ Furthermore, bracteates with a secular and an ecclesiastical person beside each other are attributed to Wetter, and bracteates with a capra (Ziege) are regarded as minted by the counts of Ziegenhain in Treysa.

60 Klüßendorf 2012, 19.

61 Alsfeld as mint of such early bracteates is still not confirmed. Earlier, these bracteates have been attributed to Rotenburg an der Fulda. See Bernd Kluge's contribution in this volume.

62 Klüßendorf 2012, 23.

63 Berger 1993, nos. 2329, 2330.

64 At least 15 different types can be identified in the Kestner-Museum Hannover, Bonhoff, Löbbecke, Allertseder, Herzog Anton Ulrich-Museum Braunschweig collections and the important Seega and Erfurt hoards.

65 In the 1140s and 1230s, half pennies were minted in Marburg by the landgraves of Thuringia (Heß 1958, 95–97). In the 1240s to the 1260s, half pennies were issued in the Marburg area. Since Heinrich I, born in 1244, had become landgrave of Hessen already in 1247, his mother Sophia was his legal guardian from 1247 to c. 1264. Under Sophia, two-faced half pennies could be attributed to Marburg, Frankenberg, Biedenkopf and Homberg. Some two-faced coins have legends of both Sophia and Heinrich and were minted in Grünberg and Frankenberg. Landgrave Heinrich I minted such coins in Marburg and Wolfhagen (Schütz 1993, 4–10, 20–21). Finally, two-faced pennies were minted in Wetter and Amöneburg (Heß 1958, 99–100).

66 Heß 1958, 98–99. For example, Amöneburg in the 1220s, Frankenberg in 1234 and Biedenkopf in 1249.

67 Heß 1958, 76–77.

68 Schütz 1993, 55–61.

69 Svensson 2021.

70 Heß 1958, 97.

The bracteates in the Marburg area from the period of c. 1247–1264 have a design of Sophia portrayed alone (Schütz, nos. 10–27) or Sophia portrayed together with her son Heinrich I (Schütz, nos. 28–32). Only one of these bracteate types can with certainty (legends) be attributed to a specific mint: Marburg (Schütz, no. 23). In total, there are 25 known types for a period of approximately 17 years.⁷¹ Therefore, one would expect that bracteates were minted in at least two mints: Marburg and another. Thus, annual renewals would have been possible during this period.

Approximately 60 bracteates have a picture of the Hessen lion. Some can with certainty be attributed to Marburg (Schütz, nos. 36–38, 40–42) and Alsfeld (Schütz, nos. 47–49, 51). However, most of the lion bracteates (Schütz, nos. 54–104) are anonymous – with only abbreviations on the edge. It is not unlikely that most of them were minted in Marburg and Alsfeld. In such a case, minting could possibly have occurred annually in Marburg and perhaps also in Alsfeld in the period of 1264–1290.

In the mint at Wetter, all the bracteates show an ecclesiastical and a secular person beside each other with different attributes, indicating a common issue between Landgrave Heinrich I and the Mainz Archbishop Werner von

Eppstein. 13 different types have been identified for the 17-year period of 1263–1280 (Schütz, nos. 205–217), implying almost one issue per year. As many as twelve of these types were included in the Marburg hoard, buried after 1290, and only one was included in the Ohrdruf II hoard, buried c. 1290. The Wetter bracteates are very rare, indicating small volumes of minting. Therefore, it can easily be imagined that more issues were minted that are still unknown.

In summary, the Marburg monetary standard was established relatively late in the 1230s, but cities also received town privileges late. It is likely that bracteates were renewed annually in some mints in the Marburg area in the period of 1240–1290. This case is especially likely for Marburg and Alsfeld but also for Wetter c. 1263–1280. For other mints, such as Biedenkopf, Homberg and Amöneburg, it is more difficult to draw any conclusions about renewals. Overall, bracteates and periodic recoinage went hand in hand in the Marburg area as well. There is no doubt that the minting volume must have been limited in the Marburg area, facilitating frequent renewals. Both the collector market and coin hoards convey that these bracteates were very rare. In line with the theory, the currency areas were also small.

3.3 Northern and eastern Hessen

Most German coins (90%) from the 10th, 11th and early 12th centuries have been found in coin hoards in Eastern and Northern Europe. This fact indicates that a large proportion of the coins was used for distant trade. However, these coins were also used in local markets, as evidenced by documents showing that coins rather than naturals were used to pay taxes and rents. In Northern and eastern Hessen, minting started in Fulda, Fritzlar and Hersfeld around 1030.⁷² However, the minting volume must have been limited in these mints during the early period. According to coin hoards found in Sweden, only 81 coins came from the three Hessen mints, compared to more than 8.100 from the closely located and competing mints in Mainz, Worms and Speyer. Thus, the Hessen coins constitute only 1% of the coins from the latter mints.⁷³

The classification of bracteates in Northern and eastern Hessen is less developed than those of Marburg and Wetterau. The only thorough classification book is Gaettens (1957) about Fulda bracteates until 1250.⁷⁴ The bracteates

of Northern and eastern Hessen have a relatively large diameter, c. 40 mm, and a high artistic style at least until the 1230s. Based on Fulda bracteates, the monetary standard of Northern and eastern Hessen had a weight of between 0.8 and 0.9 g in the period of 1150–1192. Between 1192 and 1216, the weight decreased to 0.7 g, and later, c. 1222–1247, the weight was between 0.57 and 0.65 g.⁷⁵ This observation of the declining weight of the bracteates is in line with Wetterau and Marburg area above.

The main mint in this region was Fulda, controlled by the abbey of Fulda.⁷⁶ According to Johannes Peter, two-faced coins were minted in Fulda c. 1020–1122, but these coins were not subject to any periodic recoinage.⁷⁷ Between 1122 and 1150, there seems to have been an absence of minting. Abbot Marquard I (1150–1165) revived minting in the mid-1150s by introducing bracteates, as well as periodic recoinage. It is likely that the renewals were annual in Fulda between c. 1155 and 1261. Based on Gaettens (1957), Peter (2018) and the main bracteate collections

71 Schütz 1993, nos. 10–32, where the variants of no. 11 are of three different types.

72 Klüßendorf 2012, 15–18.

73 Klüßendorf 2012, 17–18.

74 The classifications in Gaettens 1957 are not always correct. Some bracteates should be attributed to Hersfeld and Fritzlar instead.

75 Gaettens 1957, 23.

76 The abbots of Fulda also controlled the mints in Hameln (southern Lower Saxony), Vacha (Thuringia) and Gerstungen (Thuringia) (Gaettens 1957, 23).

77 Gaettens 1957, 22–23 (“until 1135”) and Peter 2018, 30 (corrective “until 1122”).

(Berger, Braunschweig, Bonhoff, Löbbecke and Allert-seder), Abbot Marquard (1150–1165) minted 6 types, Bur-chard (1168–1175) 5 types, Rugger II (1176–1177) 2 types, Konrad II (1177–1192) 16 types, Heinrich III (1192–1216) 18 types, Kuno (1216–22) 3 types and Konrad III (1222–49) 15 types.⁷⁸ All in all, there were 65 types in 95 years. All of these early Fulda bracteates are relatively rare both on the collector market and in coin hoards, indicat-ing small volumes of minting.⁷⁹ Therefore, it is not unlike-ly that more Fulda-bracteates before 1250 existed that are not known today.

The known Fulda bracteates after 1250 are more com-mon on the collector market, evidencing larger volumes of minting. Since the types from 1249–1325 are relatively common in the collector market, it is less likely that un-known types existed. According to Johannes Peter, mint-ing of bracteates in Fulda stopped in 1325.⁸⁰ In the period 1249–1261, there are 22 types under Abbot Heinrich IV von Erthal. Some of these are likely from the previous pe-riod of Konrad III (1222–1249), some might have been minted in the mints Gerstungen and Vacha (controlled by the Fulda abbey) and some might (according to me) have been minted in Hersfeld, where the abbot also had the name Heinrich.⁸¹ Peter has identified 30 types in the last 64 years (1261–1325).⁸² However, many of these “types” are legend variants of bracteates with the same main design, for example: 1) only letters on the edge; 2) pellets between letters; and 3) small crosses between letters.⁸³ Such legend variants could represent different annual issues from the mint Fulda, but this is not finally proved yet. The legend variants could also indicate that the same type was struck in the mints Fulda, Gerstungen and Vacha, which all be-longed to the abbey of Fulda. In such case, the actual num-ber of types in Fulda would be around 20 in the period 1261–1325. Thus, renewals in the late period (1261–1325) occurred likely only every third year in Fulda.⁸⁴

A closely located mint to Fulda was Hersfeld, con-trolled by the abbey of Hersfeld. Since both Fulda and Hersfeld had the same monetary standard, it is often diffi-cult to classify bracteates to either of the two mints, espe-cially after the 1220s, when bracteates lacked legends. Indeed, there was a single early Hersfeld bracteate of Hein-

rich I (1127–1155). However, since there was only a single type, renewals were not likely. Instead, Abbot Siegfried (1180–1200) started minting a row of bracteates in Hers-feld. Based on the Seega hoard buried c. 1215, Wolfgang Heß concluded that Abbot Johannes (1201–1213) applied annual renewals in Hersfeld.⁸⁵ Many bracteates per time period were then minted until c. 1239. Thereafter, the number of bracteate types was sparse. A further problem when attributing bracteates with legends “Heinrich” to the correct mint is that many of the abbots in both Fulda and Hersfeld had the name Heinrich in the period 1249–1300.⁸⁶

Fritzlar, controlled by the archbishops of Mainz, is the third Hessen mint with early two-faced coins in the 11th century. Similar to Fulda and Hersfeld, minting volumes do not seem to have been high in the 11th and 12th centu-ries. Archbishops Konrad I (1183–1200) and Siegfried II (1208–1230) minted bracteates, but few types are known. Surprisingly, frequent minting of bracteates occurred rela-tively late during the reigns of Siegfried III (1230–1249) and Gerhard II (1289–1305), when almost one type per year is known, indicating annual renewals.⁸⁷ However, few or no bracteates are known from the intermediate period of 1249–1289.

There were many secular mints in Northern Hessen, but the two most important ones were in Alsfeld and Kas-sel. As noted in the previous section, the landgraves of Thuringia renewed their bracteates in Alsfeld every year in the period of 1190–1210. These Alsfeld bracteates have the same high artistic style as those from Fulda and Hers-feld. However, in the 1240s, Alsfeld changed its mone-tary standard to that of Marburg when controlled by the landgraves of Hessen. The city of Kassel, controlled by the landgraves of Thuringia, received town privileges in 1189. Kassel also had annual renewals in the period of c. 1180–1247, based on the hoard from Niederkaufungen (buried before 1247).⁸⁸ After 1247, the landgraves of Hes-sen controlled the mint in Kassel, but it is unclear whether bracteates were minted and renewals were practiced at all.

The mint in Eschwege, controlled by the abbey, minted many bracteate types in the period of 1180–1220, and the renewals were likely annual.⁸⁹ In the Seega hoard, there

78 Gaettens 1957 and Peter 2018.

79 Indeed, some early bracteate types of Fulda are so rare that they only exist as flat-hammered specimens (Gaettens 1957, 57–61 and plates 2, 3).

80 Peter 2018, 56.

81 Peter 2018, 65.

82 Berthold II, III and IV (1261–1286) 16 types, Marquard II (1286–1288) 2 types, Heinrich V (1288–1313) 9 types, Eberhard (1313–1315) 1 type, Heinrich VI (1315–1353) 2 types (Peter 2018, 65).

83 Peter 2018, nos. 75, 77, 78.

84 Every second year if legend variants represent different issues in Fulda.

85 Heß 1982b, 854.

86 Fulda: Heinrich IV von Erthal (1249–1261) and Heinrich V (1288–1313); Hersfeld: Heinrich von Erthal (also Abbot of Fulda) (1252–1254 and 1258–1261), Heinrich III (1260–1278), Heinrich IV (1278–1300) and Heinrich V (1315–1316).

87 See especially Dobras 2005, nos. 173–198 and Dobras’ Appendix I, nos. 10–24.

88 Compare Stefan Roth’s contribution in this volume.

89 Heß 1974b.

were at least eleven different types. However, Eschwege bracteates are very rare, and minting volumes must have been small. Eschwege received market rights in 1188 and town privileges in the 1240s. There were some further mints in Northern and Eastern Hessen and its surroundings that coined bracteates, e.g., Melsungen, Freienhagen, Vacha, Gerstungen and Breitung. However, the classification of the bracteates from these mints is so poor that no serious analysis of periodic recoinage or economic development can be undertaken.

The poor classification of bracteates in Northern and eastern Hessen makes it more difficult to analyse the phenomenon of periodic recoinage. A few cities – Fulda, Fritzlar and Hersfeld – coined two-faced coins since around 1030, before the bracteate period, but they did not apply coin renewals. The minting volume in these three mints before the 1150s seems to have been low according to coin hoards. However, most cities in Northern and eastern Hessen (e.g., Eschwege, Kassel, Alsfeld, Freienhagen, Vacha) that produced bracteates had not minted earlier.

4. Discussion

In all three Hessen areas, bracteates were strongly linked with periodic recoinage in the period of 1150 to 1320. However, both the frequency and the continuity of renewals could vary between mints/regions and within specific mints over time. Thus, the suggestion of Wolfgang Heß that all mints within a monetary standard applied similar renewal patterns must be revised.⁹⁰ In Wetterau, all four mints applied annual renewals c. 1170–1200. After 1200, minting in Aschaffenburg and Gelnhausen declined very rapidly, and only Frankfurt had large minting volumes until the 1290s. In the Marburg area, classification of bracteates has been weak. It seems as if Marburg and Alsfeld had the most continuous minting of bracteates (from the 1240s to 1290s) and the most frequent renewals. Wetter also had annual renewals but only relatively late (1263–1280). Fulda was the first mint in Hessen introducing both bracteates and annual renewals in the 1150s and was also the last one applying renewals until c. 1325. After 1261, renewals occurred every second or third year in Fulda. Hersfeld and Kassel also seem to have had annual renewals c. 1180–1240. Some mints in Northern Hessen minted bracteates and applied annual renewals only during a limited time period, for example, Eschwege (c. 1180–1210) and Fritzlar (1230–1249 and 1289–1305).

Several empirical observations in medieval Hessen support the theory that periodic recoinage occurred in the

There is no doubt that the larger mints (Fulda, Hersfeld, Fritzlar, Alsfeld and Kassel) applied annual renewals at the end of the 12th and the beginning of the 13th centuries, when bracteates were minted. In line with the theory, the minting volume before 1250 must have been small in all of Northern and eastern Hessen since there are few specimens both in the collector market and in coin hoards. The application of periodic recoinage and minting of bracteates are also in line with many cities receiving their town privileges in the period of 1180–1220.

Apart from Fritzlar in 1289–1305, there is no evidence that any mint in Northern and eastern Hessen applied *annual* renewals after 1261. In fact, there are very few bracteate types in Northern and eastern Hessen after 1250. Fulda was the first mint with bracteates and periodic recoinage in the 1150s and was also the last one that stopped such a system c. 1320. In the period of 1249–1320, the minting volume seems to have been considerably larger. In line with the theory, renewals also became less frequent, for example, every second or third year in Fulda.

early stages of the cities' development. Some important observations follow:

1. With few exceptions, there was almost no minting before the bracteate period.
2. Bracteates and periodic recoinage often started when town privileges were awarded.
3. There were low volumes of minting when annual renewals were undertaken.
4. Currency areas were small.
5. There is no evidence of debasements when periodic recoinage was applied.
6. When minting volumes in Fulda and Wetterau increased, renewals became less frequent.

Thus, the argument that a small minting volume is necessary for frequent renewals receives support from the Hessen observations. When specialization increased at the end of the 13th century, renewals became less frequent, and eventually periodic recoinage was abandoned.

The other necessary condition of periodic recoinage is geographical currency constraints. The Cologne penny was a supra-regional coin in the whole of Hessen. There are many documents from the 13th century showing that interest was paid in Cologne pennies.⁹¹ However, the most important supra-regional coin that entered Hessen was the

90 Heß 1982b, 854.

91 Klüßendorf 2012, 24–25.

imperial heller from the mint in Hall in Swabia. In the 12th century, the emperors attempted to expand their economic power by establishing more imperial mints. A new strategy since the 1180s was to mass produce hellers with low silver fineness and expand their circulation areas. This strategy was successful at breaking down the geographical currency constraints in Hessen. The share of hellers in Hessen coin finds increased substantially during the 13th century and especially in the 14th century. Hellers are also mentioned as a standard of value for interest payments in Hessen at the end of the 13th century and the beginning of the 14th century,⁹² showing that inter-regional trade used Cologne pennies and hellers as standards of value and later also as medium of exchange, breaking the geographical currency constraints.

Wolfgang Heß discussed whether renewals were efficient in Hessen and Thuringia.⁹³ Heß showed that many coin hoards in these areas contained a majority of coins from only one mint and concluded that renewals were efficient. However, this conclusion is premature since he did

not consider that the local coins came from different issues; see, for example, the coin hoards of Lichtenberg, Marburg and Niederkaufungen. If renewals had been efficient, a specific local issue would have dominated. However, it is obvious that bracteates with the same monetary standard dominated the coin hoards in these areas. Among 20 hoards in Thuringia and Hessen, 17 hoards had at least 70 % of the local monetary standard.⁹⁴ There are three explanations for why many different local issues of bracteates could be found in the same hoard: 1) due to high exchange fees, people only exchanged as many coins as needed; 2) many cities and regions with periodic recoinage had exceptions according to which some groups of people could use old issues; for example, in Erfurt, citizens could use old issues outside the market, and in Denmark, old issues could be used during the final six weeks of the coin year;⁹⁵ and 3) the weight of the bracteates decreased over time (see section 3 above from Wetterau, Marburg area and Northern and eastern Hessen). These explanations provided incentives for people to hoard heavy old issues.

5. Conclusions

In this chapter, a theory of periodic recoinage has been presented. Such a monetary taxation policy required: 1) that people could easily distinguish between different issues, 2) that a geographical currency constraint existed, and 3) that a limited number of coins were in circulation. The last condition facilitated re-minting on a timely basis and monitoring/enforcement. The theory predicts that periodic recoinage was applied in the early development stages of a region, for example, when town privileges were awarded, markets were established, and division of labour began. The leaf-thin bracteates were closely linked to periodic recoinage since they had excellent characteristics for frequent renewals: low production costs, a large diameter with varying designs and overstriking possibilities. Finally, the theory also predicts that periodic recoinage was abandoned when the necessary conditions did not hold any longer, which occurred when increased specialization (increased labour division) *within* cities required a larger coin volume, rendering re-minting and monitoring/enforcement impossible, and when specialization *between* cities stimulated inter-regional trade, followed by supra-regional coin types that broke down the geographical currency constraints.

This theory of periodic recoinage has been applied to three regions in medieval Hessen with their own monetary standards of bracteates: the Wetterau and Marburg area as well as Northern and eastern Hessen. The results show that especially the coinage policies and economic development of Wetterau, but also those of Marburg and Northern and eastern Hessen, largely correspond to the theory. Bracteates were strongly linked with periodic recoinage in the period of 1150–1320. With few exceptions, there was almost no minting before the bracteate period. Bracteates and periodic recoinage often started when markets were established, and town privileges were awarded. Minting volumes were small when *annual* renewals were undertaken. Currency areas were small. There is no evidence of debasements when periodic recoinage was applied. Finally, when minting volumes in Fulda and Wetterau became larger after c. 1250–1260, renewals were less frequent. However, both the frequency and the continuity of renewals varied between mints/regions and within specific mints over time in Hessen.

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92 Klüßendorf 2012, 26–30 and Johannes Hartner's contribution in this volume.

93 Heß 1982b, 855–856.

94 Svensson 2013, 90–91.

95 Heß 2004, 16ff.; Grönder-Hansen 2000, 69.