

## **The Evolution of the Money Standard in Medieval Frisia.**

### **A treatise on the history of the systems of money of account in the former Frisia (c.600–c.1500)<sup>1</sup>**

*By Dirk Jan Henstra (Groningen)*

In august 2000, the president of the International Monetary Fund, Horst Köhler, confessed openly to representatives of the international press in Washington that, until recently, the IMF had made mistakes by underestimating ('like everyone else') the importance of institutions for building up the economies of underdeveloped countries. His statement marks the breakthrough of a new view in economics. New views in economics happen to reflect contemporary economic conditions. In this case it concerns the fundamental role of economic institutions in any economy. Köhler had to admit that indeed the emergence of economic institutions takes time. Hence the world faces another problem. We have to investigate how economic institutions evolve.

This article resumes the results of historical research in the evolution of an economic institution over nine centuries. The institution involved is an informal institution or convention.<sup>2</sup> It illustrates that this evolution was inevitably path-dependent. The implication is, that history matters. The history of economic institutions is to be viewed as a constituent part of the history of a culture.

Essentially, economic institutions are rules for interactive economic behaviour ingrained in the minds of the members of a society, they are integrated in their culture.<sup>3</sup> Therefore, the question may be put in what degree social engineering can shape economic institutions. There is a revival of the concept of economic institutions in the study of economics in the last decades, after a period of slumber since the Austrian School.<sup>4</sup> Nowadays, however, economists often focus on assumed logical systems behind the rules. For instance, such rules are analysed by game theoretical methods<sup>5</sup> if not approached as complex adaptive systems.<sup>6</sup> The idea might be that once we understand the logic behind economic institutions they can be politically constructed. Indeed, there can be little doubt that politics and laws are almost indispensable for the effectiveness and sustainment of economic institutions. But is this just a matter of construction by politics and laws? The Austrians opened our eyes for how institutions that co-ordinate economic behaviour emerge organically that is, bottom-up.

I have tried to find out on the basis of a successful real world case how an economic institution can emerge and evolve without being constructed by rulers; in other words, how it develops bottom-up and how it sustains over a long period in a given society. My aim was to study

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1 *D.J.Henstra*, The Evolution of the Money Standard in medieval Frisia. A treatise on the history of the systems of money of account in the former Frisia (c.600-c.1500), Diss. Groningen 2000.

2 The term 'convention' is used as an alternative to the term 'informal institution'; it is referred to by the words 'conventional' and 'conventionally'. A formal institution can be enforced by some external authority, an informal institution or convention can not. See *S.van der Lecq*, Conventions and Institutions in co-ordination problems, in: *De Economist* 144/3, 1996, pp. 405-407.

3 *F. Fukuyama*, Trust. The Social Virtues and the Creation of Prosperity, New York 1995, pp. 13-21.

4 *D.C. North*, Institutions, institutional change and economic performance, Cambridge 1990; an historical example of institutional analysis: *D.C. North/R.P. Thomas*, The Rise of the Western World. A new economic history, Cambridge 1995.

5 For instance *E. Ullmann-Margalit*, The Emergence of Norms, Oxford 1977.

6 For instance *J. Holland*, Hidden Order. How Adaptation Builds Complexity, Reading (Mass.) 1995.

how in real history an institution evolves 'organically' over a long period. The real world case used for my dissertation was a money of account system as an economic institution; the society was medieval Frisia;<sup>7</sup> and the period was nine centuries (c.600–c.1500). Medieval Frisia – it should be noticed forthwith – was a country inhabited by communities with a common culture and with an outstanding prosperity to the standards of its time; but without a common government. It was early monetised with a market-controlled currency. Hence it might be a simple but exceptional case for investigating a real organic evolution of an economic institution. In this article I will try to expose something of what I found, without mentioning the difficulties the historian has to meet to overcome the scarcity of the sources regarding a subject like this, and without elaborating the economic theory that I have used as a tool of analysis. This is dealt with in my dissertation. Here I must suffice with a brief survey.

Before starting to expose and analyse this history I must make clear three concepts that will be used.

### Money systems

Economists discern money as a means of payment and money as a measure of value, although this distinction is seldom used as an operational instrument in modern economics. But the difference is significant when studying medieval economies in Western Europe. The overwhelming number of various coins that were circulating at the same time is confusing for us but was also confusing for the contemporaries. It would have been almost impossible to make economic calculations and to communicate about prices without an underlying money of account system. This did exist. From the 7th century onwards, almost all over western Europe, for instance in Frisia, this system was based on the penny or *denarius* (d) as the smallest unit, completed by multiple units like the shilling (s), being 12d. and the pound (£), being 20s. Later on, after the 10th century, the mark (mk) was ousting the pound in some areas of Europe, though its meaning was different in various countries: it could be a multiple unit of 120d. (Flemish mark), of 144d. (Cologne mark), 160d. (English and Frisian mark) or 192d. (Lübeck mark). As the words 'pound' and 'mark' originally were and still are units of weight, their particular meaning in economic communication could and can be derived only from their context.

A money of account system is an instrument to express economic values. In medieval times this was accomplished by relating the account system to the value of a particular coin, the standard coin, valid at a given time and place. This value was the 'face value' of that coin. Of course it was impossible to try the metal content of every coin that changed hands in daily trade. The face value of any coin was what the public in the market generally accepted to be its credible gold or silver content. The face value of the standard coin determined the gold or silver equivalence of the component parts of the money of account system. For instance, if a coin named old *vleemse grote*, assumedly containing 1.2g of silver, was considered to be the standard coin representing a shilling, then a penny would be worth 1/12th of that coin or 0.1g of silver, and a pound would be worth 20 old *vleemse groten* which would be equivalent to 24.0g of silver. Hence the value of goods and services could be expressed as an amount in £. s. d. which implied equivalence to a certain quantity of gold or silver. Of course, not only goods and services had a market value in these terms, but also other common coins in circulation, not being standard coins.

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7 R. Wenskus, Die deutschen Stämme im Reich Karls des Große, in: W. Braunfels (ed.), Karl der Große Lebenswerk und Nachleben. I. Persönlichkeit und Geschichte, Düsseldorf 1965, p. 211: As the only exception Frisia was spared from feudalism, resulting in an ethnic self-esteem that differs from the other tribes.

It follows that the history of the money value in terms of silver or gold equivalence in any country can be traced by determining the evolution of the gold or silver equivalence of the standard coins that have been valid. It must be admitted, however, that in practice this is not as simple as it sounds. Not only the documents related to this subject are scarce. Moreover is the underlying money of account system often hidden behind various money names in the common parlance of time and place. Instead of being directly expressed in so and so many £.s.d., values might also be expressed as a number of some popular coins (like we do in our own time); in such a case that value is indirectly related to the underlying system of money of account. However, in this article I shall avoid mentioning these difficulties for the historian and only present the results of my laborious search.

The next step would have been the conversion of the money value in terms of silver or gold equivalence into market prices. This however could not be accomplished, simply because there are no surviving data on prices from medieval Frisia, that could be used for this purpose. We are compelled to refrain from that aim.

### **Economic institutions**

A system of money of account does not arise out of the blue. Although mostly the origin of such a system can not be traced exactly, we may safely assume that it emerged gradually – 'organically' – from practices that have become common in the market. Once those practices are generally established they form an 'economic institution', that is, a bundle of conventional rules directing the interactive economic behaviour of everyone. People expect other people to act in the market according to these rules. Their mutual expectations sustain the system. A money of account system is such an institution; in pricing everyone in the market expects everyone else in the market to attach the same meaning, the same value to the unit of account in which a price is set.

The medieval money of account systems that I found in Frisia turned out to be relatively simple systems, consisting of four rules. The first rule was, what standard coin was mutually recognised as basis for the unit of account (*e.g.* the old *vleemse grote*). Next, what face value, measured in gold or silver equivalence, that standard coin had (*e.g.* 1.2g of silver). Then, how many units of account this face value represented (*e.g.* a dozen). Lastly, in what proportions of equivalence the multiple units in a system were to the standard coin (*e.g.* 1s. æ 1 standard coin, 1 mk. æ 12 standard coins, £ 1. æ 20 standard coins).

Once established, economic institutions like a system of money of account will adapt to changing circumstances. A given system appears to be valid only for a given time and a given place. For historians it is interesting to know what roughly the gold or silver equivalence of the unit of account in a given area in a given time might have been. This may be helpful, for instance, for dating transactions in documents or for understanding the relative significance of amounts. For economists, however, it is interesting to understand how these systems evolve, particularly in case the evolution is a spontaneous one. This may be helpful to learn what social forces control economic development under what kind of conditions.

### **The wergeld hypothesis**

The third concept used in the study is of a quite different nature. It concerns an antiquated medieval concept – wergeld – and the way this could be used in the present study.

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8 The symbol æ is shorthand writing for 'is equivalent to'.

Wergeld in its Indo-European setting is, it is known, the payment of compensation, primarily for slaying a man. It is extended to covering compensation in cases of injury to himself, his family and his household.<sup>9</sup> Although the concept seems to be akin to our modern concept of indemnification for damage – the loss of income generating power by death or mutilation for instance – in the Middle Ages it was primarily a way to replace feuds when revenge was required by the honour of the injured. It had the character of atonement. It was felt honourable for the perpetrator to compensate the injured honour of the other party. The compensation saved honour on both sides. Although the value of the compensation was negotiated – the honour of both parties was at stake – gradually customary norms developed. The wergeld, particularly the compensation for killing a freeman, was the central norm. Other injuries were more or less related in proportion to the wergeld in cases where feuds would otherwise have been required.<sup>10</sup>

Wergeld was expressed as a quantity of land, or cattle, or some other commodity, or gold or silver money. In our case, Frisia, wergeld was first expressed as gold money but there was a change to silver money during the first stage of our study. Whatever commodity was customary, the quantity which represented the standard compensation for the normal case must have been stable over time. Thus, whatever the purchasing power of a given quantity of gold or silver may have been, the concept of purchasing power itself – if one was aware of it at all – was irrelevant as the compensation was primarily a symbol, a gesture of atonement. In the study I found the wergeld for a freeman in the *Lex Frisionum* in c.790 to be equivalent to 1,664g of silver and 7 centuries later in the treaty between Groningen and Oostergo in 1491 to be equivalent to 1,720g of silver,<sup>11</sup> whereas nearly all cases in between could be reduced to a silver equivalence of 1,664g plus or minus 6.25 percent. This idea, the stability of the normal wergeld over time in terms of a certain quantity of silver (or gold), I have called the wergeld hypothesis.

To the best of my knowledge, this concept has not been formulated or used in previous research. As I have found, it helps us to calculate and to verify the silver equivalence of the units of account which are to be investigated. Because we are dealing with a period for which historical data are almost non-existent, the conclusions of this study had to be founded for a large part on numismatic data and understanding of the evolution of economic institutions – but data, which could be described as valid 'if the wergeld hypothesis holds', appeared to support the conclusions.

### On the following sections

The first rule of a medieval money of account system was, what standard coin was mutually recognised as basis for the unit of account. As this first rule is the dominating rule of a system of money of account, I will confine myself to the evolution of that rule in this article. So, the topic of the following pages is how the evolution of the money standard in medieval Frisia can be understood given the political and economic conditions of the time and the place.

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9 P. Grierson, *The Origins of Money*. London 1977, Grierson, p. 19; H. Conrad, *Deutsche Rechtsgeschichte (Frühzeit und Mittelalter)* Vol.I, Karlsruhe 1954, pp. 66-67.

10 H. Brunner, *Deutsche Rechtsgeschichte*, 2 vol., Leipzig 1882, p. 88; A.S. Diamond, *Primitive Law Past and Present*, London 1971, pp. 64-65.

11 In both these examples the actual amount to be paid in the documents was the wergeld + the kin's share, which share was half the wergeld amount; so the amounts to be paid were actually 53 1/3 gold *solidi* and 200 old *schilden* (at 2 1/2 *arnseguilders* each).

There were six money standards valid in medieval Frisia, sometimes overlapping each other, which overlap concerned partly bi-metallic systems, partly regional differences:

- the Merovingian gold *solidus* (c.600-c.800)
- the bi-metallic system with the Anglo-Frisian silver penny (*sceatta*) as the other standard (c.700-c.830?)
- the Carolingian silver penny and gold *solidus* (c.780-c.900)
- the old-Frisian silver penny (c.900-c.1275)
- the English/Frisian sterling (c.1250-c.1500)
- the new-Frisian silver pennies (c.1350-c.1500)

The description will be presented as the evolution of an economic institution. This evolution, of course, occurred under certain economic and political conditions. Therefore these conditions are accounted for in the description of the historical progress. The transition from one standard to the next in its historical setting is accordingly described and explained in separate sections. As the explanation of this evolution deserves the use of tools of analysis, I present a very brief review of the economic theory concerned before I turn to the history of the money of account system itself, as it is applied to the explanation of that history.

## I. Tools of analysis

The explanation of the history of the money of account systems in medieval Frisia is based on the assumption that their rules aim to facilitate convenience of communication in trade and aim to limit future price uncertainty. Changing circumstances that is, changing economic data, may affect a once satisfying system of account. Without sufficient communication on basis of an extant system of money of account, transaction costs would become too high. Without sufficient certainty of future pricing on that basis, entrepreneurial risks would become too high. Too high costs or too high risks generate an economic problem concerning the system. Like all social problems, such an economic problem is solved by social selection of the options that are open, given the new circumstances, i.e. the changed economic data. Hence, to explain how the rules of a money of account system will emerge and develop we must take (1) these economic data into account as well as (2) the social response to the problem.

(1) I have arranged the economic data that I found in medieval Frisia into three more or less independent societal spheres: data rooted in the coin sphere, in the economic sphere and in the political sphere of the society in question. Changes in the economic sphere might be for instance a change in the pattern of international trade. Changes in the political sphere might be the interference of a foreign conqueror with the money standard.

But in our case, the coin sphere deserves particular attention. Provided there is no governmental interference with supply of and demand for coins, the result is a 'market-controlled' currency. It means that the minters are free entrepreneurs and that the public is free to bring bullion to their mint. There will be coin production as long as the price of bullion in terms of new coins of current quality is attractive. That price will be quoted in units of account. The silver or gold equivalence of the units of account depends on the silver or gold equivalence of the standard coin. In our case we meet almost exclusively silver standard coins. Now a silver standard had a peculiar quality: the unit of account showed a continuous but slow and rather equable decline in silver equivalence caused by depreciation of the standard coin. This depreciation was the combined result of technical deterioration and economic preferences. By technical deterioro-

ration one must think of wear and tear, clipping and the like.<sup>12</sup> By economic preferences one must think of the minters, who tended to produce coins at the lowest tolerable limit of silver content and of the public, that tended to pick out the better coins for hoarding or melting, to leave the bad coins in circulation. This depreciation of a market-controlled currency caused the rule as to what face value the standard coin was to be accepted becoming increasingly disputed until an adaptation to a lower value prevailed in the market. The minters were free to adjust their policy to the conditions of the market, taking public opinion into account. Trust was the major force keeping the goldsmiths producing coins according to norms of weight and fineness that were generally accepted by the public at the time and place; loss of trust meant loss of business and even loss of limbs if not life. Once a lower silver equivalence of the standard coin was generally accepted, they could strike new coins based on this lower value without risk of being accused of debasement and so the process of further lowering went on and on. The resulting continual decline of a standard coin I have called the 'normal decrease'. Of course, the smaller the standard coins became, the higher the annual percentage of the decline in silver equivalence of the unit of account rose and the more effect it had on its purchasing power that is, on prices. Hence also on the price of bullion. And as there was no government stating a fixed price of bullion in Frisia, demand and supply for coins could be adapted easily. Here mints were not compelled to close, like in many other countries if the official bullion price was kept too low in vain efforts to fix the standard.

(2) The social response to the new problem concerning the rules of the account system, I think, results from a mix of entrepreneurial creativity and social inertia. It is a vital point in the theoretical foundation of the explanation. It implies that entrepreneurial attempts to meet a new problem in the current system of account are confronted with public reluctance to break away from old customs. Therefore, unless social response would be enforced, the attempt gaining social acceptance is close to the current customs. Hence it is path-dependent. Occasionally, the 'clash' between entrepreneurial creativity and social inertia resulted in what I have called an 'adaptive compromise': the incorporation of a new element in the extant system of account.

The most important among the rules of systems of account, mentioned above,<sup>13</sup> regards the convention as to what would be the money standard. In medieval Frisia this was still a particular coin, usually of silver. There were four options:

- a current coin still in production;
- a current coin not being produced any more (*e.g.* an antiquated coin);
- a coin that is not current but is still in production (*e.g.* a foreign coin);
- a coin that is not current and not being produced any more.

These options had different characteristics with respect to convenience of communication in trade and limitation of uncertainty in future pricing. The history of the money standard was a

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12 This subject is dealt with in detail by *C. van Hengel*, Wear of silver coins, in: *Jaarboek voor Munt- en Penningkunde* 69, 1982, pp. 139-145; *N.J. Mayhew*, Numismatic Evidence and Falling Prices in the Fourteenth Century, in: *The Economic History Review* 2nd series 27/1, 1974, p. 3; *E. Aerts*, Metal loss in the Monetary Circulation of the Southern Low Countries (Fifteenth-Eighteenth Centuries). Sources and Methods, in: *E. Aerts/B. Henau/P. Janssens/R. van Uytven*, *Studia Historica Oeconomica*, Leuven 1993, pp. 41-58. As Van Hengel puts it (p. 144): ... "every coin with a diameter of more than 19 mm loses 4.5 milligrams p. a. through normal circulation; for coins of smaller size the loss would be reduced by a factor of  $d^2/19^2$  where  $d$  is the diameter in mm." (Mr Van Hengel kindly informed me that his article had mistakenly mentioned a loss of 0.45 mg per annum.)

13 See the section *Economic institutions*, p. ...

process of trial-and-error during which these characteristics proved their advantages and setbacks. All options have been tried out in medieval Frisia.

## II. The starting point of the evolution

The story of the systems of money of account in the former Frisia begins around AD 600. Frisia, by then, was the name of a string of 'nuclear regions', habitable areas scattered along the continental North Sea coast at the mouth of a number of large West-European rivers: the Scheldt, the Meuse, the Rhine, the Ems and the Weser (see map 1). Living on heightened mounds (*wierden* or *terpen*) on the fertile clay-grounds at the coast, the Frisians were originally a cattle-breeding people. In these dwelling places 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. Their particular environment invited them, self-evidently, to become the traders and shippers between the harbours at the coast and upstream the rivers of Western Europe, transporting and exchanging all kinds of special commodities that were produced under the varying environmental conditions in their catchment area. That is, in Denmark, in England and in Merovingia. At the junction of the waterways to and from these countries, on the banks of the Rhine, the famous *emporium* Dorestat emerged in the 7th century. It soon became one of the largest international distribution centres – if not the largest – in Western Europe during over two centuries (and was predecessor of the world's largest harbour towns since then, Rotterdam/Europoort being its successor today).<sup>14</sup>

During the relatively short yearly seasons fit for transport and trade, exchange was necessarily facilitated by the use of money, known already in Western Europe – though sparsely used – since Roman times. The coins used in Western Europe after the wandering of nations were Byzantine gold *solidi*. Since the 6th century these became replaced by somewhat lighter Merovingian *solidi* – adapted to German weight standards. These on their turn were succeeded by gold *tremisses*, each having the value of 1/3rd *solidus* in principle. A Merovingian *tremissis* officially contained c.1.3g of gold (= the weight of 20 barley corns),<sup>15</sup> hence a Merovingian *solidus* was equivalent to c.3.9g of gold.<sup>16</sup> Some of the *tremisses* that have been discovered were struck outside Frisia, but imitations struck within Frisia around AD 600 have also been found.<sup>17</sup> These Frisian *tremisses* were among the first coins struck outside the area in which money had been minted in Antiquity.<sup>18</sup> When the Franks penetrated Frisia around 630 and occupied Dorestat, the Merovingian mint-masters Madelinus and Rimoaldus moved from Maastricht to this emporium. They struck real Merovingian *tremisses* in Dorestat between c.630 and

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14 The origins and development of Frisian shipping and trading are thoroughly studied by and accounted for in *S. Lebecq*, *Marchands et navigateurs frisons du haut moyen âge*, 2 vol., Lille 1983.

15 *P. Grierson*, *La Fonction Sociale de la Monnaie en Angleterre aux VIIe - VIIIe Siècles*, in: *P. Grierson (ed.)*, *Dark Age Numismatics. Selected Studies*, London 1979, pp. 351-352.

16 *Ibidem*, p. 350; *P. Spufford*, *Money and its use in medieval Europe*, Cambridge 1989, p. 19; p. 398.

17 *P.C.J.A.Boeles*, *Friesland tot de elfde eeuw*, Den Haag 1951, pp. 507-521.

18 *Spufford*, *Money*, p. 19.

c.650.<sup>19</sup> In around 650 the Frisians reconquered this place and the *tremisses* of Madelinus in Dorestat now became the model of the Frisian imitative *tremisses*.<sup>20</sup>

There is no indication that this mintage was carried out under supervision of the Frisian kings. It may have been a private enterprise by, for instance, travelling moneyers or goldsmiths serving the local elite. We do not know whether the whole Frisian area comprised a kingdom, comparable with the early Frankish or the Anglo-Saxon kingdoms, 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,<sup>21</sup> but we do not know whether they assumed anything like control over the money in Frisia. As we shall see in the sequel, mintage without royal control was not unusual in Frisia throughout the Middle Ages.

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.<sup>22</sup> Based on this antiquated coin the *solidus* had become a unit of account. As we have seen, it was represented by 3 *tremisses*. The situation in Frisia was not different. Here too, the antiquated *solidus* was still in use as a unit of account long after it had ceased to circulate.<sup>23</sup> We know this from the only written source of information on the money unit of account in Frisia, the *Lex Frisionum*, which is to be dated between 785 and 794.<sup>24</sup> It was a draft of the Frisian version of the so-called Germanic barbarian laws, the common laws of the various Germanic tribes. The amounts in the *Lex Frisionum* are mainly quoted in *solidi*. Each *solidus* consists of three *tremisses*, which are sometimes called *denarii*.<sup>25</sup> The *Lex* is written in Latin, but as it renders Frisian common law it must have been translated probably from verbal Old Frisian, into medieval Latin. We do not know the Old Frisian words for *solidus* or *tremissis*,<sup>26</sup> 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 related to Frisia during the 7th century. So, this is the starting point of the evolution of the money standard in medieval Frisia.

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19 A.N. Zadoks-Josephus Jitta, De eerste muntslag te Duurstede, in: Jaarboek voor Munt- en Penningkunde 48, 1961, p. 8.

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

21 The Frisian kings are mentioned in connection with important trade centres. For instance: (a) Dorestat and Utrecht: see Boeles, Friesland, pp. 272-279; (b) Medemblik: see J.C. Besteman, North Holland AD 400-1200: turning tide or tide turned? in: J.C. Besteman/J.M. Bos/H.M. Heidinga, Medieval Archaeology in the Netherlands. Studies presented to H.H. van Regteren Altena, Assen 1990, p. 110.

22 Spufford, Money, pp. 18-19.

23 P. Grierson, Medieval European Coinage, Vol. I., Cambridge 1986, pp. 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, when they were replaced in 816.

24 For this dating see: Henstra, The Evolution, pp. 70-71.

25 H. Siems, Studien zur Lex Frisionum. Ebelsbach 1980, Appendix: from several examples (Title I §3, §6, §7, §9 and §10) it can be shown that these *denarii* in fact were identical with *tremisses*. See also: *ibidem*, pp. 253-256. This identity, however, is confusing: see review of literature on this subject *ibidem*, pp. 234-244. Siems cites Grierson, 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' (*ibidem*, p. 243). According to Grierson this use must date from the time that the *tremissis* was the only current coin.

26 Grierson, La fonction sociale, pp. 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.



Map 1: Frisia in the early Middle Ages



### III. The transition from the Merovingian gold *solidus* to a bimetallic system with the Anglo-Frisian silver penny as the other money standard

A major change in the economic conditions occurred in the course of the 7th century. Gold became increasingly scarce in Western Europe. It is believed that this scarcity was caused by the continuing export of gold from Western Europe to the Orient in exchange for precious goods, already since the end of the 4th century.<sup>27</sup> As a result, gold became more valuable and too costly as a measure of value for the conventionally or legally fixed tariffs and prices, whilst free market prices will have been pressed down and trade would have stagnated. Also silver became cheaper in terms of gold or, reversely, the gold price in terms of silver that is, the silver:gold ratio rose in the market. In order to meet the demand for cash the merchants and the minters became increasingly tempted to debase the currency at the risk of losing trade because of practicing deceit. But the rise in the gold price in the Mediterranean of 30 to 50 percent during the 7th century,<sup>28</sup> 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 percent.<sup>29</sup> Assuming that the figures are reliable and that the debased *tremissis* was still aimed to represent 1/3rd *solidus* – thus not meant to represent a smaller denomination – there must have been an additional cause for the rapid debasement of the gold coins, to be guessed until now.

The ongoing debasement of the *tremisses* can not have been without effect on the money of account systems in Western Europe. In Frisia it meant that the money standard hitherto, the undebased *solidus*, formerly represented by a triad of undebased *tremisses*, had become to be represented by an uncertain, larger number debased *tremisses*. Hence the *solidus* was gradually losing its capacity as an easy and reliable measure of value, either for communication in trade or for future pricing. This was an economic problem, requiring a creative solution that might reorganise the money systems in Western Europe. In the 670-s a minter – maybe in Merovingia – started to introduce pure silver pennies with the gross weight of a *trimessis*.<sup>30</sup> As these silver pennies could apparently be readily supplied and, being pure, could be reliably valued, they soon circulated widely in Frisia as well as in England (unjustly called 'sceattas'<sup>31</sup>) and in Merovingia (*deniers*). It is therefore likely that the problem was solved by integrating the new silver penny in the extant system of money of account in Frisia. Instead of pricing in gold with the uneasy consequence of disputes on fineness, pricing in reliable silver money would be easier. At a certain moment in around AD 700 an antiquated undebased *tremissis* could be reckoned at and paid with 12 silver pennies or being paid with about 3 debased *tremisses*, depending on their quality;<sup>32</sup> hence, the antiquated undebased *solidus* could be reckoned at  $3 \times 12 = 36$  silver pennies. These occasional ratios became conventional in Frisia that is, institutionalised. It might be considered as an example of what I have called an 'adaptive compromise', the result of a social process, in which the benefits of improved communication (pricing in silver pennies) was

27 Spufford, Money, pp. 18-19.

28 A.M. Watson, Back to Gold - and Silver, in: The Economic History Review 2nd series 220/1/2/3, 1967, p. 27.

29 J. Lafaurie, Eligius monetarius, in: Revue Numismatique 6th series 19, 1977, pp. 111-151; Spufford, Money, pp. 19-20.

30 Spufford, Money, p. 28.

31 W. op den Velde/W.J. de Boone/A.Pol, A survey of sceatta finds from the Low Countries, in: D. Hill/D.M. Metcalf (ed.), Sceattas in England and on the Continent. The Seventh Oxford Symposium on Coinage and Monetary History, Oxford 1984, p. 139.

32 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, p. 355).

traded-off against the cost of switching the generally known and accepted standard (the fossilised undebased *solidus*). This would explain a tacit incorporation of the silver penny within the extant legal Frisian money of account system: as a fractional unit of account of 1/12th undebased *tremissis* (= 1/36th undebased *solidus*) first, and as the standard coin in a bimetallic system of account subsequently: a double standard, with the gold coin in it *de facto* disappeared and reduced to a multiple unit of account. We can derive this conclusion too from the *Lex Frisionum*. As this *Lex* was drafted at the end of the 8th century whereas the last *tremisses* were struck one century earlier, the unit of account in the *Lex* was based not on current but on antiquated coins. At that time the Anglo-Frisian silver pennies had been massively in use already during a century,<sup>33</sup> and these must have had some relation to the unit of account. Silver pennies are mentioned in the *Lex* indeed and with help of the wergeld hypothesis it could be demonstrated that a *tremissis* was equivalent to 12 silver pennies.<sup>34</sup> One could proceed on the old path, only the shoes were new.

Remark. The Frisian solution, it should be stressed, was different from that in Merovingia. 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. The Franks used it in the second sense. In this second sense, the *solidus* contained no more gold than the original *tremissis* had contained. Since it is probable that in the Germanic tongue a *tremissis* was called a 'shilling'<sup>35</sup> it follows that the debased *solidus* was equivalent to an original shilling, that is, to c.1.3g of gold. 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 1/3rd 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 days<sup>36</sup>). To avoid misunderstanding I have used the word *solidus* in my book and in this article only when referring to the undebased Germanic *solidus* (c.3.9g of gold) and I have used the word '*solidus/shilling*' or just '*shilling*' for the unit of 12 silver pennies.

#### **IV. The transition from the Anglo-Frisian bimetallic system to the Carolingian silver penny and gold *solidus* as money standards.**

We now have reached a period in which the political situation in Frisia came to change dramatically. Frisia south of the Rhine had already been a bone of contest between the Franks and the expansionist Frisians and changed hands a few times during the 7th century. But in the course of the 8th century it were the Franks that crossed the Rhine. In 719, under Charles the Hammer (714-741), they conquered West Frisia until the Fli. In 734 he landed further up to the north, conquering Mid-Frisia until the Lauwers river (beyond Dokkum, the place where Boni-

33 Spufford, Money, pp. 28-29.

34 Henstra, The Evolution, pp. 279-283.

35 Grierson, La fonction sociale, pp. 344-347; p. 350.

36 It also occurred, for instance, in the petition of the Council of Rheims in 813 (W. Jesse, Quellenbuch zur Münz- und Geldgeschichte des Mittelalters, Halle 1924, p. 11, no.37). See next section.

face found his martyrdom in 756). Charles' grandson, Charlemagne (768-814), continued the Frankish conquests after 772 by subjecting East Frisia and Saxony in a series of bitter wars. In 784-785 the Frisians between Fli and Weser joined the Saxons, who had come to a general insurrection under their leader Widukind. They wiped out Christian priests and destroyed Christian churches, demonstrating their aversion to Frankish supremacy and Christianisation. It was suppressed again by Charlemagne, but he was halted as he met the stirred, heathen Danes. As by then the main part of his ultimate realm was in his power he tried to unify the kingdom as a state devoted to Christendom with written law, courts, standardised weights, measures and coins and many other institutions.<sup>37</sup> His son and successor, Louis the Pious (814-840), was less a reformer but he aimed to follow his divine Empirical vocation. His approach was rather diplomatic but military. Thus he tried to keep peace with the Danes by negotiations. Internally he tried to win the Saxons and Frisians for his intentions; already in 814 he returned them the rights on the heresy of their ancestral landed property, as these were taken from them by his father<sup>38</sup> – probably after the Saxon-Frisian revolt in 884-885. By this privilege he made them freemen, which put them in a direct relation to the king. No doubt he could expect them to be better motivated to combat the Northmen when they disposed over their ancestral estate.<sup>39</sup>

The conquest of Frisia by the Carolingians did not in itself alter the fortunate conditions under which Frisian international trade had emerged in the previous period. As Lebecq suggests,<sup>40</sup> Carolingian society as a whole prospered by the trading activities of the Frisians. The economies of the Rhinish hinterland were especially stimulated. During the *pax caroline* (c.750-c.830), the Austrasian aristocracy – the main basis of the Carolingian power – was considerably favoured by this trade. No doubt the Frisian merchants, in their turn, did benefit from this economic growth within the Carolingian realm. But their activities were still concerned with intermediate business that is, not only directed to the Rhinish hinterland but also to the peoples along the North Sea coast. Their trade interest in the North is a point to keep in mind for understanding the Frisian monetary history – that is, the way they responded to the Carolingian monetary reforms.

In 754/755 the first Carolingian king, Pepin the Short (741-768), reformed the Carolingian monetary system.<sup>41</sup> He introduced a new penny with a silver content of c.1.3g<sup>42</sup>, somewhat heavier than the Merovingian *deniers* had been in the previous decades (c. 1.2g of silver).<sup>43</sup> These new pennies have also been minted in Dorestat.<sup>44</sup> Fairly large quantities of these coins have

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37 W. Braunsfels (ed.), Karl der Große. Lebenswerk und Nachleben. Band I, Persönlichkeit und Geschichte, pp. 349-536.

38 R. Rau, Quellen zur karolingischen Reichsgeschichte I. Die Reichsannalen Einhard. Leben Karls des Großen. Zwei 'Leben' Ludwigs. Nithards Geschichten, Darmstadt 1977, pp. 294-295.

39 N.E. Algra, The Relation between Frisia and the Empire from 800-1500 in the Light of the Eighth of the Seventeen Statutes, in: R.H. Brenner Jr/ T.S.B. Johnston/O. Vries (ed.), Approaches to Old Frisian Philology. Amsterdamer Beiträge zur älteren Germanistik 49/ Estriken 72, 1998, p. 42.

40 S. Lebecq, Dans l'Europe du Nord des VIIIe-IXe siècles: commerce Frison ou commerce Franco-Frison? in: Annales Économies Sociétés Civilisations 41/2, 1986, p. 369.

41 Jesse, Quellenbuch, p. 9, no.28 (= MGH Cap, 32 (no.13)).

42 See Spufford, Money, p. 40, note 2.

43 C. Scholten, De munten in de Lex Frisionum, in: Jaarboek voor Munt- en Penningkunde 30-32, 1943-1945, pp. 7-10; p. 22 (after E. Gariel, Les monnaies royales de France sous la race Carolingienne, 2 vol., Strasbourg 1883/1885).

44 H. Enno van Gelder, De Karolingische muntslag te Duurstede, in: Jaarboek voor Munt- en Penningkunde 48, 1961, p. 20.

been found near Dorestat and near Domburg in the south of Frisia. The main part of this area, Frisia Citerior, was situated south of the old Rhine and was the part of Frisia that had belonged to the Roman empire; it had long been claimed as Frankish territory. It was the area readily accessible from Frankia, and it was probably marked by strong Frankish presence and influence.<sup>45</sup> But to the best of my knowledge none of these coins have as yet been found in West Frisia north of the Rhine, or in Mid-Frisia and East Frisia.<sup>46</sup> The same is almost true for similar pennies of Charlemagne struck before his monetary reform in 794; one discovery in Mid-Frisia did contain a few of these pennies.<sup>47</sup> When this is compared with the discoveries of huge numbers of the previous Anglo-Frisian pennies in these areas, the question arises as to whether these Carolingian pennies circulated in great numbers in the north of Frisia. If they did not, the only realistic possibility left is that the old Anglo-Frisian pennies, which are difficult to date precisely, were still being used, even though they had officially been abolished. According to the *Lex Frisionum*, the Anglo-Frisian silver pennies were still in use at least in East Frisia at the end of the 8th century, as this part was only subjected in its last decades.<sup>48</sup>

The major change in the money system however occurred at the end of the 8th century, under Charlemagne. One of his standardisation measures, taken in 793/794, was commanding a universal money system in his realm based on a new 'heavy' silver penny, containing c.1.7g of silver, whilst abolishing the old money systems based on the penny of 1.3g of silver.<sup>49</sup> It is a clear example of an effort to impose an economic institution top-down. It most likely would have confused the pricing system in the North Sea trade area for some time. Nevertheless, according to numismatic discoveries, it was apparently accepted as a means of payment (!) in most parts of his realm but whether it was massively circulating in the northern part of Frisia is subject to doubt. Here, imitative Carolingian coins of lighter weight have been discovered and probably also been struck.<sup>50</sup> Charlemagne's son, Louis the Pious, followed in 814 with another novelty: a new gold coin, known as *solidus* again, though a little heavier than its Merovingian predecessor had been: around c.4.4g of gold.<sup>51</sup> Whereas the silver penny of Charlemagne was generally accepted in the Frankish realm, the use of the gold *solidus* seems to have been very modest – apart however from Frisia-Ulterior, be it in its own way, as we will see.

It is difficult to estimate the impact of Charlemagne's monetary reform and the introduction of Louis the Pious' gold *solidus* on the money of account system in Frisia, as data are almost

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45 J.F. Niermeyer, Het Midden-Nederlands rivierengebied in de Frankische tijd op grond van de Ewa quae se ad Amorem habet, in: Tijdschrift voor Geschiedenis 66, 1953, pp. 151-155.

46 Van Gelder, De Karolingische muntslag, p. 20; K. Kennepohl, Beiträge zum Geldumlauf in Ostfriesland von der Karolingerzeit bis zum Beginn des 15. Jahrhunderts, in: Hamburger Beiträge zur Numismatik 4, 1950, p. 7; P. Berghaus, Die ostfriesische Münzfunde, in: Friesisches Jahrbuch/Jierboek 1958 fan de fryske Akademy/Jahrbuch des Nordfriesischen Vereins für Heimatkunde und Heimatliebe 32/Emder Jahrbuch 38, 1958, p. 47.

47 Van Gelder, De Karolingische muntslag, p. 19; P.C.J.A. Boeles, Les trouvailles de monnaies carolingiennes dans les Pays-Bas, spécialement celles des trois provinces septentrionales, in: Jaarboek voor Munt- en Penningkunde 2, 1915, 23-26; this finding consisted of 10 of these pennies, 3 of them struck in Dorestat.

48 See Henstra, The Evolution, p. 280-282.

49 P. Grierson, Money and coinage under Charlemagne, in: W. Braunfels (ed.), Karl der Große, pp. 501-536.

50 Van Gelder, De Karolingische muntslag, pp. 20-21. From his table on page 40 it can be inferred that roughly 95% of the about 1,950 post-reform pennies of Charlemagne, Louis the Pious and Lothar I, found in the north of Frisia and west of the Ems, belonged to a crude type of 'Christiana religio of Louis the Pious' or to a type to be identified as 'Dorestatus with temple of Lothar I'. Kennepohl, Geldumlauf, p. 7: in Frisia east of the Ems the only Carolingian coins to have been discovered are 'Christiana religio pennies of Louis the Pious' (1950).

51 P. Grierson, The gold solidus of Louis the Pious and its imitations, in: Jaarboek voor Munt- en Penningkunde 38, 1951, pp. 1-41.

lacking. A *capitulare* of Louis the Pious in November 816 throws some light on the system of money of account in Frisia after the monetary reform of Charlemagne in 793/794.<sup>52</sup> This *capitulare* was probably proclaimed to comply with a petition of the Council of Rheims in 813.<sup>53</sup> The Council requested the Emperor to abolish the use of the fossilised *solidus* worth 40 *deniers* in the *Lex Salica*, as its existence alongside the *solidus* worth 12 *deniers* gave rise to perjury and false testimony. In the *capitulare* of 816 the Emperor confirmed that, in settlements of disputes in Frankia according to the *Lex Salica*, a *solidus* had to be reckoned at 12 pennies, except in disputes with Saxons and Frisians. In these cases a *solidus* owed by the Saxon or Frisian to the Frank concerned in the dispute had to be reckoned at 40 pennies. As I see it, this decree was not intended to discriminate between Franks on the one hand and Frisians and Saxons on the other since such an intention would have been completely contrary to the privilege to win their loyalty, given them by Louis only a few years before.<sup>54</sup> The exception in the *capitulare* of 816 had another cause. At that time a man was bound to the law of his own nation, not of the territory in which he was at law.<sup>55</sup> If a Frisian was at law in Frankia, the money he was using (as measure of value) was different from the money the Frank was using. This is essentially what the *capitulare* refers to. Apart from the problem of the rate itself, there can be little doubt that a Frisian *solidus* of so high a value must have been the gold-based unit of account and not the silver-based *solidus*/shilling that the Franks were accustomed to.<sup>56</sup> So, apparently, the gold-based unit of account was still valid in Frisia in 816. As far as the rate of 40 pennies itself is concerned, there are several possible interpretations to be derived from this *capitulare*.<sup>57</sup> There is no definite answer to the question as to what silver pennies the *capitulare* referred to. It seems to me most likely that it referred to the fossilised rates of the system of account in the Merovingian law system that had to be adapted.<sup>58</sup> In that case the rate of 40 pennies itself gives no further information on the Frisian money of account in 816. All we can say is that the apparent usefulness of the new gold *solidus* in Frisia at that time is evidence of a continued use of the bimetallic standard. If in that system a *solidus* of 4.4g of gold would be equivalent to 36 heavy Carolingian silver pennies, this rate could only occur if the silver:gold ratio would have been about 14.<sup>59</sup> This is a potential ratio in the first half of the 9th century<sup>60</sup> and hence, the use of the heavy silver penny as the new silver standard seems also possible.

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52 Monumenta Germaniae Historica, Capitularia regum Francorum I, p. 268 (no.134, 3).

53 Jesse, Quellenbuch, p. 11, no.37.

54 Rau, Quellen, pp. 294-295.

55 R. Buchner, Wattenbach-Levison. Deutschlands Geschichtsquellen im Mittelalter. Vorzeit und Karolinger. Beiheft Die Rechtsquellen, Weimar 1953, pp. 45-46. Contrary to the tribal laws the *capitula*, in general, were valid in the whole Carolingian realm. But the *capitula legibus addenda* were additional to the tribal law concerned, in this case the *Lex Salica*.

56 W. Jesse, Noch einmal der Denar der Lex Salica, in: Hamburger Beiträge zur Numismatik II/9/10, 1955-1957/1958, pp. 16-18: The origin of a rate of 40 pennies to the *solidus* in the *Lex Salica* may go back to the end of the 7th century until the second half of the 8th century, when the first silver *deniers* got struck in Frankia.

57 These are demonstrated in Henstra, The Evolution, pp. 73-74.

58 Jesse, Quellenbuch, p. 2 (no.6, taken from the *Lex Salica*); Jesse, Noch einmal der Denar, p. 16; Grierson, The gold *solidus*, p. 3, note 7.

59 If  $36 \times 1.7g = 61.2g$  of silver  $\approx 4.4g$  of gold then  $13.9g$  of silver  $\approx 1g$  of gold. As in the course of the first half of the 9th century the silver:gold ratio was still rising, gold *solidi* could only be accepted for 36 silver pennies if their gold content was decreasing; a ratio of 17 in around 850 would require a gold content of only c.3.6g (which would, for instance, imply a gross weight of 4.0g and a fineness of 0.9).

But as there is no evidence of the heavy Carolingian penny being accepted as a standard in Denmark or England, the Frisian merchants had to cope with two different systems of account: one valid upstream the rivers to Frankia and one valid along the sea coasts of the North Sea. Judging from the coin discoveries it appears that the first system, based on the heavy Carolingian silver penny, became anyway actual in Frisia south of the old Rhine, centered around Dorestat and its catchment area. What system they adapted north of that area – that is, in the Frisian homelands – we do not know. All we know are discoveries of Frisian imitative Carolingian silver pennies and Frisian imitative gold *solidi* with a silver and gold content below the Carolingian norms in that area. These coins do suggest that the Frisians in fact did not accept the new Carolingian system in their homelands. Although the border between the areas is uncertain and also vague I shall identify the northern area roughly as 'Frisia Ulterior' in the sequel. In that area, as it seems, they just continued the extant system with the Anglo-Frisian 'sceattas' replacing these by the lighter imitative Carolingian pennies as silver standard and the imitative Carolingian gold *solidus* as gold standard. One of the oldest laws in Frisia Ulterior, recorded in the 11th century, mentions fines to be paid in gold coins struck in the mint of Rednath.<sup>61</sup> As imitative gold coins were struck only until the end of the 9th century (as we will see in the next section) this implies that his mint was active at some time in that century. As in the Frisian laws also silver money struck by Rednath is mentioned,<sup>62</sup> which is described to be lighter than official Carolingian money,<sup>63</sup> we may conclude that indeed in the 9th century the money standard in this part of Frisia was not the genuine Carolingian but already a lighter version of it. It may have been a direct continuation of the pre-Carolingian Anglo-Frisian bimetallic standard but if not, it was easily linked to it.

To sum up: the transition from the Anglo-Frisian bimetallic system to the Carolingian heavy silver penny and gold *solidus* in 793/794 and 814 respectively was not an organic one caused by changed economic conditions but a top-down measure caused by foreign political motives. It will have been accepted that way in Frisia Citerior, this being under strong Frankish influence. So here, by political enforcement, the old path was left and abolished.

But in Frisia Ulterior a full acceptance is to be doubted. Rather the lighter imitations of the new silver and gold coins became the money standards. As it seems, here was only a change in appearance of the standard coins the ultimate result of the Carolingian monetary reform. Strictly speaking this was no more than a nominal change of the money standard. If this would be true – data are lacking – the system of account remained. Hence the old path determined the sequel which will be dealt with in the next section.

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60 S. Bolin, Mohammed, Charlemagne, and Ruric, in: *The Scandinavian Economic History Review* I/1/2, 1953, p. 16. After Bolin was in the Arab world the silver:gold ratio rising from 15 to 17 in the period 800-850. Only a significant time lag in pricing between these parts of the world can account for the difference in the ratios in 816.

61 W.J. Buma/W. Ebel, *Das Hunsingoer Recht*, Göttingen 1969, pp. 30-33 (§1); W.J. Buma/W. Ebel, *Das Emsiger Recht*, Göttingen 1967, pp. 28-31 (§1).

62 W.J. Buma/W. Ebel, *Das Rüstringer Recht*, Göttingen 1963, pp. 36-37 (§9); Buma/Ebel, *Hunsingoer Recht*, pp. 24-27 (§9); W.J. Buma/W. Ebel, *Das Westerlauwersches Recht I. Jus Municipale Frisonum*, 2 vol., Göttingen 1977, pp. 140-141 (§9).

63 Buma/Ebel, *Westerlauwersches Recht I*, p. 19. See for its exegesis Henstra, *The Evolution*, pp. 64-65; pp. 295-298.



## V. The transition from the Carolingian silver penny and gold *solidus* to the 'old-Frisian' silver penny as money standard

After the reign of Charlemagne the Carolingian kings had to cope with invading and raiding Northmen. His son and successor Louis the Pious (814-840) had, in addition, also to cope with his rebellious own sons as these were anxious to grab as large a piece of their father's heresy as possible. These problems together weakened the Empire gradually after c.830. Within two generations, after the death of Louis the Pious, the Carolingian realm began to dissolve. In 843 it was divided by the three surviving sons of Louis into three parts: a Western, a central and an Eastern part. Frisia belonged to the central part, usually known as Lotharingia. In 911 the last heir of the Carolingian dynasty in the Eastern part, Germany, died. The Carolingians were succeeded by a Saxon dynasty. The first German king of this dynasty, Henry I the Fowler (918-936), succeeded to control Lotharingia and from then on Lotharingia – and hence Frisia – remained formally part of the German kingdom.<sup>64</sup> This kingdom was the first of the Frankish realms to recover from the anarchy of the late 9th century and therefore to assume the lead in West European politics.<sup>65</sup>

The political dissolution of the Empire had its impact on the political situation within Frisia. We have seen in the previous section that in 814 Louis the Pious granted Frisians and Saxons the privilege to dispose over their ancestral landed property again, probably to motivate the Frisians and Saxons to defend their own territories against the Northmen. Moreover, to keep them out, Louis and his successors gave parts of Frisia in fief to Danish vassals between c.830 and 885 – the idea being fighting Northmen with Northmen. The parts concerned were situated around Dorestad and Domburg in the West, and Riustringen at the mouth of the Weser in the East. However, as a result of these measures it appears that the authority of the Carolingians in Frisia slipped away from at least c.830 onwards. Louis' privilege of 814 (see before) became the basis of the Frisian formal relationship to the Carolingian kings and their successors in the following centuries, at least in Frisia Ulterior. The Frisians were free men bound in fidelity to the king, the counts being considered only as the king's representatives.<sup>66</sup> Though the tie to the king was never denied, it was weakening. The succeeding Carolingian kings did not interfere with ordinary life in Frisia Ulterior as far as we know. Consequently, the fates of Frisia south of the old Rhine and Frisia north of that border began to deviate; the sequel of this article is focussed on the history of Frisia Ulterior.

Louis' privilege did work as he intended. After the first quarter of the 9th century, the Danes started their violent plunder of the Frankish coasts, lasting throughout the 9th and 10th centuries. But the number of their raids on the coasts of Frisia Ulterior and their impact was only limited compared with other parts of the Carolingian realm and moreover, several of them resulted in a Danish defeat, which justified Louis' Frisian policy.<sup>67</sup> Nevertheless, the raids must have disturbed and complicated the usual peaceful Frisian trade with Scandinavia and perhaps

64 C.W. Previt -Orton, *The shorter Cambridge Medieval History*, 2 vol., Cambridge 1971, pp. 297-379; pp. 418-470; C.A.A. Linssen, *Historische opstellen over Lotharingen en Maastricht in de middeleeuwen*, Assen 1985, pp. 1-66.

65 Previt -Orton, *The shorter Cambridge Medieval History*, p. 426.

66 P.W.A. Immink, *Remarques g n rales sur l'importance de l'ancien droit frison dans le cadre de l'histoire du droit occidental*, in: *Revue du Nord. Revue historique trimestrielle publi e sous les auspices de l'universit  de Lille* 38, 1956, pp. 182-183.

67 An illustrative example of such a defeat near Dokkum in 873, in which the Frisians referred to their obligations to the Carolingian king, is found in *Annales Fuldenses*, Ao.873 ( d.Rau, 1960, 90-92); *Annales Xantenses*, Ao.873 ( d. Rau, 1960, 368-370).



even hampered the further development of Frisia's overseas trade. But it was not wiped away. There is mention of Frisian colonies in Scandinavia, and there are traces of Frisian trade in England, after the raids had begun.<sup>68</sup>

In the 10th century the Scandinavian raids came gradually – though not completely – to an end. The old business could be intensified, though things had changed. The discovery of new silver mines in Saxony in the middle of the 10th century caused a new silver stream through Europe. A considerable part of this flowed through the hands of the Frisian merchants as means of payment, coined or recoined into Frisian money.<sup>69</sup> As this trade was expanding the growing need for silver money caused new developments in coinage.

How then did these political and economic changes in the 9th and 10th century affect the Frisian money standard? The lack of reliable metrical data on the silver content of the imitative Carolingian pennies struck during the 9th and 10th century in Frisia impedes drawing any definite conclusions on the silver equivalencies of the penny as unit of account in these centuries.<sup>70</sup> As it seems, the extant pre-Carolingian bimetallic system of money of account was continued or restored in Frisia Ulterior, the differences to that previous system only being the replacement of Anglo-Frisian pennies (*sceattas*) by Carolingian pennies as silver money standard and the reappearance of the gold *solidus* as gold money standard. These standard coins, of course, could circulate only together at the conventional rate of 36 silver pennies to 1 gold *solidus* if their respective silver and gold contents were in accordance with the silver:gold ratio in free trade. If we may rely on the scarce data that have been reported by Bolin<sup>71</sup> and by Watson<sup>72</sup> the silver:gold ratio's would have been about 15 in around 814, increasing to about 17 in around 850. With this ratio going up, the conventional rate of 36 silver pennies to 1 gold *solidus* could only be maintained by decreasing the gold content of the gold *solidi*.<sup>73</sup> Hence, a debased *solidus* is what the free enterprising minters of Frisia would supply in exchange of 36 silver pennies. This process could not be reversed as soon as after c.850 the silver:gold ratio decreased to the extent that the silver standard became undervalued – for no one would spend new up-graded *solidi* if old, less graded *solidi* would do as well. Hence, now it was the silver penny that had to be debased in order to be in conformity with the conventional rate. Only 36 down-graded silver pennies could be produced for the price of 1 *solidus* and this down-grading would go on as long as the ratio decreased that is, until around the middle of the 10th century.<sup>74</sup> Although there is no written evidence, the numismatic evidence suggests roughly that this indeed was what happened

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68 *Lebecq*, *Marchands*, pp. 30-31.

69 *Spufford*, *Money*, p. 64; pp. 86-87.

70 *C.M. Haertle*, *Karolingische Münzfunde aus dem 9. Jahrhundert*, 2 vol., Köln 1997. Unfortunately the author pays insufficient attention to the imitative Carolingian pennies.

71 *Bolin*, *Mohammed*, p. 16.

72 *Watson*, *Back to Gold*, 27.

73 At a ratio of 14, 36 'heavy' Carolingian pennies (1.7g of silver apiece) would require a *solidus* containing  $36 \times 1.7g : 14 = 4.4g$  of gold; at a ratio of 17 this would be  $36 \times 1.7g : 17 = 3.6g$  of gold. But if in Frisia the old silver pre-reform pennies of 1.3g of silver would have been the silver basis of the bimetallic system then 36 of these silver pennies would at a ratio of 14 correspond to a *solidus* of 3.3g of gold (for instance a coin with a gross weight of 4.0g and a fineness of 0.835); a ratio of 17 in around 850 would require a gold content of only 2.75g (which would, for instance, imply a gross weight of 3.9g and a fineness of 0.7). See *Grierson*, *The Gold Solidus*, pp. 1-41.

74 *Watson*, *Back to Gold*, p. 27.

in Frisia Ulterior; in the course of the 9th and 10th centuries the silver weight of the Frisian imitative Carolingian pennies was diminishing.<sup>75</sup>

When the ratio continued to go down, the gold *solidus* at last disappeared from production, so probably also from circulation. By then the bimetallic money standard was turned into a single silver money standard, based on the Frisian imitated, light Carolingian silver penny. Apparently there was no need for maintaining the gold pillar of the system. As long as the gold price decreased in terms of silver, and was expected to decrease, a valuation based on gold was not attractive for reasons of future certainty. Furthermore, in the course of time the silver penny had probably gained so much being the usual unit of account in communication, that valuation in terms of *solidi* could not regain what it had lost. The gold standard faded away, the silver standard remained. This ended up at the end of the 10th century with a penny of c.0.9g of silver.

By then the imitative Frisian-Carolingian bi-metallic system had tacitly been transformed to what I have called the 'old-Frisian' silver standard. In fact this was accompanied by a change of appearance of the silver standard coins. Had these hitherto been imitations after the heavier Carolingian design – whether struck in Dorestad, in Strasbourg or in Cologne – now their design showed openly them being struck in Frisian market places, bearing names of Saxon counts.<sup>76</sup> If my observation is true, this transition would be an adaptation of the bi-metallic system existing since the 7th century to the conditions of its time. Restricting to a silver-based money standard was anyway easier in communication in trade and was apparently no less reliable for future pricing than valuation in gold-based money. Apart from ignoring the gold standard the old path was continued.

## VI. The transition from the 'old-Frisian' silver penny to the English silver penny (sterling) as money standard

After the economic expansion during the 10th and 11th centuries, stimulated by the opening of the Saxon silver mines that had intensified the international trade with the North, an important change developed inside Frisia.<sup>77</sup> The construction of dykes since about the end of the 10th century, to defend the Frisian sealands against floods, resulted in increased safety for the inhabitants and, above all, in an increase in the amount of arable land for the growing population. Also, the vast moors that lay between the Frisian sealands and the sandy soils of the continent became objects of energetic reclamation activity. This resulted simultaneously in less salty waters and less salty meadows, which may have led both to a reduction in shipping and trading challenges and to an increase in cattle-breeding. It may also have led to a reduction in the quality of the Frisian sheep,<sup>78</sup> causing the famous Frisian woollens to lose their prominent position

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75 Boeles, Friesland, p. 445; idem, Les trouvailles, pp. 53-59; pp. 77-79; Berghaus, Die ostfriesische Münzfunde, p. 26; P. Ilisch, Friesische Münzen um die Jahrtausendwende, in: De Beeldenaar 11/2, 1987, p. 67; Kennepohl, Beiträge, p. 9: The hoard of Dietrichsfeld I, buried shortly after 1014, contained still nearly 9% 'Christiana religio' pennies, weighing 0.68g in the average.

76 This is true for the 11th century pennies struck by the Billung counts in Oistringon, the counts of Werl, succeeded by the duke of Lotharingia in Emsingo, and the Brunonian counts in Fivelingo, Hunsingo and Mid-Frisia.

77 B.H. Slicher van Bath, The economic and social conditions in the Frisian districts from 900 to 1500, in: Afdeling Agrarische Geschiedenis Bijdragen 13, 1965. pp. 97-133.

78 E. Knol, De Noordnederlandse kustlanden in de Vroege Middeleeuwen, Diss. Groningen, 1993, p. 239: sheep flourish better in a brackish environment because a particular parasite, inimical to sheep, cannot thrive in that environment.

in the international markets to those of Flanders (at the end of the 11th century<sup>79</sup>). Cattle, horses and dairy products replaced them.

The shift from international shipping to farming must have been further advanced by the emergence, at the end of the 12th century, of the big *kogge*, a freighter that was much larger than any of the previously used vessels but was unable to land in the shallow waters of Frisia.<sup>80</sup> By the 13th century only a few harbour-sites remained for overseas trade. In the succeeding centuries, some of these places like Stavoren became involved in the Hanseatic league.<sup>81</sup> Also Groningen was one of these. This centre, well situated at the junction of a natural land road from Westphalia through Drenthe and waterways to the surrounding polder areas and the North Sea, became one of the larger commercial towns in northern Europe, but its membership of the league had no great significance.<sup>82</sup> At the end of the period covered by the present chapter – that is about the middle of the 13th century – Frisia was still a wealthy country, but it had lost its preponderant international trade position. To the east, the Hanseatic league, dominated by Saxon towns and merchants, had taken over the Frisian role. To the west, the towns and merchants of Flanders and subsequently Holland were heirs of the early medieval Frisian tradition.

Also the political conditions changed. After a Saxon dynasty had become succeeding the Carolingian royal dynasty and after the discovery of huge silver mines within Saxony, a growing Saxon influence on the Frisian political and economic history would have been obvious. By marriages and heritage Saxon nobles acquired rights of a count in various parts of Frisia. Assumedly these rights were fiscally attractive but the new Saxon counts showed no intentions to interfere with internal Frisian matters; rather they were concerned with the struggle for power at the highest levels of the German kingdom. This competition within the German nobility continued when the Saxon royal dynasty was replaced by other dynasties, who tried to reduce the growing power of the nobles by granting the rights of a count to bishops. Since about the 12th century the competition for power was moreover moving towards a change in the position of the counts – from officers servicing the king originally to sovereign feudal princes in acquired territories by then. However, the Frisians, bound to fidelity directly to the king, refused subjection to these princes instead. Many counts and even a few kings lost their lives or their honour trying vainly to feudalize Frisia.<sup>83</sup> Apart from two cases in the ultimate west (West-Friesland, 1286) and the ultimate east (Wierden, before 1270) the Frisian resistance was not broken. Hence, without counts as representatives of the king, the Frisians started to rule themselves in local and regional communities. The decisions were made by 'the people' within a given juris-

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79 *H. Amman*, *Die Anfänge des Aktivhandels und der Tucheinfuhr aus Nordwesteuropa nach dem Mittelmeergebiet*, in: *Studi in onore di Armando Sapori*, Milano 1957, p. 276; the industry of cloth for export emerged in Flanders at the end of the 11th century.

80 *H.P.H. Jansen*, *Een economisch contrast in de Nederlanden. Noord en Zuid in de twaalfde eeuw*, in: *Bijdragen en Mededelingen betreffende de geschiedenis der Nederlanden* 98/1, 1983, pp. 16-17.

81 *W. Jappe Alberts*, *De Nederlandse Hanzesteden*, Bussum 1969, pp. 22-31, mentions in Frisia Stavoren, Bolsward and Groningen, although the status of the relationship between these towns and the Hanse is mostly complicated and sometimes doubtful. In addition, *Previté-Orton*, *The Shorter Cambridge Medieval History*, p. 853, mentions Emden.

82 *H.P.H. Jansen*, *Sociaal-economische geschiedenis*, in: *W.J. Formsma/M.G. Buist/W.H.R. Koops/A.T. Schuitema Meijer/E.H. Waterbolck (ed.)*, *Historie van Groningen. Stad en Land*, Groningen 1981, pp. 144-145.

83 For those interested in a survey of the cases: see *Henstra*, *The Evolution*, p. 84, note 20; p. 108, note 2; p. 131, note 10.

diction – that is, originally, the whole community of free Frisians (in fact the peasant farmers<sup>84</sup>), but for practical reasons the 'whole community' was gradually replaced by a jury, which represented it. As a result, Frisia in the 13th century (Drenthe not included) consisted of about twenty-five *de facto* independent 'peasant farmers republics'.<sup>85</sup> Though the lack of a supreme authority in Frisia must have been felt, the regional communities did not have sufficient power to build a federation bottom-up. Only after about 1200 they began co-operating in what was called the league of the 'Upstallisbam',<sup>86</sup> and even then co-operation was not always self-evident. The absence of central government in Frisia during the 9th through 13th century is reflected in numismatic facts.

The 'old-Frisian' silver pennies lasted as a money standard during centuries. But 'normal decrease' caused a continuous lowering of their silver weight and size. In periods of 'bullion famine' this decrease was enhanced, as fraud was worth the risks. In around the middle of the 13th century the silver content and the size of the 'old-Frisian' pennies had become too small to be useful not only as a means of payment but also as a measure of value. With so small a unit of account – c.0.12g of silver in around 1250/1260, c.0.04g in 1288<sup>87</sup> – the amounts expressed in this unit became inconveniently large. This hampered the still primitive medieval way of calculating (in Roman figures!). Furthermore, long-term contracts became increasingly unattractive as prices rose faster and faster. After the middle of the 13th century an economic problem came into existence: the costs of communication became too high and the future prices became too uncertain to stick to the 'old-Frisian' penny as an expedient money standard.

From the scarce data a conjecture could be derived, how this problem was solved. The solution had a Westphalian origin. In the first half of the 13th century English 'short-cross' pennies came into use in the Westphalian currency alongside and equivalent to the respectable pennies of Cologne.<sup>88</sup> The mark of Cologne had counted 144 pennies for a long time; hence, in Westphalia, a mark could also count 144 sterlings. Moreover, sterlings were imitated in Westphalia on the same basis as the genuine English pennies. As Westphalia had intensive commercial relations with Frisia, imitative sterling coins may have infiltrated the Frisian currency, and calculations with marks of 144 sterlings may have superseded the old Frisian system of account. This infiltration would have met a need because the 'old-Frisian' penny was almost obsolete in the first half of the 13th century. Then, after 1240, the production of imitative short-cross sterlings in Westphalia was ousted by the production of indigenous Westphalian types of pennies. Con-

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84 *N.E. Algra*, Heck's 'Altfriesische Gerichtsverfassung' honderd jaar, in: *It Beaken* 56/1, 1994, p. 36. Originally the free Frisians were freeholders, loyal to the king. But in the course of time the oath of fidelity to the king came to be neglected.

85 *I.H. Gosses*, Deensche heerschappijen in Friesland gedurende den Noormannentijd, in: *Mededeelingen der Koninklijke Akademie van Wetenschappen. Afdeling Letterkunde* 56/B4, 1923, reprinted in *F. Gosses/J.F. Niermeyer (ed.)*, *Verpreide geschriften*, Groningen 1946, p. 145; *B.H. Slicher van Bath*, *Herschreven Historie. Schetsen en Studiën op het gebied der Middeleeuwse Geschiedenis*, Leiden 1949, pp. 259-260 (I have added West-Friesland to his list); *H. Schmidt*, *Studien zur Geschichte der friesischen Freiheit im Mittelalter*, in: *Jahrbuch der Gesellschaft für bildende Kunst und väterlandsiche Altertümer zu Emden seit 1950* hrsg. von der Ostfriesischen Landschaft 43, 1963, p. 35.

86 *H.D. Meijering*, *De Willekeuren van de Opstalsboom (1323). Een filologisch-historische monografie*, Amsterdam 1974, pp. 288-289; it is assumed that the league originally concerned only the communities of East Frisia, *i.e.* between Lauwers and Weser.

87 *Henstra*, *The Evolution*, p. 97.

88 *P. Berghaus*, *Die Perioden des Sterlings in Westfalen, dem Rheinland und in den Niederlanden* in: *Hamburger Beiträge zur Numismatik* 1, 1947, p. 37.

sequently, when in 1247 a new type of English penny, the long-cross type, replaced the short-cross type in England, this type was hardly imitated in the northern part of Westphalia,<sup>89</sup> bordering on Frisia. However, especially in those places in Frisia where trade with Westphalia was significant – Jever, Emden, Groningen – the demand for the widely accepted sterlings was still growing. This may have induced the production of imitative, apparently slightly less valued, long-cross sterlings within Frisia, but as they had the same appearance as the genuine English penny, they could not be distinguished, provided they were of good weight.<sup>90</sup> For this reason the genuine long-cross pennies would have been valued the same as the imitative in Frisia. These imitative Frisian sterling pennies may, in their turn, have sometimes been used in Westphalia. As amounts in the charters from areas previously accustomed to the penny of Cologne were, from c.1250 onwards, more often specifically quoted in sterling money, Berghaus has suggested<sup>91</sup> that the long-cross sterling, unlike the short-cross type, was no longer equivalent to the penny of Cologne.

To continue my conjecture, the people in the above mentioned Frisian areas would have found the imitative sterling a convenient standard for a new system of money of account, convenient for calculating larger amounts – pennies, shillings and marks ('new') English.<sup>92</sup> As it seems, by historical coincidence in around 1270/1280, the widely circulating and trusted English penny coin was valued in the current system of account at a score of old-Frisian pennies.<sup>93</sup> Entrepreneurial individuals will have started to express their prices first in scores of 'old-Frisian' pennies, then in English pennies. These could be used as an alternative standard. As the attempts showed to be convenient, the example was gradually followed by other people until at last the whole 'old-Frisian' system was replaced by the English system. This would be a representative example, I think, of the way an economic institution evolves smoothly, path-dependent. The use of the English penny started as an element (20d = 1 ounce) in the extant system of money of account, as an adaptive compromise, but as its use as a unit was facilitating communication in trade and much more reliable for future pricing, the English penny ('engelse') will have been accepted easily as the better standard coin. Probably this system emerged alongside the extant 'old-Frisian' money of account system.

If the wergeld hypothesis holds, the emergence of this type of sterling as unit of account is found in the Yade area,<sup>94</sup> the Emden area,<sup>95</sup> Groningen<sup>96</sup> and – perhaps – Drenthe,<sup>97</sup> but whereas

89 *Ibidem*, pp. 40-41; p. 50.

90 *Berghaus*, *Die Perioden*, p. 40; *N.J. Mayhew*, *The Circulation and Imitation of Sterling in the Low Countries*, in: *Coinage in the Low Countries*. 3d Oxford Symposium on Coinage and Monetary History. BAR International Series 54, Oxford 1979, p. 58.

91 *Berghaus*, *Die Perioden*, pp. 39-40; *do.*, *Westfälische Münzgeschichte*, p. 12.

92 *Spufford*, *Money*, p. 412.

93 *W.J. Buma/W. Ebel*, *Das Fivelgoer Recht*, Göttingen, 1972, pp. 170-171 (the 'wergeld-tradition'; 1 mk English (144d) æ£12 Groningen money (2,880d), so 1d English æ20d Groningen money).

94 *Buma/Ebel*, *Das Rüstringer Recht*, pp. 80-81 (§12). The wergeld amount is 20 marks, like 20 marks English elsewhere in Frisia, but as the denotation 'English' is lacking, it can not be excluded that marks of Bremen ingots were in view.

95 *W.J. Buma*, *Die Brokmer Rechtshandschriften*, Den Haag 1949, pp. 139-142 (c.1250); pp. 137-139 (second half 13th century).

96 *P. J. Blok/J.A. Feith/S. Gratama*, *Oorkondenboek van Groningen en Drente*, 2 vol., Groningen 1896/1899, no.126. Treaty between Groningen and Fivelingo in 1258. As the transition to the slightly less valued sterling as unit of account in Fivelingo must have taken place somewhat later (according to the Fivelingo wergeld tradition, see *Henstra*, *The Evolution*, pp. 304-312), we must assume that the amounts in this treaty - quoted in new English money - refer to money of account valid in Groningen.

in the Emden area and in Groningen the imitative sterling finally ousted the 'old-Frisian' penny as the money standard, I doubt that this also occurred in the Yade area. English money of account is hardly found there, so it seems that the indigenous money system continued to prevail a few decades. It ended in a singular development – to be dealt with in the next section.

In Mid-Frisia and the Ommelanden the 'old-Frisian' system was also continued for a few decades, alongside the English money system based on the genuine English penny as a standard for larger amounts. If the *wergeld* hypothesis holds, this change-over from the genuine English penny to the imitative sterling was not noticeable in Mid-Frisia. In this part of Frisia the 'old-Frisian' penny was finally ousted as standard, to be substituted by the genuine English penny.

## VII. The transition from the English silver penny to the New Frisian regional silver pennies as money standards

Meanwhile we have arrived at the middle of the 14th century. In the previous centuries, as we have seen, the economic conditions had changed fundamentally in Frisia. Instead of a country almost everywhere open to the sea, flowering by international shipping and trading, cattle-breeding and reclamations had become the prime movers in the economy, although the original sources of income did not fade away. On this broader base new crafts emerged and as a consequence the rural villages grew with various kinds of artisans, some of the villages turning into small market towns. The consequence was the rise of some regional differentiation of interests, depending on differing regional circumstances. This process supported the rise of local potentates, be it the town governments, the local chiefs in the villages (called *haudlinge* or *hovetlinge*) or the abbots of the numerous, sometimes industrial, rich abbeys. In many communities these local powers overruled the boards of judges.<sup>98</sup>

We find these gradual shifts reflected in the evolution of the money system in Frisia. There had already been slight differences in the 'old-Frisian' currency from East to West and there had also been different responses *in* the use of the sterling, as we have seen, but this tendency was enhanced in the sequel of the evolution. In the foregoing section I mentioned the economic problem concerning the money of account system that arose in Frisia after the middle of the 13th century because the 'old-Frisian' pennies had become too small to be useful as a money standard. I also mentioned that the solution of this problem in the Yade-area (around Jever) differed from the solution in the other Frisian sealands; this would be discussed in the present section. So now I turn to the Yade area as the (assumed) solution in that area might have anticipated a development that was going to become common in the rest of Frisia. In my dissertation I made the following conjecture on the origins of that development.

Some time after the middle of the 13th century the English penny (sterling) must have had a value of 12 'old-Frisian' pennies, hence could be used to represent a shilling in 'old-Frisian' money. The availability of this larger denomination must have been welcomed because the 'old-Frisian' pennies had become very small. I assume that the *skillinga cona* mentioned in the Rius-tringen manuscripts reflects the use of sterlings as a coined shilling.<sup>99</sup> Apparently, these sterlings were imitated in Jever, either instead of or besides imported sterlings. In the beginning of this development the coins were just a denomination in the 'old-Frisian' coin system worth a shilling that is, as long as they were equivalent to 12 silver pennies – the standard coins. But as

97 *Blok/Feith/Gratama*, Oorkondenboek, no.177 (1288).

98 *Schmidt*, Studien, pp. 45-46; *O. Vries*, Het Heilige Roomse Rijk en de Friese vrijheid, Leeuwarden 1986, p. 20.

99 *Buma/Ebel*, Rüstinger Recht, index. For detailed analysis see *Henstra*, The Evolution, pp. 321-326.

soon as the silver equivalence of the penny that is, the unit of account, decreased further, the *skilling cona* had to follow their value, to the end of not losing its attractiveness as a shilling representation. So the *skillnga cona* began to deviate in silver equivalence from the sterlings. This went on until some people started to quote their prices not in pennies but rounded in *skill-inga cona*, as this required smaller figures and hence was easier to communicate and to calculate with. Gradually this became common practice, so the *skilling cona* of that time started to become the standard coin for the future. Money '*na Osterger wichte*', mentioned in the documents,<sup>100</sup> might refer to these sterling derivations struck in the Jever mint in Oistringem. Although this money is mentioned in the sources, the coins have not been discovered – or rather – not been identified. In 1317 was the international value of this new Oistringem penny equal to only half an English penny. It was the first example of what I have called 'new-Frisian' pennies.

It is known that similar sterling derivatives have been struck in large quantities in the Low Countries.<sup>101</sup> Some were made of good weight and fineness, but others were struck with lower silver content, known as 'brown sterlings'. In England the circulation of these 'crockards and pollards' was strictly forbidden after 1300. They were forced to be recoined at a value of half a genuine English penny.<sup>102</sup> But on the continent they were widely circulating for domestic use. Whether the Oistringem pennies were that kind we can only guess. If so, they may have become a model for the domestic money in other Frisian areas west of the Yade area. For this is what happened after c.1360. Light sterling derivations for domestic use are mentioned in the documents and occasionally dug up in the Emden area – the region between the river Ems and the Yade area – (*usualis monete*<sup>103</sup>), in the town of Groningen (*Groningen payment*<sup>104</sup>), in the Ommelanden – the region around the town of Groningen – (*nummis usualibus*<sup>105</sup>), in Oostergo (*Ly-ordera panninge*<sup>106</sup>) and perhaps in Westergo (*scubben*<sup>107</sup>). See map 2.

On the basis of these 'new-Frisian' pennies a new money system of account came up, in some regions even without ousting the extant English system of money of account. Why did this come about? The development of the coin sphere in Frisia may be compared with the development of the means of payment elsewhere. At the end of the 13th century a new wave of silver supply was generated by the discovery of silver and the opening of mines in Bohemia and, on a smaller scale, the Black Forest. Particularly in the last region, in Hall, the production of so-called *hellers* increased substantially. They provided the small change for everyday use throughout Germany, even in distant areas.<sup>108</sup> Thus the need for money of small size was commonly felt, perhaps as a consequence of a growing monetisation of the economy in North-

100 G. Rütthning, Oldenburgisches Urkundenbuch, 8 vol., Oldenburg 1926-1935, Vol.6 no.16; Vol.6 no.25; J.P. Kirsch, Die päpstlichen Kollektoren in Deutschland während des XIV.Jahrhunderts, Paderborn 1894, p. 93; p. 101.

101 Mayhew, The circulation, pp. 58-59; Spufford, Money, pp. 159-162.

102 C. Johnson, The 'De Moneta' of Nicholas Oresme and English Mint Documents, London 1956, pp. xxxviii-xxxix.

103 For instance E. Friedländer, Ostfriesisches Urkundenbuch, 2 vol., Wiesbaden 1878/1968, no.106.

104 For instance Blok/Feith/Gratama, Oorkondenboek, no.760.

105 For instance *ibidem*, no.593; no.768 (*usualis moente*).

106 Buma/Ebel, Das Westerlauwersches Recht I, pp. 424-429.

107 For instance P. Sipma, Oudfriesche oorkonden I, Den Haag 1927, no.266.

108 Spufford, Money, pp. 124-127; F. von Schrötter, Wörterbuch der Münzkunde, Berlin 1930, sv. *Heller*, original silver equivalence 0.371g; P. Spufford, Handbook of medieval exchange, London 1986, p. 235; p. 262 (1277-1286 1 florin æ30 pennies of Cologne, 1265-1311 1 florin æ120 *hellers*).

Western Europe.<sup>109</sup> In Het Sticht and Gelre the indigenous penny was set at a value equivalent to half an imitative sterling ('Brabant sterling').<sup>110</sup> In Westphalia the 1/2 and 1/4 denominations of the pennies of Münster and Osnabrück, the *Halblinge* and the *Vierlinge*, were produced and circulated in the 13th century.<sup>111</sup> In this context the need for a medium of payment of that size in Frisia too is obvious, and the emergence of coins worth half a sterling as means of payment is in agreement with the trend of the time. In terms of our theoretical framework this is a clear example of the way in which requirements for a standard coin may change by inducements from the economic sphere. An increasing degree of division of labour created new kinds of participants in trade – such as the urban artisans and merchants – with different needs for means of payment. Obviously the mint entrepreneurs would have welcomed this new demand. Apart from new, lighter coins, the need for a more convenient communication in trade regarding small amounts would have induced creative people to try out pricing on the basis of a particular, popular small coin. Such a system could develop alongside an extant system that was based on a larger standard coin and convenient for larger amounts; but since the economy was not split up into completely separate parts, there would have been kinds of trade where the two systems met and became competitive. Whether both systems remained, or one was preferred to the exclusion of the other, appears to have been different in different areas. Hence, this depended upon regional circumstances. It seems that the areas where the genuine English penny had been the standard for the system of account did coincide, for the larger part, with the areas where the English penny remained the dominating standard. This holds for Westergo and the Ommelanden, but not for Oostergo. In the Ommelanden, moreover, both the imitative English money and the 'new-Frisian' money occurred in the current period.

These phenomena suggest a relationship between the developments within Frisia in the previous and current periods respectively. It might reflect a difference in the causative social forces responding to the solutions for the monetary problems. The adherents of the 'sterling group' may have preferred to reduce future price uncertainty, and hence focused their attention on the trustworthiness of the measure of value, the prestigious English penny. The 'new-Frisian' group may have preferred the ease of communication in pricing, found in local 'everyday money'. Sterling-based money of account would have been felt as 'strong' money and 'new-Frisian' money as 'weak' money. Strong money is in the interest of creditors (property-owners, landowners), whereas weak money is in the interest of debtors (tenant farmers, mortgagors).<sup>112</sup> The two systems of account could exist side by side initially, but this changed as, after c.1350 almost everywhere on the continent, coins were more-or-less severely debased, while the English sterling was forcedly kept stable for long periods. This would have generated a tension between the sterling-based money of account and the local money. This tension was even visible in Frisia in a 1371 treaty between landowners in the Ommelanden, who were suffering from the debasement of the local money in which their tenants paid their rents. They tried to co-operate against the tenants – a shortage of labour at that time favoured the working classes – by

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109 R. Sprandel, *Das mittelalterliche Zahlungssystem nach hansisch-nordischen Quellen des 13.-15. Jahrhunderts*, Stuttgart 1975, pp. 156-160.

110 H. Enno van Gelder, *Noord-Nederlands kleingeld omstreeks 1400*, *Jaarboek voor Munt- en Penningkunde* 45/1, 1958, pp. 84-85.

111 P. Ilisch, *Die mittelalterliche Münzprägung der Bischöfe von Münster*, Münster 1994, p. 10.

112 M. Bloch, *Le problème de l'or au moyen age*, in: *Annales d'histoire économique et sociale* 5, 1933, p. 30; he puts the question as to whether in a society different classes had different money systems.



*Map 2: Frisia in the late Middle Ages*

**(wird im Querformat eingesetzt)**

attempting to tie the local money to trustworthy coins, such as genuine English pennies. Their mutual sanctions were quoted in their own system of account: English money!<sup>113</sup>

A consequence of the increased diversities in economic life was not only a need for smaller money, but also a need for larger money. Payments of large amounts in silver required much more transport costs and risks than payments of equivalent amounts in gold. Obviously the use of payments in gold was increasing. How then could this need fit in the extant systems of money of account? In addition to links caused by the use of imported and imitated foreign silver coins as standards, links have been found in the use of gold money connected to the silver-based money of account.<sup>114</sup> The most frequently used coins for these connections were the French *écu* and the Rhine guilder. Originally they were used occasionally as gold based units of account, but from these origins silver-based multiple units evolved. So the *écu* was the origin of the silver-based 'old *schild*' (found mostly west of the Ems), the guilder of Guelders/Arnhem guilder was the origin of the silver-based *arnseguilder* or simply 'guilder' (found mostly east of the Lauwers) and the Rhine guilder/*rinsguilder* was the origin of the silver-based *kaepmans/coepmansguilder* (found in almost the whole of Frisia). The links were modelled in various conventions. The various expressions of amounts in gold money that are found as measure of value may be categorised as follows:

- (a) The value of 1 gold unit is expressed in a conventional amount of silver money, that is, only the name of the unit reminds us of its gold origin; in this case we have 'a silver money based multiple unit'.<sup>115</sup>
- (b) The value of 1 gold unit is also expressed in current silver money; that is, the rate in silver money is prescribed beforehand;<sup>116</sup> here we have 'a present silver money based multiple unit'.
- (c) The value of 1 gold coin could be paid with other money of equal value; that is, its value depends upon the rate in silver money valid at the moment of payment;<sup>117</sup> this must be considered as 'a future silver money based multiple unit'.
- (d) The value of 1 gold coin was neither expressed in other money, nor open to be paid in other money; that is, the value is to be paid exclusively (and sometimes this is stated emphatically) with specified coins;<sup>118</sup> this case expresses a 'a gold based unit of account'.

113 *Blok/Feith/Gratama*, Oorkondenboek, no.593.

114 *Henstra*, *The Evolution*, pp. 411-422 shows a table of the exchange rates of the gold-based money used in Late Medieval Frisia.

115 Examples: guilder, *arnseguilder*, *coepmansguilder*, Groningen *schild*.

116 For instance: (1) in 1395, sale of land for 117 Guelder guilders, each guilder now valued at 16 shillings Groningen *payement* (Gemeentearchief Groningen, Archief Klerk- of Fraterhuis, no.42); or (2) in 1433, hereditary tenure of a homestead in Groningen for 2 Arnoldus Arnhem guilders of 14 *kromsterten* apiece or other payment of equal value (Gemeentearchief Groningen, Archief Klerk- of Fraterhuis, no.153).

117 For instance: in 1434, a gift of a hereditary rent from a house in Groningen of 20 Arnhem guilders 'current at the times of payment or other payment of equal value' (Gemeentearchief Groningen, Archief Arme Huis Sitten, no.250 prov.inventory); or, in 1494, a hereditary rent of a lot in Helpman of '2 1/2 golden Rhineguilders a year or other payment exchangeable to these golden Rhine guilders at the time of payment' (Rijksarchief Groningen, Archief klooster Selwerd, no.1, fo.75<sup>v</sup> H III); or, in 1497, a sale of a hereditary rent from land in Selwerd (near Groningen) of 4 golden *overlandsche* Rhine guilders, minted before the date of the contract or to be paid with the value of it as the merchants accept in their trade before the town's weighing-house' (Gemeentearchief Groningen, Archief Parochiekerken, no.444).

118 For instance: in 1489, loan on mortgage of goods within and outside Groningen at 300 golden *overlandsche* Rhineguilders, 'coined before the date of this contract', at 6% interest, to be repaid with full interest 'and with no other money' (Rijksarchief Groningen, Archief klooster Selwerd, no.1, fo.44<sup>v</sup>).

### VIII. The end of the Frisian autonomous money standards

The money standards that had emerged in the 14th century, and that I have headed as 'new-Frisian' money, came to an end around 1500 in Mid-Frisia, and a few decades later in East Frisia. Apart from the Emden area – that had become the County of Oistvriesland and therefore had become a small centrally governed country already in 1464 – this end was a result of the loss of the Frisian independence. Frisia east of the Ems became a part of the Burgundian Netherlands, the Frisian Yade area became a part of the County of Oldenburg.

The end was the result of political causes mainly.<sup>119</sup> The local potentates and a few town governments rivalled for power. In the course of the 14th century two alliances had grown among the rivals, the *Schieringer* party and the *Vetkoper* party, this last party being dominated by a *hovetling* dynasty from Brokmerland (East Frisia), that succeeded to conquer almost all of East Frisia including the town of Groningen for a while. The other party tried to get help from outside, from the king and even from the Frisian hereditary enemy, the Count of Holland. Their interferences were not successful. At last, an all-Frisian peace in 1422<sup>120</sup> ended the internal war for the time being. But in the second half of the 15th century the town of Groningen, which had become the dominating force in Frisia, tried to interfere in Mid-Frisian affairs. However, it met strong opposition in Westergo, that ended in a call for help to the king again. This time the act was final. In 1498, the king appointed his stadtholder in the Netherlands – at that time a part of the Burgundian State – as hereditary governor in his name (*gubernator, potestatis*) over all of Frisia.

Among the consequences of this development were foreign money standards being imposed upon the Frisians and foreign to them. Obviously this change – not being evolutionary – has not been discussed in my study. So the present section gives a very brief survey of the evolution of the money standards in Frisia until then.

#### New elements in the systems originating from silver coins

In the previous section I described the main features of the transition of the money standard from the English penny to the 'new-Frisian' penny. However, the reality was somewhat more complicated. For in addition to the emergence of the sterling-derivations as small means of payment and basis of the 'new-Frisian' system of account, a great variety of other silver and gold coins were struck in Europe and found their ways to the various countries, like Frisia. Some of these coins could be fit into the new-Frisian money of account system, hence became elements of it and even determined its further course. As this was more or less depending on regional opportunities the already various regional systems of account in Frisia diverged.

So, next to the production of sterling-oriented coins in Frisia itself the currency was supplied by the import of silver coins mainly from Flanders, and gold coins from France, the Rhineland and Guelders. The silver half-*groten* of c.1.8g of silver, produced in Flanders before 1337,<sup>121</sup> and, above all, the *leeuwen-groten* or *vleemse groten*, produced from 1337 to 1365 with a final silver content c.1.5g,<sup>122</sup> became significant elements in the Frisian circulation, particularly in the western part. They were succeeded by the *vleemse placken*, produced in the period 1365-1384

119 *Vries*, Het Heilige Roomse Rijk, passim.

120 Gemeentearchief Groningen, Stadsarchief, no.P16.

121 *H. Enno van Gelder*, De munten van Vlaanderen onder Lodewijk van Nevers en Lodewijk van Male, in: Jaarboek voor Munt- en Penningkunde 33-34, 1946-1947, pp. 123-124.

122 *H. van der Wee/E. Aerts*, Vlaams-Brabantse muntstatistieken 1300-1506 I. De aanmuntingsgegevens van de zilvermunten. (Discussion Paper), Leuven 1980, pp. 43-44.

with a final silver content of c.2.0g,<sup>123</sup> and by *butkens* and *butdragers*, from 1390-1402, finally containing c.1.0 and c.2.0g of silver respectively,<sup>124</sup> followed by *kromsterten*, from 1418-1432, decreasing from 1.7g to 1.5g of silver.<sup>125</sup> These various imported Flemish coins played a prominent role in the Frisian currency. They remained in circulation during the late Middle Ages; that is, quite some time after their production came to an end.

After 1433 the Burgundian *stuvers*, produced between 1433 and 1455 with a silver content of c.1.6g and between 1455 and 1474 with c.1.4g of silver by then,<sup>126</sup> became the main silver coins in Flanders, Brabant, Hainaut and Holland. They were also imported into Frisia and imitated with local differentiation. This coin was highly successful in Frisia, but moreover in all the main parts of western Europe, because it satisfied the commercial need for a common means of payment. However, the imitation of the Burgundian *stuver* in Frisia, in Cologne, in Utrecht and in Liège caused much friction with Burgundy. Competition among the mints of the various countries brought about a rapid, ongoing debasement of the coins during the second half of the century. The Burgundian dukes, aiming to stabilise the value of the Burgundian currency, tried to prevent the penetration of foreign coins. In 1476 letters of patent against foreign silver money were sent out, and among those mentioned were the coins of Leeuwarden, of Groningen, of Bolsward and of Sneek<sup>127</sup>. This monetary policy ended during the reign of Maximilian, regent in Burgundy since 1482, who manipulated the coinage as a source of revenue to meet the exigencies of war.<sup>128</sup> His policy turned the inevitable competition among currencies in western Europe into a *guerre monétaire*. This war was only halted for any length of time at the end of our period. Maximilian, who was German king as well, reached an agreement in 1492 that established monetary harmony between the Burgundian Netherlands and the Empire.<sup>129</sup> Frisia, not being a part of Burgundy as yet, was not involved in this agreement but, here too, the new European conditions induced a monetary recovery.

Some of these various silver coins imported from abroad could play a role as a multiple unit in the systems of account. After some time a few of the imported coins gradually became even the anchor of one of the regional Frisian systems of account, that is, they became the standard coin in fact. Hence the system of account did not change, but one coin representing a unit in the system varied with another. This occurred particularly to popular coins out of production, which had a more stable silver equivalence – be it inevitably subject to wear and tear. We find the *kromstert* in this role in the Yade area and in the Emden area, becoming the standard for 8 pennies of account<sup>130</sup>. We find the old *vleemse grote* in Groningen, becoming the standard for a shilling (= 12 pennies) Groningen *payment* between 1394 and c.1435, which had an indigenous successor, the black *stuver* with the appearance of the Groningen *stuver* or *stadvlieger*.

At this place, it seems worthwhile to pay briefly attention to interventions of the Groningen town government in the money of account system valid in that town. After 1360 the right to

123 *Ibidem*, pp. 55-56.

124 *Ibidem*, pp. 44-45; 57-58; *H. Enno van Gelder*, *Botdragers en Plakken*, *Jaarboek voor Munt- en Penningkunde* 57, 1969-1971, p. 118.

125 *Van der Wee/Aerts*, *Vlaams-Brabantse muntstatistieken*, pp. 58-59.

126 *Ibidem*, pp. 97-98.

127 *P. Spufford*, *Monetary problems and policies in the Burgundian Netherlands 1433-1496*, Leiden 1970, pp. 124-125.

128 *Ibidem*, p. 164.

129 See the chapter on *la guerre monétaire* in *ibidem*, pp. 74-129, particularly pp. 106-129. As Spufford says on p. 129: 'Burgundian coinage was inextricably linked with that of Liège and Utrecht, Cologne and Friesland'.

130 Or 4 *witten*, these being coins worth 2 pennies.

mint in Groningen had become in the hands of the foreign lords of Coevorden. Because of what I have considered to be a fraudulent coinage by these owners, the penny Groningen *payement* was severely debased in the second part of the 14th century. The government wanted to restore the credibility of the Groningen money and decreed in 1394 the old *vleemse grote* (by then c.1.4g of silver) to be the money standard, as a shilling Groningen *payement*.<sup>131</sup> In addition it was decreed that, if this coin would become worse, 10 shillings Groningen *payement* would be equivalent to 1 lot of fine silver (that was 13.7g pure silver<sup>132</sup>). The coin itself was out of production since 1367 but still widely in use and therefore subject to 'normal decrease'. This decrease caused confusion after a few decades. Around 1430 controversies started about the money standard: was a shilling an old *vleemse grote* or was it 1/10th of a lot of silver?<sup>133</sup> The town government tried to halt these controversies and determined that from then on an old *butdrager* (c.1.9g of silver) would be the money standard, as a shilling Groningen *payement*;<sup>134</sup> in addition, in 1435 the old *vleemse grote* was legally valued at only c.1.1g fine, probably to be ousted.<sup>135</sup> These measures, however, implied a revaluation of the legal money standard with c.35 percent. Although this new standard was still the legal Groningen standard mentioned in the next decades,<sup>136</sup> it was hardly in use as the commercial standard as it seems, even not since in 1437 a new Groningen coin (*braspennig*, c.2.0g of silver) was struck,<sup>137</sup> which was presumably meant to be used instead of a *butdrager* as standard. The commercial standard continued to be the old *vleemse grote* until at last the Groningen town government, in 1454, started the production of the Groningen *stadvlieger* (c.1.4g of silver) which had almost the same silver equivalence as the former old *vleemse grote*.<sup>138</sup> This new coin was highly successful and became in fact the new silver money standard in Groningen and its vicinities. This story is of interest because, again, it demonstrates the tenacity of a money standard as an economic institution, able to resist political interference.

### New elements in the systems originating from gold coins

The further sequel of the multiple units originating from a gold coin was related to the evolution just described, though it had its own peculiarities. These were conditioned by the differences in the regional developments of the 'new-Frisian' money systems.

As far as the old *schild* is concerned, we must distinguish between the real gold coin on the one hand and the money of account on the other. In the documents, the real gold coin is mostly identifiable as 'an (old) French *schild/sceld*' or 'an (old) gold *schild/sceld*'. The money of ac-

131 A. *Telting*, *Stadboek van Groningen*, Den Haag 1886, p. 81 (§227).

132 *Henstra*, *The Evolution*, pp. 361-365.

133 For instance: In a will in June 1428 a rent was specified, in which 1 guilder was equivalent to 9 old *vleemse korte groten*, 6 1/2 Flemish *kromsterten* (æc.1.7g of silver apiece), 12 old *butkens* (æc.0.95g apiece) or 5 old 'John of Burgundy' *braspenningen*. (Gemeentearchief Groningen, Archief Vrouw Menoldis en Vrouw Siwen Convent, no.16). On this basis the old *vleemse korte grote* must have been valued at c.1.2g or 1.3g instead of 1.4g of silver, the legal equivalence.

134 *Telting*, *Stadboek van Groningen*, p. 16 (Liber II, addition 9).

135 Gemeente archief Groningen, Verzamelingen, charter RF no. 1435.14.

136 For instance in the new town book, released in 1446: *J. de Rhoer*, *Het stadboek van Groningen*, in: *Groninger Genootschap Pro Excolendo Iure Patrio* (ed.), *Verhandelingen ter Nasporing van de Wetten en Gesteldheid onzes Vaderlands; waarbij gevoegd zijn eenige Analecta tot dezelve betrekkelijk*, vol. 5, Groningen 1828, p. 33; and in a treaty between the town of Groningen and the Ommelanden in 1448, see *K. von Richthofen*, *Friesische Rechtsquellen*, Berlin 1840/Aalten 1960, pp. 315-324.

137 Gemeentearchief Groningen, Verzamelingen, RF ms. *in folio* no.21.

138 Do.

count was habitually denoted simply as an 'old *schild/sceld*'. This last unit is found as early as 1362 in the statutes of the Groningen merchant's guild, defined as a unit of 30 'olde *corte grote*'.<sup>139</sup> Whether the old *korte grote* was an imitative devalued cavalier, an imitative *petit gros* or a *vleemse grote* is uncertain. These coins all had about the same silver equivalence when the statutes of the merchant's guild were made in 1362: c.1.6g or c.1.7g.<sup>140</sup> Hence, the silver equivalence of the old *schild* must have been c.48g to c.51g.<sup>141</sup>

In Groningen, this new multiple unit, the old *schild*, was an expression for 10 shillings = 120 pennies Groningen *payement* ('new-Frisian' money).<sup>142</sup> When the silver equivalence of the Groningen penny declined dramatically during the second half of the 14th century (see before), the Groningen *schild* remained a unit of 120 pennies or 10 shillings in Groningen, so its value followed the decline of the standard coin.<sup>143</sup> The devaluation of the penny Groningen *payement* was legalised by the Groningen town government in December 1394 (as we have seen); by then, the Groningen *schild*, still 120 pennies Groningen *payement*, was equivalent to 10 *korte groten* as compared with 30 in 1362. It follows that in Groningen the tie between the Groningen *schild* and the old *schild*, the original gold coin, was broken.

However, in other parts of Frisia the silver equivalence of the old *schild* was not depending on the fate of the local 'new-Frisian' penny; neither, of course, was it depending on the Groningen penny. When in 1394, in Groningen, after the severe debasement of the Groningen *payement*, the Groningen *schild* was redefined to be represented by 10 old *vleemse groten*, this difference was reflected in a definition of the old *schild* elsewhere. Shortly after, in 1397, we find it defined in the Ommelanden as a unit of account, reckoned at 30 old *vleemse groten*.<sup>144</sup> This indicates consistency with a definition of 30 old *korte groten* in 1362, as far as the multiple unit is concerned, however, the old *vleemse grote* in the 1390s had a lower silver equivalence than the old *korte grote* had in 1360s,<sup>145</sup> so the silver equivalence of the old *schild* in the Ommelanden had also declined (from c.48g/51g fine, see before, to c.41g<sup>146</sup>).

About 25 years later, in the peace treaty of 1422 among all the Frisian sealands (see before), the old *schild* reckoned at 30 old *vleemse groten* became legally an all-Frisian unit of account, possibly linking the various Frisian systems of account. Although it refers to the old *vleemse grote* – standard in Groningen since 1394 – this was not the general standard in Frisia. It can be demonstrated that the devaluation of the old *vleemse grote* in Groningen in 1435 did not imply a devaluation of the old *schild* amounts elsewhere in Frisia.<sup>147</sup> Consequently, we must assume that in the rest of Frisia the face value of the antiquated old *vleemse grote* – c.1.4g silver equivalence – remained a conventional fiction after 1435. Hence, in pricing, the old *schild* remained equivalent to c.41g silver; it demonstrates the tenacity of the conventional money of account system outside the jurisdiction of Groningen.

139 *Blok/Feith/Gratama*, Oorkondenboek, no.514. The document itself is lost, but a copy is surviving in Gemeentearchief Groningen, Verzamelingen, RF ms.in quarto no.41, f.8-f.13, which folios (and the following until f.19v) are authorised by the imperial notary in Groningen in 1586.

140 *Henstra*, *The Evolution*, pp. 359-360.

141  $30 \times c.1.6g = c.48g$ ;  $30 \times c.1.7g = c.51g$ .

142 Comparable with the so-called 'minor mark' in Mid-Frisia (see *Henstra*, *The Evolution*, pp. 337-344).

143 If that standard coin had been the *korte grote*, the Groningen *schild* would still have been valued at 30 *korte groten* after 1394; *quod non*.

144 *Blok/Feith/Gratama*, Oorkondenboek, no.948.

145 *Henstra*, *The Evolution*, pp. 359-360.

146  $30 \times c.1.37g = c.41.0g$ .

147 *Henstra*, *The Evolution*, pp. 355-358.

In the Ommelanden this fossilised value seems not to have been changed<sup>148</sup> but, in Mid-Frisia, in treaties with the town of Groningen in the second half of the 15th century, it was adapted at last, no doubt because of the political influence of Groningen. In a treaty in 1467 the old *schild* was redefined to the equivalence of 30 old *vleemse groten* or  $2\frac{1}{2}$  *arnseguilders*.<sup>149</sup> It follows that the silver equivalence of an old *schild* had by then been reduced to c.35g.<sup>150</sup> The *arnseguilder* was itself a multiple unit originating from a gold coin. In Groningen it was the equivalence of 10 *stadvliegers* (so it was in fact the successor of the Groningen *schild*!). Whereas the *stadvlieger* was severely debased during the West-European monetary crisis between 1467 and 1491,<sup>151</sup> the definition of the old *schild* was not adapted during this period, so it was completely depending on the value of the *stadvlieger* as standard for the unit of account.

From this somewhat complicated history of the old *schild* as money of account in the late Middle Ages in Frisia, it follows that it was not a fixed multiple of any 'new-Frisian' penny. Neither did it evolve from the English system of money of account. In the Ommelanden, where the English system remained until the end of the Middle Ages, next to the new-Frisian 'usual money', the English penny was in 1464 defined at a value of 1/4th *stoter* (= English groat);<sup>152</sup> that was in fact equivalent to 1 genuine penny of England (= 0.9g of silver). In the English system of account the old *schild* might have been considered as a unit of 45 English pennies since 1411 or thereabout.<sup>153</sup>

The other all-Frisian multiple unit found in the second half of the 15th century was the *kaepmans/coepmansguilder*. It was the silver-based derivation of the originally gold *rinsguilder*/electoral florin. If the real gold coin was referred to, this is usually identifiable by denotations like *overlandsche rinsguilders* or *enckelde guilders*. As a multiple unit of account it was valued at a number of silver-based multiple units of account. This was the 'white' *stuver* in the areas which used the English money based system of account, and it was the 'black' *stuver* in the areas that developed an indigenous 'new-Frisian' system of account. It can be demonstrated that in the second half of the 15th century this *kaepmans/coepmansguilder* was a common concept with a common silver equivalence of 20 'white' *stuvers*.<sup>154</sup>

In the second half of the 14th century real gold coins also appeared in the Frisian records, next to the just mentioned multiple units in the silver based systems of money of account.<sup>155</sup> The French *écu* (or *schild/sceld*), produced in France from 1337 to 1351 with a gold content of

148 *Ibidem*, pp. 166-174.

149 M. Oosterhout/P. Gerbenzon/B. Sjölin/Th.S.H. Bos/A.L. Hempenius/J. van der Kooi/A. Pietersma/O. Vries, Pax Groningana. 204 Oarkonden út it Grinzer Gemeente-archyf oer de forhâlding Grins-Fryslân yn de fyftsjinde ieu, Groningen 1975, no.19.

150 Gemeentearchief Groningen, Archief Arme Huis Sitten, no. 57 (prov.) r102: in 1467 was in Tammingaland 1 *arnse* guilder æ10 Groningen *stadvliegers* æ10 × 1.38g = 13.8g of silver; hence 2.5 *arnseguilder* æ2.5 × 13.8g = 34.5g of silver (æ30 old *vleemse groten*; hence 1 old *vleemse grote* æ34.5g : 30 = 1.15g of silver (= 1/12 × 1 lot of 15*lodiges* silver).

151 *Henstra*, The Evolution, pp. 233-237.

152 Waterschapsarchieven Hunsingo, Schouwer Zijlvest, no.1, f.1; Rijksarchief Groningen, Aduarder Zijlvest, no.33, pp. 111-112.

153 The conventional rate of 1.5 English penny to 1 (old *vleemse*) *grote* is found, for instance, in the townbook of Stavoren (*A. Telting*, De Friesche Stadrechten, Den Haag 1883, p. 202 (§105)). See also *Henstra*, The Evolution, pp. 171-174.

154 *Henstra*, The Evolution, pp. 413-414.

155 See the table of exchange rates of gold-based money in Late Medieval Frisia in *Henstra*, The Evolution, pp. 411-422.

c.4.5g declining to c.3.4g,<sup>156</sup> was referred to until the end of the 15th century. The *rinsguilder* (= Rhine guilder) was also an important element in the currency all over Frisia. The genuine *rinsguilder* has been struck by the electors of the Rhine and other princes since 1354; it contained c.3.5g of gold until 1419, and c.2.8g thereafter.<sup>157</sup> Its lighter Guelders imitation, struck since 1379 with a varying gold content,<sup>158</sup> is mainly found in the Frisian areas where local (usual) money was used. The *rinsguilder* was also imitated in a number of Frisian towns. Doubtless the appearance of real gold coins as a measure of value has much to do with the weakening position of the silver based money systems, particularly to avoid their future price uncertainty. But I hesitate to describe the use of these 'gold based units of account' as the emergence of a new money standard, as it was assumedly restricted to a limited set of transactions.

I must admit that, at the end, the picture of the Frisian money of account systems appears confusing. The originally more or less homogeneous system was broken into regional systems with gaps widening because of growing differences in the regional conditions. Nevertheless, there remained a link between the systems in the *kaepmans/coepmansguilder*, as we have seen, a silver based multiple unit of account within each of the systems of money of account valid in the various regions.

## IX. Conclusions

Today, many economists want a better understanding of the impact of economic institutions on the economic processes. It therefore pays to know how economic institutions evolve, particularly in case the evolution is a spontaneous one. Besides building models on rational decision making it appears worthwhile to study how an 'organic' institutional evolution operates in the real world. The conditions for such a study were provided by medieval Frisia, a country without a central government during most of the time in nine centuries and yet one of the most prosperous and earliest monetised areas of its time. The evolution of its money of account system could be seen as the evolution of an economic institution that was almost entirely the unintended result of freely interacting market forces.

The foregoing sections of this article have been focussed on the first rule of a medieval money of account system: what standard coin would be mutually recognised as the basis for the unit of account? We found that this problem occurred only five times in the nine centuries covered, resulting in a current money standard being replaced by another. Once this was politically enforced (the introduction of the Carolingian system by Charlemagne, in 793/794) but it was doubted whether this reform took really grounds; at least in Frisia Ulterior the Carolingian system was 'illegally' reduced to the bi-metallic system valid before the reform of Charlemagne as it seems. In the other four cases the change was of the kind that we are looking for. The 10th century transition was in fact the tacit reduction of the extant bi-metallic system to a silver standard based system after the gold base had gone out of use (the replacement of the Carolingian system by the 'old-Frisian' system, in the 10th century). The other three cases demonstrate, that shortcomings of a current system were met by incorporating new elements in the system of account (as an 'adaptive compromise'), which in some cases gradually grew into a new standard when becoming appreciated as preferable to the old standard. So we found 'sceattas' ousting *solidi*, in around 700; sterlings ousting 'old-Frisian' money, in the 13th century; 'new-Frisian'

156 *Spufford, Money*, p. 408.

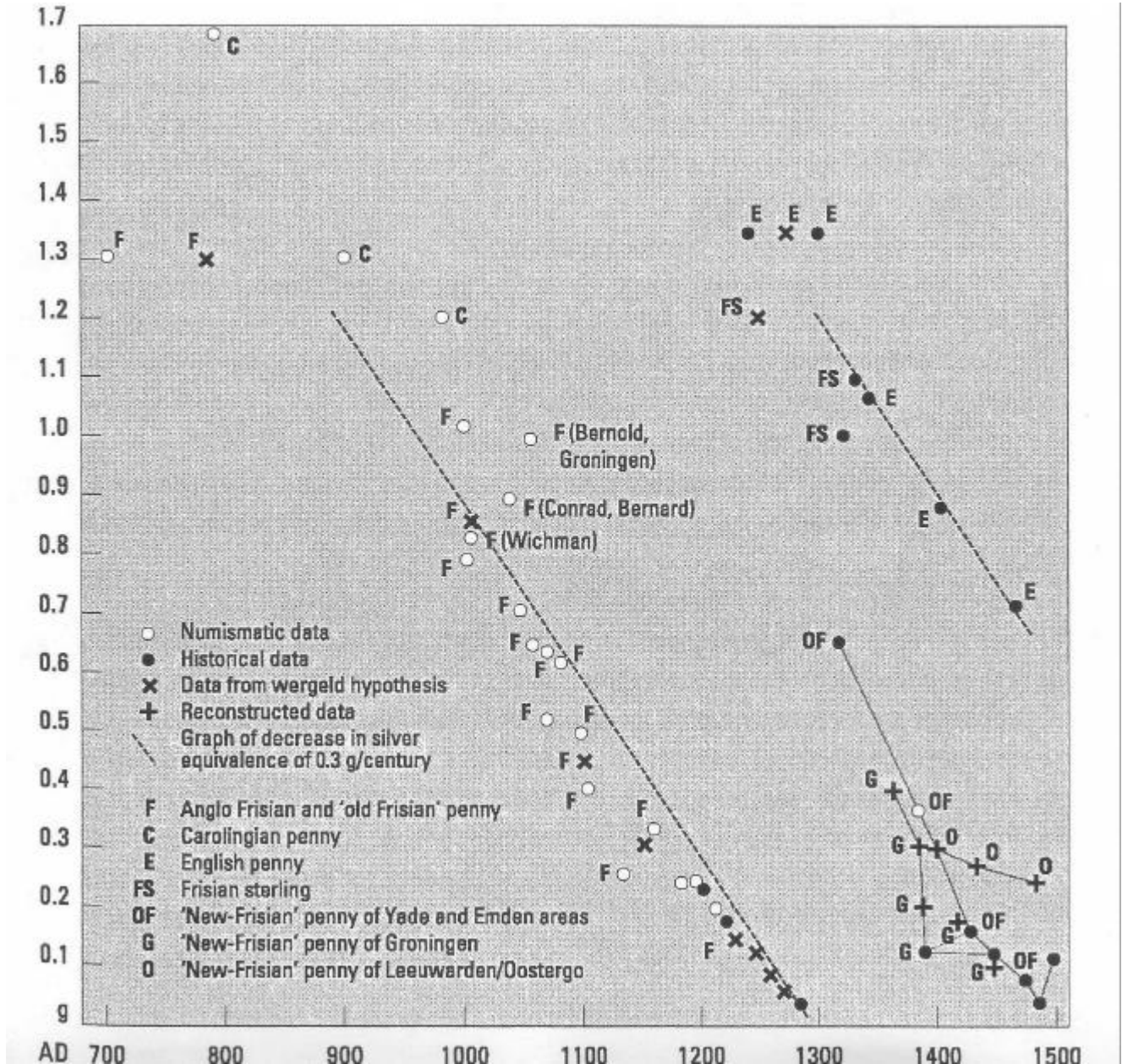
157 *Ibidem*, p. 408.

158 *H. Enno van Gelder, Oostnederlands geld omstreeks 1400*, in: *Jaarboek voor Munt- en Penningkunde* 67, 1980, pp. 48 ff.



money ousting sterlings, in the 14th century. These three instances are to be considered as the 'organic' ones, characterised by path-dependence. They represent clear examples of the mechanism of institutional evolution.

Graph 1: Silver equivalencies (in g) of the units of account in medieval Frisia



Because of the inherent limitation of an article, the other rules of the medieval Frisian money of account system remained under-exposed. Yet the second rule, mentioned above (p...), deserves attention. It rules as to what face value the standard coin was to be accepted. This rule too, was not ordered top-down – except in some very few cases which were not successful mostly – but was determined by the market that is, by the social response to the inevitable 'normal decrease'. However, this decrease was usually regular and slow: to c.0.3g of silver a century on the average. Because of the slow effect of these forces, the value decreased so little from generation to generation, that this itself would hardly have been felt in everyday life. But although the decrease was small in absolute figures, the percentage decrease was accelerating to the extent the coins became lighter and thus caused a growing upward pressure on prices. Therefore, during

the process, its influence on the prices would have grown stronger; this is demonstrated particularly clearly in the 13th century. Taking this into account, the surprising discovery of the study is that the value of the money standard in medieval Frisia evolved rather orderly and, on the whole, rendered a slow and rather equable decline of the silver equivalence of the unit of account. It is illustrated in the graph 1.

It demonstrates a quiet acceptance of a phenomenon, that was apparently inevitable. But it also demonstrates the social tenacity of an ingrained custom, because the adaptations – as far as we can be sure about this with the scarcity of data – occurred often after the decrease in silver equivalence of the current standard coins had become almost general. This would imply the existence of trust in the social acceptance of the current face value of the standard coins to a certain degree, comparable with our trust nowadays in fiduciary money. Moreover, trust in the reliability of the private minters might have been stronger than trust in the royal minthouses operated by lords with selfish political motives. The experience in the 14th century with the lords of Coevorden, by then owners of the mint in Groningen, compared with the anonymous minters elsewhere in Frisia, seems to illustrate this.

Taken together, it is surprising to find so stable a development of the money of account system in a country without central government, continually exposed to external threat and internal strife. No doubt the local economy must have suffered from the destruction caused by these conflicts, but floods or cattle-plague probably had an even more destabilising effect on production and commerce. To find nevertheless so balanced an evolution of an economic institution, not directed by intelligible governance but by a market controlled currency, for me, was quite unexpected. As I view it, this could only be attained under condition of social trust based on cultural experience; trust among the participants of the Frisian markets that 'the others' will behave accordingly in the current money system. This insight, not derived from a theory of rational decision making but from the understanding of a real world history, might contribute a little to the body of knowledge in economics, a science that nowadays is urged to face the problems of a global economy with a lack of proper economic institutions.