

CHAPTER 3

THE PERIOD OF THE MEROVINGIAN-FRISIAN GOLD SOLIDUS AND THE ANGLO-FRISIAN SILVER PENNY (c.600-c.780)¹

Slowly Frisia appears from the haze after the wandering of nations in Europe during the 4th to 6th centuries AD. Information about the subject of this study from before the 7th century is almost zero. From that century onwards the data come in at large intervals but with gradually increasing frequency. Among these early data are numismatic data on the use of money in Frisia, but what its precise use was is largely a matter of guesswork. So the story of the money standard in Frisia begins.

This chapter tells the beginning of that story. It is the story of events experienced by the inhabitants of the wetlands of the north-western corner of Europe. This corner was blessed with unique commercial and agricultural opportunities. In spite of frequent floods and the need to ward off invaders, these opportunities were taken, and this led to the emergence of long-distance trading activities, studied and described extensively by Lebecq.² These trading activities, in their turn, would have caused the emergence of trading conventions with partners in England, Scandinavia and Neustria, subsequently the Carolingian empire. Were these commercial activities in the North Sea area merely the extension of activities *going back* to the Roman empire, as Pirenne thought?³ Or were the newly developed institutions in this area the seeds of the western world in northern Europe, which started - as North maintains - *after* the early Middle Ages?⁴ These fundamental questions are not to be considered in this study, which is confined to monetary aspects and to Frisia only. At best it may contribute to the process of providing answers. It is focused on the use of money as a measure of value - money of account - this being one of the trading institutions involved. How this money of account emerged and evolved under the relatively primitive circumstances of the time and place will be described as accurately as the scarce data permit.

The historical context

Living on heightened mounds (*wierden* or *terpen*) on the fertile clay-grounds near the coast, the Frisians were originally a cattle breeding people. In these dwelling places

¹ The term Anglo-Frisian silver money is used by Jellema, "Frisian trade", 23.

² Lebecq, *Marchands*, passim.

³ Pirenne, *Histoire économique*, 5; Pirenne, *Mahomet*, 71.

⁴ North, *The Rise*, 1 ("Efficient organization is the key to growth; the development of an efficient economic organization in Western Europe accounts for the rise of the West."); 25; 33.

they were exposed to seasonal stormy floods. They must have been familiar with the perils as well as the opportunities provided by the sea and rivers. Hence they grew up with shipping. Shipping traffic at the river-mouths around the North Sea, where the Frisians lived, is known to have occurred at least since Roman times. They played a role like that of the Syrians in the Mediterranean:⁵ that of traders and shippers between the harbours at the coast and upstream. Though this traffic may have suffered severely during the Anglo-Saxon wandering after the collapse of the Roman empire, it recovered during Merovingian times, and Frisia became the principal distribution centre for merchandise between Western and Northern Europe. As a seafaring nation, the population expanded along the coast, crossing former borders: to the East over the Lauwers river to the Weser, establishing East Frisia, and to the South over the (Old) Rhine as far as the Zwin, establishing what was called 'Frisia Citerior'. The Frisians now controlled the estuary of the Rhine, the Meuse and the Scheldt. In this last area, on the banks of the Rhine, the famous *emporium* Dorestat emerged in the 7th century.

During the 7th and 8th centuries the Frisians engaged in trade with England, Denmark and Frankia. We have historical,⁶ archaeological⁷ and numismatic⁸ evidence of this. Among other commodities, the Frisians would have exported the products of their cattle-breeding industry, such as wool and woollens. But they also traded in Frankish wine, weapons, pottery, glassware, and millstones, as well as English slaves, tin, and linen, and Scandinavian slaves, furs, soapstone and amber. Their overall balance of payments must have been favourable during this period judging by the growing stock of gold and silver - not among the mineral resources of Frisia itself - that they used for minting.

This country should be imagined as a conglomerate of nuclear regions scattered along the North Sea coast and bearing mutual tribal relations. We do not know whether the whole area comprised a kingdom, comparable with the early Frankish or the Anglo-Saxon kingdom, but Frisian kings are referred to in some documents. Neither do we know whether the kings mentioned were all members of one dynasty. They may have been elected military leaders. It seems probable that they were involved in the acquisition and defence of the important trade routes,⁹ but we do not know whether they assumed anything like control over the money in Frisia.

⁵ Pirenne, *Mahomet*, 178-179.

⁶ Lebecq, *Marchands*, 23-34.

⁷ The early medieval Frisian trade is the main topic of a national Dutch research project, called the 'Frisia project', which began in 1995. This is a co-operative project among the archaeology departments of the universities of Amsterdam and Groningen, and the State Service for Archaeological Investigation. A brief overview of the state of knowledge at the beginning of the project is found in Heidinga, *Frisia*, 27-44. See also Hodges, *Dark Age Economics*, 87-90.

⁸ Lebecq, *Marchands*, 49-73.

⁹ The Frisian kings are mentioned in connection with important trade centres. For instance: (a) Dorestat and Utrecht: see Boeles, *Friesland*, 272-279; (b) Medemblik: see Besteman, "North Holland", 110.

Map 2: Frisia in the early Middle Ages



The main threat came from the South: the Merovingian kingdom. Frisia Citerior became a bone of contention between Franks and Frisians. The most important harbours of Frisia were situated in this territory. In the first place there was Dorestat, already mentioned. It had a castle - probably the remnant of a Roman fortification where there had once been a *limes*. Other important harbours, such as Domburg, at the mouth of the Scheldt, and Witla, at the mouth of the Meuse, were also situated in Frisia Citerior. Dorestat was in the hands of the Merovingian Franks between c.630 and c.650. It was in the hands of the Frisians between c.650 and 679. Then it was conquered by Pepin II, the Merovingian major-domo. When Pepin died in 714, the Frisian King Radbod drove the Franks out of Frisia Citerior. Radbod died in 718, and soon thereafter, in 719, Pepin's son, Charles the Hammer, succeeded in capturing not only Frisia Citerior but also a part of the country north of the Old Rhine to Velsen, or perhaps the whole of West Frisia between Zwin and Fli. In 734 he landed on the East bank of the Fli, invading Mid-Frisia and defeating the Frisians at the Boorne river. From then on the small river Lauwers formed the border between what was left unconquered - East Frisia - and the Merovingian realm. By this time the whole Scheldt-Meuse-Rhine estuary was in Merovingian hands. The Carolingians finished the job. Charlemagne, grandson of Charles the Hammer, invaded and conquered East Frisia, together with Saxony, between 772 and 785.

The history of the means of payment

The monetary history of Frisia begins with coins that have been found dating back to the earliest known period in the developing international trade economy of medieval Frisia. From the 6th century onwards they are scattered alongside the Frisian trade routes: the rivers Rhine and Meuse, and the coasts of England and Denmark, but they are also found in the *wierden/terpen* of the Frisian homelands. We must be aware that, c.600, coins in this regio only gradually came to be used as a means of payment rather than as ornaments, and even as a means of payment their velocity of circulation was very low. Grierson, referring to coins from as late as the 9th century,¹⁰ warns against exaggeration of their use in commerce: the coins “provided a standard of value and a means of storing wealth, but they did not yet play anything like the same role as a medium of exchange that coins were to do in the later Middle Ages and still do in the modern world.”

The first coins found in *wierden/terpen*, struck in Frisia c.575 or at least shortly after, were imitative Byzantine *tremisses*.¹¹ It is to be doubted whether they were widely used as means of payment.¹² But there is no doubt that the succeeding Merovingian gold

¹⁰ Grierson, “Money and Coinage under Charlemagne”, 536.

¹¹ Boeles, *Friesland*, 266-268; Zadoks, “De eerste muntslag”, 9.

¹² Lebecq, *Marchands*, 51. See also Excursus 3.4: ‘On the origin of the compensation amounts for homicide in the *Lex Frisionum*’.

tremisses, also discovered in Frisia, were used for this purpose. The *tremissis* was a fractional coin of $\frac{1}{3}$ rd *solidus*, which itself gradually ceased to circulate in the West in around 600.¹³ A Merovingian *tremissis* officially contained c.1.3g of gold (= the weight of 20 barley corns);¹⁴ hence a Merovingian *solidus* was equivalent to c.3.9g of gold.¹⁵ Some of the *tremisses* that have been discovered were struck outside Frisia, but imitations struck within Frisia during the 7th century have also been found.¹⁶ These Frisian *tremisses* were among the first coins struck outside the area in which money had been minted in antiquity.¹⁷ There is no indication that this minting was carried out under royal Frisian supervision;¹⁸ it may have been a private enterprise by, for instance, travelling moneyers or goldsmiths serving the local elite. As we shall see, minting without royal control was not unusual in Frisia throughout the Middle Ages. When the Franks penetrated Frisia and occupied Dorestat, the Merovingian mintmasters Madelinus and Rimoaldus moved from Maastricht to this emporium. They struck real Merovingian *tremisses* here between c.630 and c.650.¹⁹ In around 650 the Frisians reconquered this place and the *tremisses* of Madelinus in Dorestat now became the model of the Frisian imitative *tremisses*.²⁰ During the 7th century the *tremissis* gradually became debased in Frankia and elsewhere. By the third quarter of the century, the coin, though still weighing c.1.3g, was only $\frac{1}{3}$ rd gold.²¹ After 680 gold was completely replaced by silver.²²

In the 670s, minting of silver coins began in the Merovingian kingdom. These were silver *deniers* with the appearance of the former *tremisses*. Also in the third quarter of the 7th century, after the former Roman silver mines in England had been reopened, indigenous silver pennies began to be struck in England and Frisia.²³ As Spufford explains, although this minting began in the Merovingian kingdom, “Frisia seems to have been of crucial importance in the development of Frankish trade and coinage. The issue of silver deniers was concentrated in a corridor running between Provence, a region where trade had never entirely died, and northern Frankia, particularly the area closest to Frisia. [...] The new pennies minted at the same time in Frisia and England were much more numerous than the early Frankish deniers. They were minted in enormous

¹³ Spufford, *Money*, 18-19.

¹⁴ Grierson, “La fonction sociale”, 351-352.

¹⁵ *Ibidem*, 350; Spufford, *Money*, 19; 398

¹⁶ Boeles, *Friesland*, 507-521.

¹⁷ Spufford, *Money*, 19.

¹⁸ However, *tremisses* have been discovered, struck around 600-630, reading FRISIA and the name AVDULFVS, possibly that of a Frisian king. These pieces are, for some reason, not considered by numismatists as means of payment, but as ceremonial gifts (Faber, “Audulfus”, 29-30).

¹⁹ Zadoks-Josephus Jitta, “De eerste muntslag”, 8.

²⁰ *Ibidem*, 8-9. The author thinks it likely that the imitative coins of Madelinus were not struck in Dorestat but somewhere in Frisia, where the habit of imitative minting had been known of old.

²¹ Lafaurie, “Eligius monetarius”, 134-139; Spufford, *Money*, 19-20.

²² *Ibidem*, 22; Zadoks, “De eerste muntslag”, 9.

²³ Zadoks, “De eerste muntslag”, 10.

quantities between the end of the seventh century and the third quarter of the eighth. It is not very easily possible to distinguish between pieces struck on the Frisian and Anglo-Saxon coasts of the North Sea. ... However, the most common types, like the ‘porcupine’ type of about 720-740, which may have been minted in millions, appear to have been struck on the Frisian coast.”²⁴ They are wrongly known as ‘sceattas’. These pennies had the same weight as a *tremissis*: c.1.3g.²⁵ As Dorestat was in the hands of the Merovingian king again after 689, the minting of the Anglo-Frisian pennies may have been carried out in that place, but it may also have been carried out by travelling private-enterprise moneyers elsewhere.²⁶ The numismatic analyses also show a gradual decline in the weight of these Anglo-Frisian silver pennies, but after 730/740 the Frisian types seem to have maintained a higher silver weight than the English,²⁷ where the rulers of the various kingdoms might have been interested in debasement.²⁸ It is assumed that the use of these silver pennies came to an end in the Rhine delta after the introduction of the reformed *deniers* of Pepin (754/755; see next chapter), but in East Frisia and/or Jutland this did not occur before c.770/780.²⁹ A new era of currency in Frisia was to come.

The history of the measure of value

Though the gold Merovingian *solidus* had disappeared as a real coin at the end of the 6th century, it remained as a measure of value all over Europe.³⁰ Based on this antiquated coin the *solidus* had become a unit of account. As we have seen, it was represented by 3 *tremisses*. However, as a result of the gradual debasement of the *tremissis* during the 7th century the noun *solidus* acquired two essentially different meanings. On the one hand, it was the name given to the sum of 3 undebased *tremisses* as these had been at the beginning of the process. On the other hand, it represented the sum of 3 debased *tremisses* as they had become by the end of the process. The first mentioned notion was equivalent to c.3.9g of gold, the second to only c.1.3g of gold. The Frisians used the noun *solidus* in the first sense, as will be shown. The Franks used it in the second sense. In this second sense, the *solidus* contained no more gold than the original *tremissis* had done. Since it is probable that in the Germanic tongue a *tremissis* was called a ‘shilling’,³¹ it follows that the debased *solidus* was equivalent to an original shilling; that is, to c.1.3g of gold.

²⁴ Spufford, *Money*, 28-29.

²⁵ Grierson, “La fonction sociale”, 354.

²⁶ Op den Velde, “A survey”, 139.

²⁷ Metcalf, “Monetary affairs”, 87-106.

²⁸ Metcalf, *Thrymsas*, 639-641, assumes that the debased coins were ‘accepted together at par’, so ‘the only immediate sufferers were those who took English money abroad, - and producers whose markets lay abroad.’ Metcalf does not explain why ‘those abroad’ would accept English money below its intrinsic value, and I cannot endorse his assumption.

²⁹ *Ibidem*, 172-173.

³⁰ Spufford, *Money*, 18-19.

³¹ Grierson, “La fonction sociale”, 344-347; 350.

This evolution of the unit of account in Western Europe acquired a sequel when the silver pennies appeared. The Anglo-Frisian silver pennies also weighed c.1.3g. At the conventional silver:gold ratio of 12, this implies that 12 of these silver pennies were equivalent to 1 shilling = 1 undebased *tremissis* æ 1 debased *solidus* æ $\frac{1}{3}$ rd undebased ('Frisian') *solidus*. The ambiguous meaning of the noun *solidus*, in Frisia meaning an undebased *solidus* and in Merovingia meaning a debased *solidus*, easily causes confusion (not only in our own days³²). To avoid misunderstanding in this study, I shall use the word *solidus*, as far as possible, only when referring to the undebased Germanic *solidus* (c.3.9g of gold), and I shall use the word '*solidus*/shilling' or just 'shilling' for the unit of 12 silver pennies. The confusing differences in the tariffs in the Germanic legal codices are, for a great part, merely differences in terminology. The systems of money of account in Western Europe were in fact almost the same.

How then did the measure of value develop more particularly in Frisia itself? The only written source of information on the money unit of account in Frisia, the *Lex Frisionum*, dates from the end of the 8th century.³³ This was the Frisian version of the so-called Germanic barbarian laws, the customary laws of the various Germanic tribes. By command of the Frankish king, Charlemagne, at the end of the 8th century, the laws of the tribes under his rule had to be written down so that, if acceptable, they could be confirmed.³⁴ The customary law of the Frisians was one of these. It is recorded in the *Lex Frisionum*. As we shall see, it is unlikely that the *Lex*, as we know it, was confirmed after being written down.³⁵ However, it does provide us with a picture of the Frisian customary law of the time. Even this is open to doubt since the only surviving text was printed in 1557.³⁶ Before this text was printed it may have had a turbulent history. However, on the whole, it seems reliable.³⁷

The amounts in the *Lex Frisionum* are mainly quoted in *solidi*. Each *solidus* consists of three *tremisses*, which are sometimes called *dinari*.³⁸ The *Lex* is written in Latin, but as it renders Frisian customary law it must have been translated, probably from verbal Old

³² It also occurred, for instance, in the petition of the Council of Rheims in 813 (Jesse, *Quellenbuch*, 11, no.37). See next chapter.

³³ See Excursus 3.2: 'On the different kinds of money of account in the *Lex Frisionum*'.

³⁴ Ganshof, "Charlemagne", 395-396.

³⁵ Siems, *Studien*, 366-368.

³⁶ *LF*, 131-148.

³⁷ See Excursus 3.1: 'On the *Lex Frisionum* as an historical source'.

³⁸ From several examples (Title I §3, §6, §7, §9 and §10) it can be shown that these *denarii* were in fact identical with *tremisses*. See also Siems, *Studien*, 253 -256. This identity, however, is confusing: see review of literature on this subject *Ibidem*, 234-244. Siems cites Grierson (*ibidem*, 243), who suggests, that the word *denarius* rather than *tremissis* may be explained by the fact that *denarius* also had the more general meaning of 'coin'. According to Grierson this use must date from the time that the *tremissis* was the only current coin.

Frisian, into medieval Latin. We do not know the Old Frisian words for *solidus* or *tremissis*,³⁹ so the translation may be misleading. This is unlikely, however, because the expressions in the *Lex* can be related to the above mentioned numismatic discoveries relating to Frisia during the 7th century. The *Lex Frisionum* was drafted at the end of the 8th century whereas the last *tremisses* were struck one century earlier. In other words, the unit of account in the *Lex* was based not on current but on antiquated coins. This was not unusual. It has been mentioned before that, all over Europe, the antiquated *solidus* was still in use as a unit of account long after it had ceased to circulate.⁴⁰

As we have seen, the quantity of gold represented by 1 *solidus* gradually declined from c.3.9g to c.1.3g during the 7th century. Was the *solidus* in the *Lex* valued according to the antiquated, undebased gold coin at the end of the 6th century, or was its value determined by the debased *solidus* (= value of 3 debased *tremisses*) at the end of the 7th century? The *Lex* mentions a compensation of $53\frac{1}{3}$ *solidi* for killing a freeman.⁴¹ If the *solidus* in the *Lex Frisionum* was an undebased gold *solidus*, this amount would be equivalent to $3 \times 53\frac{1}{3} = 160$ debased *solidi*/shillings. This was in fact the correct value, as we learn from a clause in the *Lex Ribuarica* c.800. In this clause the compensation for killing a Frisian was 160 *solidi*/shillings,⁴² each *solidus*/shilling consisting of 12 silver pennies.⁴³ It was in fact the habitual compensation for homicide among several other Germanic peoples.⁴⁴ It follows that, as far as the sources inform us, it was not the debased but the undebased *solidus* of c.3.9g of gold that was the principal unit of account in the Frisian law during the era under consideration. This unit would not have been used in the *Lex* if it had not already been in use before the debasement process began; that is, during the first half of the 7th century at latest.

So, at the end of the 8th century the gold Merovingian *solidus* was still the principal unit of account in the law, whereas not only the coin itself but also its representative, the gold *tremissis*, had already disappeared from circulation by the end of the previous century. As we have seen in the previous section, it was replaced by the much more widely circulating Anglo-Frisian silver pennies ('sceattas') - for commercial use no doubt. One can hardly believe that this silver penny would not have been used as a measure of value too. The silver penny became the unit of account, for instance, in both

³⁹ Grierson, "La fonction sociale", 350-351, has found that in England a *tremissis* was sometimes called a *thrymsa*, but the majority will have called it a 'shilling'. It seems likely that this was also the case in other regions around the North Sea, including Frisia.

⁴⁰ Grierson, *Medieval European Coinage*, 102-106: For instance, in the Salic Law, the *solidus*, made up of 40 *deniers*, refers to antiquated coins circulating 3 and 4 centuries earlier, replaced in 816.

⁴¹ Siems, *Studien*, appendix, 131 (Title I, §3)

⁴² MGH LLnG, III, 92 (§40.4).

⁴³ *Ibidem*, 95 (§40.12).

⁴⁴ Siems, *Studien*, 281-282, particularly note 92.

the Merovingian kingdom and in England.⁴⁵ The Frisian merchants used the silver pennies widely as means of payment, and it is likely that they also used these pennies as a measure of value for their calculations. In fact the gold basis of the system of money of account had already changed, tacitly but fundamentally, during the previous stage of evolution. What is most likely to have occurred at the end of the 7th century is the emergence of bimetallic system of money of account. The undebased *solidus* remained the unit of account in the Frisian laws, valued at 3 undebased *tremisses* or shillings; that is 36 silver pennies. However, by that time this conventional rate in fact referred to antiquated conditions. The actual market rate of the gold coin in terms of silver money would have been higher because, as they were withdrawn from circulation by the public, the gold coins must have been undervalued according to the conventional rate (Gresham's Law). They were substituted by the Anglo-Frisian silver pennies, which also eventually became units of account.

Also, new multiple units must have come into use, based on the silver penny: a shilling of 12 silver pennies, an ounce (*uncia*) of 20 silver pennies, a pound (*libra*) of 240 silver pennies. Was the old gold based system also replaced in the law, and was its use in the *Lex Frisionum* in fact antiquated? One part of the *Lex*, concerning East Frisia, already used silver money based multiple units, and at another place in the text, among gold based amounts, an amount in Frisian pennies is indeed mentioned.⁴⁶ It seems that the law was in a stage of transition from a gold based to a silver based measure of value. But this picture is probably too simple. The answer lies far beyond the limits of the period under consideration since the gold *solidus* was still used as a unit of account in the law as late as the first decades of the 9th century, as we shall see.⁴⁷ Moreover, Frisian imitative gold *solidi* were struck during the 9th century. In other words the gold money was also in use during that century. Obviously it would not have been replaced as legal unit of account at the end of the 8th century, and so the bimetallic system must have continued. Now, a bimetallic system presupposes a conventionally fixed rate between the silver based and the gold based units of account. In the picture just described this conventional rate was the same as it is assumed to have been elsewhere in Europe. The rate was founded on a silver:gold ratio of 12.⁴⁸ This implies, for instance, that a gold coin of c.1.3g - an antiquated undebased gold *tremissis* - was supposed to be equivalent to 12 undebased silver pennies at c.1.3g. However, it remains true that there is no evidence of the existence of such a rate in 8th and 9th century Frisia.

⁴⁵ Grierson, "La fonction sociale", 346-355.

⁴⁶ Excursus 3.2: 'On the different kinds of money in the *Lex Frisionum*'.

⁴⁷ See next Chapter. I refer to the *Capitulare* of Louis the Pious in 816.

⁴⁸ Grierson, "La fonction sociale", 355.

The foregoing reconstruction of the history of the Frisian system of money of account in the Merovingian period is summarised in the following table. In this survey I do not include the possible earlier stage of the system, before the Merovingian *solidus* had become the standard, that is tentatively suggested in Excursus 3.4.

Survey of the evolution of the Frisian money of account system

c.600-c.780

| Period | Standard coin | Equivalence | Unit of acc./multiple units |
|-----------------|---------------------------------|----------------|---|
| c.600/ c.800 | (undebased) <i>tremissis</i> | 1.3g of gold | 1 <i>solidus</i> = 3 standard coins |
| c.700/ c.780 | Anglo-Frisian penny | 1.3g of silver | 1 d. = 1 standard 12 d. = 1 shilling 20 d. = 1 ounce 240d. = 1 pound |

Economic analysis

From the survey above, the following changes in the history of the system of money of account in Frisia between c.600 and c.780 must be explained:

- The adaptation of the Merovingian *solidus* as gold based unit of account.
- The emergence of the silver penny as silver based unit of account, based on the Anglo-Frisian silver penny (1.3g of silver).
- The emergence of a money of account system based on this unit, consisting of shillings (=12 pennies), ounces (= 20 pennies) and pounds (= 240 pennies = 20 shillings = 12 ounces).

As we have seen, the Byzantine *solidus* was used in Germanic Europe during the 6th century, perhaps as a gift commodity but probably also as an occasional means of payment, for instance in cases of compensation. However, this Mediterranean coin was based on the weight of carats or *siliquae*,⁴⁹ whereas the Germanic peoples were used to a weight system based on grains of barley or wheat. As the *solidus* was not well suited to the Germanic weight system, it was replaced in the Merovingian realm - probably by means of a creative royal act - by the somewhat lighter Merovingian *solidus*. This coin was equivalent to the weight of 60 barley grains in gold. The choice of this Merovingian *solidus* as a standard for the Frisian system of money of account seems obvious. It was a current coin, probably still in production at that time. Whether the heavier Byzantine

⁴⁹ A *siliqua* or carat is a seed of a kind of bread-fruit tree, unknown in the Germanic early medieval world north of the Alps.

solidus had been a forerunner we do not know, but if it was competing with the Merovingian *solidus*, the latter was apparently preferred because it was better suited to the Germanic weight system. Moreover, by the beginning of the 7th century it was the only type of coin available in the currency of Frisia - imported and imitated. It satisfied the end of facilitating communication in trade as it was known not only in Frisia but also to its trade partners in the Merovingian realm, in England and in Denmark. There was no reason for altering the unit of account when the coin itself was replaced by a triad of *tremisses*. On the contrary, this might have improved communication as amounts could then be specified in the smaller multiple units equivalent to 20 barley grains of gold. But it is true that by then the standard had become a coin that was not being produced any more and was gradually disappearing from the currency. As we have seen, this situation offers a greater degree of stability in the value of the unit of account.

However, as early as the 7th century, the evolutionary path of the Frisian system of money of account followed a new direction. As we have seen, the gold content of the *tremisses* decreased. It is generally assumed that the subsequent debasement of the *tremisses* was caused by a change in the economic sphere: an increasing shortage of gold in Western Europe. In its turn, this shortage was caused by the continuing export of gold from Western Europe to the Orient in exchange for precious goods, already begun in previous centuries.⁵⁰ As a result, gold became more valuable and too costly for the conventionally or legally fixed tariffs and prices. The silver:gold ratio also rose in the market. In the Arab countries it had been 9 to 11 early in the 7th century and had risen to 14 in c.695⁵¹ (in other words, 30% to 50%). Whether, in this situation, the freely operating mints in the Merovingian kingdom and Frisia started adding silver to the gold bullion fraudulently or openly, we do not know. At a rise in the relative price of gold, the prices of other goods would have fallen if quoted in money of account based on the undebased *tremisses*. Market forces could have induced the moneyers to debase the coins to some degree. It is sometimes argued that the coins were accepted at the same face value, irrespective of their gold content; if people disliked particular specimens they could presumably refer to the touchstone and insist on being allowed a discount.⁵² But the rise in the gold price in the Mediterranean of 30% to 50%, and its possible spin off in Western Europe, does not fully explain the decrease in the gold content of the *tremisses* of about 60% to 70%. Assuming that the figures are reliable and that the debased *tremissis* was still intended to represent $\frac{1}{3}$ rd *solidus*, there must have been an additional cause for the rapid debasement of the gold coins. The supposed need for lighter money in a progressively monetised economy is an unsatisfactory explanation as long as there are no complementary indications of the existence of fractional coins

⁵⁰ Spufford, *Money*, 18-19.

⁵¹ Watson, *Back to Gold*, 27.

⁵² Grierson, *Medieval European Coinage*, 109.

of the *tremissis*.⁵³ Fraud is not credible either in so far as, in the Merovingian realm as well as in Frisia, minting was private enterprise, and the trustworthiness of the moneyers must have been an absolute condition for the saleability of their coins. A fiscally motivated political interference in the currency during and after the reign of King Dagobert I (629-639) has been suggested as a possible cause.⁵⁴ If this was so, given the mechanism of the coin trade, this development would necessarily have been followed by the competing moneyers outside the Merovingian realm - in Frisia. It seems the only acceptable explanation left.

This process came to an end one day during the second half of the 7th century when an enterprising moneyer, presumably in the Merovingian kingdom, became aware of a new opportunity in the money market. Since the need for smaller money was increasing, gold in terms of silver was becoming more expensive and trust in the debasing *tremisses* was decreasing, silver money might better serve the needs of trade. It is assumed that at that time, in the Merovingian kingdom, the actual debased *tremissis* was worth only 4 silver pennies. Hence, 12 silver pennies would represent the value of a (debased) *solidus*.⁵⁵ This is why, in this realm, 12 silver pennies were called ‘a *solidus*’ from then on. But the situation in Frisia was probably quite different because there another system evolved. Because the gold content of the actual *tremissis* as means of payment decreased far below what it should contain to represent $\frac{1}{3}$ rd *solidus* as a multiple unit of account, the convenient unity between means of payment and measure of value was broken. The new silver penny provided a solution in this problem. As we have seen, its success was enormous in Frisian trade. Doubtless it came to dominate in the Frisian commercial system of money of account. However, we know that the legal money of account system, based on the fossilised undebased gold *solidus*, survived for another century and a half. This would hardly be imaginable if the much more important commercial system of account at that time was substantially different. It is therefore much more likely that the silver penny was integrated in the extant system of money of account in Frisia, this being used for commercial as well as for legal pricing. This outcome might be considered as an example of what, in Chapter 2, I have called an adaptive compromise, the result of a social process in which the benefits of improved communication (pricing in silver pennies) was traded-off against the cost of changing the generally known and accepted standard (the fossilised undebased *solidus*). If this conjecture is true, it explains a tacit incorporation of the silver penny within the extant legal Frisian money of account system: as a multiple unit of 1/12th undebased *tremissis*

⁵³ Zadoks, “De eerste muntslag”, 9.

⁵⁴ Spufford, *Money*, 19-20.

⁵⁵ Watson, *Back to Gold*, 27 (table 2). In the Arab countries the silver:gold ratio would have been 12 around the middle of the 7th century. In Western Europe this may have occurred in the second half of that century.

(1/36th *solidus*) first⁵⁶ and as the standard coin in a bimetallic system of account next. It would easily have facilitated calculations in amounts of shillings as well as in ounces and pounds, probably already known in the weight system. It would have restored the broken unity between the system of account and the currency. Above all, it would have accentuated the importance which the Frisian traders and their partners may have attributed to another end of the money of account system: the reduction of price uncertainty. Trustworthiness of their own money system might even have been a *conditio sine qua non* for the goodwill that the Frisian merchants must have built to be able to venture trading abroad.

⁵⁶ In this picture a *solidus* finally debased to $\frac{1}{3}$ rd would be worth $\frac{1}{3} \times 36 = 12$ silver pennies (the '*solidus*' of the Franks), and a debased *tremissis* would be worth $\frac{1}{3} \times 12 = 4$ silver pennies. In England 'shillings' worth 4 and 5 silver pennies have been mentioned, which may refer to the pale, silver blended gold '*tremisses*' (Grierson, "La fonction sociale", 355).

