

I

ARCHAIC COINAGE AS EVIDENCE FOR THE USE OF MONEY

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AS THE PAPERS IN THIS VOLUME UNDERSCORE, our understanding and appreciation of money in the ancient Greek world has undergone a remarkable transformation in recent years. The prime force behind this rethink of money has come from a number of studies which have explored the phenomenon of exchange, especially in its non-market-driven forms of social exchange. Scholars such as Seaford, von Reden, and Kurke have all contributed to reframing money by looking at the roles money took in the development of social commensurability, in non-economic exchange, and in how attitudes towards money use were formed.¹ One of the most positive results to come from all of this is that the study of money has been liberated from concentration on its primary role as a key cog in the gears of the market economy. Money no longer needs to be treated as an object, and focus has now shifted towards examining its roles in legal and religious contexts, and how its presence may be a cause or consequence of social change. As a whole our conceptual understanding of money in the Greek world has rapidly evolved, benefiting greatly from a refreshing infusion of new approaches provided by anthropologists and social historians.

Despite all of the attention that has been paid to early money, one important aspect has been left

behind: how coinage fits into the overall picture. Previously, coinage has been identified as a watershed in the use of money, introducing a new form of money which could be used as an absolute value for civic and commercial activities. More recently, the cultural impact of 'coinage' has been explored, on the basis that its invention either coincided with or fostered the growth of impersonal transactions. Yet, throughout most of these new studies, coinage has not had a separate identity of its own and has often followed lock step with money. In some, it is even difficult to distinguish between the two, as coinage and money are considered one and the same. Such conflation risks missing not only the subtle conceptual differences between the two, but also the greater practical differences between the two as evidence for the use of money and the development of moneyed economies. As invigorating and exciting as many of these studies may be, they have inadvertently muddied the waters surrounding coinage and money, clouding an already complex issue.

To complicate matters further, the state of scholarship on early silver coinage has changed greatly over the last few decades. Numismatic scholarship has lowered the dates of the beginnings of many of the chronologically important silver coinages from the first half of the sixth century to the second, shifting coinage into very different historical contexts. New low-value denominations have appeared where previously there had been few or

¹ Seaford (1994), esp. 199–206, 220–34; von Reden (1995), esp. 171–221; von Reden (1997) 154–76; Kurke (1995) 36–64.

none, unsettling prior assumptions on how and by whom early silver coinage was used. Many of these changes are relatively new and are not readily accessible to non-specialists, widening the gap between what is generally perceived and what the material evidence now supports. For those currently working on money, these changes must be acknowledged, as they are essential to establishing the context in which coinage fed into the use of money.

What is apparent in light of all the recent activity is that a re-examination of the relationship between coinage and money is long overdue. How can the two be distinguished from one another and what difference does this make in the way we examine how money was used? How has the material record changed and how do these changes affect our understanding of how coinage and money were used? From the historiographical point of view, can the currently popular social and political explanations offered by cultural historians satisfactorily be used as the prime explanations for coinage, or should economic factors be considered again? The purpose of this paper is to provide a first step in this direction by establishing a number of guidelines for discussion and by examining what the material evidence from coins can tell us about how early coins were used. At the heart of the matter is the fundamental question of how early coinage should be handled as a body of evidence. No doubt the discussion that follows will add fuel to the fire, but what it will, one hopes, do as well is redirect the approach to the question. Only then will it be possible to tap the potential information archaic coinage can offer as evidence for the use of money.

Coinage and Money

It is important to begin by drawing a sharp distinction between the terms coinage and money. One of the underlying assumptions of this article is that the two are not synonymous and that it is important to be careful in how the two are used in relation to one another. A number of recent works, unwittingly or not, confuse the two, leading to claims that money was not abundant before coinage or that the creation of money by states was an important step in the development and growth of market economies. If only the relationships between coinage, money, moneyed economies, and market economies were so

simple; however, they are complex, and our understanding of them is not helped by the shifting sands which characterize their relationship depending on where and when they are considered. Within the Greek world these relationships are especially important, as we believe coinage and money may be closely tied to the development of the Greek *polis*. Before launching into any discussion of coinage and money it may be time to get back to basics and relearn what has long been assumed.

Money is commonly defined as a store of wealth, a medium of exchange, a measure of value, and a means for making payments. Such a definition is technically sound, but it does miss out on the less tangible aspects of what makes up money. Perhaps the most important feature of money is that it is culturally biased, acceptable to some but not to others. What makes lumps of silver money in one place and salt money in another is something which cannot easily be explained, and we are well advised to be cautious about our own cultural assumptions when we think about what forms money could potentially take. We have to be aware that a range of items could be used, from grain, to scraps of silver, to coins. While there is no universal or absolute form of money, non-perishable materials have a distinct advantage over perishable, transportable over fixed.

Coinage, on the other hand, is a very specific form of money. It is normally defined as a piece of metal which has been stamped by an issuing authority, to be of definite value or weight. It is unusual among recognized forms of money in that its origins are known and we can actually think of coinage as having a beginning. Its introduction in the form of electrum coins minted in Lydia and along the Ionian coast is variously placed from the middle of the seventh to the beginning of the sixth century BC. However, coinage as a widespread phenomenon develops somewhat later and in a different metal. It becomes prevalent with the introduction and spread of silver coinage through much of the Greek world during the last half if not the last quarter of the sixth century. During this period and down to c.480, nearly 100 mints begin operating, confined to the Greek world and its immediate neighbours.

Appreciating the difference between coinage and money is conceptually difficult for a culture like ours which naturally conflates the two. Yet, the dangers of

not adjusting one's sights are readily apparent when one questions the nature of money before or in the absence of coinage. As difficult as it may be, we must keep in mind that a moneyed economy does not require coinage in the first place, as can be documented in 'moneyed economies' which operated in the absence of coinage.² Furthermore, the invention of coinage does not need to be considered the starting point of a moneyed economy, as can be documented in numerous 'moneyed economies' which eventually adopted coinage from the Greek world.

Understanding these two points is fundamental to any consideration of coinage and money, as they remind us to consider forms of money beyond coinage. We should be aware of the possibilities of pre-coin money which may have operated prior to the development of coinage as 'general-purpose' or 'limited-purpose' forms of money.³ Even once coinage appears in the Greek world, we must be aware of various forms of non-coin money which may have been used alongside coins or even in very different contexts. What should be appreciated throughout this discussion is that the invention of coinage is not so important as a single event as it is as part of an overall change in the way that exchange operated. It is the increasing importance of money in social, political, and economic activities which should be examined as the precursor to coinage.

These observations should not be taken in any way as an attempt to de-emphasize the importance of coinage to monetization. They are intended to re-focus and resight the lines which the discussion should follow. When we think of the monetization of the Greek world and the development of moneyed economies, coinage should not be seen as the starting point so much as a milestone along a much longer road in the use of money. It is left to us to discover the tell-tale signs which will help realize the utility of

archaic coinage as evidence for the early use of money. It is appropriate to turn first to coinage itself to examine what certain aspects of early coinage can tell us about the use of money and the development of a moneyed economy.

Coinage as Money

Origins and Spread of Greek Coinage

As mentioned above, coinage is an unusual form of money as its origins are known and it can be said to have a definite beginning. In contrast, the origins of many other forms of money are difficult to trace as some may have developed out of a prior use as commodities. As Rowlandson points out in her contribution to the present volume, grain was used as a limited form of currency in Roman Egypt, suitable for grain-tax payments and rent (Ch. 9). Bronze arrowhead 'coins' were used in the Black Sea region during the sixth and fifth centuries, produced in imitation of actual arrowheads which had become recognized as a form of money.⁴ Coinage stands apart from such forms as these in that it was a conscious invention. Cities and *ethne* consciously chose to produce coinage, and they did so in a new form regulated in weight and purity.

Where the beginnings are placed and who was responsible for its introduction have been the matter of some debate within the numismatic community, and what will be outlined here has been dealt with in greater detail elsewhere.⁵ In recent years, the discussion has evolved to include questions of how closely linked coinage was to the development of the *polis* and whether early coinage can be described as Greek. Pertinent to the present discussion are a few points which are highlighted here as they shed important light on the dynamics of how coinage became part of the Greek world.

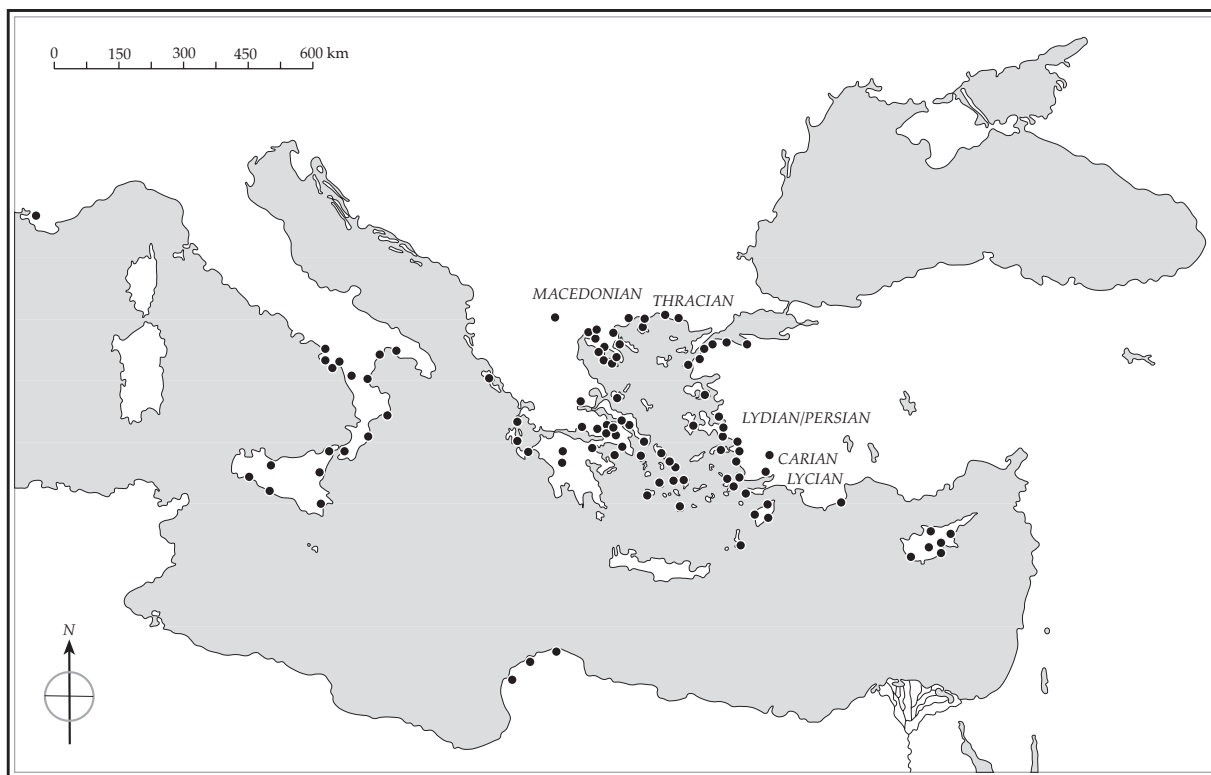
What can be said with little likelihood of dissent is that the first coins appear in western Asia Minor produced in the alloy of gold and silver commonly known as electrum. A date for these issues of

² The ancient Near East is a prominent example where a moneyed economy existed in the absence of coinage (see Kuhrt (1995), esp. index entries under 'taxes', 'currency/coins', 'debt'. Moneyed economies could also exist with the shortage of coinage, as von Reden and Rowlandson document in the cases of Ptolemaic and Roman Egypt in the present volume.

³ The terms "'general-purpose' money" and "'limited-purpose' money" are not without their problems. I am inclined to shy away from Seaford's definition of money as 'a universal equivalent used as a medium of exchange' (Seaford (1994) 222) and accept that there are differing degrees to which various forms of money were recognized and used in exchange (see discussion below on 'Coinage and its Uses' and 'Money Before Coinage').

⁴ Wells (1981); Sorda (1980).

⁵ Howgego (1995) 1–4. Reasons for the introduction of early electrum coins are treated by Wallace (1987); Price (1983); Weidauer (1975). Models for coinage having a long developmental history, starting with the use of metal bullion, are provided by Furtwängler (1986); Balmuth (1971). Both rely heavily upon Near Eastern examples as antecedents for coinage.



Map 1.1. Map of active mints by c.480 BC

sometime before the middle of the sixth century is provided by finds of electrum coins in the foundations of the archaic Artemesium at Ephesus.⁶ How much earlier coinage was produced is difficult to determine with any precision, but dates around and prior to 600 have been suggested based on the dating of related materials in the find and the style of the 'pot-hoard' pot.⁷ As for who was responsible for these issues, one large producer was the royal Lydian mint, identified by a lion-head obverse type. These coins appear to have been produced in large quantities and have been found as far east as Gordion. However, Lydia was not alone, and the large number of other types of electrum coins suggests the involvement of a number of other issuers, several of which can be identified as Greek cities. Miletus and Teos are commonly associated with series of coins which feature types used in their later silver issues (Miletus—recumbant lion and a 'rosette'-patterned punch; Teos—griffin head).

Phocaea is linked to a type which includes a seal (*phoke*) and letter phi, punning on the civic name.

Based on what we know about who minted coins, the idea of coinage may not have been solely 'Greek' in origin, although even from the very beginning it was used in an area which saw much intermingling between Greeks and non-Greeks. Where coinage develops a Greek flavour is in how the initial idea for coinage spread. Even though the original idea may have 'non-Greek' (Lydian) origins, it is within the Greek world and with silver that coinage becomes a widespread phenomenon. In contrast to the limited sphere in which electrum coins were produced, when coinage appears in silver it spreads through much of the Greek world and to some areas on its periphery. By c.480, some 100 mints began producing coins, distributed as far afield as Massalia and Cyrene, through much of western and eastern Greece, and closer to home in the heartland of the Greek mainland.⁸ Amid

⁶ Bammer (1990); Robinson (1951).

⁷ Carradice and Price (1988) 24; Kraay (1976) 21; Howgego (1995) 2; Williams (1991–3).

⁸ For a listing of mints see Osborne (1996a) 253–5. To this should be added the colony of Massalia (see Furtwängler (1978)) as well as the various mints operated by Persian, Carian, and Lycian dynasts.

all of this, we should be aware that the diffusion of coinage could also have a regional flavour, as the coinages of different cities within a region could appear quite similar, employing similar methods of production (fabric), shared weight systems, or shared types.

While the geographic distribution of early silver mints may be impressive, what is even more so is the rate at which the spread occurred. The time frame for the spread of silver coinage has shrunk considerably in the last two decades as a number of previously secure fixed points have fallen, as a result in large part of careful work on key series. Associations of coinage with Solon and Pheidon during the early part of the sixth century are no longer trusted.⁹ Even the attribution of the 'Croesids' to Croesus has been called into question in recent years as our understanding of the chronologies of late archaic hoards has become more secure.¹⁰ It is now difficult to attribute any silver issues before c.550, pushing the phenomenon of silver coinage entirely into the second half of the sixth century. Key fixed points begin to emerge mainly in the last two decades of the sixth century, securing the chronology against any further falls.¹¹

The importance of this shift in the time frame beyond the middle of the century can be felt in how the dynamics of the spread may be described. Instead of a gradual diffusion spaced over a century or more, coinage appears to have spread rapidly during the last quarter of the sixth century and first quarter of the fifth. This shift downwards changes the context in which coinage spread, placing it significantly later in the development of the Greek *polis* and importantly closer in time to the formalization of a number of key civic institutions such as legal codes, liturgies,¹² religious ceremonies, and civic offices. Perhaps more important, the compression of the chronology forces us to look more closely at how the development of coinage may be correlated to some common changes which were occurring at the time.¹³

While much more work needs to be done to assess what impact silver coinage had, a few key ideas must

be kept in mind. The spread of coinage should not be taken as a blanket covering of coinage through the Greek world, as not all states produced coinage.¹⁴ The development of the *polis* may not be the sole factor in the creation of coinage, as Persians, Lycians, Carians, and various Thracian-Macedonian peoples produced coinage as well.¹⁵ Nonetheless, it is in the Greek world that most of the activity occurred and it is in this context that the development of coinage must sensibly be placed. When it comes to evidence for the early use of money, it is coinage which can provide one of the most complete and coherent bodies of evidence available. For, unlike literary sources or special ceramics, the evidence of coinage is not skewed towards one city or region, but reflects a broader phenomenon which cuts across regions.

Coinage and its Uses

While new finds and new work have greatly improved our understanding of the dynamics of the spread of early silver coinage, our understanding of how it functioned as a form of money has remained more or less unchanged. Its immediate impact on money is still considered relatively little. Early coinage is largely seen as being used for only a limited range of activities and by a limited circle of participants, and it is still popular to believe that the moneyed economy only really advanced in the fifth century when state payments in coin finally percolated through to the body of individual citizens who became involved in civic duties. We are left with the distinct impression of early coinage being used in very limited contexts, far from the general-purpose applications of money we normally expect of coinage. One result of this is that it severely limits how coinage can be used as evidence for monetary use.

How coins were used is crucial to our understanding of the development of money. Few would argue with the notion that coinage was used in the archaic period as a form of money. Irrespective of what reasons we may attribute to the minting of the first coins, coins were intended to be used as money in various contexts such as tribute, state payments, or 'overseas trade'. What is less clear, though, is the

⁹ Waggoner and Kroll (1984).

¹⁰ Carradice (1987).

¹¹ Fixed points include the following: (1) coins impressed on datable clay tablets (see Root (1988)); (2) coins found in the foundation deposit at Persepolis (see Herzfeld (1938)); (3) the production of coins at Sybaris prior to its destruction in 510.

¹² An argument has recently been made in favour of coinage originating from the liturgical system (see Martin (1996)).

¹³ Morris (1994).

¹⁴ Notable among the non-producers before c.480 are Sparta, much of the Peloponnese, and the Greek colonies of the Black Sea.

¹⁵ Williams (1996).

degree to which early coinage could be used for a wide variety of purposes; when the use of coin became normal for a wide proportion of the population; and when the Greek economy became 'moneyed'. Current views on the matter place the development of a 'moneyed' economy well into the fifth century, nearly 100 years after the minting of the first silver coins.¹⁶ While such a long gap may seem something of a curiosity, it is based on a number of key observations about the nature of early Greek coinage which limit what can be said about the immediate impact of coinage on the development of a moneyed economy.

One of the observations which remains popular is that early coins were of considerably high value and that small change was not widespread. This assumption of predominance of high-value coins limits our impression of how coins could be used and it has been suggested that early coinage was used for specialized transactions and by a relatively small pool of users. To some, this means that archaic coinage was not used immediately as a widespread form of money. Rather, it would have been used as a specialist currency, as money in overseas trade, for tribute, or as a means of redistribution. Only after some time, especially once coinage was minted in low denominations, did coinage become useful as money in everyday exchange.

This perception of coinage—what may be described as a 'limited-purpose and limited-user' interpretation—is one of the most commonly expressed, and there is some material support for this view. At the time of the spread of Greek coinage, coins weighing between eight and seventeen grams were struck in substantial quantities, and most of the 100 or so states which minted coins did so with these large-denomination coins. As for how these coins were used, a good number of them ended up in hoards which have survived to the present day. Most of the coin hoards from the archaic period contain only these large-denomination coins. Low-denomination coins are largely absent. Archaic coins also ended up great distances from their issuing cities, and general patterns of movement, such as towards Egypt and western Greece, can be established, suggesting the

use of coins on the winds of trade. As a whole, hoards and individual coin find-spots show coinage used in overseas commerce, booty, and possibly as tribute. They provide little evidence towards coins being used in everyday commerce and within their city of issue.

This picture of early Greek coinage has persisted over the years and was probably best voiced by Kraay some thirty-five years ago.¹⁷ Rutter confirmed most of these points in his examination of coinage at the beginning of the Athenian empire.¹⁸ However, it has become increasingly difficult to support either case. Recent finds of early silver coins have overturned these models for early coinage, demonstrating how new bodies of evidence can still produce fundamental shifts in our perspective on a problem. While this is not the appropriate place to present a detailed account of the new material,¹⁹ what is offered below is a brief overview to show how great a difference new finds can make to our perception of how coins were used.

One of the most important additions to our understanding of archaic coinage comes in the form of the large numbers of fractional silver coins which have appeared over the last few decades. The importance of such small coins should not be underestimated as they represent what might be thought of as the lowest common denominator in coinage. The smallest weigh as little as a tenth of a gram, although most mints which produced fractional silver tended to mint coins between a quarter and a full gram. As money, they differ significantly from their large-denomination counterparts. Unlike larger coins, it is easier to imagine their use in transactions of the everyday sort. Perhaps more striking, when documentary evidence for the use of coins begins to improve towards the middle and end of the fifth century, the fractional silver coins appear very often as money used in everyday transactions in the market place. These are the coins which may plausibly be called small change.

What is perhaps most astonishing about the recent appearance of early fractional silver is the quantities involved and how this new influx affects our understanding of the prevalence of small change. When Kraay sketched the picture of the prevalence of small change in the mid-1960s, he found that many prominent mints, such as the South Italian incuse mints,

¹⁶ von Reden (1997) 156–7; Rutter (1981) 5; Kraay (1964) 88–91.

¹⁷ Kraay (1964).

¹⁸ Rutter (1981).

¹⁹ Kim (1994); Bérend (1984).

Athens (early owls), Syracuse, Aenus, Abdera, Thasos, Mende, and Acanthus, either lacked small change or produced it in insufficient quantities.²⁰ In contrast, it is now apparent that nearly all of the mints which Kraay pointed to show significant levels of production. Some areas, such as Ionia and northern Greece, display a bewildering array of new types, many of which defy traditional attempts at identifying civic authorities.

As surprising as the recent appearance of new types may be, more surprising discoveries await in gauging the extent of fractional silver coinages. One case offers a salutary lesson of the potential output of some fractional series. A series of Ionian coins bearing a profile archaic head and sometimes attributed as the early series of Colophon has until now been relatively uncommon (Pl. 1.1–4). However, a single hoard containing 906 twelfths and twenty-fourths of a Persian *siglos* has broken the silence to reveal a most remarkable scale of production.²¹ A die-study of this hoard (CH 1, 3) has shown that over 400 obverse and 400 reverse dies were used to produce the coins found in the hoard. While relating die numbers to original production levels remains a problematic issue,²² the numbers are staggering. Even if these dies only produced as few as a thousand coins in their productive lives, we would have to envisage the production, use, and circulation of hundreds of thousands of coins.

The problem with finding so much coinage produced in one location is in how to envision its use. Substantial production of large-denomination coins can at times be attributed to requirements beyond city walls in terms of payments of tribute, the export of bullion, or military expenditures. However, finds of small coins do not display patterns of dispersal remotely similar to large coins. As a whole, small coins tend not to travel far from their issuing cities.²³ When found in hoards, they tend to be found only with similarly small coins. It is difficult to envisage substantial production of small coins being directed to export or major expenditures. More plausibly, their existence ought to be considered in the context of local needs.

The amount of fractional silver coinage produced during the early stages of Greek coinage should provide substantial evidence to raise doubts about the

‘limited-purpose and limited-user’ interpretations for early silver coinage. For some mints, we may surmise that the amount of small change produced must have been plentiful enough for use by a significant segment of a population. This revised picture of early silver coinage is very different from what could have been outlined as recently as a decade ago. It represents a fundamental change in our understanding of how early coins could be used.

Money Before Coinage

One aspect of silver coinage which is often overlooked is that when it emerged it did so in a fully developed form. In most coinages we are faced with carefully manufactured pieces of silver, bearing a stamp of authority, conforming to a consistent weight standard, and including a system of denominations which stretch downwards to fractions of under a gram in weight. There is little evidence in the Greek world of a transitional period in which a ‘proto-coinage’ consisting of unmarked, weight-adjusted pieces of silver circulated.²⁴ Nor is there any evidence of official stamps, whether civic or private, appearing on silver bullion in the Greek world prior to the appearance of coinage.²⁵

The relatively short period of time it took for a fully developed coinage to spread through the Greek world poses a pressing question: Was there money before coinage? The speed of its development and spread makes it hard to imagine that the use of money was unfamiliar when coinage was introduced. If anything, it suggests that the notion of money use and some forms of money preceded coinage, and that when coinage appeared it slotted into a system which was already well established, serving as an improved substitute. If so, what was this pre-coin form of money and what functions did money serve?

The most obvious suspect for a form of money prior to coinage is silver bullion, as the features of early coinage would have improved its usage, providing

²⁴ Furtwängler suggests some evidence of weight-adjusted gold bars (see Furtwängler (1986)). He cites the cases of Knossos, Crete (Boardman (1967)), and Eretria (Themelis (1982); Themelis (1983)). Boardman, while noting the uniformity of some of the gold bars and dumps, argues against considering them currency (Boardman (1967) 62). Themelis comes to the same conclusions (Themelis (1983) 161).

²⁵ For the appearance of stamps on bullion contemporary to coinage see Arnold-Biucchi, Beer-Tobey, and Waggoner (1988); Babelon (1912) 32–3.

²⁰ Kraay (1964) 85–8. ²¹ CH 1, 3; Kim (1994) 23–6.

²² deCallatay (1995); Buttrey (1993); Buttrey (1994).

²³ Kim (forthcoming).

assurance of the weight and purity of the metal. Yet, it has recently been asserted that coinage was introduced at a time when 'silver was scarce' and the 'possession of monetary wealth [was not] excessive'.²⁶ If both observations are true, this proposition would need to be called into question, as well as the prospect of whether we can identify money use before coinage.

In answer to the latter, there should be little doubt that the concept of money and that some forms of (limited-purpose) money did exist before coinage. Von Reden has illustrated a number of cases in which awards, fines, and payments in the form of metal containers, metal objects, and foodstuffs were used in legal, marital, athletic, and political contexts prior to and concurrent with coinage.²⁷ Central to her case is her proposition that the importance of rendering value quantifiable grew out of the institutionalization of social, religious, and legal practices, in which valuables (symbolic and intrinsic) were exchanged to meet obligations or as compensation. This notion of money being a social construct is extremely important, and offers us a key model for seeing how money and the idea of assessing value may have developed out of much wider concerns than disembodied economic exchange.²⁸ When looking at the development of coinage in the archaic Greek *polis* these factors cannot be ignored, as they point to a number of emergent institutions which influenced and also were influenced by its development.

This focus on the 'actions' and contexts rather than the 'objects' makes much sense and provides a valuable new line of investigation into the development of money in the *polis*. However, we have to be cautious in placing too much weight on the priority of these cases over other models for money use and monetization. If monetization involved the spread of money use through a society, its infiltration should have been felt within a relatively wide spectrum of society.²⁹ Yet, many of the early laws were concerned with procedural matters in which those fined were of a relatively exclusive social class.³⁰ Likewise, regulations controlling the maximum value of marriage dowries would have been aimed at the few. If the experience of money use emerged as a result of

participation in or obligation to civic institutions, we would have to imagine monetization spreading or 'trickling down' through strata of society. This 'top-down' model for monetization fits extremely well with a model of early coinage which sees its use as restricted to coins of relatively high value. However, as outlined above, the recent evidence of fractional silver coins suggests that when early silver coinage began it had a much broader base of uses and users.

We should also wonder whether the monetary payments prescribed by these various institutions should be viewed as engines for monetization or simply as a reflection of a growing reality of money use and a movement towards a more disembodied system of exchange. Von Reden sees in these institutions a smooth transition from the exchange of valuables to the exchange of coinage, both functionally and symbolically.³¹ The implication is that coinage had distinct 'political' values, symbolizing the authority of the *polis* and slotting into the elite culture of the time. It is tempting to read much political symbolism in early coinage; however, we have to tread very carefully, especially in ascribing coinage to a particular social class.³² There is a natural tendency to do this, especially when attempting to explain coinage specifically in the context of the *polis*. However, in the end we are still left with the question of why coinage spread within the greater Greek world (both *polis* and non-*polis*). What was so special about the emergent institutions of the Greek *poleis* which promoted the adoption of coinage versus other factors which made coinage equally attractive to the non-Greeks who minted coins at the same time?

The models developed in recent years are offered in contrast to popular economic explanations which have been proposed over the years. However, it seems unlikely that economic explanations do not have some bearing on the matter. While much recent attention has been paid to social and political developments which were specific to the archaic Greek *polis*, we should equally wonder whether there were factors external to the developing institutions of the *polis* which made the need to assess value important.

²⁶ von Reden (1995) 175.

²⁸ von Reden (1997) 160–1.

³⁰ von Reden (1997) 162–3.

²⁷ von Reden (1997) 156–68.

²⁹ Kim (1994).

³¹ von Reden (1997) 168–70.

³² See Kurke (1995) 42, for coinage posing a threat to traditional aristocrats; von Reden (1997) 168, for coinage distributed by the élites; Martin (1996) 280–3, for coinage facilitating redistributions from the rich to the community.

Casting an eye across the archaeology of the archaic period, which is replete with evidence for inter-regional activities and contacts with the outside world, we should not think of the development of the archaic Greek *polis* as having occurred within a vacuum. Could there have been external factors which contributed to the growth in the use of money? Need we restrict ourselves entirely to the Greek *polis* in seeking models for how money use evolved?

At this point, it is appropriate to return to the question of silver as a commodity whose use as money may have been the antecedent to coinage. The 'silver-poor' picture of the Greek world prior to the introduction of coinage is problematic and requires careful scrutiny. If true, it undermines one of the key elements for building a case for an economic explanation of coinage. Its effect should not be underestimated as it sets coinage into a very different context. If silver coinage had no bullion predecessor, its invention would have introduced a new medium of exchange. Monetization would have largely been a phenomenon of coinage, and coinage would then become an extremely important marker for the use of money.

The new evidence of early silver coinage as presented above should raise some doubts about whether Greece during the archaic period was 'silver-poor'. In contrast, what is proposed here is a model in which the use of silver and money was already quite advanced by the time that coinage was invented. It is an observation which can be supported from two forms of material evidence; first, from finds of uncoined silver, some of which are remarkable because of their inclusion of very low-weight silver fragments; second, from the high level of sophistication apparent in early coin-weighting systems, especially at weights of under a gram. Both point to a strong familiarity with and developed use of silver as a form of money prior to the start of coinage, and both are important elements for promoting an economic explanation (or component) for the development of coinage.

Uncoined Silver

The question of money before coinage inevitably turns to uncoined (or pre-coin) silver. Adherents of a market-driven explanation for coinage suggest that silver was used as money prior to coinage, but what remains unproven is how extensively silver was used

and, more importantly, whether it was actually used as money. Answering these questions is not easy, as evidence for the prevalence, context, and uses for uncoined silver still remains woefully poor. Despite this, building a positive case for the prevalence of silver can be done by piecing together a range of material finds, scientific findings, and literary references.

Assessing the prevalence of silver prior to coinage is not straightforward. The sorts of documentary evidence we would want to have for the use of silver in exchange contexts exists in only a handful of sources. As for material finds, one of the problems immediately faced is that the nature of the survival and dating of silver objects may prejudice us to believe that silver was relatively scarce before the spread of coinage. Hoards of silver scraps are virtually undatable in the absence of coins or other manufactured material, resulting in their loss from the material record. Compounding the problem is the fact that, unlike manufactured objects such as pottery, silver is a reusable and valuable commodity which may not leave tell-tale trails of use and reuse.

Finds of uncoined silver in the Greek world are mainly confined to hoards which include a combination of coined and uncoined silver.³³ Hoards such as Selinus (*CH* 8, 35), Taranto (*IGCH* 1874), Sambiasse (*IGCH* 1872), Ras Shamra (*IGCH* 1478), Asyut (*CH* 2, 17), and Asia Minor (*CH* 1, 3) display how coins and uncoined silver were used side by side. *CH* 1, 3 shows the use of silver bullion alongside some of the earliest and smallest silver coins. Even though the hoard contained some 906 coins, the bulk of the hoard, some 316 grams (versus 245), consisted of small pieces of silver, some cut up, others intentionally manufactured as small disks (Pl. 1.5–10). What separates this hoard from many of the other bullion hoards is the prevalence of these low-weight pieces, the majority under three grams in weight. It is tempting to see their inclusion together with small coins as suggestive of coins and bullion functioning side by side as forms of small change.

While the number of finds of pre-coin silver is small, evidence for pre-coin production and use of silver can be found in a number of material and literary sources.³⁴

³³ One exception is the case of the find at Knossos (Boardman (1967)), where one bar of silver was found alongside several gold bars.

³⁴ See Kroll (1998) 230.

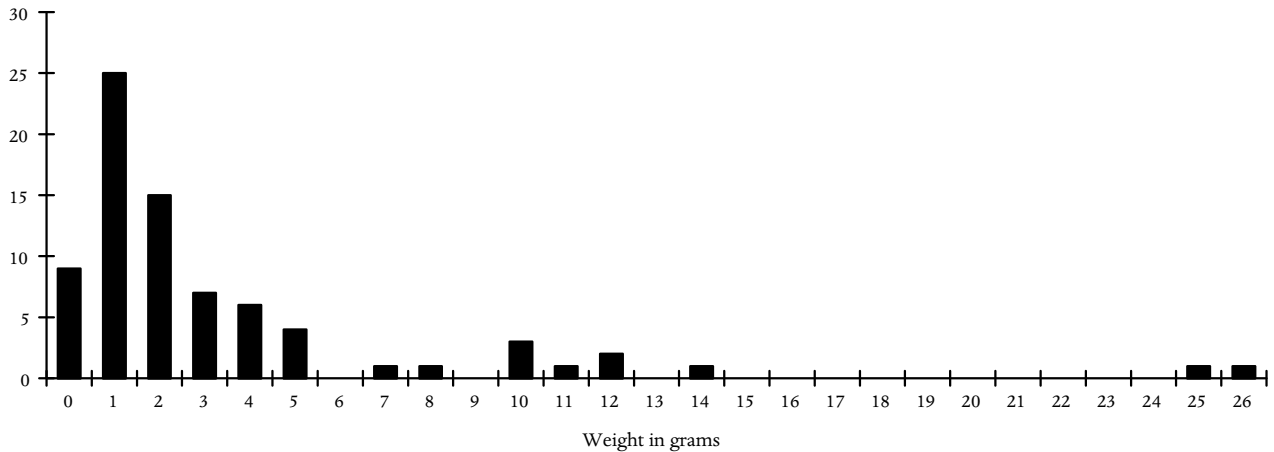


Figure 1.2: Weight histogram of the silver disks and fragments in *CH* 1, 3.

Scientific analysis has revealed that the well-known and extremely productive mines at Laureion in Attica may have been producing silver as early as the Bronze Age.³⁵ Literary evidence for the exploitation of mines provides very promising evidence for silver refinement during the archaic period. The mines at Siphnos apparently produced large quantities of precious metal until they were flooded and presumably abandoned around 525,³⁶ and the lyric poets of the sixth and fifth centuries make numerous references to metals being weighed, purified, and tested.³⁷ The long-distance movement of silver should not be forgotten, as lead-isotope analysis of an ingot from the Selinus hoard provides some evidence for the movement of silver from Iberian mines to the Greek world before 500.³⁸

Lead-isotope analysis also provides some rather surprising clues on the sources of silvers used in early archaic coinage.³⁹ Far from showing that mints generally relied on single mines for their silver, analysis has shown that most mints drew their silver from a much wider and less coherent pool, suggesting that circulating silver provided a significant portion of the metal used for coins. The mint at Aegina which had no native source of silver appears to have used silver derived from nearby Attica and Siphnos as well as from a range of others.⁴⁰ Even mints which had direct

access to sources of silver show little reliance on their native silvers. The early *Wappenmünzen* coins of Athens include silver from its native mines as well as a host of other mines further afield.⁴¹ The silver in Thasian coins, despite Thasos' control of mines on the island and mainland, appears to come from a number of different sources.⁴² Few mints actually display dependence on a single source of silver.⁴³

This incoherence in the sourcing of silver is by no means surprising given the growing number of long-distance contacts characteristic of the archaic period. During this time we see a significant movement of commodities between regions, as documented in the export of foodstuffs and manufactured wares.⁴⁴ What should be kept in mind is that few of these economic developments were unique to the Greek world. The Greek world was part of a wider Mediterranean economy which saw a growing level of regional interdependence.⁴⁵ Silver was a key commodity, used by most of the cultures bordering the Greek world, and it appears that Greeks treated it in much the same way.

While a case can be made for the prevalence of uncoined silver, what should be kept in mind is that

³⁵ Stos-Gale and Macdonald (1991).

³⁶ Herodotus, 3. 57. ³⁷ Kurke (1995) 39 ff.

³⁸ Beer-Tobey, Gale, Kim, Stos-Gale (1998). Steisichorus fr. 7 (184) refers to Spanish silver.

³⁹ Gale, Gentner, Wagner (1980) 3–49.

⁴⁰ Gale, Gentner, Wagner (1980) 33–43.

⁴¹ Gale, Gentner, Wagner (1980) 30, 49.

⁴² Gale, Gentner, Wagner (1980) 44–5.

⁴³ The one strong case is of the coins of the Orescii, a Macedonian 'tribe', which appears to have drawn its silver from Thasos (Gale, Gentner, Wagner (1980) 44).

⁴⁴ Osborne (1996b) 39–40.

⁴⁵ Sherratt and Sherratt (1993) 371–4. For 'interdependence' see Osborne (1996b) 31.

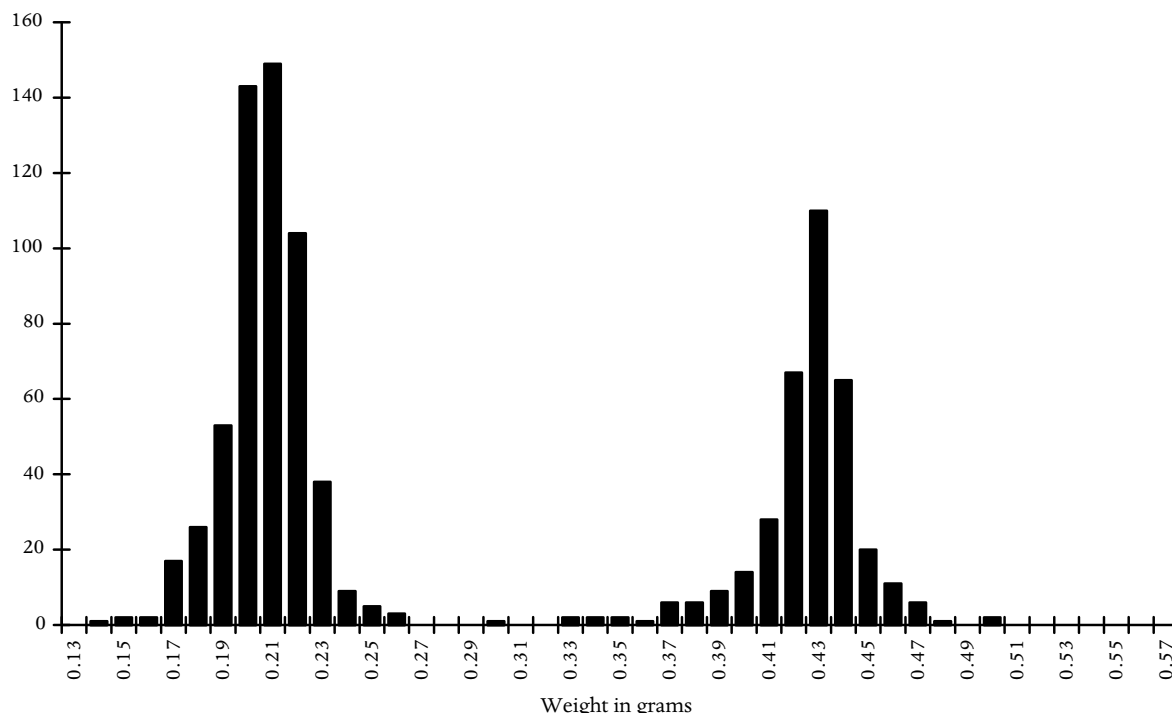


Figure 1.3: Weight histogram of the coins contained in CH 1, 3.

much of this evidence does not prove that silver was used as money. It could be argued that silver was used simply as a commodity in overseas trade. For silver to be used as money, we must turn to literary and epigraphic evidence to pin down its use in legal, religious, and political contexts. While material evidence for the use of silver before coinage is far from ideal—a number of datable finds of silver scraps would be helpful—the scattering of literary sources gives a stronger impression that silver was not scarce before coinage and that it was probably used as money in exchange.

Evidence for the use of silver bullion comes from a number of literary and epigraphic sources. The most pertinent are those which concern the Solonian laws of the early sixth century. As Kroll has recently outlined, twelve of the laws attributed to Solon involve payments in silver bullion at a time when silver coinage had yet to be invented.⁴⁶ Fines of low (two-drachma) and high (100-drachma) values are imposed on transgressors, to be paid to the public treasury.⁴⁷

The administrative office of the *naucrary* dealt in silver.⁴⁸ Payments to victors in games were also reckoned in drachmas.⁴⁹ Perhaps most important, private debt (i.e. the interest accrued) appears to have been handled by the weighing out of silver.⁵⁰ Epigraphic evidence elsewhere points to similar practices. Fines levied in Eretria during the last quarter of the sixth century were probably paid in uncoined silver.⁵¹ From the lyric poets, there are a number of metaphors of metals being used in exchange.⁵²

Weighing Systems

One aspect of the use of silver bullion as money which has not received much attention is the weighing systems which were employed. Part of the reason for this may have to do with how chaotic the

⁴⁶ Kroll (1998).

⁴⁷ Plutarch, *Solon* 21. 1 (fr. 32, 33), 23. 1 (fr. 26, 30), and 24. 1 (fr. 65).

⁴⁸ Aristotle, *Ath. Pol.* 8. 3 (fr. 79).

⁴⁹ Plutarch, *Solon* 23. 3 (fr. 143).

⁵¹ Cairns (1994).

⁵² Kurke (1995) 39 ff. Also, Heraclitos' statement (fr. 90) that 'all things are an equal exchange for fire and fire for all things, as goods are for gold and gold for all goods' indicates some notion of the use of metals as money. (See Seaford (1994) 221–5, for the development of money as a universal equivalent as a medium of exchange.)

⁵⁰ Lysias, 10. 18 (fr. 68).

multitude of weighing systems employed though the Greek world appears. In his survey of archaic Greece, Osborne lists no fewer than fourteen weight standards which were employed at the outset of silver coinage.⁵³ To this number should be added several more and the figure further multiplied to take into account differing systems of denomination.⁵⁴

As complicated as weighing systems may be, they do provide important information from which a number of inferences can be made. One important inference which Osborne has recently made is that by being minted according to the local systems of weighing, coins were not produced in order to facilitate transactions across state boundaries. The weights of coins from one city were often at variance with coins of another, and yet there is no evidence that this precluded their mixing together. The reason for this is that coins were not tokens of nominal value, but were intrinsically valuable. Provided that good scales were available, coins of differing standards could be used with ease, as the mixed hoards of the archaic period demonstrate.⁵⁵

This inference is quite important as it reinforces the economic or market-based value of coins and the importance of weighing silver, even after coinage had been invented. But what about before coinage? Have we any evidence for the practice of silver being carefully weighed to determine its value for both large and small transactions?

In answer to this, we need only go as far as the Solonian and Eretrian laws mentioned above. But further support for a growing familiarity with the practice of weighing out silver may actually come from the weighing systems themselves. There are two features of weighing systems which are of some interest: the high level of precision evident in weights of early coins, and the formalization of various weighing standards prior to the invention of coinage.

It is often overlooked that the very first coins were produced to remarkably precise weights. Electrum coins minted in western Asia Minor display a remarkable sensitivity and precision in their weights, even at extremely low levels. The smallest fraction, the 1/96 of a stater, was minted at 0.14 g., and few specimens deviate

from this weight by more than a few hundredths of a gram. Fractional silver coins display a similar level of precision and sensitivity. The weights of the 906 coins from *CH* 1, 3 are distributed so precisely that few deviate from the median by more than 0.02 g.

What should be concluded from the existence of such precise weighing systems? The first point is that it seems unlikely that such accurate and sensitive weighing systems developed overnight. Such precision and sensitivity suggest that when coinage began, highly developed methods of weighing were already in place in certain regions of the Greek world. The second point to be made is that, while the technology for precision weighing need not be complicated, the desire to weigh objects accurately to less than a tenth of a gram must come from the need for precision in handling precious material in minute quantities on a regular basis. Grain, timber, and stone are certainly not the products involved. More precious materials such as metals and plant or animal derivatives come to mind as the objects of meticulous handling. Certainly weighing systems had achieved high levels of sensitivity prior to the introduction of coinage, paving the way for minting coins to a remarkable consistency.

Equally remarkable are the number of reforms which are alleged to have occurred to weighing systems prior to the invention of coinage.⁵⁶ Both Pheidon of Argos and Solon are credited with inventing coinage and reforming the weighing systems of their respective cities. While it is unlikely that either historical figure contributed to the establishment of coinage in their respective cities,⁵⁷ their reputations as founders or reformers of weighing standards cannot be dismissed as easily. The conflation of weighing systems and coinage seems natural enough, when viewed through the eyes of the various commentators a few centuries after the fact. This should not cloud the basic conclusion that the reforms were considered important actions in their own right and that the need to have a reliable system of weights was of great importance. We might wonder whether the standardization of weights served as an important first step before the creation of coinage.⁵⁸

⁵³ Osborne (1996a) 253–5.

⁵⁴ See Grayson (1974). For a survey of recent work on weighing systems see Parise (1997) 5–9.

⁵⁵ Osborne (1996a) 251–5.

⁵⁶ Grayson (1974) 338–49.

⁵⁷ Waggoner and Kroll (1984) 326–33, 335–9.

⁵⁸ *Contra* Grayson (1980) 338–49, who believes the development of coinage helped pave the way for the standardization of weights.

Taken together, the evidence for silver production and use and the evidence for the formalization of weights should suggest that silver was probably used as a form of money prior to the invention of coinage. This is an important recognition for building an economic explanation for the invention of coinage. Coinage should be seen not so much as a radically new invention, but as a formalization of the use of silver bullion. We might imagine that coinage does not so much stand at the headwaters of the use of silver, as it is a tributary feeding on to a much wider flow of silver which in turn fed into the wider Mediterranean economy.

The Moneyed Economy

The picture of early Greek coinage and pre-coin money outlined above differs significantly from what could have been outlined as recently as a decade or two ago. During this time the material record of early silver coinage has improved greatly, forcing us to reconsider what functions early coinage could serve. At the same time, the intellectual climate surrounding money has changed, allowing new approaches to age-old problems. This paper has set out to join up these two new developments to provide a framework for continued work on how coinage developed and influenced the archaic Greek world.

At the heart of the discussion is the question of how coinage can be used as evidence for the development of the moneyed economy. As the recent generation of works has pointed out, the ‘monetization’ of the Greek world played a crucial part in the development in the social, political, economic, and cultural history of the Greek *polis*. It occurred alongside a crucial change in the way in which exchange could be carried out, and is a reflection of changes in the nature of social exchange and personal relationships. It realigned power relationships within society, and is imbued with strong moral overtones for the closed *polis* community. Within this context, it is easy to appreciate the important role coinage has to play as a form of evidence.

One of the key points which this discussion has attempted to develop is the notion that coinage should be viewed as one marker along a longer road in the use of money. This point is by no means original, as many

recent works have seen the origins of socially constructed money in traditional practices. What this paper argues is that it is possible to identify certain features of early coinage—small change, precise weights—which may have had antecedents in pre-coin money use. Silver, it has been argued, was probably the main antecedent. One result of this observation is that, far from being a radically new invention, coinage should be viewed as a simple convenience.

A second point which needs further emphasis is that when we think of a moneyed economy, we should not limit ourselves simply to seeking just one form of ‘general-purpose’ money or just one inspiration for monetization. A moneyed economy presupposes a widespread familiarity with the notion of money use, whether in the daily economic activities of the household or in the activities which brought the individual citizen in contact with civic obligations and duties. There should be little doubt that the development of the *polis* had a role to play in the spread of money use. The workings of a radical democracy such as was seen in Athens needed coins to function, as Jeremy Trevett explores in the present volume (Ch. 2). The systems of taxes, liturgies, and political pay, the increased expenditures made for public projects, and the centralization of legal bodies all contributed to accelerating the amount of money going around the *polis* and in obliging wider segments of the population to partake in moneyed exchange.

The emphasis of recent works towards the *polis* has been a great development, as it has helped to show how culturally specific was the Greek notion of money. It has also helped emphasize how unique coinage was to the Greek world. Where criticism may be levelled is in that it risks being short-sighted and fails to consider the factors external to the *polis* which may have promoted the growth of money use. Economic explanations have often been dismissed and practices external to the Greek world ignored.

While there were a number of key developments in the Greek world which were unique, the general economic climate, of which the Greek world was an integral part, was one which was shared by many others. Not all of the changes which led to the invention of coinage can be attributed to social or political developments. What has been traced above suggests that there may have been economic conditions which promoted the development and

spread of coinage. The uses of pre-coin silver in the Greek world may be roughly analogous to the use of uncoined silver in much of the rest of the Mediterranean. It may be tied into the rise in commoditization and the growing importance of regional interdependence in supplying basic and luxury goods. While we should exercise some caution in trying to relate the relatively poorly documented experience of the Greek world to the silver-rich practices of the Near East, we cannot deny how interlinked the Mediterranean had become.

Far from undermining the uniqueness of the Greek contribution, this acknowledgement should heighten our awareness of the importance of the social and political strands which contributed to the formation of Greek *poleis*. It should be conceded that economic explanations cannot explain fully why coinage was invented and why so many cities adopted it. Other societies bordering the Greek world did not develop coinage at this time and failed to do so for a century or more, yet probably experienced a similar level of trade in precious metals and possessed sophisticated weighing systems. Just because economic conditions were similar does not mean that the same route must have been taken.

In one sense, what is needed among historians is to accept the Aristotelian duality of the nature of coinage, being both a symbol and a hard commodity. Studies of money in the archaic Greek world need to balance models which emphasize the unique developments of *polis*-based society against economic models of the wider Mediterranean world. Money and coinage can be both symbolic concepts of a society, and objects which held value when removed from it. Can we accept that the notion of money use developed out of social experiences *and* that it was made possible by using a commodity which was already being used as money? We probably should.

This contribution is only one step on the longer road which lies ahead in developing our understanding of how money developed and was used in the Greek world. The key first steps have been provided by investigations which have examined the importance of non-economic exchange in the development and use of general-purpose monies. Still, the economic climate should not be forgotten, and placing coinage in this context remains an important avenue of research.

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