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Monetary Practices in Early Medieval Western Scandinavia (5th–10th Centuries AD)

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A social approach to monetisation shifts the attention from the classic money media – gold and silver – to the dissemination of two social practices: valuing and paying. When these two monetary practices first became widespread in western Scandinavia during the gold rich migration period (in the 5th to 6th centuries AD), they were not introduced in the sphere of trade, but instead were features of traditional or customary payments, such as weregeld (atonements for murder or offences against the person) or marriage dowries. By the Viking Age, in the late 8th to 10th centuries AD, despite flourishing commodity production, precious metals were used as payment in trade solely in towns. Even in towns, this commercial use seems to have been adopted late, and was employed only occasionally. This paper reviews the changing approaches to money and monetisation, and draws attention to the potential for regarding monetisation as the spread of a set of social practices.

INTRODUCTION

In the last 25 years, the monetisation of Scandinavia has been discussed mostly in connection with the native national coinages of the late 10th to 13th centuries, with the urban coinages of the 8th to 9th centuries as a prelude.² Archaeologists tend to include the cut-up silver of the 9th to 10th centuries among what they define as money media.³

Until the late 1980s, the rich migration-period (c AD 400–550) evidence of gold bullion and coinage, mostly found in hoards, was included in monetary studies.⁴ Around 1990, scholarly interest in Scandinavian early medieval gold and silver shifted from the objects' monetary use, to their ritual and symbolic significance.⁵ Since then, precious metal hoards have been analysed predominantly as ritual depositions, and objects have been studied most frequently in terms of their cultural symbolism. Only Viking-Age silver has continued to receive study from a monetary perspective.⁶

Although the currently dominant ritualistic and symbolic research perspectives have been rewarding, I find it timely to propose a revitalised monetary perspective on precious-metal bullion and coinage from the period c AD 400–1000. This paper draws on evidence from Scandinavia, and mainly its western parts, but this dataset invites a broader rethink of monetary perspectives in medieval studies. The Scandinavian practice until the end of this period of depositing precious metals and weighing implements in graves and hoards, as well as the ample evidence from southern Scandinavian market sites and towns, provides good evidence for monetisation studies. Also, Scandinavia's position in Europe's northern periphery, resulting in fluctuations in the availability of precious metals, has prompted a larger volume than elsewhere in Europe of payment practices that do not involve precious-metal bullion or coinage. Thus, Scandinavia is an especially useful laboratory for investigating more broadly the issues of monetisation in early complex societies.

The social perspective on monetisation advocated in this article, turns away from a narrow focus on metal-money media. Instead, it directs attention towards the two principal monetary practices: valuing items in a common monetary unit — a unit of account — and paying by means of a medium accepted by the parties to a transaction. Through analysis of evidence from first-millennium Scandinavia, in particular from the western coast, the main objective is to explore three aspects of a social approach to money and monetisation.

Firstly, by treating monetisation as the spread of two separate, albeit closely connected practices of valuing and paying, the medium that the unit of account was based in, eg gold, is separated from the medium of payment. What defines a transaction as monetary is that the two monetary practices were applied, not that specific media of payment were used. This means that once initiated, the process of monetisation can progress despite a lack of token-money media in common use as payment at the time.

Secondly, the numerous roles of money in modern societies, particularly its dominant position in trade, should not be projected back into pre-modern times. Moreover, although the monetisation of medieval society should be regarded as a process affecting several social spheres, one needs to rely on empirical studies, not theoretical assumptions, when discussing which was the primary sphere, or at which times monetary practices began to penetrate other spheres.

Thirdly, the nature of a transaction and of the social bonds between the parties were essential for determining what kind of payment was offered and accepted, whether debt could be established, and whether monetary practices were applied at all.

Although this paper advocates that token money, whether coinage or bullion, is an insufficient basis for researching monetisation, it nevertheless recognises that their introduction seems to have altered the social practices of making exchanges, thus initiating the monetisation process. From this perspective, it appears universally valid that the monetary practices of valuing and paying emerged from the use of token money rather than from commodity exchange. While commodities were accepted as payment because they had use-value, trust is crucial for token money to be accepted. Trust — a relationship between individuals and thus a social quality — needed to be established through practice. By conducting and observing token-money transactions, people came to trust that if they received a gold ring in compensation for the killing of a kinsman, they could at some later time use that gold ring for the same purpose, if necessary. The ring's value rested in its acceptance as a payment medium and as a symbolic expression.⁷ Only through these two social functions could token money contribute to survival, whereas commodities contributed more directly: a cow could provide milk, calves, meat, and hide, a horse could be ridden or set before a wagon or plough, and a ship could be used for travel and transport.

Following description of the chronological and geographic scope of the evidence discussed here, the three aspects of a social approach to money and monetisation are sketched out, and I conclude with three ontological points on monetary practices. Turning thereafter to Scandinavia, possible connections between migration-period and Viking-Age evidence are examined. Firstly, the commonly assumed equivalence of the migration-period weight unit with that of the Viking Age, the *eyrir*, is called into question. Conversely, the terminology in 12th-century law codes regarding the payment of fines for manslaughter appears to have developed in the migration period; both metrological and typological data support the contention that Viking-Age practices of *weregeld* payments originated several hundred years earlier. Based on this long continuity, *weregeld* and other social spheres

where monetary practices may have been introduced in this early period are discussed. Finally, the process of monetisation through the 7th–10th centuries is sketched.

CHRONOLOGICAL AND GEOGRAPHIC SCOPE

In the parts of Roman and early medieval Europe that lacked previous monetary practices, these were introduced through the medium of precious metals — silver and gold. While a multitude of other money media have been used around the world, precious-metal token money appears to be a characteristic of Europe and the Near East, where the monetary use of metals began in the mid-3rd millennium BC.⁸

As elsewhere in northern Europe, the first token money to arrive in Scandinavia in large quantities was the Roman silver *denarius*, which in Denmark constitutes 74% of all finds of Roman coins. In the 1st century they were few, and arrived in great numbers in the 2nd and 3rd centuries. The vast majority have been retrieved from the islands of Gotland, Öland, Bornholm, Fyn, and Sjælland.⁹ The distribution and contexts of the finds indicate that *denarii* served monetary functions there.¹⁰

The influx of silver *denarii* had limited distribution and volume, however; in the study of monetisation, this was a mere prelude to the 5th- to mid-6th-century import of Roman *solidi* gold coins. The latter have been found in noticeable numbers on the same islands, which apparently were hubs for Scandinavian–Roman connections.¹¹

It was not gold coinage, however, but bullion that was to become the first dominant token-money medium in early medieval Scandinavia. Approximately 95% (by weight) of the 3rd- to 6th-century gold retrieved in Scandinavia is in the form of bullion and ornaments; outside the five gold-rich islands in the south, bullion constitutes nearly the entirety of gold retrieved.¹² Coins were melted down and forged into ingots, rings, bangles, bracteates, pendants, and the like; they have been found primarily in the mainland north to Uppland in the east and Trøndelag in the west.¹³ In this paper it is argued that Roman gold retained monetary functions across these cultural and morphological transformations.¹⁴

Following a virtual absence of precious-metal coins, ornaments, and bullion in Scandinavia for some two centuries, silver began to be used as payment in the four Scandinavian towns: first in the 8th century as coinage in Ribe, and from the early 9th century as coinage in Hedeby, and as cut-up bullion in Kaupang and Birka.¹⁵ The use of silver bullion became widespread through the 10th century,¹⁶ the use of Ottonian and Anglo-Saxon coinages in the early 11th, while native national coinages did not become well established until the mid-11th–13th centuries.

In the following, this Scandinavian history of token-money use serves as a backdrop for the discussion of the evidence from the main area studied here: the western coast of the Scandinavian Peninsula. Most of the cited evidence is from present-day western Norway, notably the Gulathing and Frostathing law regions; that is, the Scandinavian Atlantic and North Sea coasts. Rogaland County, gold-rich in the migration period, is located there, in the very south-west. To contextualise some discussions and conclusions, evidence from the 11th–12th centuries and the broader Scandinavian context, notably present-day Denmark, is included.

SOCIAL APPROACHES TO MONETISATION

In the early years of archaeological scholarship it was generally held that Roman gold and Viking-Age silver arrived as a result of trade with southern lands in Scandinavia, where it was used as ornaments and as payment in trade. For example, Oluf Rygh in his illustrated

catalogue of Norwegian antiquities in 1885, states that due to the rarity of coins in Norway during the 4th–6th centuries, *betalingsgringe* (payment rings) in gold, and subsequently silver, were cut up for payment, although barter was probably the more common form of trade.¹⁷ Similar views were expressed by the early 20th century's preeminent scholars of the topic, Johs Bøe and Anton Wilhelm Brøgger.¹⁸

While scholarship of the 1950s and 1960s on early medieval Scandinavian societies considered economic life to be governed by unchangeable 'laws', historic and social approaches to economic issues have since become dominant.¹⁹ The change was primarily inspired by the works of Karl Polanyi (1886–1964) who held that the economy of early societies was submerged in social relationships. With the arrival of modernity, the economy was decoupled from social relations; money now penetrated a wide scope of social spheres, inducing a general degradation in a range of spheres, including housing, the arts, and innumerable forms of private and public life. Polanyi held that monetisation and markets played a central role in that process.²⁰

This view of monetary penetration as a purely modern phenomenon does not hold up to closer examination. For instance, linguistic evidence indicates that such penetration occurred within a wide range of social spheres long before the modern era. In the 12th–14th centuries, the Old Norse word *kaup/kaupa* 'trade' (noun/verb forms) was used in the context of a range of social practices, for instance in agreements between landlord and tenant or commissioner and craftsman. By paying atonements a murderer could *kaupa sik or skoge* ('buy himself out of the woods'), a slave could *kaupa sik i frið* ('buy his freedom'), and a man could *kaupa ser kono* ('buy himself a wife') or *kaupa við prest* ('buy service from a priest').²¹ Among Scandinavians, in negotiations following an assault, assessments of the value of a person's limbs and life were expressed in explicit terms (below). Such undisguised economic appraisals of fellow individuals, troubling to modern sensibilities, would have been familiar to many Germanic cultures of the Early Middle Ages. Thus, the scope of this critique of Polanyi's economic theory, as well as the following critique of neoclassical economics, is not limited to the first-millennium Scandinavian economy, but to the European Early Middle Ages in general.

Accordingly, at different times during the Middle Ages the monetary practices of valuing and paying were introduced within various common social practices other than trade.²² Thus, a grave find of scales or weights is not necessarily indication that the man with whom they were interred had been involved in trade.²³ For instance, a *sqkmiðlendr* (negotiator of peace)²⁴ would find ample use for such implements. Hence, the assumed primary connection between trade and monetary practices, common in scholarly writings from Rygh in 1885 onwards and carried into recent scholarship by Polanyi and others, needs to be qualified.

Turning to the so-called neoclassical approach to monetisation, dominant in 20th-century economics, money is considered to have played a role in medieval economies not far removed from its modern function. In this view, money was invented in early societies as the practical solution to inherent problems in the practice of exchanging goods, for instance, 'the double coincidence of wants' — the difficulty of finding someone in need of what you have to offer who is simultaneously offering what you need.²⁵

The neoclassical understanding of the emergence of money and markets, subsequently adopted by Polanyi and others,²⁶ does not stand up to scrutiny.²⁷ On the contrary, none of the ethnographic evidence collected since the first European expeditions into Africa, Asia, and the Americas describes a society in which the direct exchange of

commodities was the dominant mode of exchange. Economic historians analysing written evidence from all periods of human history have likewise failed to identify such a society. The Cambridge anthropologist Caroline Humphrey is quite definite on this score: 'No example of a barter economy, pure and simple, has ever been described, let alone the emergence from it of money; all available ethnography suggests that there never has been such a thing.'²⁸

In fact, extensive direct exchange of commodities has been documented only in societies with a history of using token money, where the token-money media, whether coinage, silver, or gold, were in short supply at the time. This was the case in late-medieval Norway as well as in the 6th–8th-century Merovingian Empire and in Carolingian Italy.²⁹ While coinage was scarce or absent, the monetary unit continued to be applied when valuing (as units of account) but coinage was not used for payment — this is were so-called ghost-money.³⁰ With their history of using token money, these societies were accustomed to the two essential monetary practices. Humphrey calls extensive direct exchange of commodities based in units of account 'a post-monetary phenomenon'.³¹

Summing up, neoclassical economics regard token money as a medium introduced to simplify trade by removing the problem of the 'double coincidence of wants' and other 'transaction costs' — a claim that cannot be substantiated. By contrast, Polanyi and others hold that whereas premodern economies were socially embedded, modern economies are not — a view that fails to grasp the complex role of monetary practices in both eras. Thus, Polanyi primitivises both pre-modern and modern societies: the former by claiming that economic agency was nullified by social relations, the latter by asserting that genuine human relations had been destroyed by money and market. In my view, these flaws are rooted in the Polanyi's acceptance of the neoclassical idea of token money as a medium, and markets as an arena for the individual pursuit of gain. Rather, markets and money, modern and pre-modern, should all be regarded as embedded in social relations.³²

Although the economy is always embedded, economic agency is not necessarily nullified. Mark Granovetter has suggested that social constraints on economic agency vary: [...] the level of embeddedness of economic behavior is lower in nonmarket societies than is claimed by substantivists [...], and it has changed less with 'modernization' than they believe; but I argue also that this level has always been and continues to be more substantial than is allowed for by formalists and economists.³³

General patterns in an economy's level of embeddedness can be surmised from the ethnographic record. It appears that relatively less embedded exchange was normally conducted between strangers without any further social connection to each other before and after a deal was made.³⁴ Conversely, exchange within communities and networks was never driven purely by self-interest, but rather was integrated within the pre-existing social relations between the parties. Exchange adds material debt to the other forms of obligation existing between individuals and groups.

Debt and obligations of all kinds, material as well as immaterial, are essential aspects of social cohesion. Obligations emerge from a variety of relations between individuals: from being someone's older brother or sister, from having obtained an item from a neighbour last winter, from having sworn loyalty or friendship to someone many years ago, or from killing someone the day before yesterday. Societies keep track of these obligations, which help in gluing families, communities, and networks together. Debt and obligation are never nakedly unconditional; they are always entangled and reciprocal.

Regarding the nature of money, a social approach deviates from the view favoured by neoclassical economics which understands money as a type of commodity. The

materiality of token money (bullion, coinage, bills, etc) might inspire such an idea. Rather than regarding money as a 'thing', however, a social approach entails understanding money as an abstract measure of value as well as a claim or a credit. As famously stated by A. Mitchell Innes: 'The eye has never seen, nor the hand touched a dollar. All that we can touch or see is a promise to pay or satisfy a debt due for an amount called a dollar.'³⁵

One should understand monetary units as one would any other type of unit, for instance a unit for measuring length: a metre. Devices that can measure out a metre are tangible, but the metre itself is invisible and untouchable. In transactions where payment is conducted using token money, the abstract value assigned to the token, based in trust and convention, is moved between persons, companies, and institutions. Thus, both the value and the movement are fundamentally social, rather than material. In monetary studies, as elsewhere, tokens should not be conflated with what they represent.³⁶

It is, therefore, worthwhile to discuss monetisation as the spread of certain social practices rather than of certain media. What Aristotle called the functions of money — the measure of value and the medium of payment³⁷ — are not qualities of the medium, but actions people perform: they value and they pay. Although inequality of power renders many transactions unbalanced, the discrepancy between the values paid and received does not affect the conventional nature of the units of account and value assessments. The fact that value is contested rather confirms money's social nature.

Turning to the three aspects of the social approach to monetisation outlined in the introduction, three points can be derived from the above discussion. Firstly, once monetary practices had been established, transactions could be monetary despite the absence at the time of the original token-money medium. For example, gold or silver units could be used to assess value, while commodities could be used to pay. In other cases, commodities could serve both monetary functions.³⁸ Therefore, the process of monetisation cannot be traced solely by mapping and dating finds of precious metals, but must be inferred from studies of the social spheres where monetary practices may have been applied. For instance, the application of monetary practices in trade must be inferred from the character of production (subsistence or commodified), the social context of transactions (community-bound, among peers, or between strangers), and the distribution pattern of consumed products (local or long-distance).

Secondly, in consequence to decoupling the introduction of money from the sphere of trade, several social spheres must be surveyed to identify early monetary practices. Payers and receivers of fines, bride price, or dowry, givers of gifts, and heirs dividing an estate, were all potentially early users of units of account for assessing value and of token-money media for payment.

Thirdly, the types of objects found in a hoard may indicate the kinds of payments for which the gold or silver had been used. Payments of fines, bride wealth, and the like, tended to conform to certain customary amounts, as a result such payments were most likely conducted using complete objects — in early medieval western Scandinavia these objects were rings — produced to comply with certain weight increments. Such rings were made by weighing up gold or silver fragments to the necessary weight, melting them down, and casting the ring. Alternatively, a rod could be cut to comply with the desired weight and then forged into a ring. Conversely, cutting-up of precious metals would be necessary to achieve a desired weight other than the standard multiples and fractions of weight units used for customary payments. Payments composed of cut-up fragments, including small fragments for slight adjustments to the desired weight, might have been more common in trade

transactions where it was important that the weight match precisely to the agreed value assessment.³⁹ This method cannot be used to analyse individual hoards, but may reveal tendencies in groups of hoards.

THE ASSUMED ANTIQUITY OF THE *eyrir/aurar* WEIGHT UNIT

The Old Gulathing and Old Frostathing law codes, committed to parchment in the mid- and late-12th century, contain the earliest extensive written evidence of monetary units and media in western Scandinavia. The *eyrir* (pl *aurar*) weight unit mentioned there is mentioned earlier elsewhere, notably in the 9th- to early 10th-century Swedish Forsaringen runic inscription, in late 10th- and 11th-century Old Norse poetry, and with reference to Scandinavians in 10th-century Anglo-Saxon documents.⁴⁰ Archaeological token-money evidence — coins, scales, weights, weight-adjusted items, and cut-up silver and gold — occurs in the archaeological record in two periods, first in the migration period (AD 400–550) and subsequently in the Viking Age (AD 800–1050). From the latter period, archaeological⁴¹ and written evidence leaves little doubt that the terms and weight units known from the law codes were in use throughout the Viking Age.

What follows is a discussion of whether it is possible to connect the evidence on token money in the Viking Age and the 12th-century law codes with that of the archaeological material of the 5th to mid-6th centuries. While the main argument against such a connection is the near-total lack in Scandinavia of scales, weights, and precious-metal money media in the Merovingian period (AD 550–800), the main arguments in favour of bridging this period are etymological and metrological. The latter are connected to the weight unit *eyrir/aurar*, which weighed about 26.3 g at the time the law codes were written down. Scholars have commonly assumed that the weight unit identified in migration-period weights and gold objects carried the same name and had approximately the same weight as the Viking-Age *eyrir/aurar*.⁴²

The weight set retrieved from a grave mound in Bråten, Ringerike, present-day eastern Norway, plays a prominent role in the discussion of Germanic weight systems owing to its excellent state of preservation as well as its apparent precision. According to Egil Bakka, it is the ‘only set of weights of base metal from late-Roman and migration times in northern Europe, preserved complete and in still workable order’.⁴³ All scholars who have discussed this find conclude that it is based on a unit close to the Viking-Age *eyrir*. Bakka, who has conducted the most in-depth analysis, identifies the weight unit of the set to be 26.45 g, and on the basis of the correspondence in weight with the Viking-Age *eyrir*, he calls it by that term. Bakka finds that the three heaviest weights of the ten in the set, weigh one, two, and three *aurar* respectively; their maximum deviation from the ideal weight is 0.117 g. He demonstrates that by the combined use of the weights, including additions and subtractions on a pair of scales, weighing can be undertaken at intervals of 1/96 *eyrir* (0.276 g) upwards to 636/96 *aurar* (175.23 g).⁴⁴

As Bakka and others have pointed out, the migration-period date of the *eyrir/aurar* unit is corroborated by etymological evidence. It is widely held that the word *aurar* derives from the Roman *aureus*, meaning gold. However, the nature and date of the connection between the two is disputed. There seems to have been no direct transfer of term and weight, since the weight of the *eyrir* identified by Bakka and others deviates from Roman units and objects that carried a name containing *aureus*. The *eyrir* weighed more than both the pre-4th-century *aureus* coin (about 7–8 g) and the 4th–10th-century *solidus aureus* coin (about 4.5 g). The equivalent in the Roman weight system to what has been held to be the

Scandinavian migration-period weight unit is rather the Roman *uncia* (an ounce equalling about 27.2 g which in turn represented one twelfth of the Roman pound, the *libra* which weighed c 322–328 g).⁴⁵ With such lack of correspondence between units and terms, the connection between the Roman and the migration-period Scandinavian weight systems must be brought into question.

Brøgger's attempt to date the *eyrir* unit to the 3rd–4th century AD, partly based on analyses of the Bråten weight set, remains speculative and has gained little support.⁴⁶ Christoph Kilger has suggested a date later than Brøgger's.⁴⁷ Kilger argues that while the term *eyrir/aurar* could have been introduced during the migration period, the weight unit of that name could have been defined only sometime after AD 580. Kilger's main argument is that the Bråten set of weights must date from this later time, because what he identifies as their basic unit, 1.32 g, equals the weight of the Merovingian *tremissis* gold coin. Consequently, he argues, the weight of the *eyrir* must have been decided after the *tremissis* had been issued (ie, after AD 580).

The weight of the Merovingian *tremissis* cannot, however, be taken to define a concrete *terminus post quem*. The existence of a precise standard *tremissis* weight is hard to verify, as it varied among mints and over time.⁴⁸ Moreover, the reason the weight of the Scandinavian *eyrir* conforms to the weight of 20 *tremisses* could be that both units were set to be convertible to the weight of certain grains and seeds, which also appear to have been the basis for late-Roman coins and weight units.⁴⁹ Since all three weight systems seem to have been based on the mutually convertible seed or grain units, measurements made in one of the systems could easily be converted to any of the other.

The close connections between the Roman, Celtic, Merovingian, and indeed the Greek weight systems, rather complicate any attempt at dating the creation of the *eyrir* unit on the basis of the weight units and systems themselves. It might therefore be productive to base the dating of the *eyrir* in datable finds of Scandinavian weights, scales, and weight-adjusted rings. While neither Brøgger nor Kilger takes the date of the complete Bråten find into consideration,⁵⁰ Bakka thoroughly analyses the grave's numerous other objects.⁵¹ He concluded that 'the associations of the Bråten scales and weights, and the bucket-shaped pot in particular, indicate a date broadly about AD 400 or slightly later.'⁵²

This dating of the existence of the *eyrir* unit is corroborated by the five other pre-AD 550 grave finds of scales and weights in western Scandinavia. Bakka took an inventory of these, dating them to various parts of the migration period, the Bråten grave being the earliest of the six.⁵³ Bakka found that, in the extent of the analysis allowed by the state and preservation of the objects, all weights conformed to the *eyrir* unit. He concluded that the *eyrir* system was created some time during the 4th century, after Constantine's coin reform (AD 312). He underpinned this conclusion by pointing to the lack of compliance with the *eyrir* system, or any other weight system, of 2nd–3rd-century gold rings.⁵⁴

Kilger holds that neither the *eyrir* unit nor any other weight system existed in the migration-period Scandinavia. He points out that the regular weights of the migration-period gold rings were not necessarily achieved by weighing out the appropriate quantity of gold, but rather by counting up the corresponding number of *solidi* from which to forge the rings.⁵⁵ For example, the ring from Vashus, Stavanger, Rogaland Co, Norway, weighing 12 *aurar* (325 g), theoretically could have been made from melting down 72 (6 x 12) *solidi*.⁵⁶ However, the weight of *solidi* was not sufficiently uniform for the coin-counting procedure to result in the precise weight of the Scandinavian migration-period rings. As noted by Peter Guest, several hoards retrieved in *Barbaricum* indicate that *solidi* were valued by weight

rather than by number. For instance, the Dortmund hoard weighed six Roman *libra* and consisted of 443 *solidi*, 11 more than if the coins had been of ideal weight (six *libra* by 72 *solidi* = 432 *solidi*).⁵⁷

Bakka's dating of the creation of the *eyrir* weight unit is based primarily on the find context of weights and scales.⁵⁸ This firm empirical base supplies more credibility than alternative dating suggestions. In addition, Bakka points to the numerous migration-period weight-adjusted gold rings and finds of weights and scales as evidence for relatively advanced monetary practices in widespread use during the migration period, particularly in gold-rich Rogaland County.⁵⁹ However, it has not been demonstrated equally persuasively that the term *eyrir/aurar* was in use in the early period. The correspondence between the Scandinavian migration-period weight unit and the Roman *uncia*, as well as the lack of correspondence with Roman units or coins that contained the word *aureus* — the supposed root of the *eyrir/aurar* term — might inspire a search for alternative etymologies, and possibly alternative datings as well.

Bo Ruthström has developed one such alternative etymology.⁶⁰ He points to the fact that the term *eyrir/aurar* occurs only in the Scandinavian languages, whereas all the other early Scandinavian loanwords from Latin occur in more or less all Germanic languages. This indicates a Scandinavian origin of the term rather than a Roman, which could undermine the dating of the term to the period when Latin words arrived in the Scandinavian languages. If Ruthström is correct, the main argument for the antiquity of the *eyrir/aurar* term has been disproven. In its place, on a purely philological basis, he suggests that *eyrir* was introduced as a term for value at the time when silver became the common precious-metal medium — that is, in the early Viking Age.⁶¹

Whether Ruthström's alternative etymology is right or wrong, there is good reason to be sceptical of the traditional etymology, as well as the migration-period date of the *eyrir/aurar* term. Consequent to the weakening of the main argument for the antiquity of the Viking-Age weight unit, the metrological arguments stand rather alone, leaving in doubt an accurate identification of the unit of the migration-period weight system. Although the existence in Scandinavia of a well-developed weight system in that early period is well attested through Bakka's studies in particular, the basic unit of the system might be a fraction or multiple of the unit that Bakka identified. In fact, by applying more strict statistical methods, units that are fractions of Bakka's *eyrir* have been recognised elsewhere in Scandinavia. By analysing Danish finds, Eliza Fonnesbech-Sandberg has identified a unit of 4.548 g, very close to the ideal weight of the *solidus*.⁶² A multiple of six of this unit (27.29 g) fits neatly within the span of the weight unit Bakka recorded in the Rogaland material. Using the Bråten set as described by Bakka, it would thus be possible to weigh all 1/16 intervals of Fonnesbech-Sandberg's unit up to 36 2/16 units. By analysing material from Gotland, Herschend identifies a unit of about 3.1 g,⁶³ of which a multiple of nine (27.9 g) fits equally neatly with Bakka's Rogaland unit.

Whether two or all three of these possible weight systems were based in the same unit, or whether, as suggested by Kyhlberg and others,⁶⁴ several systems existed concurrently within Scandinavia, remains an open question; answers could be provided with thorough statistical analyses of a vast material selection. In the meantime, I choose to call the weight unit of the system that Bakka identified in Rogaland 'the MP unit' (migration-period unit), leaving the question open as to whether it was of the weight Bakka found or rather a fraction or multiple of that weight. Possibly, the MP unit and the Viking-Age *eyrir* carried the same name and were close to identical in weight; alternatively, the MP unit

weighed a fraction or a multiple of the Viking-Age *eyrir*, and thus, when the *eyrir* unit was defined, it was easily convertible to the *eyrir*.

THE INTRODUCTION OF MONETARY PRACTICES IN SCANDINAVIA

When did monetary practices penetrate various social spheres? In seeking to overcome the challenge posed by the nature and scarcity of the evidence, the archaeological evidence will be contextualised in accordance with the three points developed above. The discussion will be limited to briefly exploring four possible spheres: *weregeld* payments, dowries, gift giving, and trade.

WEREGELD PAYMENTS

The following passage from the Old Frostathing law code is the 3rd of 47 chapters that deal with the paying and receiving of atonements for manslaughter. The two previous chapters stipulate that such atonements should be decided by the court according to the birth and rank of the victim. If the court decides that the atonement should be six *merkr* of gold (24 *ertogar* = 8 *aurar* = 1 *mqrk*, pl *merkr*), it should be payed as follows:

Out of the six *merkr* of gold, the slayer or the slayer's son shall pay to the son of the slain man as a *høfuðbaug* [head *fine/atonement*] five *merkr* weighed. The father of the slayer shall pay a like amount to the father of the slain man. The brother of the slayer shall pay four *merkr*, weighed, less two *aurar* to the brother of the slain man. The paternal uncles of the slayer and the sons of his brothers shall pay twenty *aurar*, weighed, to the paternal uncles of the slain man and to the sons of his brothers. And the sons of the slayer's paternal uncles and the sons of his cousins shall pay thirteen *aurar*, weighed, and an *ertog* [weight unit] to the sons of the slain man's paternal uncles and to the sons of his cousins.⁶⁵

Within the scholarly community, *weregeld*, a term from the 6th-century Salic law code meaning 'man price' or 'man payment', has become the generally used term for such atonements. Similar concepts and practices existed in many Germanic societies of the Early Middle Ages, as well as among Slavs, Arabs, and elsewhere.⁶⁶ Homicide and offences against the person were a prominent theme in the Old Frostathing and Old Gulathing law codes. The total number of chapters dealing with manslaughter and various forms of assault in the former law code amounts to 109,⁶⁷ close to a quarter of the total of 450 chapters; in the latter law code they are 107,⁶⁸ a third of its 320 chapters.

While *weregeld* provisions can be found in several Scandinavian law codes, the term *baugr* occurs only in the Old Gulathing and Old Frostathing law codes.⁶⁹ There, *baugr* is more or less synonymous with 'fine' and 'atonement' and is used predominantly for *weregeld* payments.⁷⁰ As will be discussed below, the term *baugr* originated in the 5th to mid-6th centuries.

Baugr means literally 'that which is bent', as a noun referring most notably to a precious-metal rod bent into a ring or a bangle, which could be open, closed, or shaped into spirals.⁷¹ Such rings made from silver are well known in the Viking-Age archaeological record in Scandinavia, as well as in Scandinavian-type finds in the British Isles, Ireland, and the Baltic. Whereas all other types of fines in the Old Frostathing law code are stipulated in silver, and thus could be paid using the period's common precious metal, the *baugr* are

stipulated in gold.⁷² The *baugr* mentioned in 9th- to 10th-century Old Norse poetry are also made in gold.⁷³

Gold rings are quite rare in Viking-Age Scandinavia, and it appears quite unlikely that they were actually the common medium when paying atonement for killings in that period. Rather, in the Old Forstathing *weregeld* provisions, *eyrir* gold is used as a unit of account, while payment was made in other media in quantities of equivalent value. In the Old Gulathing law code the *baugr* are stipulated in weighed silver and cow values — probably a recent conversion from gold — but payments could be made in a variety of media listed in a separate chapter of the code.⁷⁴

This gold unit of account will have been established at a time when gold was available; the term *baugr* indicates that when used to pay *weregeld*, gold was forged into rings. Gold was the dominant precious-metal type in only one period during the 1st millennium AD — the migration period. As demonstrated by Bakka, gold rings from western Scandinavia tend to conform to multiples and fractions of a common weight unit, here called the MP unit, reflected in sets of weights from the same period. Thus, the term *baugr* in the West Scandinavian law codes appears to have its origin in that early period. The fact that many of the rings of that date were adjusted to the very weights mentioned in the Old Frostathing law code, that is, three, six, nine, or 12 *aurar*,⁷⁵ indicates that the MP unit — whether it was identical or convertible to the Viking-Age *eyrir* — was used to stipulate *weregeld*, which was paid with gold rings. In light of *weregeld* arrangements being deeply rooted cultural practices (below), this rather extraordinary case of judicial continuity appears plausible.

The *weregeld* practice in the Viking Age is well attested in law codes and literary evidence. The compounds *hofuð baugr* (head *baug*), *broðir baugr* (brother *baugr*), and the like, express the relative weights of rings that the perpetrator and his kin owed to the victim's various categories of kin. As can be seen from passages in both law codes, the actual weights of these various *baugr* depended on the status of the individual that had been slain. In the Old Gulathing law code it is expressed thus: 'And the man-fines increase or decrease in amount from this point just as the other atonements do.' This refers to an earlier chapter in the law dealing with atonement standards for men of various social groups.⁷⁶ From these two chapters it can be inferred that the *hofuð baugr* for killing a freed slave was two and a half *merkr* of silver, that for a common farmer was five *merkr* of silver, an *oðal* man ten *merkr* of silver, a *lendmann* (royal official) 20 *merkr* of silver, and an earl or bishop 40 *merkr* of silver.

Many scholars have read these provisions as expressions of a hierarchical society, and rightly so, but there is more to it than that. Using William Ian Miller's concept, I would read them as the price-range of lives in a *talionic culture*. 'Talionic cultures tended to be honor cultures', writes Miller. 'The entire moral and social order involved *sizing people up*; that's what honor was, and still is, all about'.⁷⁷

This sizing-up of individuals is probably the reason why actual payments of atonements, as testified in the sagas, deviate from those stipulated in the law code: the life and limbs of a murdered *oðal maðr*, if highly esteemed, came at a higher price than those of an *oðal maðr* of lesser regard. In the negotiations that followed a killing, both parties were compelled to balance complex considerations. If the amount of compensation demanded was deemed excessive, the claimants could easily be accused of greed — of 'carrying your dead kin in your purse', as Earl Sveinn hákonarson of Norway puts it in Grettir's saga in response to Grettir killing one of the Earl's men.⁷⁸

In most situations, the most honourable settlement was blood — literally taking an eye for an eye, a tooth for a tooth, a life for a life. As with claims for monetary compensation, moderation was likewise expected in blood settlements. Excessive blood-taking risked judgment as an unjust act in its own right, culpability for which would fall back on the avenger. Initially intent on taking Grettir's life, Earl Sveinn eventually backed down and accepted atonement after several of his own friends lined up, weapon in hand, in defence of Grettir. In both claiming atonement and exacting revenge, the perpetrator, the avenger, and their kin and friends acted within narrow conventions; their behaviour was subject to diligent assessment, with consequences. Although they did not become his declared enemies, some of Earl Sveinn's friends who had wielded weapons in Grettir's defence would never again be on friendly terms with the Earl.⁷⁹ Thus, in *weregeld* cases, the monetary practices of valuing and paying, either in blood or other currencies, were deeply embedded in social and cultural practices.

Turning back to the migration period; how may one envision the process of gold *baugr* — rings of weight adjusted according to the MP unit — becoming the standard account unit for stipulating *weregeld* payments? Many scholars have considered the Viking Age's legal context — the taking of blood and the taking of fines existing in parallel — as a transitional stage in an evolution from a purely revenge culture to a more or less general paying of fines. However, based on extensive cross-cultural studies of talionic cultures, Miller finds that the two practices have always existed in parallel.⁸⁰ Hence, Scandinavia probably had talionic cultures in the migration period, perhaps even much earlier. The advent of weight-adjusted gold coins and bullion and the knowledge of Roman systems for valuing and paying with precious metals in this period may have been applied to already existing, albeit less formalised systems for *weregeld* payments.

DOWRY

As noted, dowry payments represented a potential social sphere for weighing gold in specified quantities. Such payments, *heiman fylgia*, are well attested in both of the western Scandinavian law codes.⁸¹ Some peculiarities regarding the deposition of migration-period gold bracteates may indicate that the custom existed in that period as well, and that payments could be made in gold.

Typically, the approximately one thousand Scandinavian bracteates weigh 2 to 7 g a piece, a small number of them weigh less, while some reach 30 to 40 g in weight. Such circular gold discs, evidently inspired by Roman *solidi* and medallions, were elaborately decorated with Scandinavian-style ornaments, some depicting Óðinn on his horse. Based on the fact that bracteates from the same die could be widely distributed, Anders Andrén has suggested that they were used as gifts in the forging of political alliances.⁸²

In western Scandinavia the vast majority of bracteates have been found in female graves, indicating that they were considered to belong to the woman of the household. This is corroborated by a basic premise in the two law codes' provisions regarding the *heiman fylgia*; supplied by the bride's parents, the dowry belonged to her and not to her husband. When she passed away, it was her kin, and not her husband or children, who inherited the dowry.⁸³ The strength of the association between the wife and her dowry was such, that the heirs may in some cases have allowed the gold to follow her into the grave and the afterlife. Although Bøe found that the bracteates did not conform to specific weight increments, Bakka suggests that they did.⁸⁴ In any case, the value of the dowry needed to be assessed so

that her siblings could receive the same value from the estate, and weighing would be necessary.

GIFT GIVING

Gift giving was a deeply rooted cultural practice in Germanic cultures. A gift would be met with a counter-gift; the relative value of the two was vital. When gift giving was intended to establish or demonstrate the giver's power over the receiver, the gift would be a highly valuable item that the receiver could not afford to reciprocate in value. Alternatively, when the gift giving was intended to establish or confirm equality, it was crucial that gift and counter-gift be of the same value. To interpret the intended message, the value of the gifts needed to be assessed; thus, gift giving demanded precise calculation according to norms for value assessment shared by both parties.

However, in gift-giving exchanges there appears to have been little or no room for open displays of economic agency. Attempts to construct an early-medieval 'gift economy' are unconvincing — gift giving was a display of redundancy, and there seems to have been a sharp distinction between gift giving and other transaction types less embedded in social relations.⁸⁵ In the Scandinavian migration-period gold assemblage, this distinction is probably illustrated by the contrast between the numerous coarse payment rings and cut-up fragments, and the exquisite craftsmanship of bracteates, brooches, mounts, and the like.

MIGRATION-PERIOD TRADE

If gold was used as payment in trade, hoards should contain a substantial proportion of small fragments. This is the case only in hoards from Rogaland and neighbouring Vest-Agder Co (Norway).⁸⁶ However, no extensive commodity production appears to have been practiced there.⁸⁷ In Roman- and migration-period western Scandinavia, large-scale production was seen only for iron extraction in the Old Frostathing law region, where iron was produced on an industrial scale from the final centuries BC, reaching a peak around AD 200, thereafter decreasing abruptly and drawing to an end in the 6th–7th centuries. Some 300 bloomery sites have been identified; the largest had produced 100 tonnes. The total yield has been assessed at an average of 20–50 tonnes annually over the entire period, with production in the Roman Iron Age at least double that.⁸⁸ Production far exceeded regional needs and was likely geared to export. However, the relatively low volume of finds of silver, gold, or other imports in the region is not indicative of extensive long-distance trade, and no market sites have been found in western Scandinavia in this period. Thus, exchange was probably conducted within interregional aristocratic networks where non-monetary exchange of commodities was but one of many types of connection, debt, and obligation.

INTO THE VIKING AGE

The Merovingian period (AD 550–800) has produced a near-absence of finds in Scandinavia of weights, scales, and weight-adjusted items of precious metals. The abrupt break-off of contacts between Scandinavia and the Byzantine Empire towards the end of the reign of Justinian (518–65) affected the importation not only of solidi, but also of glass vessels and other such goods, which until then had been arriving in large quantities.⁸⁹ In the period c 550–750 gold was almost exclusively used to decorate objects of silver and other materials by gilding and gold foils. As weighing practices collapsed in Scandinavia, they appear to have declined elsewhere in northern Europe. In the Merovingian realm scales are rather common finds in well-furnished graves of the 6th and early 7th centuries; after c 640 their number

diminishes. Surprisingly, no common standard existed, and weights from a variety of origins appear to have been employed.⁹⁰ In 6th–7th-century England only nine scales, seven of them with weights, are known, which were seemingly used for weighing contemporary gold coins.⁹¹

Towards the end of the Merovingian period, minting in 8th-century Ribe introduced silver as the dominant token-money medium in Scandinavia. The use of silver as payment did not become widespread, however, until Islamic silver began flowing into the Baltic from the early 9th century, and in large quantities from the early 10th.⁹² Moreover, there are regional variations concerning the kinds of payments conducted using silver. As Birgitta Hårdh has demonstrated, silver in the 9th century was mainly forged into standardised rings, many of them weight-adjusted to two, four, eight, or 12 *aurar*. In western Scandinavia, specifically the Gulathing and Old Frostathing law areas, this was also the case in the 10th century. Except for areas of present-day Denmark and Skåne in the 10th century, the use of cut-up silver in the 9th–10th centuries as payment in trade was predominantly restricted to towns.⁹³

This paucity of cut-up silver in rural western Scandinavia in the 8th–10th centuries was accompanied by a significant rise in the production of industrial and artisanal commodities destined for interregional and long-distance trade.⁹⁴ From the mid-8th century onwards, iron extraction as well as quarrying of soapstone and whetstone were reorganised and output was increased; products became increasingly standardised and were traded overseas. In parallel, the earlier regional types of combs, brooches and ornaments were replaced by interregional types, some of them distributed throughout Scandinavia. Furthermore, whereas artisans previously had produced *unica* (unique specimens), serial production of identical ornaments now expanded.⁹⁵

Evidently, Scandinavian communities in this period became involved in the extensive production of commodities traded far beyond their own neighbourhood. Mass-produced ornaments are regular occurrences in graves, indicating that people across most of the social spectrum would have engaged in exchange of such items. Artisans as well as those employed in quarrying and iron extraction began producing items intended for sale to buyers unknown to them.⁹⁶ Thus, in this period the exchange of some commodities was no longer embedded in social relations entirely within tightly integrated communities, but rather took place with strangers from distant regions and lands. How was such exchange conducted without the use of token money? What other payment arrangements were sufficiently well established among Scandinavians to be applied in trade beyond the local community?

The likely answer is the application in the Viking-Age trade surge of the monetary practices that had become well established through the Migration period by the use of precious-metal units and items. Through the Merovingian period, these practices likely persisted within *weregeld* and possibly other types of transactions, and payments were made using commodities — the lack of precious-metal token money left few alternatives. The MP unit, based in gold, may have been applied in this period as a unit of account, functioning in a ghost-money role similar to that played by the Roman *solidus* in the Merovingian realm.

The sparse or non-existent use of silver as a means of payment in rural trade in 9th- to 10th-century western Scandinavia — despite the availability of silver — suggests that economic needs were served by the exchange of commodities according to units of account. Such an exchange might be settled on the spot if both parties were willing to receive the commodity offered by the other. If not, the receiving party would become indebted to the

other. Of course, the creditor would accept such a deal only if the chances of meeting again were good — that is, if the two parties had a well-established relationship.

Was the long-distance trade of the 8th–10th centuries conducted mainly between strangers or within well-established networks? The paucity of written evidence precludes definitive answers. However, Irene Baug's analysis of the trade in quernstones quarried along the western Scandinavian coast from the mid-10th century onwards offers a hint.⁹⁷ One of her central conclusions holds that Saltdal quernstones dominated in Oslo, while Hyllestad quernstones were most numerous in Hedeby and south of Skagerrak in general. These patterns are not the result of geographical proximity between production sites and markets; how then were they created?

Baug observes that long-distance trade routes for soapstone vessels and whetstones between western Scandinavia and the area south of Skagerrak were established in the early 9th century. These routes were subsequently maintained over several hundred years, and other commodities, such as quernstones in the late 10th century, entered into them. Fittingly, Baug adapts Søren Sindbæk's concept of 'routinized trade' for such patterns, relating the routines to pre-existing traditions of cultural and political contacts between regions.⁹⁸ Participants in such networks could probably safely enter into debt obligations. It is possible that the 10th-century networks in which quernstones, soapstone vessels, and whetstones were exchanged dated back to the Roman period, when iron was being exported from the Frostathing region.

As far as we know, in western and southern Scandinavia, towns were the only sites where extensive trade was conducted with extra-Scandinavian networks that had a long history of silver coinage use, notably Frisian and Frankish. Probably, connections with these overseas networks were less well established, which might have encouraged deals to be settled on the spot, although this need appears not to have been all that pressing. In all four Scandinavian Viking-Age towns, precious-metal token money was not introduced until after 20–30 years of substantial trade activity. In that initial period, and subsequently in parallel with silver payments, debt obligations or direct commodity exchange according to units of account would have been the common means of settling deals.⁹⁹

CONCLUDING REMARKS

The lack of indications of token-money use — coins, bullions, weights and scales — in Scandinavia in the Merovingian period has impeded the writing of a continuous history of monetisation through the 1st millennium AD. By shifting attention from token-money media and implements and instead regarding monetisation as the spread of specific social practices, the two periods rich in such finds, the migration period and the Viking Age, as well as the intermediate Merovingian period, may indeed be connected.

Following a 200 to 300 year prelude of coin importation to southern Scandinavia, philological and archaeological evidence indicates that in the 5th to early 6th centuries monetary practices became widespread in Scandinavia. From that time and well into the 10th century — with a break between the mid-6th and 8th centuries — gold and silver forged into rings served as payment, primarily of *weregeld* and possibly also of dowries and other customary payments. With the possible exception of the islands of Gotland, Öland, Bornholm, Sjælland, and Fyn, it is noteworthy that precious-metal token money seems not to have been adopted for use as payment in non-urban trade until the 10th century at the earliest.

Examining the period after c AD 550, the most significant effect of the migration-period monetary use of gold is the general applicability of the monetary practices established in that period. Once a precious-metal unit of account was acknowledged, the values of disparate items could be assessed and payments could be made in media other than gold. Throughout the Early Middle Ages, although probably stipulated in gold units, numerous customary payments were surely made in media other than gold. In the 9th–10th centuries, as silver became increasingly available, it was used as gifts as well as for paying customary sums with weight-adjusted rings, alongside commodities.

Possibly, the precious-metal unit of account was applied in the limited long-distance trade of commodities as early as the 5th century. Through their networks, high-status families obtained precious objects from distant lands, most frequently as gifts, but some possibly through trade. However, there is little evidence in western Scandinavia for extensive interregional or long-distance trade before the late 8th century. Before then, to the extent that it took place at all, commodity exchange according to units of account would have occurred mostly within communities where the establishment of debt obligations would be quite convenient and rather safe.

Well-established, high-status networks may have been formative as interregional and long-distance trade expanded from the late 8th century onwards. Within established networks, debt obligations could safely be established, and token money was superfluous. Only in towns, where Frisian and Frankish strangers ventured, was there a need to settle deals on the spot. Accordingly, after some decades of urban trade, silver began to be used as payment in some of the numerous transactions conducted there. Not until the decades around the turn of the millennium — in towns from the 9th century and in southern Scandinavia more broadly in the early 10th — did silver bullion and coins become common means of payments in trade in western Scandinavia.

The shift of attention advocated here, away from physical money media and towards the two social monetary practices, calls for scholars to develop theories and methods for exploring the economic agency within the various social spheres where monetary transaction happened. To be sure, this brief survey of monetisation at the northern fringes of Europe is not exhaustive; the author's aim has rather been to draw attention to the potential for regarding monetisation as a set of social practices and to identify some fruitful directions for future research.

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² Eg regarding Norway: Lunden 1999; Gullbekk 2005.

³ Eg Kruse 1988; Hårdh 1996; Sperber 1996; Williams 2004; Pedersen 2008; Sindbæk 2011.

⁴ Notably, Bakka 1978; Herschend 1980; Munksgaard 1980; Kyhlberg 1980; Fonnesbech-Sandberg 1985.

⁵ Examples of the latter are Axboe 1991, Hedeager 1999, and Kilger 2008b; 2015.

⁶ Examples in fn 3.

⁷ Connections between symbolic and monetary value are explored in Theuvs 2004 and in Kilger 2015.

⁸ Pare 2013.

⁹ Herschend 1980; Lind 1988; Bursche 2002, 73; however, regarding bronze coins see Zachrisson 2010.

¹⁰ The Gudme/Lundeborg site in Fyn is the richest: it has yielded 826 denarii (see Horsnæs 2010, 121–38).

Approximately 200 denarii have been found in 25 soldiers' purses in the early 3rd-century weapon deposit at Illerup Ådal A in Jutland (see Ilkjær 2000, 48, 122 and Hedeager 1988). The use of silver as token money possibly continued in southern Jylland, Fyn, and Sjælland where 16, 5th- to early 6th-century hoards of cut-up silver have been found.

¹¹ Munksgaard 1956; Voss 1955; and Dyhrfeld-Johnsen 2013. Also, some contemporary gold hoards there have a high proportion of cut-up silver; see Fonnesbech-Sandberg 1988. The silver hoards have been interpreted as goldsmiths' caches of raw material; see for example Kilger 2008b, 298; Dyhrfeld-Johnsen 2013; for a more convincing interpretation as currency hoards, see Munksgaard 1980; Fonnesbech-Sandberg 1988; 1989; Painter 2013; Rau 2013.

¹² See fn 4.

¹³ Fagerlie's overview of Danish and Swedish finds mentions 883 *solidi* minted in the period AD 395–565, see Fagerlie 1967, 3. Approximately 25 per cent of these were issued by Byzantine rulers. Today, the total number has risen to approximately 1140, with about 800 in Sweden (see Andersson 2011, 82) and about 340 in Denmark (email communication, Helle Horsnæs). If they were all complete, that would amount to a total of approximately 5 kg of gold. In present-day Norway only five *solidi* have been retrieved (see Skaare 1976, 34). The Scandinavian-type gold objects from the same period constitute 10 kg from Norway, approximately 45 kg from Sweden, and approximately 42 kg from Denmark. See Munch 1956; Klang 2013, 1; Fonnesbech-Sandberg 1988, 139; 1989. A large proportion of the approximately 125 Norwegian finds have been uncovered in Rogaland County, southwestern Norway (approximately 3.2 kg in 44 finds); see Munch 1956, 99.

¹⁴ Related views are expressed by Herschend 1980; Horsnæs 2010, 189.

¹⁵ While Kaupang has produced 107 coins, recent metal-detector campaigns on a couple of sites less than 15 km from Kaupang have recovered 190 silver coins from the 9th–10th century; see Gullbekk 2014. The two sites appear to be seasonal market sites that probably owe the extensive use of silver to their proximity to the town nearby.

¹⁶ Hårdh 1996; Kilger 2008a. For an overview of the relationship between gold and silver in 7th–8th-century Frankish and Anglo-Saxon minting, see Naismith 2012.

¹⁷ Rygh 1885, 9 and 26.

¹⁸ Bøe 1923; Brøgger 1921.

¹⁹ Eg Samson 1991; Hedeager 1994.

²⁰ Polanyi [1944] 2001, 48 and 139.

²¹ Storm and Hertzberg 1895, 334–6.

²² This view was stated poignantly by Philip Grierson in 1959.

²³ Pedersen 2001.

- ²⁴ The term is used in the late 9th-century skaldic poem *Ynglingatal* (stanza 30) regarding the *þjóðkonung* (people's king) *Hálfðan hvítbeinn*.
- ²⁵ Numerous examples in Graeber 2011, 23–8.
- ²⁶ Gemici 2015.
- ²⁷ For an early and precise critique, see Innes 1913, commented upon and developed in Wray and Elgar 2004. For a humorous exposition of this critique, see Wray 1999.
- ²⁸ Humphrey 1985, 48.
- ²⁹ Skre 2011, Kilger 2008b, 270–1; Rovelli 2012.
- ³⁰ Cipolla 1956, 38–42; Wood 2002, 76–8.
- ³¹ Humphrey 1985, 49.
- ³² Zelizer 1994; Lie 1991.
- ³³ Granovetter 1985, 482–3.
- ³⁴ Graeber 2011, 29–36 with references to numerous examples.
- ³⁵ Innes 1914, 155.
- ³⁶ Ingham 2004, 15–37, 69–74.
- ³⁷ Meikle 1994.
- ³⁸ Skre 2011.
- ³⁹ Hårdh 1996, 84.
- ⁴⁰ Regarding the Forsaringen inscription, see Brink 1996; Källström 2010. References to Anglo-Saxon evidence and skaldic poetry are found in Engeler 1991, 127, 133–7.
- ⁴¹ See fn 4.
- ⁴² Eg Brøgger 1921; Bøe 1923; Steinnes 1927; Skaare 1976, 716; Herschend 1987; Engeler 1991, 128; Kilger 2008b.
- ⁴³ Bakka 1981, 295.
- ⁴⁴ Bakka 1981, 306–14. Ola Kyhlberg's criticism against Bakka's results regarding the weight of the *eyrir* — he holds that Bakka accepts excessively high margins of error — is hardly conclusive; cf Kyhlberg 1980, 160–1. From the weighing of gold items from Rogaland County in western Scandinavia, Bakka finds that the *eyrir* applied when forging the items varies between 26.27 and 29.13 gr; see Bakka 1978, 292–3. A margin of error of about ± 5 per cent should be acceptable considering that during the period under analysis, there was no central authority charged with maintaining a standard of weight.
- ⁴⁵ Bakka 1981, 295; Herschend 1991.
- ⁴⁶ Brøgger 1921, 64–5.
- ⁴⁷ Kilger 2008b, 281–4.
- ⁴⁸ Steuer 2013, 302–3.
- ⁴⁹ The earliest of these units is the carat, which is based on the seed from the carob tree; the seed was used as food in the Levant. The common conversion rates to seeds growing in northern Europe were: 1 carat = 3 barleycorns = 4 wheat corns; see Grierson and Blackburn 1986, 14 and 107.
- ⁵⁰ Brøgger dates it to the 2nd–3rd centuries; Brøgger 1936, 77, 83 note 10.
- ⁵¹ Bakka 1981. The grave was excavated in 1824; the finds are kept in the Museum of Cultural History, University of Oslo, inventory numbers C526–35. The find was retrieved by two local farmers from a substantial mound, about 25 m in diameter and 3 m high. The farmers provided a detailed account of the dig, which leaves no reason to doubt that all the objects belong to the same grave.
- ⁵² Bakka 1981, 301.
- ⁵³ Bakka 1981, 295. Recent finds of scales and weights have not contradicted Bakka's assessment.
- ⁵⁴ Bakka 1978, 296–7. Elisabeth Munksgaard's argument (1980, 150) that such rings do comply with the *eyrir* system is not altogether convincing. However, an occurrence of the *eyrir* system in southern earlier than in western Scandinavia cannot be ruled out (see below).
- ⁵⁵ Kilger 2008b, 282.
- ⁵⁶ Rygh 1885, no 297; Brøgger 1921, 25–6.
- ⁵⁷ A deviation of about 2.5 per cent from the ideal weight; Guest 2008, 302–4.
- ⁵⁸ Bakka 1978, 293.
- ⁵⁹ See fn. 13.
- ⁶⁰ Ruthström 1993.
- ⁶¹ Ibid, 117.
- ⁶² Fønnesbech-Sandberg 1988.
- ⁶³ Herschend 1987.

⁶⁴ Kyhlberg 1980; Herschend 1980; 1987; Fonnesbech-Sandberg 1988.

⁶⁵ This translation of the Old Forstathing law code ch VI-3 is taken from Larson [1935] 2008, 294, slightly adjusted by the present author on the basis of the original text published in Keyser and Munch 1846, 184, and the Norwegian translation in Hagland and Sandnes 1994, 99.

⁶⁶ Leeper 1933; Schacht 1949.

⁶⁷ Books 4 and 6.

⁶⁸ Chs 150–252 and 316–19 in Eithun et al 1994, 108–41, 170–7.

⁶⁹ The term *baugr* also occurs in the Icelandic *Grágás* law code as well as in the Swedish Hälsinge law code, in both evidently as a result of influence from the two West-Scandinavian law codes, see Brink 2013, 440–1; Engeler 1991, 89–90.

⁷⁰ Storm and Hertzberg 1895, 92–3, Brøgger 1921, 36. Sigrid Engeler also records the use in the law codes of *baugr* in compounds where it denotes fines for robbery and laziness; Engeler 1991, 88.

⁷¹ Zimmermann 2003, 3; Engeler 1991, 85–8.

⁷² Chs VI-1–47; see Hagland and Sandnes 1994, 98–119; Engeler 1991, 88–9.

⁷³ Engeler 1991, 92–114.

⁷⁴ Old Gulathing lawcode, chs 218–23 (consulted in Larson [1935], 2008, 150–2).

⁷⁵ Brøgger 1921, 39; Bøe 1923, 32, 62–5. Although these categories of ring weights are well attested to, the evidence is in dire need of a new analysis with more refined metrological and statistical methods; see Fonnesbech-Sandberg 1988, 142–4.

⁷⁶ Old Gulathing Lawcode, chs 200, 218 (consulted in edition by Larsson [1935] 2008, 144–5, 150.).

⁷⁷ Miller 2006, x,

⁷⁸ Grettir's saga ch 24, in Byock 2009, 73.

⁷⁹ Byock 2009, 72–4.

⁸⁰ Miller 2006, 25 fn. 18.

⁸¹ Old Frostathing lawcode, chs XI-1–16, Larson [1935], 2008, 362–8; Old Gulathing lawcode, chs 104, 115, 128, Larson [1935], 2008, 108–9, 112–14, and 118.

⁸² Andrén 1991.

⁸³ Friman-nslund 1966.

⁸⁴ Bøe 1923, 61; Bakka 1978, 284 and 289.

⁸⁵ On this score, see Curta 2006, 673, 698–9, who also supplies an overview of relevant literature.

⁸⁶ Bøe 1923, 56.

⁸⁷ The Migration-period pottery produced in Augland, Vest-Agder was not traded over long distances, Rolfsen 1980.

⁸⁸ Stenvik 2003, 124; Rundberget 2010, 41 and 44.

⁸⁹ Ljungkvist 2009, 44–7.

⁹⁰ Steuer 2013, 295–6.

⁹¹ Scull 1990.

⁹² Kilger 2008a.

⁹³ Hårdh 1996, 134–46.

⁹⁴ Skre 2017.

⁹⁵ Ibid; Callmer 1995.

⁹⁶ Sindbæk 2011.

⁹⁷ Baug 2013.

⁹⁸ Sindbæk 2005.

⁹⁹ The lack of correspondence between trade and coinage or bullion is also observed outside Scandinavia. For example, the scarcity of precious-metal money in Frankish and Anglo-Saxon towns in the mid-8th century was not accompanied by a decline in trade there; see Naismith 2012, 330–1.