

PART 1

INTRODUCTION

1.1 Defining the problem

Athenians in the fifth and fourth centuries lived in an extraordinary *polis*. Governed by the the world's first well-attested democracy,¹ they created wonderful works of literature, philosophy, architecture, sculpture and other arts, and were a leading regional power. It is well recognised that the precursors of these achievements lay in the sixth century, which has been intensively studied by ancient and cultural historians for the evolution of the Athenian *politeia* (system of government) and institutions, and by archaeologists and art historians for cultural artefacts.² However, I contend that the development of the legal system and its inter-relationship with the market economy has never been properly understood, and especially not the practical causes and effects which motivated changes. Thus most scholars have passively accepted the ancient literary construct which saw Solon as the author of a comprehensive and far-sighted 'code' of laws inscribed on *axones* which remained little changed during the sixth century, and attributed to him the official introduction of the Euboian system of weights and measures. Even the revelation that ancient authorities were wrong in ascribing coinage to him (based on archaeological evidence) has done little to dent

¹ In this thesis I do not address the specific question of what defined Athenian 'democracy' and when it came into being, for which I refer the reader to the excellent assembly of views in Morris and Raaflaub 1998. I use the word democracy in the general sense of the post-Kleisthenes system of governance which included active participation by non-elites. I do not claim that Athens had the first ancient Greek democracy, cf. Robinson 1997 who raised the possibility of earlier sixth-century democracies, although the evidence is sparse and this is also very much a matter of definition.

² Often the period of the sixth century down to the Persian Wars is referred to as the Late Archaic Period. I have generally chosen not to use this convenient term for a number of reasons. Firstly, it came from categorising decorative art and sculpture. Secondly, it has a pejorative sense of 'primitive' or 'antiquated' as Grant 1988, xii noted. Thirdly, its dates are not consistently applied.

his reputation. Instead a theory has been developed to show that weights acted as *de facto* coinage in his legislation.³

I accept that Solon was an historically important person for his role in mediating a political crisis, and his changes had intrinsic, if possibly unintended potentiality. However I suggest close investigation of how law, commerce, and politics operated and changed during the sixth century at a practical level does not support fixation on him as an *heures* figure who marked out the pitch for the ensuing game. In particular, the second half of the sixth century saw the increasingly rapid expansion of commerce, mining and money supply, and the corresponding rise in the number and influence of Athenians with a range of what might be loosely termed 'business' interests,⁴ as well as the growth and importance of the 'bureaucracy' in central and local administration.⁵ This has not been adequately appreciated by modern scholars or factored into their explanations of Athenian development. Instead they have mostly restricted the key players to 'middling' hoplite farmers and the 'elite'. I believe the evidence shows the game had other important players with diverse motivations and aspirations, and a correspondingly surprising outcome. Accordingly, a more complex and evolutionary model is required.

³ The study of coinage itself has usually been (somewhat disdainfully) left to numismatists, or engulfed in cultural theorising.

⁴ There is an acute problem with terminology driven by the need to use words with modern overtones to describe activities in a non-modern context. By 'business' I mean non-agricultural activities including manufacturing, importing, exporting, mining, and lending (though of course I recognise that farming was also a business).

⁵ Again, the word 'bureaucracy' is not ideal. I use it in the sense of including magistrates and officials who had administrative duties in political or religious institutions.

1.2. Methods and limitations of evidence

Sixth-century Athenian history has been intensively studied for a long time and is therefore remarkable for its lack of scholarly consensus. Arguably the limited nature of the evidence makes it unlikely that any detailed narrative will ever find general consent, but this provides even more incentive to probe and analyse. In this thesis I have firstly set out to test some long-cherished assumptions (especially about Solon) and have paid particular attention to those that are bolstered by textual emendations.⁶ Secondly, I have accepted the trend in recent scholarship of recognising that new insights are most likely to come at the interface of disciplines. Here that has meant combining the traditional suite of history, classics, archaeology and epigraphy, with numismatics, economics, and analytical chemistry (specifically EDXRF spectroscopy). The results are challenging to much orthodox opinion, but I always give a conservative reading of the evidence, sometimes followed by a more speculative interpretation. In my discussion, I have employed an interpretative framework derived from Schein's theory of understanding organisational culture (cf. Schein 1993) to help understand the evidence. This is explained in detail in the next Part of the thesis.

As mentioned above, the biggest challenges are the sparsity and accuracy of information. Few literary sources date to the sixth century - most are considerably later. For reasons which shall be discussed, almost all the latter are heavily prejudiced, or ill-informed, or both. Contradictions abound. However, it is this same literary evidence which long ago was principally relied upon to construct a narrative (Davies 2009, 5-6). Astonishingly, while aspects of this narrative have already been disproved in detail, the 'story' has remained mostly intact in the case of Solon.⁷ This has influenced understanding of material evidence which all too often has been made to 'fit'. Another uncertain influence has been scientific

⁶ Detailed discussion of past scholarship is provided in Part 2 and the introductions to the articles in Part 3. Textual emendation (as distinct from restoration) to suit historical understanding tended to occur more frequently in works of the early and usually immensely erudite philologists such as Wilamowitz, but still happens, cf. the alterations to text and interpretation of words used in Gaius *Digest* 47.22.4 by Jones 1999, App. 2.

⁷ Few scholars now argue that Solon reformed coinage, or led or encouraged Athenian participation in the First Sacred War (Plut. *Sol.* 11.2, Paus. 10.5-6). The orthodox view is well summarised in Stahl and Walter 2009 who simply omit discussion of these matters.

study of artefacts which sometimes has little valid factual base, or needs updating in the light of more recent information or techniques. In particular, artefacts are rarely allowed to be destructively analysed any more, but tests done many years ago used equipment far inferior to that of the present day. The problem is acute with chemical testing of coins where many tests in the past only reported a limited number of elements, and normalised the results to 100% (cf. Part 4.1.2). Conservation practices and inadequate reporting have exacerbated the problems. It is thus impossible to accurately estimate the amount of corrosion suffered by crucial official bronze weights ca. 500, and in some cases even how much they weighed when excavated (cf. Part 6.1).

For coins I have jointly piloted the application of a non-destructive method of mass testing of archaic Greek coins which holds great promise (see Part 6.2).⁸ I have also spent many months amassing a comprehensive new corpus of early Attic coinage from study of coins and sales catalogues in Athens, Paris and Berlin.⁹ Inevitably there have been limitations in dealing with a diverse range of evidence while studying at a university situated on the other side of the world from much of it.¹⁰

⁸ The method (EDXRF) has long been known, but only recently has the technology been good enough to make X-ray fluorescence spectrometers sufficiently precise and accurate in the measurement of key diagnostic elements, and transportable to major collections. Associate Professor Gore (Macquarie University) proposed that mathematical allowance could be made for differences between the bulk and surface compositions. I suggested the application of the method to archaic Greek silver coins on account of their high purity of silver (cf. Part 4.1.3) and few ore sources. We worked together on the testing under Professor Gore's guidance. The method is broadly successful but will not work reliably on coins with less than approximately 93% silver or heavy corrosion.

⁹ I was aided by my wife Sharon who tirelessly went through the catalogues for me to scan and record the coins into a data base. I also spent considerable time working on catalogues held in Australia. Cf. the thanks given in Part 3. 3.

¹⁰ This entails continually ordering books through inter-library loan and waiting weeks or even months to receive them. Some older and rarer works have been unobtainable. Journals are available on-line but not the hard copies, so there is no access to embargoed recent years.

1.3 The scope of the study

This is a large topic and naturally I have had to set limits on what I could achieve during my candidature. I have chosen to concentrate my research efforts on two core aspects of sixth-century Athens where I believe existing studies have been deficient, and new evidence combined with critical analysis could allow me to offer fresh understandings of the history of the period.¹¹ These are:

1. The reliability of the tradition surrounding Solon, and especially his role in law-making.
2. The introduction, use, and economic impact of coinage, and the mining of silver.

There were several reasons for choosing these particular areas. My Masters level study of the Athenian State Calendar (unpublished 1996) made me aware of the issues surrounding Solon's laws, and I identified this as crucial to understanding Athenian history in the period. I questioned whether Athens was so far advanced of other *poleis* in law-making at the beginning of the sixth century, when she appeared so 'ordinary' in other respects. How different would the picture be if Solon's role were mostly confined to that of philosopher/statesman who tried to find a compromise in a power struggle among wealthy players for a share of government, rather than creator of a remarkably fore-sighted, comprehensive, and enduring 'code' of laws that henceforth governed all Attica? Could the legal development of Athens then be considered in a more measured fashion with laws being made in response to need, lagging instead of anticipating future requirements?

Another vital area which I considered suffered from a similar misconception was financial development. Rhodes¹² and Kroll¹³ had argued that Athens at the beginning of the sixth century was using weighed silver for a whole range of monetary purposes described in Plutarch *Solon* 21, 23 and 24. Yet the evidence seemed to suggest that Athens had a very rudimentary barter economy on a grain standard. This in turn led me to wonder how the

¹¹ Despite the title of the thesis, I have taken on board Raaflaub's admonition (1998, 31-2) to avoid what he termed 'monocausality' and 'monofocality'. I have concentrated on law and money because I see them as being inter-related, and both driving and reflecting changes to society, but not at the expense of other factors.

¹² Rhodes 1975: 11.

¹³ Kroll and Waggoner 1984, 325-33, and strongly amplified in Kroll 1981, 1998a, 2001, 2008.

system of weights and measures operated, and their relationship with the introduction of coinage, which in turn seemed to be dependent upon silver supply, especially mining. I decided that researching these questions would enable me to better consider my overarching question of how Athens was transformed into a regional and economic powerhouse in the course of the sixth century, and whether there were other people involved with hitherto unrecognised interests.

1.4 The structure of the thesis

This is not a traditional ‘history’ thesis. Instead it follows Macquarie University’s recommended model of a ‘thesis by publication’ whereby some key chapters may be refined and tested by presentation at Conferences and published, or otherwise prepared for stand-alone publication.¹⁴ Two papers have been published or accepted for publication in the Journal *Historia*, and one is forthcoming in a Festschrift to Harold Mattingly. The raw data and two further draft papers to which I have occasion to refer in the thesis have been placed in appendices.

This introductory Part identifies the research problem, and summarises the method, limitations, scope and structure of my work, and my hypothesis. Part 2 has five chapters focussed on the early years of the sixth century including a background understanding of the evidence, and discussions of the unity of Attica, the composition of society, the power structure of Athens, and an appreciation of the evidence about Solon. This is followed in Part 3 by the three major research articles mentioned above which (1) analyse the evidence about *kurbeis* and *axones* and question the involvement of Solon in writing a code of laws, (2) examine the developing use of silver in the economy and laws, and (3) analyse the use of fractional coinage. In Part 4, I use this research as a platform to discuss how law and the economy evolved and influenced political developments during the second half of the sixth century, with a tight focus on identifying the groups of people involved and the roles they played. I include studies into the embryonic beginnings of a market economy and the reasons it failed to mature, the growth and importance of silver mining, the political ‘parties’ under the Peisistratids, the events of 511-506, and their aftermath in the fifth century. Part 5 presents my conclusions.

I provide three appendices. The first of these (6.1) is a draft paper analysing the introduction and commercial use of weights and measures. The second (6.2) is the abstract and introduction to a paper with preliminary research into the non-destructive analysis of Greek silver coins using EDXRF. The work was undertaken by Associate Professor Damian Gore of Macquarie University’s Earth Science Department and myself to determine whether

¹⁴ ‘Thesis with publication’ might be a more accurate description.

an approximation of the true chemical composition of silver coins could be made using numerical correction for the effects of corrosion. The results of this study which we expect to publish shortly will lay the groundwork for intended future research. Understanding the composition of the coins, and my own detailed literature search, has aided my interpretation of early Attic coinage, especially in regard to silver sources. The final and largest appendix (6.3) provides a detailed analysis of the evidence for *axones* and *kurbeis* which more fully informs the conclusions reached in the relevant *Historia* article (3.1). It is divided into three sections containing (1) a Catalogue of the inscriptions and testimonia in alphabetical order, (2) Citations extracted into chronological order and discussed, and (3) a summary table cross referencing the Citations and Catalogue.

1.5. Hypothesis

Athens was transformed during the sixth century from a relatively unimportant, agrarian-based society with most of the population in thrall to a narrow elite, to a democratic, regional power with strong commercial and manufacturing interests. How did this happen? Explanations have tended to focus on Solon's political and legal reforms enabling and empowering the participation of the *dēmos* which, if it is defined at all, is variously considered to comprise some or all of the non-elite. The push for change has been linked to the 'rise' of the *polis* driven by a 'middling ideology' of Assembly-attending, hoplite farmers.

I do not believe these explanations are adequate. I contend that Solon's changes led directly to a limited widening of the ruling elite based on wealth as well as lineage, and the ranks of the hoplites were limited to those people (*hippeis* and *zeugitai* under Solon's property classifications) who ruled through monopoly of the law and the magistracies. In addition, his abolition of the hektemorage system significantly improved the economic well-being and property rights of some sub-elite farmers, and his creation of the *Hēliaia* and right of any person (*ho boulomenos*) to take legal action (including on behalf of another in certain circumstances) had important long-term consequences. However, in my view Solon did not write a comprehensive code of laws, and he did not introduce a system of weights, measures and currency. Instead, the critical changes occurred in the second half of the sixth century under the tyranny of Peisistratos and his sons. Learning from two abortive attempts, Peisistratos sought support largely from people outside the Athenian elite both domestically and externally. Once firmly in power, he suppressed aristocratic independence and domination, opened up Athenian horizons beyond Attica, and facilitated commercial activity. This combination of expanding economic activity and political stability raised the incomes of a broad range of people, both in the farming sector and among people at all levels of society engaged in investment, mining, trade, shopkeeping, and crafts.

Centralised State control and security had two other vital ramifications. Firstly, combined with technological innovation it provided the opportunity to exploit the enormous silver deposits at Laurion. This became a major export industry, but also monetised and enriched the domestic economy. Importantly, it resulted in the creation of a group of entrepreneurs

with substantial cash resources, sophisticated organisational skills, and wide trade contacts. Secondly, it led to the increasing competence and entrenchment of minor magistrates responsible for institutional and local administration.

It is against this background that the Kleisthenes/Isagoras struggle at the end of the sixth century can be better understood. Many of those with vested landed interests hankered for a return to the 'good old days' of almost unfettered control of their own local affairs, but their resurgence after the expulsion of the increasingly autocratic tyrant Hippias was immediately accompanied by a return to a culture of infighting and repression. This was unacceptable to a large proportion of society who were now well enough off to feel entitled to have a say in affairs, or at least to resent elite domination which threatened their modest political and legal rights. Kleisthenes needed support just to return from exile, and was sufficiently pragmatic and experienced in the wider world (like Solon and Peisistratos before him) to realise what hitherto unthinkable compacts and compromises he needed to make. The various sub-elite interest groups needed a leader who could unite them, but were determined to have a future say in affairs. Under this marriage of convenience, the anonymous leaders of the coup expelled Isagoras in 508/7. They consolidated their success by dividing and limiting the hereditary power of the Eupatridai, and gave themselves a role in government, law and cult. The implementation of this programme of reform was only possible because of their wide community support and practical skills in administration and business.

I accept that this hypothesis may be considered somewhat radical. However, it offers an explanation to many puzzles, including who organised the 'leaderless' uprising against Isagoras; how and why a comprehensive dismantling of the old power structure occurred that appeared to favour no one (not even Kleisthenes); why Kleisthenes then disappeared from the pages of history; and how the state became so well organised financially and militarily in such a short space of time. It should be remembered that economic power and organisation underpins military power, and that business people and bureaucrats always prefer to operate behind the scenes. Athens had entered the age of money.

To test this hypothesis, I will establish the political, legal and social situation in Athens and Attica ca. 600. I will examine the traditions concerning Solon's lawmaking, concentrating on the alleged publication of his laws on *axones* and *kurbeis*, and the use in them of drachmas

for payments and fines, then the advent and impact of mining and minting. Based on these understandings, I will re-examine the events at the end of the sixth century.

PART 2

BACKGROUND

This Part of the thesis investigates the nature and problems of the evidence, and key aspects of the political, legal, economic and social circumstances of Athens and Attica at the beginning of the sixth century. It provides the broad background for my detailed areas of investigation.¹ There are five chapters:

1. I begin by evaluating how the various types of evidence can be interpreted, briefly summarising the main approaches and their limitations. I suggest an adaptation of Edgar Schein's model of organisational culture that can potentially synthesise literary, archaeological and cultural evidence, and sometimes offer a deeper understanding of causality than traditional models.²
2. Turning to the evidence itself, I investigate whether Attica was unified ca. 600 and the extent to which it was centrally controlled by Athens. The question is particularly important given Anderson's recent hypothesis that synoikism only occurred late in the sixth century. I suggest this should be rejected. However I find that while the inhabitants of Attica did consider themselves Athenian, certain peripheral areas remained beyond the effective control of the authority in Athens until the time of the Peisistratids.
3. This leads me to explore the way in which Athenian society was structured. I propose a new understanding of the hektemorage system, and reject the hypothesis of a 'middling ideology' derived from egalitarian hoplite service driving change, arguing that hoplite service had not yet been extended to a broad class of Assembly-attending 'citizens'.

¹ I endeavour to represent major differences in scholarly opinion, and my reasons for subscribing to a particular view or proposing a new interpretation, but space does not permit me to exhaustively investigate every nuance. I also do not provide a formal literature review because each of the research articles in Part 3 contains its own review as it pertains to that discussion.

² Schein has written extensively on the subject but see especially Schein 1993.

4. Based on the foregoing, I consider how power was held and exercised by the various stakeholders. I demonstrate that a group of Eupatridai qualified by wealth and birth shared legal and religious control, and competed among themselves for influence and prestige both within and without formal state institutions. The exclusiveness of this group and their exploitation of the legal system led to deep resentment, but only some were in a position to do anything about it.
5. Finally I ask what we really know about Solon. This allows me to develop ideas in the next Part on what reforms and laws he personally instigated, and how much should be uncoupled from his legend.

2.1 Observing and understanding the evidence

Endeavouring to fully understand the sixth century based on the available evidence is an intractable problem with no empirically 'right' answer. There are three traditional approaches which might broadly be classed as literary, cultural, and archaeological.³ Each has strengths and weaknesses which I will discuss before suggesting how they can be used together to sketch a more complete picture, albeit with disconcerting blanks and a good deal of subjective colouring.

Ancient historians traditionally derive their understanding from the writings of the Greeks themselves through reading and analysing a large corpus of texts, fragments and epigraphical material. These include epic and lyric poetry, literature, speeches, biographies, skolia, commentaries, grammatical treatises, lexica, abundant works on history, geography, mathematics, medicine and dozens of other specialised subjects, as well as inscriptions.⁴ The principal problem in using these writings for the study of the sixth century is that they mostly derive from after the period, are very limited, and have been selected and recontextualised by later writers.⁵ Authors who wrote much later than the events they described such as Plutarch and Julius Pollux did not adequately comprehend how times had changed.⁶ Thus they could simply assume that coinage was always embedded in the economy, leading to fundamentally wrong interpretations about the operation of the Athenian economy and the nature of the conflict confronting Solon. Or they did not understand the factual errors and biases in their own sources and ended up trying to reconcile the irreconcilable, such as the clearly ahistorical role of Theseus in the synoikism of

³ The historiographical aspects of the following summary are partially derived from Davies 2009, though he does not use these one word classifications, and Morris 1998a and b. I greatly admire Morris' erudition and his approach to and synthesis of the evidence. However, I do not agree with his conclusions in relation to Athens, and especially his "middling ideology" (first espoused in Morris 1996), which seem to me not to follow his stated desire of "paying fanatical attention to chronological...distinctions" (1998a, 79), and instead retrojects later literary constructs.

⁴ Dickey 2007 follows the evolution of these forms of scholarship. I place inscriptions last as they form such a limited, though valuable source (especially because of their chronological proximity) for most of the sixth century. They are of course on artefacts which provide a (sometimes limited) physical and chronological context.

⁵ Necessitating constant attention to *Quellenforschung* and *Quellenkritik* – respectively the search for, and criticism of sources.

⁶ Their value lies in their use of sources which are now lost.

Attica. This is further complicated by the difficulty in assessing whether their rationalisations were a deliberate distortion, or they were simply following a tradition which they had no reason to question.⁷ The notable exception is the poetry of Solon, but even it is lacunose. Out of the “hundred very graceful verses” in Solon’s poem ‘Salamis’, Plutarch (*Sol.* 8.2-3; *Moralia* 813 f) provides six lines.⁸ We cannot even be sure that all the Solonic corpus of poetry was his (Lardinois 2006). Finally, some historians have employed a strategy of combining all the ‘archaic’ stories and fragments from different times and places into one composite picture. While this is understandable given the sparsity of evidence, it has the potential to mislead.⁹

Cultural historians endeavour to understand how contemporaries understood and made sense of their world as reflected in their religious, political, legal, family and cultural institutions. They do this through ‘reading’ the ‘signs’ inherent in every artefact and behaviour from humble cooking pot to State festival. As Morris (1991, 68) put it, the material culture can be read from the standpoint of being “a non-verbal language which archaic Greeks used to construct images of how they wanted the world to be, and that the archaeological record is an imperfect residue left behind by these activities”. Undertaking such analyses has yielded many valuable, indeed vital insights, but the great danger is subjectivity. The problem is of course recognised by practitioners, but it is difficult to overcome. Frequently the result is an extreme form of social constructivism, so that “the questions they ask, the methods they apply to examine those questions, and the standards of proof that they accept in answer to them are determined by their community of practice” (Greaves 2010, 32). It has to be said that the work of many cultural historians is overly full of jargon and peculiarly value-laden assumptions.¹⁰ Arguably too much can be read into

⁷ Thomas 1989 discusses the lines of transmission. For the ‘remaking’ of Athenian sixth-century history following the reforms of Kleisthenes, see Anderson 2003.

⁸ Diogenes Laertios 1.61 credits Solon with 5000 lines “about Salamis and the Constitution of Athens”, but only preserves the same six lines. Two of the same verses are also quoted by later commentators.

⁹ As Morris 1996, 25-8 pointed out. The sixth-century Athenian narrative is combined with information from Homer and other poets, tyranny in Korinth and so forth, which blurs the distinction between the sources, the times they refer to, and their discrete histories. I will later argue that it is particularly dangerous to import descriptions in Homer and developments in archaic Sparta to Athens because it encourages an overly militaristic interpretation.

¹⁰ I suspect that sometimes cultural historians are so wedded to their theoretical stance that they do not recognise their own (often very condescending) biases. Thus Dougherty and Kurke 1998, 5 could write of an “*old-fashioned* historical approach to literature” (my emphasis), and compare it unfavourably to “[c]ultural poetics [which] sees texts as sites for the circulation of cultural energy”. A bigger problem (in my view) is a

everyday activities which probably evolved more by happenstance than design. So while we should be alert to the semiotics associated with the choice and positioning of grave goods, the patterns of disposal of refuse arguably followed a system created by convenience. Contra Morris, I suspect such decisions were not of particular cultural importance to householders,¹¹ and were made by those with administrative power and responsibility for solving local problems in a practical way. For the most part, people would have done what they were told without thinking about it too much. It is especially tempting for cultural historians to look to analogy for understanding, especially of 'primitive' societies.¹² In fact, it is very difficult to find a meaningful modern analogy for the pre-industrial world, and even more difficult to account for cultural differences, as seen through our eyes.¹³ Likewise, experimental archaeology or anthropology can have certain practical value, such as establishing how far a hoplite could charge in full armour before collapsing from exhaustion,¹⁴ but may be less useful in other respects. For instance, a team based in the small French town of Melle has been trying to recreate ancient Greek minting techniques using ancient technology, but at the point of writing has failed to replicate a convincing Athenian tetradrachm.¹⁵ Even if they succeeded, can we be sure this was the way such coins were minted in Athens? It is also worth pointing out that reading contemporary theories of how society ought to be into the past, whether overtly or subconsciously, is an ongoing

tendency to elevate metaphysical arguments over common sense. This allowed von Reden 2002, 54 to write (apparently seriously): "At least part of the reason why silver became the preferred metal for Greek civic coinages was its symbolic opposition to the elitist identification with pure gold". Notwithstanding these criticisms, I am sympathetic to the cultural historical approach as an additional means of understanding the literature.

¹¹ Morris 1998a, 5 argued that "[f]ew things could be more important to people than what they throw away and where they do it".

¹² Cf. the discussion in Foxhall 1997, 118-9 of the pitfalls of this approach – "Ethnography needs a health warning for ancient historians". For instance, Manville 1990 found dozens of points of comparison with a miscellany of African and other tribes, but provided no other details about them to allow the reader to understand whether they really are useful analogies.

¹³ Dougherty and Kurke 1998, 3 described how "Geertz discovers, for example, what being a Balinese is "really like" through his careful (and highly stylized) analysis of a public spectacle – the cockfight...[which], in Geertz's analysis, reproduces the social matrix of the Balinese". Apparently "[t]his kind of contextual analysis can help us interpret the rituals, spectacles, and ceremonies of archaic Greek culture". Cock-fighting was extremely important at Athens, but the analysis of the ancient evidence by Csapo 1993 seems to me to be far more pertinent.

¹⁴ Presentation by Chris Matthew to the Symposium on Warfare in the Ancient World, at Macquarie University, 26 March, 2011.

¹⁵ Presentation by Raymond Collet, Centre d'Etudes Alexandrines, CNRS, Alexandria, Egypt to the 14th International Numismatic Congress, Glasgow, 3 September, 2009.

danger for all historians. Thus most writers in the colonising age of the nineteenth and early twentieth century could find the notion that ‘laws equal justice and civilisation’ very appealing, and hold Solon to be the paradigm of such achievement.¹⁶ Marxists could envisage him intervening in a class struggle.¹⁷ Western democrats could posit him championing democracy.¹⁸ Yet arguably each of these interpretations is flawed precisely because it derives from a partisan theoretical stance.

Archaeologists seek to uncover and interpret the physical past. Fortunately this has evolved beyond an antiquarian interest in collecting (and sometimes pillaging) beautiful and interesting things, but the legacy of such activities has sometimes had an unacknowledged influence on historical thought. For instance, our understanding of numismatics has been severely prejudiced by the collecting habits of the past, which have filled museums with the ‘best’ available specimens of mainly large denomination coins. These have provided most of the material used in corpuses, notably Seltman’s 1924 work on Athenian coinage, which is yet to be replaced for the archaic issues.¹⁹ It includes only a small proportion of ‘fractions’ (denominations of a drachma or less), and has major interpretative problems. Kim (2002) recently changed our understanding of the role and pivotal function of fractional coinage in the domestic economy of a *polis*, and I follow his lead for Athens in this thesis (cf. Parts 3.2 and 3.3). One of the most important contributions of archaeology has been to uncover sites and analyse activities carried on over different periods of habitation. Often we would have no knowledge (or very little) of such activities from other sources, especially at a domestic level, and away from the important centres. Archaeology has also succeeded in establishing relative chronologies from stylistic changes in types of objects (especially pottery for Athens) linked to occasional termini (mostly imported artefacts and stratigraphy) though these are

¹⁶ Clearly *eunomia* is a central concern of Solon’s poetry, but cf. Plutarch *Sol.* 4.2-3 on the interchange between Anacharsis and Solon in which the former claimed that written laws were “just like spider’s webs – they hold the weak and delicate...but would be torn to pieces by the rich and powerful”, to which Solon naively replied that the laws would hold if they were fair and advantageous to all.

¹⁷ Arguably the most well regarded Marxist historian who wrote about the period was de Ste. Croix (cf. 1981 and his book entitled *The class struggle in the ancient Greek world*).

¹⁸ Bury 1900, 183 – “The Athenian commonwealth did not actually become a democracy till many years later; but Solon not only laid the foundations, he shaped the framework”. Wallace 1998 is a notable recent example among many others.

¹⁹ At the time of writing, I am negotiating an agreement with Dr. K. Sheedy at Macquarie University to collaborate in writing a replacement to Seltman’s book with a working title of *Archaic Athenian Coinage*. However, I note for the record that all coin data collection in this thesis was carried out by me (with the assistance when overseas of my wife) and the research and views expressed are my own.

not as solid as we may like.²⁰ However, there are a number of problems and limitations with using the archaeological record to build hypotheses. Firstly, the archaeological record is heavily skewed toward what people chose to preserve and what has been excavated in cemeteries and sanctuaries. Secondly, there is a danger in extrapolating from particular excavations both geographically and temporally.²¹ Thirdly, it is unreasonable to expect too much chronological precision from archaeology which generally works in quarter century blocks for the sixth century, and because many artefacts lack the necessary context for full understanding. Fourthly, interpretation of archaeological finds is just as subjective as interpretation of texts. Finally, the great problem for any study of sixth-century Athens which will be revealed time and again in this thesis, is the tendency to make possibly specious connections with literary evidence (the so-called ‘positivist fallacy’).

In the last forty or so years, with the recognition that no one approach can satisfactorily solve the issues by itself, there has been a “convergence” as Davies (2009, 13-19) put it “of the three currents of activity”. Study has grown more complex with the tools of understanding now including genre, intertextuality and gender to name but a few. It is becoming increasingly clear that simple narratives (at the level of serious scholarship) ought be impossible to sustain for the sixth century because we really ‘know’ so little. At best, we are stringing together bits of information which we examine microscopically, yet myopically, through myriad lenses. Most of all I contend that some scholars passively accept too much of the accepted narrative reconstruction of the past. Thus Stahl and Walter (2009) could still write a didactic account in the generally excellent 2009 *Companion to Archaic Greece*, in which they told an abridged story of ‘Athens’ in much the same way as did Bury in 1900, and Ehrenberg fifty years ago.²² Solon’s laws were presented as being written on *axones*, with a ‘reconstruction’ (Fig. 8.1) from an unattributed source,²³ and multiple references to a single author who I suspect would not endorse the views advanced.²⁴

²⁰ Athens mostly lacks more precise dating from organic remains (carbon 14 dating, dendrochronology) and association with outside termini (destruction of sites in the Near East, colonial foundations).

²¹ Frost 1994, 174 pointed out that “[d]emes that are almost unmentioned in our literary testimony are the location of cemeteries that have provided the bulk of our evidence from graves while famous demes like Archarnai scarcely exist archaeologically”.

²² Albeit in much less detail. Bury 1900. Ehrenberg 1968.

²³ Actually a small modification of Stroud 1979, 23.

²⁴ Stahl and Walter 2009, 161, n. 14, with three references to Hölkeskamp, and one to “this vol. ch. 28” which does not discuss *axones* at all. As my article (Part 3.1) on the subject demonstrates, there are a number of important views which could have been considered, but are not even mentioned.

What can we make of these approaches? At the level of trying to comprehend **what** happened, the answer is simple (in approach, if not application). An ancient historian should use all the available sources of information, and make judicious decisions about which information to privilege. Using an example discussed in this thesis, when Plutarch says in his *Life of Solon* that Solon reformed coinage and denominated his laws in drachmas,²⁵ but archaeology informs us that there was no coinage in Athens in the early sixth century, we must make a choice. Unless we can convince ourselves that archaeology simply has not uncovered the evidence, or that Plutarch really meant something else when he used the word drachmas, then we must conclude that Plutarch was wrong. What does that say about Plutarch's evidence on other matters? It certainly does not mean that he is always wrong, or that we should not use him, but we must make a judgment on the reliability of his sources, and his understanding or recontextualisation, and his purpose(s) in relating the account.

To understand how and why people made the decisions they did, some interpretative framework is necessary. This needs to go beyond the 'post-modern' recognition that all understanding is a matter of perspective and filters. *Reductio ad absurdum*, it is impossible to prove anything, so why bother? At the other end of the spectrum, the 'German School' approach exemplified by *Wissenschaft* – establishing the scientific basis of knowledge, and endeavouring to stick to the 'facts' with no interpretation – is unsatisfactory because it simply avoids the hard questions (cf. Greaves 2010, 33-4). Provided we acknowledge that every interpretation is subjective and limited, it is legitimate to challenge orthodox views and strive for a better understanding of the evidence. The particular problem which interests me here, and for which I believe current frameworks are deficient, is assessing whether what we are told in the dominant literary sources accorded with actual practice.

An approach that offers a potential way forward comes from how modern businesses are analysed. A corporation has an 'organisational culture' which Edgar Schein (1993, 373-4) defined as:

A pattern of shared basic assumptions that the group learned as it solved its problems of external adaptation and internal integration, that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way you perceive, think, and feel in relation to those problems.

²⁵ Coinage reform – 15.4; laws in drachmas – 21, 23 and 24. This is discussed at length in Part 3.2.

Schein identified three levels in organisational culture. At the outer, visible layer are “artifacts and behaviours”. These are the things that can be seen, felt and heard by a visitor, and include the offices and furnishings, awards, dress code, and how staff interact with one another and outsiders. Underneath at the second level are the “espoused values” including company mission statements, slogans and press releases. At the deepest level are the “assumptions”. These are the actual values that not even the personnel themselves might consciously identify. They form through survival in an organisation, and grow over time. Crucially, they are not necessarily the same as the organisation’s stated or desired values, though they may be. Schein’s model helps explain the often paradoxical behaviours of an organisation which professes one thing, but does another. Also, the difficulty for outsiders in assimilating and understanding what is really going on, and especially in bringing about desired change.

Much of this model can be adapted to understanding an ancient *polis*. We too are visitors, and being outsiders, we do not immediately understand the culture. We have to start at the first level by observing artefacts and behaviours. As discussed earlier, archaeologists have uncovered much of the physical environment which surrounded people and provided them with sensory stimuli as they carried out their activities. Physical objects were created or reworked as manifestations of the dynamics of living in that environment and culture. There were domestic residences, shops, market places, and buildings with a public or religious function. There were representations in art of one sort and another including sculpture and painting, and there were public and private religious expressions including rites and ceremonies,²⁶ dedications and other offerings, initiations, burials, and games. Superficially we might make ready progress with streets and homes and other buildings, but not always.²⁷

²⁶ There is an extensive body of scholarship on the meaning and distinction between words used to describe religious and cultural practices, and I do not propose to delve deeply into it here. For a useful introduction see Csapo 2005. Broadly defined, rites consolidate various forms of cultural expression through the acting out of planned, and often elaborate activities involving participation and audience. A ceremonial is a combination of several rites in one event or on one occasion.

²⁷ Consider the structure known as Building F in the Agora, constructed in the third quarter of the sixth century, which has been variously interpreted as “the official residence of the prytaneis of the Council” or a residence for the Peisistratids (Shear 1994, 230-1). Shear dismissed the former interpretations on the grounds that the Prytany system was not introduced until 462 (cf. Rhodes 1972, 17-19), but that is now considered incorrect. Attractive as the latter alternative might be, there is nothing in the physical evidence to actually link the building to the Peisistratids.

Symbols are harder as they capture systems of meaning and shared codes of behaviour,²⁸ such as the dove as a symbol of peace. It is dangerous to assume we know what a symbol means, especially when more than one is overlaid, or its meaning deliberately traduced.²⁹ To take a sixth-century example, what did the image of a wolf conjure up? On one hand, the wolf was a sufficiently serious pest to be worth singling out for bounty (Plut. *Sol.* 23.3), but on the other hand, it was used as a metaphor to describe Achilles and his Myrmidons (*Il.* 15.155-64), was implicit in the name of the legendary Spartan lawgiver Lykourgos, was part of the name of the residence of the Polemarch (the Epilukeion - *Ath. Pol.* 3.5),³⁰ and Solon used it in a portrait of heroic self image.³¹ And when Solon “stood with a mighty shield” defending rich and poor alike, was he channelling Ajax?³² Patterns of behaviour can also be identified through archaeology and literary texts, and used to understand a range of activities, but again there are limitations. It is all too easy to read ritual into something we simply do not understand.

At the second level, the ‘values’ which have a good claim to being current in the sixth century can be identified in several forms. There are the various types of oral poetry, including myths, sagas and legends exemplified by the *Iliad* and *Odyssey*,³³ and works which might be described as intended for elite discourse such as Sappho, Hesiod, and in the Athenian case, Solon. There are also laws, subdivided into customary (or oral), and written.

²⁸ A symbol can be defined as an object or act which serves to convey meaning usually by representing something else.

²⁹ Might the combined image of a dove, an olive branch, and a gun suggest to a future historian that delegates to the United Nations participated in the ritual hunting of doves with handguns in olive groves?

³⁰ As this is my first mention of a work that will be frequently cited, I will state my view on the contentious question of its authorship. I consider the *Athenaion Politeia* should be ascribed to Aristotle because (a) it was at least written under his guidance (if not in his style) – he says explicitly (*Eth. Nic.* 1181b) that from his collection of the constitutions (τῶν συνηγμένων πολιτειῶν) he will provide his political theories, and (b) no ancient authority doubted his involvement. Having said that, I have little doubt that unknown researchers probably did much of the work. See the introduction to Rhodes 1981, and compare Gehrke 2006 who concluded that common authorship of the *Ath. Pol.* and the *Politics* cannot be excluded.

³¹ West F36, 26-7 (from *Ath. Pol.* 12.4), “Wherefore I stood at guard on every side/A wolf at bay among a pack of hounds”.

³² West F5, 5 (from *Ath. Pol.* 12.1 and Plut. *Sol.* 18.4). Solon was traditionally associated with Salamis, as was Ajax – cf. *Il.* 2.557-8, lines which Plut. *Sol.* 10.1 claimed most writers said Solon had inserted. See also Plut. *Sol.* 10.2-4.

³³ I broadly define a myth as usually being a narrative of some imagined event employed to explain the origins of something, or to underpin belief in the benefits of a practice not supported by fact, and a saga is an historical narrative recounting the heroic adventures of a group and its leaders. They both should be distinguished from a legend which is based in history, but embellished when handed down.

Finally there are social behaviours, interactions and arrangements (such as *xenia* - guest friendship).

At the deepest level of Schein's model we need to ask whether the ostensible 'values' differed from reality, and to whom they applied. If so, how would this change our understanding? In this thesis, and especially in the discussion (Part 4), I find that asking these questions helps me to better understand the evidence.

2.2 When was Attica unified and centrally controlled by Athens?

It was once thought the unification of Athens (*synoikismos*) took place in the so-called 'Dark Age' from the tenth to the eighth century, with an internal recolonisation of Attica by urban Athenians reoccupying the countryside and bringing with them a sense of Athenian identity.³⁴ This view does not have many adherents today, but the orthodox narrative still envisages Athens controlling all of Attica throughout the sixth century, with the synoikism having been achieved by at least the end of the seventh century. Recently, this has been challenged by Anderson who proposed that all Attica was not integrated into the *polis* (or 'region-state' as he nicely puts it) of Athens until the very end of the sixth century.³⁵ Is this justified?

Archaeology can only help a little as "[e]vidence from settlements and sanctuaries is scarce", and mostly from burials (Houby-Nielsen 2009, 192). It does seem clear there was a decline in population density and associated cultural activity in the seventh century, and archaeological survey does not support increased agricultural production until late in the sixth century (at the earliest).³⁶ Support for unification has been claimed from the alleged homogeneity of pottery styles in Attica, with the middle Proto-Attic ('black and white') style of ritual vases of the late seventh century giving way to early Attic black Figure ware in the early sixth century. However, Proto-Attic was a fusion of Attic, Corinthian and east Greek styles and techniques, "clearly designed for ceremonial purposes and confined to the Athens-Piraeus-Aegina-Eleusis region", and thus indicative of cosmopolitan influences among the aristocracy.³⁷ Sculpture, especially *kouroi* and *korai* followed a Cycladic/Cretan tradition, but this too was typical of the wider Greek world among the wealthy elite, and the

³⁴ This traditional view was boosted by the demographic conclusions of Snodgrass 1980 who proposed a dramatic population increase in the eighth century. For a useful discussion see Hall 2007, 220.

³⁵ Anderson 2003, largely supported by Hall 2007a among others, though doubts had been raised by earlier scholars, cf. Frost 1994.

³⁶ Forsdyke 2006 summarises the evidence with references, though she would still like to use literary evidence to support a case for more intensive agriculture through the input of additional cheap labour.

³⁷ Houby-Nielsen 2009, 199-200. He explains that the nature of the burials reflected Homeric values as practiced from the Greek east to west. Broader pan-Hellenic trends can be found among the general population. For instance, by the early sixth century, Athenian houses and shops "were typical of the rest of Greece" (Morris 1998a, 23 with references).

earliest example at Athens was the Dipylon head ca. 600. There were regional differences later in the century but these can be attributed to developments in workshops (cf. Boardman 1978, chapter 3).

Frost (1994, 173) noted a grave inscription (IG I³, 976 = SEG X 431) dated by Jeffery (1962, 133) to ca. 560-50 which made a distinction between “a man of the *astu* or a *xenos*”. He took this as indicating that inhabitants of the city thought of those in the country as foreigners, but other interpretations are certainly possible. The word *xenos* had a considerable range of meaning, including in Attic a term “politely used of anyone whose name was unknown” (LSJ), and Kleisthenes later enfranchised *xenoi* who evidently had been long-term residents at Athens (Arist. *Pol.* 3.1275b, 34-7).

Manville (1990,76) argued that epigraphical evidence for synoikism being in place at least by the late seventh century is found in Drakon’s law on homicide, conventionally dated to 621/0 (though the actual excerpt was reinscribed in 409/8 - IG I³, 104). The inscription used the word *Athēnaios* (Athenian) and the term ‘frontier markets’ to define territorial limits, but Anderson (2003, 21) pointed out that “the clause does not state explicitly where these territorial limits actually lay at this time, and we still cannot assume they yet encompassed the entire peninsula of Attica”.

The earliest literary evidence comes from Solon (West *Solon* F4) who feared the *polis* was being destroyed by the greed of the townsmen (*astoi*). This may be taken to imply that he equated the extent of the *polis* with the city (Hall 2007a, 224), but again that is not the only possible explanation. I note the same fragment continued two lines later to mention the leaders of the *dēmos*. It is clear from the context that the *dēmos* are a subset of the total population of the *polis* (Donlan 1970, 388), and the *astoi* could be considered likewise. More revealing is the comment in Thucydides (1.126.6) who suggested that had Kylon attempted his coup during the Diasia festival, he would have found the “whole people” celebrating with sacrifices “outside the city” at Agrai on the Ilisos River. Hall (2007a, 224) pointed out “the story suggests a rather localized focus on the city of Athens and its immediate hinterland rather than a more pan-Attic context”.³⁸ However, it is unnecessary to suppose that the “whole people” had to include the entire rural population of Attica, rather than those who either lived in the *astu* or who had come to Athens for the festival.

³⁸ Also of interest is that Thucydides described the sacrifices as “a number of bloodless offerings peculiar to the country”.

Ancient writers from the fifth century onward were unanimous in their belief of early synoikism.³⁹ In particular Thucydides, who is generally considered to be one of the most reliable sources, attributed the synoikism to Theseus when discussing the reluctance of country dwellers to move into the *astu* in the face of invasion in 431 (2.15, 1-2). The passage is worth quoting (slightly abridged) because it allows a clear understanding of many aspects of the problem:

[1] From very early times [living in the country] had been especially characteristic of the Athenians. Under Kekrops and the first kings, down to the reign of Theseus, Attica had always consisted of a number of independent *poleis*, each with their own *prytaneia* and archons...Sometimes they even waged war against [the king of Athens], as in the case of the Eleusinians with Eumolpos against Erekhtheus. [2] In Theseus however, they had a king whose intelligence matched his power, and one of the chief features in his organisation of the country was to abolish the *bouleuteria* and magistracies of the *poleis* and to merge them in the single *bouleuterion* and *prytaneion* of the present capital. Individuals might still enjoy their private property just as before, but they were henceforth compelled to have only one political centre, namely Athens, which thus counted all the inhabitants of Attica among her citizens, so that when Theseus died, he left a great *polis* behind him. Indeed, from him dates the Synoikia [festival]... (Trans. adapted from Strassler ed. 1998).

The most obvious problem with the account is the attribution of the synoikism to Theseus who, if he really existed outside of myth, was far too early for this political union.⁴⁰ The claim that Athens became a great *polis* after the synoikism is flatly contradicted by the fact that Athens could not muster the military strength to win the war for Salamis against a comparatively puny rival. There is nothing to precisely date the Synoikia festival, though it presumably must predate the Kleisthenic tribal reforms of 508/7 because of the participation of one of the old tribes (Dow 1953-7, 22-3). The mention of Eleusis is important because it is part of a tradition attesting a period when Attica was not unified.⁴¹ A further example may be detected in *Od.* 7.80-1 which separately mentions Marathon and Athens,⁴²

³⁹ References collected in Moggi 1976, 44-62.

⁴⁰ In myth, Theseus was contemporary with King Minos of Crete.

⁴¹ Athenian tradition held that there were twelve *poleis*, though only the names of eleven were preserved, cf. Philokhoros *FGrH* 328, F94 = Strabo 9.1.20.

⁴² Other Homeric evidence comes from the *Catalogue of Ships* (*Il.* 2.546-68) in which only Athens was mentioned, but this was considered even in antiquity to have been a sixth century interpolation attributed variously to Solon and Peisistratos, cf. Strabo 9.1.10.

and yet another in the story of the slaying of the Pallantidai (Philokhoros *FGrH* 328, F108).⁴³ It is possible to justify downdating the incorporation of Eleusis into the Athenian *polis* to the end of the seventh century using the *Homeric Hymn to Demeter* (318, 490) which refers to an Eleusinian *polis* and *dēmos*, and was composed (probably) in the first half of the sixth century, without any reference to Athens.⁴⁴ However, the lack of mention of Athens is an argument *ex silentio* as Lavelle (2005, 256, n.60) pointed out, and does not constitute proof that Athens was not in control.⁴⁵ In a similar vein, Herodotos (1.29-34) in his tale of Solon's story to King Kroisos about the participation of a certain "Tellos the Athenian" in the "battle between the Athenians and their neighbours at Eleusis", could just refer to a battle at Eleusis, maybe in a fight with Megara.⁴⁶ Miles (1998, 22) noted there was "a sanctuary on the north slope of the Akropolis by the seventh century B.C., presumably dedicated to Demeter as it was a century later". A sacred way between Athens and Eleusis is possible for the seventh century but there is no actual evidence for it so early. The archaic Telesteria at both Athens and Eleusis were dated by Miles (1998, 28) to well into the sixth century, and almost certainly after Solon.

Frost (1994, 173) contended that Thucydides was not actually describing a "*synoikismos* – a migration from the country into the city – but a *sympoliteia*, in which all inhabitants stayed in their towns but agreed to use the same laws". Even if that is correct, it is a semantic distinction lacking ancient authority. It leaves unresolved the issues surrounding the timing, and the extent of the territory meant by the word 'Attica'.

Parker (1996, 24-7) made an attractive hypothesis centred on the control of cult as the unifying force. He noted that Athens had retained a population centre, albeit a small one, continuously since Mycenaean times, and was the most important cult centre. He suggested

⁴³ The story seems to record a battle between the deme (*polis*?) of Hagnous and Athens, cf. Kearns 1989, 181, and Harding 2008, 54-5.

⁴⁴ Miles 1998, 22 noted the "hymn can only serve as a *terminus ante quem* for the Mysteries". West 2003, 6-7, contended the "story was well known to poets and vase painters from around 600 BC", and, based on its internal knowledge of Hesiod, the Homeric epics and the Hymn to Aphrodite, stated the "poem may be dated with some probability to the first half of the sixth century" (p.9). I suspect from its mention of rulership by *basileis* (150-2) that it should be dated close to 600 – see next Section.

⁴⁵ A pre-Solonian dating of the Mysteries is contentious. It depends upon accepting that a Solonian law cited in Andokides 1.111 that the *Boule* met in the Eleusinion after the Mysteries is genuinely Solonian, and that the Archon *Basileus* had charge of the Mysteries so early (*Ath. Pol.* 57.1-2).

⁴⁶ Cf. Stanton 1990, 14. Lavelle 2005, 255, n.60 notes that Tellos need not have been contemporary with Solon, and could have been an abstract given the synchronicity of his name (means 'end' or 'fulfillment') and the point of the story (achieving a happy end to his life).

that over time Athens brought other cult centres such as Sunion, Brauron and Eleusis under its control (though he did not suggest when this happened). The most important cult figure was the King (*Basileus*),⁴⁷ with Tribe-kings (*Phylo-basileis*) being appointed by the four Ionian tribes. Priesthoods were keenly sought by aristocratic *genē* because they acted as *de facto* magistracies.⁴⁸ However, the *Basileus* did not have the secular power of the Mycenaean *Anax* (ruler). Instead, secular power resided with the other archons, as evidenced by the fact that the heart of the city was the Prytaneion. Parker (1996, 16) suggested there was no need for synoikism because the townships were never independent.

It does seem likely that certain areas of Attica remained beyond the effective control of the authority in Athens for much of the sixth century, because the losers from time to time in the struggle for control of Athens such as the Alkmeonidai seem to have simply retired to estates on the periphery of Attica.⁴⁹ However, there are several good reasons for believing that the inhabitants of all the Attic peninsula did consider themselves Athenian through a tradition of shared descent, membership of tribes (*phulai*),⁵⁰ phratries,⁵¹ and shared cultic practice. Solon actually referred to “my fatherland of Athens” and “a man of Attica” (West Solon F2), and “Ionia’s oldest land” (West Solon F4a). The major *genē* clearly had property in and around Athens itself, and participated in Athenian politics. Finally, there is no evidence of any other town rivalling Athens for control of Attica (outside of legend described earlier). At a practical level, most people would have had primary allegiance to, and support from their own *oikos* and *phratry*, and varying levels of involvement with *orgeones* and other such associations, *naukrariai* or demes (cf. *Ath. Pol.* 21.5) and *genē*. Only those with considerable

⁴⁷ Though I have trouble with his notion of the King “spinning webs” in Athens to exercise control over all Attica (p.25).

⁴⁸ *Genē* also celebrated rites of their own with important implications for local control.

⁴⁹ Anderson 2003, 26-34 usefully assembled the evidence. The Alkmeonidai went to the southern coast; the Gephyraioi to Aphidna or Oropis in the north; the Lycomidai to Phrearrhioi in the deep south; Peisistratos to Brauron in the east. Peisistratos relied for support on the *huperakrioi* (men beyond the hills) according to Hdt. 1.59.3 or *diakrioi* (men of the hills) *Ath. Pol.* 13.4.

⁵⁰ I am attracted to the suggestion of Hall 2007a, 47-8 that these were not derived from ancient migrations, but were administrative creations “developed within the context of already organised socio-political communities”. However, they were well in place before the sixth century.

⁵¹ For the question over whether the phratry was originally a *phyle* subgroup, see Lambert 1993, 14-7 and 268-72. It seems certain that membership of a phratry was essential to being an Athenian by the late seventh century because in Drakon’s law, a man’s phratry would decide the matter of vengeance in the absence of surviving relatives.

resources and sufficient status could have the time and interest to participate in the power game at the centre.

2.3 How was society structured?

Modern commentary on this subject has usually been primarily concerned with explaining the problems Solon faced when appointed to office, and the outcomes (whether intentional or not) of his reforms and legislation. The hard evidence is minimal and inconclusive making possible many different interpretations. Foxhall put it well when she commented that “variations on ‘primitivist’, ‘modernist’, formalist and substantivist theory have all been tried”.⁵² Mostly they have been viewed through capitalist/economic, or Marxist/social lenses.⁵³ More recently, there has been a focus on citizenship centred on a so-called ‘middling ideology’, and the ‘rise’ of the *polis* associated with hoplite service by landowning farmers.⁵⁴ Given that no one theory has won general acceptance, I will re-examine the evidence, and cross-examine the various theories to try to come to a better understanding of which ‘classes’ existed in society,⁵⁵ and how they related to one another.

My starting point is the physical evidence. There are a number of problems with it including access to sites in Attica being restricted due to modern urbanisation, a preponderance of material coming from burials, and the particular difficulty of relating observed activity to precise time frames. However, it is possible to state with some certainty from studies into patterns of land use, that pressures resulting from population density and lack of land in absolute terms, could not have been the critical issues assumed by many historians.⁵⁶ Osborne (1996a, 188) went so far as to contend that the “numerous small

⁵² Foxhall 1997, 114. She also notes the problems with the “teleological thinking”, and typologising Athens using an evolutionist perspective. See Part 4.1.2 for a detailed discussion of these economic concepts.

⁵³ Gallant 1982, 119-120 provides a good summary of the models used by what he terms the “formalist/capitalists, the formalist/Marxists, and the substantivists”.

⁵⁴ Citizenship - Manville 1990; middling ideology - Morris 1996, 28-31; hoplite service – Raaflaub 1997. It is important to note that Raaflaub (p.57) posits farmers with a “triple role of land-owners, soldiers and assembly-men”.

⁵⁵ I do not like to use the word ‘class’ to describe the phenomenon of social stratification because it has so much modern baggage, and because it implies a separation which is convenient to us but which may not have been real or apparent at the time, but there really is no better word.

⁵⁶ The model of ‘agrarian crisis’ was derived from from a reading of Solon’s poems as contextualised by later writers in antiquity, and enthusiastically adopted in modern times. Thus Woodhouse 1938, 133 could write in his wonderfully hyperbolic language of the “ ‘pulverization’ of small estates of the peasantry...by Solon’s time...carried to its economic limits, or beyond [with] many undivided holdings...feeding too many mouths”. The case was influentially argued by Andrewes 1956, 84-7, though Forrest 1966, 156 dismissed it stating that the “picture...of general agricultural depression is probably false and is certainly oversimplified”. It was revived

settlements, marked by cemeteries” of the eighth-century countryside, had “contracted or vanished altogether” in the seventh. Elite burial practices included a concentration around Athens (especially on roads in the Kerameikos) of elaborate monuments designed to be seen from the street, and associated with ostentatious “performance rituals” emphasising “the power of the deceased to hold banquets, a right restricted to leaders of households” (Houby-Nielsen 2009, 199-200). The extravagance of these seems to have increased throughout the seventh century, and was atypical in Greece at the time.⁵⁷ It may have been symptomatic of greater concentration of wealth in the hands of the elite. Alternatively, the phenomenon could be explained in terms of funeral display becoming the locus of competitive display among the aristocracy who were therefore prepared to spend a bigger proportion of their wealth on this activity, or simply a marker of increased wealth in the whole community.

The important point revealed by the archaeological evidence is that ‘success’ in society was measured at least in part by the acquisition and display of wealth. This is frequently attested in archaic literature (cf. van Wees 2009), and may be considered a continuation (or even a perversion) of the Homeric value system with its emphasis on fame (*kleos*), reputation (*doxa*) and honour (*timē*).⁵⁸ I have grave doubts as to how much the poetic tradition enshrined by ‘Homer’ can be relied upon to reconstruct wider society in the ‘Dark Age’ or later given the main themes are war and home-coming (*nostos*).⁵⁹ However, I suspect that among the Athenian elite at the end of the seventh century, it may to some extent be a case of life imitating art, whereby they were consciously copying and adapting

by Snodgrass 1980 and remains current, despite being more scientifically debunked by Gallant 1982 (who also noted [p. 116] that Athens did not send out a colony until the end of the seventh century [Elaiou ca. 610], and did not have such problems with a larger population in subsequent centuries). The case for a sixth-century colonisation of Elaiou on Thracian Chersonesos (*Inventory* no. 663) is based on Ps-Skumnos 707-8, but is more strongly linked with Phrunon’s activity at Sigeion at the end of the seventh century (see PAA 965885) – I thank Prof. Davies for this suggestion. For a summary of the statistical evidence, see Osborne 1996b, 73-5, and for a good overview of the archaeological issues – Foxhall 1997, 122-9.

⁵⁷ Gallant 1982, 117-8; Osborne 1989, 309 – “Athenian developments are chronologically eccentric by comparison to the rest of Greece”, and specifically for burial practice – p. 319.

⁵⁸ All intertwined concepts, cf. West *Solon* F4, 4c, 13, 15 and 24.

⁵⁹ For an excellent summary of ‘Homeric society’ see Raaflaub and Wallace 2007, 24-32. While the epics do contain some descriptions of life ‘at home’, it is hard not to consider these atypical and requiring considerable interpretation to be meaningful. For instance, Laertes is depicted as someone who would later be considered a prosperous ‘middling’ farmer, yet his son is a leading *Basileus*. The *Iliad* describes life in an armed camp or city at war, and the *Odyssey* mostly concerns non-Greek places. How far did all this relate to ‘normal’ society especially outside of an idealised, elite context?

the Homeric ideal. It is difficult to discover whether competitive display extended to ‘lower’ levels of society because such activity, if it existed, is archaeologically invisible and ignored by elite writers.⁶⁰ Evidence from cemeteries, settlements and surface surveys across Greece (including Attica) does reveal that rich and poor lived and were buried together in nuclear villages, which as Gallant (1982, 118) acutely noted, refutes the commonly held assumption that “large landowners lived on large, isolated estates or large estate farms”.⁶¹ From this, we can deduce that all parts of society must have frequently interacted. The activities of each part of society could be closely observed by the others, and any growing disparities remarked upon.

It has been argued that Athens by the beginning of the sixth century had developed a substantial urban-based artisan population which was discontented with its lack of political rights vis-a-vis the land-owning aristocracy (cf. especially Starr 1977). There is very little extant physical evidence for artisans, but that does not mean they did not exist. On the one hand, it is likely that the oft-cited fine-pottery production was fairly small. Working from Cook’s figures, Gallant (1982, 121) estimated there were around “10-15 men working at any one time”.⁶² On the other hand, it must be assumed that every community had (or had access to) the services of a potter making pedestrian ware entirely for local use. The same would be true for blacksmiths and many other trades and services (such as cobblers, wheelwrights and peddlars). These men were unlikely to have had high status, and there is no literary evidence to support them forming associations based on occupation, let alone agitating for rights like guilds in early-modern Europe. The comments in Plutarch (*Sol.* 21.5) that “the city (*astu*) was getting full of people streaming into Attica from all quarters for greater security of living”, and goods were needed for exchange in trade, so Solon “turned the attention of the citizens to the arts of manufacture” can be taken as reflecting an important transformation of the economy, but I contend it was gradual, and only just commencing in Solon’s time.⁶³ Attributing the changes to a law – “[Solon] enacted a law that

⁶⁰ Perhaps there was competition in celebrations or offerings for instance.

⁶¹ The evidence comes from many parts of Greece over the eighth and seventh centuries, but includes Anavyssos in Attica. Cf. Osborne 1996a, 25-7.

⁶² Other scholars have arrived at similar figures which I discuss in Part 3.2.

⁶³ The extent to which Solon’s changes were responsible is much debated. For a positive view see Forrest 1966, 175 ff. It is discussed at length in Part 3.2. It is also worth noting that this group and more particularly their income stream was not recognised in Solon’s subsequent *telē* which they should have been if they were the group agitating for change.

no son who had not been taught as trade should be compelled to support his father” – is a good example of ahistorical rationalising, and the *heuretes* phenomenon whereby any useful development was readily attributed to a prominent figure.⁶⁴ There were certainly people with more valuable specialties (*demiourgoi* such as craftsmen, doctors, bards, *manteis* – cf. *Od.* 17.383-5 and West *Solon* F13) but they seem to have been itinerant and not part of society *per se*. The small but significant exception were the ship owners (*nauklēroi*) and it is likely that some were *Eupatridai* like Solon (Bravo 1977). These men may have been engaged in funding trading ventures, or selling goods from their own estates, or travel (including for festivals, games, arranging marriage, acquiring semi-luxury goods), or piracy, or a combination of any of these, just as Solon travelled as he traded (van Wees 2009, 457-60). I demonstrate in this thesis that they came to play a vital role in Athens’ development, but ca. 600 their role was minor compared with the overwhelming political dominance of the major land owners. Most Athenian traders probably did little more than local cabotage, or sold goods (agricultural or manufactured) to foreign traders (see Part 3.2).

Turning now to the written evidence, it is clear this comes exclusively from the elite level of society.⁶⁵ We need to consider the likelihood that this elite, like political insiders today, probably spent much of their time talking to or about one another, and were disdainful of ‘others’ who did not possess their wealth and social standing.⁶⁶ In fact, those referred to as ‘poor’ by later writers (such as *Ath. Pol.* 2.2 and *Plut. Sol.* 13.2) in the simplistic binary equation of rich versus poor may not even have been ‘the poor’. Instead they were just a relatively poorer group, but with sufficient resources to consider being part of the political process at least on occasion, and perhaps may be identified with the *zeugitai* under Solon’s reform,⁶⁷ and wealthier merchants and traders. Some hint of this may be found in the supposed electors of archons outside the *Eupatridai* in the post-Solon period of *anarchia* identified in *Ath. Pol.* 13.2, namely ‘farmers’ and ‘artisans’.⁶⁸ On this basis, we have to

⁶⁴ It will be frequently encountered in this thesis – see especially Part 3.2.

⁶⁵ Excluding *dipinti* and graffiti.

⁶⁶ Although wealthy and poorer Athenians probably lived together in villages and the *astu*, we should not assume they mixed socially. The divide between those who worked with their hands and those who did not was always large especially as the latter filled the magistracies.

⁶⁷ I note Foxhall 1997 and her estimation of the wealth required to be classed among the *zeugitai* as being greatly above that of the ordinary farmer struggling to survive.

⁶⁸ Under this system, the nobles had 5 votes, the farmers 3, and the artisans 2. I note the view of Lambert 1993, 374-8 that this may be a philosophical fiction which should be treated with scepticism, though he admits it is “credible” (p.377).

reinterpret the nature of the struggle that brought Solon to the fore. Assuming the really poor Athenians were landless, they almost certainly did not possess ‘citizen’ rights, inasmuch as this term can be used possibly anachronistically.⁶⁹ They would have been voiceless, passive, and powerless, and just as irrelevant to the political process as women, children and slaves.⁷⁰ Support for this proposition that a substantial group of discursively and politically ignored Athenians existed throughout the sixth century may be found in *Ath. Pol.* 21.2 when Kleisthenes “distributed *everybody* into ten tribes instead of the four”.⁷¹ In my view, it was simply inconceivable for later writers to appreciate that the Athenian *dēmos* had not always been composed of what became the body of citizens (including landless *thētes*) post Kleisthenes.⁷²

Given this understanding, I wish to re-examine the vexed question of the *hektemoroi*.⁷³ The only available evidence is literary. There are two main sources. *Ath. Pol.* 2.2 has:

For the Athenian constitution was in all respects oligarchical, and in fact the poor (*penētes*) themselves and also their wives and children were actually in slavery to the rich; and they were called Clients (*pelatai*), and Sixth-part tenants (*hektēmoroi*), for that was the rent (*misthōsis*) they paid for the land of the rich men (*oligoi*) land which they farmed, and the whole country was in very few hands (*di’ oligōn*), and if they ever failed to pay their rents, they themselves and their children were liable to arrest; and all borrowing was on the security of the debtor’s person down to the time of Solon. (Trans. Rackham 1935, slightly adapted).

Plutarch *Solon* 13.2 has:

All the common people (*dēmos*) were in debt to the rich. For they either tilled their lands for them, paying them a sixth of the increase, whence they were called

⁶⁹ Ownership of land was a requirement for citizenship in most Greek *poleis*. I do not wish to enter into a more detailed discussion as to whether there was an actual conception of citizenship at this point in time.

⁷⁰ Foxhall 1997, 132 contended that “for those at the top, including Solon himself, the great heap of *hoi polloi* at the bottom was largely irrelevant”.

⁷¹ συνένειμε πάντας εἰς δέκα φυλὰς ἀντὶ τῶν τεττάρων. See later discussion. He may also have been including residents of rural demes, as well as the resident *xenoi* specifically mentioned in *Ar. Pol.* 3.1275b, 34-7. There are other clues. For instance, in Homer the *dēmiourgoi* were skilled people who worked for the *dēmos*, who therefore must have been wealthy enough to pay them.

⁷² The date of the inclusion of the *thētes* in terms of having full participatory citizen rights (as opposed to being merely able to attend the Assembly) is much contested – cf. the range of scholarly opinion presented in Morris and Raaflaub 1998.

⁷³ I recognise of course that practically every historian of the period has a pet theory or favoured opinion, and it may seem rash to suggest yet another, but I justify it on the basis that no theory has widespread support. The main views and leading proponents of theories (or variations thereof) are given *infra*. For a fuller discussion of older scholarship, though with no discernable conclusion, see Almeida 2003, 28-56.

Hektemorioi (sic) and *Thētes*, or else they pledged their persons for debts and could be seized by their creditors, some becoming slaves at home, and others being sold into foreign countries (*xenē*). Many too, were forced to sell their own children, for there was no law against it, or to go into exile, because of the cruelty of the money-lenders (*daneistai*). (Trans. Perrin 1914 slightly adapted).

The poor were freed from this situation by Solon's first measures on assuming office.

According to *Ath. Pol.* 6.1, Solon:

made the people (*dēmos*) free both at that time and for the future by prohibiting loans secured on the person, and he laid down laws, and enacted cancellations of debts both private and public, the measures that are known as the *seisakhtheia*, meaning the shaking off of the load (*baros*). (Trans. Rackham 1935 slightly adapted).

The *seisakhtheia* (LSJ σεῖω ἄχθος) is generally taken to refer to Solon's uprooting of the *horoi* which he refers to in a poem (West *Solon* F36.4-7):

by the testimony of the great mother of the Olympian
gods, Black Earth, from whom I drew
up the *horoi* stuck in everywhere;
earlier she was enslaved, now she is free. (Trans. Lewis 2006, 161).

Clearly *Ath. Pol.* and Plutarch thought that Athenian peasant farmers became *hektemoroi* through falling into debt, and this has been followed by many modern commentators. The theory has been linked to population pressure (Starr 1977, 150-1), and the farming of land under a quasi-feudal arrangement of debt-bondage which necessitated borrowing when there were bad harvests (Woodhouse 1938, 42-79; Finley 1981).⁷⁴ The implication is that the land itself was inalienable and thus could not be mortgaged, forcing the peasants to put themselves and their families up as security (Woodhouse *ibid*; Fine 1951; French 1956). The *horoi* were then planted on the land by the mortgagor to signify the debt (Andrewes 1982b, 375-91). However, there are serious problems with this interpretation. Firstly, I have already noted that undersupply of land relative to population is not supported archaeologically. Secondly, while there is no secure evidence as to the nature of land 'ownership' in this period, it seems likely that farmers at least had a right of use acquired through inherited

⁷⁴ Finley 1981, 155 conceived of the system having built up since the Dark Age. Poor people were bound to work the land of the wealthy in a debt-relationship that could never be paid off turning them into an indentured labour force. This in turn had status implications. Rhodes 1981, 96 also suspected an element of complaint by wealthy Athenians at a lack of political opportunity. See the summary of the history of this theory in van Wees 1999, n.1 and 45.

occupancy and/or consent of the community (cf. Rihll 1991, 104-6). It is unlikely there was any other higher form of title. The specific reference in *Ath. Pol.* 2.2 to the land being in the hands of the few therefore requires explanation. If the few actually ‘owned’ the land, they would not need to put mortgage markers on it. More importantly, they would have collectively suffered the stupendous loss of it altogether from the *seisakhtheia*, but Solon specifically said the “wealthy suffered no harm” (West *Solon* F5), and that he did not acquiesce in a land redistribution (West *Solon* F34). This proximate evidence should be considered more reliable than the claim in *Ath. Pol.* 13.1 that some people had become impoverished from the cancellation of debts, though they may well have lost a significant source of income. Thirdly, *horoi* were never mortgage markers in the Archaic Period as Harris (1997, 104) pointed out, but were always boundary markers.⁷⁵ Finally, Solon explicitly referred to the land being enslaved, not its owners (West *Solon* F36.7).

Harris (1997, 107 & 104) suggested that Solon was giving a “metaphorical allusion to the effects of his reforms” because the only choice (in his opinion) was that “Solon boasted about tearing up boundary-markers” which would have been “considered a serious crime”. He concluded (p.111) that the *seisakhtheia* was not a “cancellation of debts aimed at solving an economic crisis”. This seems to fly in the face of the evidence which, as de Ste. Croix (2004, 123) pointed out is virtually entirely concerned with debt, and various explicit statements by Solon in his poems that slavery for debt (West *Solon* F4 and 36) and calls for wealth redistribution (West *Solon* F34 and 36) were live issues. De Ste. Croix’s own explanation (2004, 123-7) that the *hektemoroi* had nothing to do with *horoi* and referred to interest payments of one-sixth is plausible, but a statewide system whereby all loans were contracted at the same rate seems extremely unlikely for this period. Furthermore, his endorsement of farmers being share-croppers (or serfs for that matter) fails to explain why there is no record of such an arrangement either in Solon’s poems or later tradition (Rihll 1991, 102). The suggestion by Gallant (1982, 111-124) that large landowners obligated smaller ones to perform periodic labour on public land which they controlled in exchange for one-sixth of the produce faces similar objections, as well as failing to explain the need for

⁷⁵ This is strongly emphasised by Solon’s metaphorical use of the word to indicate dividing two sides – West *Solon* F37. Supporting evidence from Solon’s time may come from Asklepiades, cf. discussion under Cit. 31 (6.3), providing a direct relationship between *kurbeis* and boundary-marking *horoi*.

horoi on land they owned.⁷⁶ Rihll (1991, 101-27) made a claim that the *hektemoroi* worked extensive tracts of public land under terms of a loan agreement whereby a one-sixth share was paid to the State for cult expenses, but there is no good evidence for this and it fails to account for the statements in all the sources that it was the rich who were profiting.⁷⁷ I also find it difficult to accept van Wees' proposal (2009, 451) that the *hektemoroi* "are best explained as free men who cultivated other men's land in exchange for a mere one-sixth of the harvest...: another example of extreme exploitation of labor, slave or free". Though this is not impossible, it is worth noting that Tyrtaios (West *Tyrtaios* F6) wrote of the crushing burden imposed by the Spartans on the Messenians in taking "full half the fruit their ploughed land produced". Van Wees' view encourages us to consider them well-off in comparison to the Athenians living at roughly the same time.⁷⁸

Any acceptable theory should account for all the reasonably certain facts. It seems clear from Solon's poetry that the 'few' (*oligoi*) had some form of control of most of the land and more importantly the law, and that they were exploiting the situation.⁷⁹ This included selling Athenian men, women and children into slavery for debt (though incidentally, this should not be taken as implying the existence of money *per se* notwithstanding Plutarch's assumption). Solon took measures which included removal of the boundary-marking *horoi*, cancellation of debts, and abolition of slavery for debt. What can be made of this? To start with, I do see the *horoi* as being connected with *hektemorage*, but contra de Ste Croix (2004, 121-3) do not agree that the payment of *misthōsis* mentioned in *Ath. Pol.* 2.2 must mean a system of share-cropping, even though I accept this is how Aristotle probably viewed it.

⁷⁶ Both these articles make very many valuable points including detailing problems with past theories. However their own hypotheses are largely based on modern anthropological analogies which are not convincing, and neither is the treatment by Manville 1990, who saw the problem being related to population growth in the seventh century and changing agricultural practices. See the criticism of these approaches by Foxhall 1997, 116-9. Gallant is novel in suggesting that the *Hektemoroi* received one-sixth as a payment. Presumably we could argue just as easily that they received five-sixths if they were doing all the work on marginal land that neither they nor the aristocrats owned, with one-sixth going to the aristocrat for procuring the opportunity.

⁷⁷ This theory owes something to Cassola 1964 who argued that aristocrats forced poorer farmers to work communal lands which they had appropriated.

⁷⁸ The view is advocated in detail in van Wees 1999 based on a useful analogy with 19th century Sicily. He calculated that through a system of patronage based on Mafia stand-over tactics, Sicilian share croppers ended up with only up to 20% of the yield (p.19) which was barely adequate for subsistence. However, as he stated, the owner provided both the land and the seed grain. I do not accept that the Athenians were share croppers. See discussion *infra*.

⁷⁹ Rihll 1991, 101-2 made the important observation that *dia* in the phrase (δὴ ὀλίγων) meant control by the few, not ownership.

Secondly, while *akhthos* (in *seisakhtheia*) is correctly translated literally as a ‘burden’, in archaic literature it generally had a very negative usage associated with the earth. Homer used it twice. In the *Iliad* 18.104, Achilles in a state of despair described himself as a “profitless burden on the earth” (*etōsion akhthos arourēs*). Similarly in the *Odyssey* 20.379, Odysseus, posing as a filthy vagabond was also called a “burden upon the earth” (*akhthos arourēs*). In Hesiod *Works and Days* 692, it was the excessive weight (*huperbeion akhthos*) which could wreck the axle of a cart and ruin its load. In the Tyrtaios 6 fragment mentioned earlier, the weight of the tribute imposed on the Messenians had them metaphorically compared with asses “exhausted under great loads” (*megalois akhthosi teiromenoi*). Thus we should expect that the use of the word *seisakhtheia* implied the removal of an imposition generally considered to be unproductive and destructively harmful. This would not apply to interest on a loan at the rate of a ‘sixth’, and especially not to a rent at this rate.⁸⁰ Thirdly, it is worth noting that Athens did not face an existential military threat until the end of the sixth century.⁸¹ Granted there was border squabbling,⁸² but the real threat came from within the *polis* from among the aristocratic families, hence the concern with tyranny in the laws and Solon’s poetry.⁸³

I believe this means that the theory about solidarity gained fighting in the ranks as hoplites reflecting and encouraging a ‘middling ideology’ offering “no room for aristocratic *aristeiai*” is overstated (Raaflaub and Wallace 2007, 35).⁸⁴ There is little evidence for Athenians fighting en masse until the end of the sixth century (Singor 2000, 110),⁸⁵ and there is no

⁸⁰ Although 16.66% may seem high in our current era of generally available credit and competition among lenders, it was not at all excessive even in classical times. Millett 1983, 186, n.2 commented “The commonest rate of interest on landside loans in classical Athens was 1% per month” (= 12% p.a.). For maritime loans on the standard Athens to Pontos trip it was at least 30%.

⁸¹ Raaflaub 1997, 56 made the point more generally. Cf. the detailed discussion in Hall 2007a, chapter 7.

⁸² *Ath. Pol.* 14.1 and Hdt. 1.59.4 cite the boundary war with Megara. The regularity of this sort of conflict is summed up in Thuc. 4.92.4 in the speech of the Boeotarch Pagondas – “others have to fight with their neighbours for this frontier or that”.

⁸³ Kylon’s attempted tyranny ca. 632 evidently made a deep psychological impact on the Athenian elite judging by the affair’s numerous mentions in the early sources, and the fact that it is the first datable political event in Athenian history.

⁸⁴ I am not seeking to revisit the much discussed view dating back to Nilsson 1929 (following Aristotle) that Greek constitutional development arose out of hoplite-style fighting. This has been comprehensively debunked by Raaflaub 1997, 53-7 and van Wees 2002 (among others).

⁸⁵ The sole possible exception is the siege of the Kylonians (Hdt. 5.70-1; Thuc. 1.126) but the impression is of well armed aristocrats supported by their dependent countryfolk armed with whatever was at hand, who drifted away (or were permitted to leave) when the situation was under control.

extant reference to a military hierarchy except for the Polemarch, whose only expressly stated duty was to administer ancestral rites (*Ath. Pol.* 3.3).⁸⁶ It is inadvisable to import developments from Sparta which was reacting to quite different pressures leading to a unique military development.⁸⁷ The Athenians seem to have been unable to muster a regular army to defeat Megara or Aigina or even to fight Kylon's meagre band,⁸⁸ and Solon had to call for volunteers to attack Salamis.⁸⁹ The relatively small numbers of armed Athenian citizens even in the middle of the sixth century was illustrated by the anecdote of Peisistratos being able to address them all during an 'armed muster' at the Theseion (*Ath. Pol.* 15.4) or Anakeion (Polyaen. 1.21).⁹⁰ If anything, the evidence points to hoplite ideology at Athens being elitist as demonstrated by Solon separating (or maybe enshrining the separation of) the aristocrats from the 'middle' by way of the *telē* system, and by the consistent imagery of the heroic death of the long-haired aristocratic hoplite on sixth-

⁸⁶ It may be significant that while Thuc. 1.126.8 says that the nine archons had plenary powers during the Kylonian crisis, he did not attribute any particular role to the Polemarch. *Strategoí* are first mentioned in the Persian Wars (*Ath. Pol.* 22.2), along with the army and frontier guards (*Ath. Pol.* 24.1). The annual change of incumbent seems to indicate that the pressures of war had not resulted in the Polemarch needing to be an experienced soldier as happened in 490, though bravery may have been a more important criterion given the claim in *Ath. Pol.* 3.2 that the reason for the existence of the office was that some of the earlier *Basileis* were not strong warriors. However, what we seem to have in *Ath. Pol.* 3 and 58 is an account derived from the duties of the fourth century Polemarch which tells us little about his role in the sixth and fifth centuries. It is difficult to imagine that Aristotle's comment (*Pol.* 5.1309) that one must consider experience more than virtue in selecting military commanders would not come to the fore in a system of rotating magistracies if wars with serious consequences were being fought regularly, just as it did under the democracy. If the wars were not being fought, then the argument about solidarity gained fighting in the ranks breaks down.

⁸⁷ The Spartan example is usually quoted, cf. Raafaub and Wallace 2007, 34-41. However, as they correctly point out, this was under the twin pressures of fighting Argos, and holding down a subject population. Even at Sparta, the *homoioi* were a small minority of the fighters. Our evidence of hoplite development is so dominated by Sparta and the poetry of Tyrtaios that it is difficult to tell how far the hoplite base extended beyond the wealthy in other *poleis*. I accept the arguments put forward by Raafaub 1997 that land-owning farmers from the beginning of the *polis* system were also soldiers and assembly-men, but I suspect they were confined to a wealthier group than he would allow. It may be that the relatively little impact of Hellenic warfare in this period was a function of small numbers and aversion to risking life and limb without adequate personal gain, leading to increasingly ritualised warfare or raids (cf. the war with Aegina as described in Hdt. 5.82-7).

⁸⁸ Frost 1984, 286-7 pointed out that Megakles seems to have had to rely on personal supporters (*sustasiōtai* in Hdt. 5.70.2) and dependants to carry on the siege, hence being held personally responsible for the slaughter.

⁸⁹ Megara - Plut. *Sol.* 12.3 records that the Athenians lost Nisaia to Megara, and (10.1) were forced to call upon the Lakedaimonians to arbitrate in their war; attacked Salamis – 8-9, and lost it again – 12.3; Kylon – Thuc. 1.1262-10. It is interesting to note that Solon calls for volunteers in the same way as Athena in the guise of Mentor rustled up a crew of volunteers for Telemakhos (*Od.* 2.291-2).

⁹⁰ Possibly an apocryphal story (cf. Rhodes 1981, 210-13), but the point is that even later writers considered the number of armed citizens was small.

century pottery (Lissarrague 1990; Pritchard 2010, 14).⁹¹ The Athenian aristocrats chose to identify as horse-owning *hippeis* making them a self-consciously separate group,⁹² and I am persuaded by Hall's analysis (2007a, 163-70) that the wealthier aristocrats were much better armed than the rest of the fighters, and fought in the front ranks supported by their retainers.⁹³ An example of this is Solon's story of Tellos who "came to the aid of the Athenians in a battle against their neighbours in Eleusis and forced them to flee before he died most nobly on the battlefield", whereupon the Athenians buried him with great honour (Hdt. 1.30.5).⁹⁴ Presumably Tellos did not turn the tide of battle single-handedly. He would have come as a noble with his armed retainers, and fought in the front rank with his "good and noble children" (Hdt. 1.30.4), for which he received all the credit in fine Homeric fashion. Singor (2000, 107) concluded that hoplites throughout the Greek world were drawn almost exclusively from the elite. This suggests that substantial numbers of 'middling' Athenian farmers were not enrolled together in the army. In fact, it may be more valid to see the aristocrats using their military superiority primarily for intimidation of the farmers and as a defence against one another.⁹⁵

This gives the clue to what was going on. Archaic literature is replete with references to the aristocracy using legal power to exploit others. In Homer, despite the importance of the Assembly in ratifying decisions, the *basileis* called the Assembly only when they wanted to,

⁹¹ Long hair as a mark of the aristocratic fighter – Homer *Il.* 2.11 *et passim*, 'long-haired Achaeans'; Hdt. 1.82, 7.209.3 – Spartan *homoioi*.

⁹² Cf. Aristotle *Politics* 1297b, 16 ff on the cavalry having pre-eminence in the period before more people came to have a share in government.

⁹³ de Ste Croix 2004, 17 pointed out that the hoplite needed more than armour to qualify. He also needed slaves to work his land while he was away and support him on campaign. This I believe is the answer to Raaflaub 1997. I agree with him that massed fighting had led to the evolution of the phalanx in Homer, but contend that the all important front ranks were filled by the heavily-armed and well-trained elite. They were supported by their retainers who added weight to the 'push'. Other members of the rank and file fought as peltasts, archers, slingers, stone throwers and so forth, but if the front ranks broke, the rest ran. Therefore the elite did still dominate the battlefield, and did monopolise military power. The critical innovation of the Spartans was to increase the number of elite fighters in the front rank – the *homoioi* ('alikes'), but this was not imitated at Athens because there was not the same military need. Instead, the Athenians sought legal equality.

⁹⁴ He was buried at public expense and the Athenians "honoured him greatly" (ἐτίμησαν μέγῳ). This sounds like the instigation of cult as was routinely given to Homeric heroes, and later given to fallen warriors by the democracy, for instance at Marathon.

⁹⁵ Robertson 1997, 150 remarks on the absence of "extant verse epitaphs for fallen warriors datable before the Persian Wars which mention that the deceased died fighting for his country".

and made the decisions.⁹⁶ They were the men who guarded “the laws that come from Zeus” (*Il.* 1.238-9), and used their power to exact contributions by force if necessary.⁹⁷ Hesiod (*Works and Days* 213-73) resented this exploitation and the unfairness of the system that demanded bribes in exchange for ‘justice’. Solon (West *Solon* F4) decried the rapaciousness of the rich specifically condemning “crooked judgments”. The *Homeric Hymn to Demeter* composed sometime around this period in Attica was even more explicit about the continuance of aristocratic dominance of power through control of the law stating (149-52): “I will...tell you the names of the men who control privilege here (lit: have great power - *mega kratos*), who stand out from the people (*dēmos*) and protect the city’s ramparts by their counsel and straight judgments”. The epithet of these powerful men (215 and 473) was ‘law-ministering kings’ (*themistopoloι basileis*).⁹⁸

Putting all the foregoing together, it seems to me that relatively few men of great power ran what might be described as an oligopoly based on their near total control of the law backed by thuggery if necessary. A significant number of farmers paid them a part of what they produced which is probably better considered a *morte* (‘share’ per Hesychios s.v. *epimortos* and Pollux 7.151) or even a contribution in kind (*misthōtikōn*) rather than a rent (*misthōsis*) as *Ath. Pol.* 2.2 construed, and were considered dependent hence their description as Clients (*pelatai*) in the same passage. Their properties were marked by the *horoi*. It would be wrong to consider these farmers “indentured serfs” as Wallace did (2007, 50), separate from *peletai*, “whose lives were bound to the upper classes by economic dependency”, especially given the testimony of Pollux 4.165 that “[a]mong the Athenians, the *pelatai* are called *Hektemoroi*”. Many would have been genuinely poor men (*penētes*) some of whom were enslaved for failure to pay, but the use of what may seem to us a pejorative term was a standard part of archaic aristocratic discourse, in the same way that Solon (West F4) used the word *penikhroi* (= *penētes*) about men who worked for a living and were well enough off to have houses with high courtyard fences.⁹⁹

⁹⁶ The much-quoted Thersites got to speak, but was silenced by Odysseus wielding his kingly sceptre with the approval of the Assembly, notwithstanding their passionate desire to leave Troy apparently countenanced by Agamemnon himself – *Il.* 2.188-99.

⁹⁷ *Il.* 24.260-62 is just one of many examples.

⁹⁸ *Themistos* = *themitos* means legal, righteous or oracular. *Polos* means the “pivot on which anything turns” (LSJ). The phrase thus emphasises the central role of these men in upholding ‘legal right’.

⁹⁹ Den Boer 1979, 151. The word comes from *ponos* – toil, and included farmers and artisans.

The question is why the farmers needed to pay. A modern analogy is the franchise agreement. People enter into such agreements willingly because they perceive some benefit(s) or necessity to outweigh the cost (branding, operational systems, access to resources and market). In return they pay a fee. It is crucial to realise that the fee comes from the gross yield. A common fee nowadays is 10%. If a firm grosses \$500,000 with expenses of \$300,000, the franchise fee is \$50,000 or 25% of the net. Revenues fluctuate, but expenses are usually fixed, so if the business has a poor year and only brings in \$400,000, the 10% gross franchise fee of \$40,000 equals 40% of the net. In a very bad year, the fee still has to be paid but can exceed 100% of the net return. Frequently franchisees discover that the benefits are largely illusory, but they are locked into a legal agreement which is heavily skewed in favour of the franchisor. I suspect that by the beginning of the sixth century, many Athenian farmers found themselves in a similar position. Hitherto they had had no alternative except to accept the legal ‘protection’ backed by intimidation offered by the local aristocrat in exchange for a pay-off who marked this agreement by placing his *horoi* on the boundaries.¹⁰⁰ Perhaps the payment was partly justified as a contribution towards sacrifices in which everyone in the local community shared. The system had undoubtedly evolved over time, and must have been effectively enshrined in common law if a standard rate could be applied and the *hektemoroi* could not escape it.¹⁰¹ Undoubtedly the abuses were growing in other respects as Solon (West *Solon* F4) described so vividly especially in Athens itself. However, events elsewhere in the Greek world would have alerted some to the knowledge that such unfair practices which brought no real benefit could be challenged. This would have been exacerbated by the fact that most farmers lived in towns or villages alongside the aristocracy and could see their character and the life they were leading, resulting in a deterioration of good order (*eunomia*). Something had to give. Faced by a potentially devastating revolt, the aristocracy chose to yield to Solon’s abolition of the system of *hektemoragē* and the unfettered right of aristocratic magistrates to sell free people into slavery for debt. This explanation has the benefit of explaining both the role of the *horoi*, and the fact that the aristocrats did not actually lose their own land. Furthermore, as Finley (1985, 95) noted, the Greeks had a great aversion to imposing “a tithe or other

¹⁰⁰ On the strong evidence for use of force by aristocrats, cf. van Wees 1999.

¹⁰¹ I do not however consider it to have been a legal discrimination between two formal classes of Athenians, as Hammond 1961 proposed.

form of direct tax on the land” which was the “mark of a tyranny”. An arrangement imposing a charge on the land could readily have been considered a form of subjection by contemporaries (hence Solon’s triumphant freeing of the Black Earth - West *Solon* F36.4-7), and especially by later writers with their references to widespread ‘slavery’.

The abolition of the system of *hektemoragē* would have benefited farmers enormously by giving them in effect legal ownership of their land,¹⁰² and a substantial net income boost. It ultimately turned them into the ‘middling citizens’ with an embryonic class consciousness, able to afford time away from the farm and thus potentially capable of undertaking civic duties, and later of serving as hoplites. Meanwhile, the aristocrats retained the best lands and the important magistracies and priesthoods, and continued to play their games for power and influence. It would seem certain that the status of those previously made *atimos* (deprived of privileges - LSJ) was altered back to *epitimos* (in possession of rights – LSJ) excluding those convicted of treason or homicide since the measure only had practical application to Solon’s time (Plut. *Sol.* 19.3), but it is doubtful that any of them got their land back (Rihll 1991, 121-2), or that many of the enslaved were redeemed.¹⁰³ Solon may have met people “no longer speaking the Attic tongue” when travelling abroad, or they may have been children when sold.¹⁰⁴

To sum up, I propose that Athenian (male) society ca. 600 had at its apex a relatively small group of aristocrats who really did control most of the land through a combination of direct ownership, *hektemoragē* agreements, and authority over ‘public’ land held by private and religious organisations which they led, and which may have amounted to virtual appropriation.¹⁰⁵ Under them was a small group of wealthy, non-Eupatrid farmers and merchants agitating for political and social rights who mostly became the *zeugitai* under

¹⁰² Even if formal land ownership had not existed before (as distinct from say an Homeric *Basileis* bequeathing his domain), I contend that the *horoi* had created the legal definition of boundaries, and these boundaries were used by the small landholders to create a *de facto* title system *ex novo*. Tax exemption equalled the “incorporation of the peasant as a full member of the political community” (Finley 1985, 96).

¹⁰³ Some of the enslaved may have been living in Attica. Others could have escaped when they found out they would be welcome at home, but that is pure speculation.

¹⁰⁴ There is little doubt there were widespread slave markets, cf. for instance West *Solon* F36; the *Homeric Hymn to Demeter* 131-2. Harris 2006, 267-8 contended that these people had been enslaved through the warfare of *stasis*, not debt-bondage.

¹⁰⁵ Cf. Solon, West *Solon* F4. By ‘public’ land, I mean land not in individual hands owned by cults, *orgeones*, *phratries* and other associations.

Solon's political restructure (see Foxhall 1997, 130-1),¹⁰⁶ and a large group of small-scale 'middling' farmers (most of the later class of hoplites plus some of the better-off *thētes*) predominately subject to the *hektemoragē* agreements. In Athens itself, but also in larger towns and villages around Attica, there was a growing group of artisans and traders comprising both locals and foreigners (*xenoi*) with the latter able to be accepted as part of the *polis* if Plutarch (*Sol.* 22) is to be believed.¹⁰⁷ At the bottom of society were non-land owning labourers, and beneath them the slaves.¹⁰⁸ It also seems reasonable to suppose that those with a share in the *polis* owned land and belonged to a phratry.¹⁰⁹ However, I believe that 'citizenship' *per se* is an anachronistic concept and certainly lacked any formal definition. When Solon used the word *dēmos*, I agree with Donlan (1970, 388-91 and contra Rhodes 1981, 172) that he meant land owners, excluding the *hegemones* (leaders).¹¹⁰ Solon's usage demonstrates that the *dēmos* were a "politically and socially self-conscious entity ranged in opposition to a group characterized as men who were wealthy and powerful" (Donlan 1970, 395).

¹⁰⁶ Some may have been sufficiently wealthy to be classed as *pentakosiomedimnoi*.

¹⁰⁷ Sealey 1983, 116-7 and n.37 proposed that actual metic status developed hand in hand with citizenship and supported the idea that it was formalised around the time of Kleisthenes.

¹⁰⁸ The relative proportions of these groups is a guess. An estimate provided by Donlan 1997, 45-6 is that the wealthy landowners comprised at the most 20% of the population, with 30% at most having no land, and the remaining majority comprising the "well off though not leisured, families to those who lived at a meagre subsistence level".

¹⁰⁹ It seems certain that membership of a phratry was the essential proof of being an Athenian in the Late Archaic Period just as much as in the Classical Period – cf. Sealey 1976, 97-8 and 1983. I follow Hignett 1952, 79, contra Manville 1990, 94 ff, that land ownership was a requirement for citizenship. The only concrete evidence Manville adduced against this proposition (p.94) was the proposal of Phormisios in 403 (Dion. Hal. *Lys.* 32) to restrict the *politeia* to Attic land holders which would have "deprived some 5,000 Athenians of their rights; in other words, 5,000 men who owned no Attic property were considered to be citizens at that time". But Phormisios fought with Theramenes and the exiles against the Thirty, and as Krentz (1982, 109) noted, the motion still envisaged a broadly-based democracy. Surely the point was to disenfranchise people who would not have been considered citizens in the imagined *patria politeia*, and actually strengthens the case for linking land with citizenship in the sixth century.

¹¹⁰ Rhodes defined the *dēmos* more widely as referring to either "the whole community or to the mass of the lower orders as opposed to the *γνώριμοι*".

2.4 How was power held and exercised?

In the previous chapters I demonstrated that Athens at the start of the sixth century was not a particularly exceptional *polis*. Arguably the *astu* (town) of Athens was accepted as being the political centre of Attica, which was unified to the extent of having a broad cultural, linguistic and ethnic identity. However, there is no evidence that control of Athens by any particular Eupatrid *genos* or alliance of *genē* translated into physical dominance over all Attica. Militarily Athens was ineffectual, having given up on defeating neighbouring Megara for control of Salamis notwithstanding her enormously greater resources, and demonstrably had not widened her hoplite base beyond the wealthy. It is fair to suggest that Athens was having little impact on contemporary world affairs either physically or culturally. She was, to quote Camp (1986, 34) “uncharacteristically quiescent”. I believe the explanation lies in the nature and exercise of power at that time.

There is little that can be stated with certainty about the role and authority of officials ca. 600. The main reason is that most of the direct evidence dates to the second half of the fifth century or later, and it is difficult to deduce how much later practices were being retrojected, especially in the *Ath. Pol.* which is the main source. However, it does seem clear that there were a surprisingly large number of officials whose roles appear to have been created or evolved to meet specific needs, and who sometimes may have had overlapping authority. Overwhelmingly they were concerned with legal and religious duties, especially at the most senior levels. This cannot have been accidental. I contend it was in these areas that the Eupatrid families maintained their collective control of Government, and came to a *modus vivendi* with one another. The system worked on the expectation that no one person leading his *genos* and *sustasiōtai* (partisans) could achieve a tyranny against the united strength of the other *genē*, the danger of which was vividly illustrated by Kylon’s attempted coup and tyrannies elsewhere.

Arguably a further safeguard against inter-family strife in a world of vendetta and honour was that responsibility for the punishment of important people was shared as widely as possible. This may have been the rationale behind the first known written homicide law(s) of Drakon which gave juridical power to a body of jurors called the Ephetai (IG I³ 104 -

republished in 409/8).¹¹¹ These may have just been elders, but they can be more plausibly equated with the Fifty-one mentioned in the same document (per Pollux 8.125), who may well have been a selected group of Areopagites (past archons) from whose decisions there was no appeal (Wallace 1985, 11-22 contra Hignett 1952, 308 ff).¹¹² Drakon's law on involuntary homicide took away the personal right of retribution from the dead person's family, and prescribed the punishment of banishment rather than death, and even the small possibility of pardon.¹¹³ Many scholars believe that Drakon also made a law for premeditated murder because the law beneath the heading 'axon' in the reinscription commences with the words καὶ ἔἴμ which is generally translated as "Even if", implying that some other law came before it (cf. Stanton 1990, 27-9 with references). However, there was no logical imperative for a new law on premeditated murder which must surely have been a capital offence even for Eupatridai before and after Drakon. I suggest a better explanation might be that a lost original preamble defined involuntary homicide by distinguishing it from premeditated murder. It perhaps also referred to the creation of the Ephetai. *Kai* was thus a conjunction linking the original preamble with the law, but when the law was reinscribed, the *anagrapheis* (recorders of the law) only started copying at that point.¹¹⁴ It is particularly interesting in the context of the evolution of State control, that a sizable body of jurors was empanelled with an uneven number to make a tied vote impossible.¹¹⁵ Large juries were a

¹¹¹ It has been argued that the motivation was avoidance of pollution on the whole community brought on by the killing of the Kylonian conspirators – Stroud 1968, 72. However, there was a gap of many years between the killings and the law, and homicide had surely occurred continuously, so I do not believe that explanation is adequate, even though it may have contributed.

¹¹² Ancient authority comes from Pollux 8.125, Harpokration s.v. *Ephetai*, Photios and the Souda s.v. *Ephetai*. The Areopagos comprised all the former archons (the nine per annum) after Solon per Plut. *Sol.* 19.1, who claimed Solon created the body. *Ath. Pol.* 3.6 assumed they existed much earlier with wide authority, but Wallace 1985, 22 strongly disputed this arguing that at that time they were the fifty-one Ephetai who heard all cases of homicide and constituted the Areopagos court. There were five homicide courts - the Palladion, Prytaneion, Delphinion, Phreatto and Areopagos, and later Ephetai sat in these, with the possible exception of the Prytaneion (cf. Wallace 1985, 21 and 234, n.66). I use the phrase "original preamble" to distinguish it from the preamble used in republishing the document.

¹¹³ Stanton 1990, 26 noted that in stopping the "vicious cycle of feuding and murder by aristocratic clans...one clan in particular, the Alkmeonidai, stood to gain protection from vengeance attacks following their leadership in the slaughter of the Kylonians".

¹¹⁴ The original document may have read something like: "[The person who kills unintentionally is to be treated differently from the man who commits murder. He is to be judged by the Ephetai]. And if someone kills a man unintentionally, he is to be sent into exile...".

¹¹⁵ This could have provided protection for individual jurors and made bribery more difficult and expensive, though still possible of course. A similar innovation was used at Chios where an early law dated to 575-550 (Fornara 1997, 24 – no.19) seems to have prescribed that fifty men per tribe assembled to impose fines.

feature of the later democratic state, but their first attested occurrence was in this decidedly oligarchic period in Athenian history. If Wallace is correct in arguing that the Ephetai were Areopagites (as I believe he is even if the body was not formally constituted), it is also intriguing that their competence appears to have been limited to homicide. Such a development implies that homicide was the main area where destabilising intra-Eupatrid strife was likely to occur. Other matters could be left to individual magistrates, and it is to them I shall now turn.

The three most senior positions in the state all had primarily religious and legal duties (if we can believe *Ath. Pol.* 3.3 and 3.5 respectively) which they had allegedly taken over from the earlier monarchy.¹¹⁶ The head of state was the annually elected eponymous archon, with his official residence in the archaic Prytaneion, which was the symbolic centre of the *polis* as it contained the sacred hearth (*Ath. Pol.* 3.5). The fact that this office was the “chief object of political ambition and of party strife” (Hignett 1952, 75 referring to *Ath. Pol.* 13.2), and that it was “the archon Megakles who had to bear the responsibility for the murder of the Kylonians” (Hignett 1952, 77) shows that it had real power, or more accurately, that it could have such power in the hands of an ambitious person. This is because early magistracies tended to be “non-specific in their duties, allowing considerable scope for office-holders to shape them according to their means and resources” (Foxhall 1997, 120). The *Polemarkhos* (Polemarch) presumably was, as the name implies, the war leader with his residence called the Epilukeion (*Ath. Pol.* 3.5)¹¹⁷. However, it should be noted that we have no direct knowledge of any warlike activities carried on by a Polemarch, and in any event, the annual change of person demonstrates that military command experience was not a pre-requisite as it was later under the stress of the Persian Wars. The third member of the trio was the *Basileus* and he was invested with the religious authority of the former Kingship including jurisdiction over State rites and sacrifices, religious offences, homicide and hereditary priesthoods.¹¹⁸ His residence was the Boukolion near the Prytaneion (*Ath. Pol.* 3.5). He may

¹¹⁶ According to *Ath. Pol.* 3.3 and 41.2. This transition is plausible but not provable. King is the literal translation for *basileus* but is probably too strong a word for the type of rule he exercised under the earlier system. Chief might be better. See Donlan 1997 for a good description of the likely transition.

¹¹⁷ In classical Athens he had control over foreigners (*Ath. Pol.* 58.3), so perhaps his civil jurisdiction extended to them in the Archaic Period.

¹¹⁸ He was “in charge of the most important matters” (Lys. 26.11) but it is difficult to know how many of his classical duties went back to 600. He headed state sacrifices, processions and contests (*Ath. Pol.* 57.1), the

have been assisted by the *Phulobasileis* (Tribe-kings referred to in *Ath. Pol.* 8.4) who sat with him at the Prytaneion to hear cases involving unknown murderers (*Ath. Pol.* 57.4). Otherwise, the *Phylobasileis* appear to have also had religious duties, a vestige of which has been preserved in the reinscription of the Athenian State Calendar (Sokolowski 1962, 28, column 2, lines 33-4 and 45-6). However, there is no evidence that the *Phulobasileis* and the *Phulai* (tribes) themselves had any real power at this time.

In addition, there were six magistrates called the *thesmothetai* with a meeting place called the Thesmotheteion (*Ath. Pol.* 3.5). There is considerable scholarly controversy about the role of these men.¹¹⁹ According to *Ath. Pol.* 3.4 they were instituted “many years” after the archonship was made annual ca. 683,¹²⁰ but before Drakon (traditionally though not certainly) ca. 621/0 (Cadoux 1948, 92), to “perform the function of publicly recording the *thesmia* (ordinances) and to preserve them for the trial of litigants”.¹²¹ This may have been merely a deduction from their name for the following reasons given by Sickinger (1999, 11). Firstly, the later fifth and fourth century magistrates of the same name had judicial, not scribal duties. Secondly, it is difficult to believe that six magistrates were permanently required merely to record judgements at that time. Thirdly, this means there must have been substantial archives of judicial verdicts which seems extremely unlikely, and, I might add, later Athenians never used a system of precedents to decide cases. Fourthly, *Ath. Pol.* 41.2 provided the contradictory evidence that laws (*nomoi*) were first written in the time of Drakon. Sickinger did not consider these objections decisive. He acutely noted (1999, 12) that “Thesmothetai are, literally, officials who make *thesmoi*, not *thesmia*”, but he believed (pp.12-14) that Aristotle had access to a collection of *thesmia* which he equated with *nomoi* in the sense of them being general legal rules, but not judgements. On this basis, he believed Aristotle’s account rested on more than just etymology. I suggest a different interpretation.

leasing of sacred land (*Ath. Pol.* 47.4), and legal cases connected with sacrilege, impiety and false claims to a priesthood (Andok. 1.111, Dem. 22.27, 35.48, *Ath. Pol.* 57.2).

¹¹⁹ Sickinger 1999, 10-14 provided an excellent summary and discussion of the issues.

¹²⁰ This date is conventionally accepted based on the strong tradition dating to the second half of the fifth century that the Athenians adopted a system of archons to replace the monarchy which became annual with Kreon (cf. Cadoux 1948, 88-90). It relies upon the accurate maintenance of an archon list which survived the Persian destruction or was rewritten from memory (p.79). A more conservative view is that there was such a list from ca. Solon’s time, but only some individual names were known from earlier because they were linked with important events. For the purposes of this study, there is no doubt there was an annually elected eponymous archon ca. 600, but the question of the earlier list deserves a fresh and more sceptical reinvestigation than Cadoux’, given what has been learnt since he wrote over sixty years ago.

¹²¹ ὅπως ἀναγράψαντες τὰ θέσμια θυλάττωσι πρὸς τὴν τῶν ἀμφισβητούντων κρίσιν.

Thesmoi were laws in Solon's poetry (cf. West *Solon* F36.18) and time-honoured practice in Homer (cf. *Od.* 23.296) which were given, set or affirmed (*thetai* from *tithēmi* has a considerable range of meanings and uses – *LSJ*). Surely it is more likely that the *thesmothetai* were magistrates who gave judgement in legal cases. Their number may have been required to give sufficient weight to a decision in an important matter involving wealthy and influential people. Alternatively they may have followed the practice attested in the judgement scene in *Il.* 18.497-508 where a group of elders suggested solutions and the 'straightest' of these was accepted as the judgement. However they made their decisions, their role as an administrative executive in combination with the three main archons is attested in Thuc. 1.126.8 in the Kylon affair of 632, who noted that "at that time, most political functions were discharged by the nine archons".¹²² Perhaps the nine archons also filled the practical function of providing judges for Attica, not just Athens, and possibly the office gave those men legal power or status in their home districts. It is also interesting to note the passage in Pausanias (9.36.8) that Drakon 'thesmothetised' for the Athenians.¹²³ This could mean that he made *thesmoi* or that he was a *thesmothetēs*, though "Pausanias is not a strong authority for Athenian constitutional matters" (Sickinger 1999, 16 and 200, n.25). If Drakon was not a *thesmothetēs*, he must have held some other unknown position perhaps like Solon's later appointment as *diallaktēs* (mediator), though there is no ancient authority for this. Presumably a *thesmothetēs* could have been given the authority to draft a particular law, or even been the most prominent member of a group of *thesmothetai*, just as Nikomakhos is the only member of the late fifth century *anagrapheis* known to us by name.¹²⁴

The account in *Ath. Pol.* 3 states that the nine magistrates were primarily concerned with law and religious rites. However, it continues with an assertion that ex-archons became members of the *Boulē* (Council) of the Areopagos which "had the official function of guarding the laws, but actually it administered the greatest number and the most important

¹²² Thucydides thus appears to deliberately contradict Herodotos (5.71) who claimed the *Naukraroi* were responsible. Given the importance of the 'curse' in later Athenian politics, it can hardly be doubted that Thucydides was correct. Plut. *Sol.* 12.1-2 gave a similar version.

¹²³ Δράκοντος Ἀθηναῖος θεσμοθετήσαντος.

¹²⁴ We know he was not the eponymous archon because he made his law(s) in the archonship of Aristaiikhmos. The lack of historical details has led to speculation that he was not a real person, and that his 'snake' name implied he was the embodiment of law (Beloch 1912-27, 1.2. 358-62; Sealey 1987, 115-6). I agree with Sickinger 1999, 15 that this is unlikely, and even if it is true, the homicide law was drafted by someone.

of the affairs of state, inflicting penalties and fines upon offenders against public order without appeal". We might wonder how Aristotle knew this, since the Areopagos did not play a part in the Kylonian affair and was not mentioned in the reinscription of Drakon's homicide law. This was noted by Plutarch (*Sol.* 11) who commented that "most writers say the *Boulē* of the *Areiopagos* (sic) was established by Solon". He was unsure if this was correct, quoting a law which can only plausibly belong to Solon attesting to the prior existence of the Areopagos.¹²⁵ His alternative was that the law referred to Areopagites because they had formerly been archons. Wallace (1985, 6 ff) argued that *Ath. Pol.* was actually mistaken about the early powers of the Areopagos, and that it was solely a homicide court established by the eighth century. I doubt the evidence is adequate to substantiate the date, but accept he is likely to be correct about the existence and limited competence of the Areopagos ca. 600 given its later activities.¹²⁶

I earlier noted the general paucity of information, and this problem is acute with regard to official financial matters. One possible explanation is that the details were simply not preserved for some reason. This may be adequate for an author such as Thucydides for whom events prior to the Pentakontaetia were only the subject of occasional digression. However, Aristotle **was** interested in how the State organised its financial affairs. He recorded his understanding of them from Solon onward in considerable detail, but virtually nothing for the prior period, except the probably inaccurate reference to the Areopagos having the power to fine people (mentioned above) which is a legal matter, and the interpolated Chapter Four. Much rests on deducing (from *Ath. Pol.* 7.3) that when Solon "distributed the other offices to be held among the Pentakosiomedimnoi" including *Tamiai* (treasurers), *Pōletai* (vendors of contracts), and *Kōlakretai* (translated *infra*), he meant (and had access to good information) that these offices existed before Solon. However, the evidence suggests that Athens had an unsophisticated economy in which grain (probably but not certainly barley) was the standard for exchange, and silver was little used except for trade and travel. (I put the detailed case for this in Part 3.2). Therefore I maintain finance played a very small role in the administration of the State ca. 600. Presumably building and maintaining the very limited public infrastructure of the time required some income and

¹²⁵ The law covers the status of people already declared *atimoi* at Solon's archonship which would have been irrelevant later.

¹²⁶ The *Boulē* could have been a descendant of the aristocratic Council that once advised the Kings, but this is hypothetical. For a discussion of the possibility of a Solonian Council of 400, see Part 4.1.1.

expenditure, but we have no evidence this was organised by a State bureaucracy. On the contrary, it is entirely more likely it was paid for by private dedications and offerings given the religious nature of the public buildings, and our knowledge of aristocratic practice during the sixth century.¹²⁷ The main purpose of collecting revenue was arguably to pay for sacrifices, but even for this we have no real proof, and expenses could have been paid by the incumbents (priests, office bearers) who possibly defrayed the costs from contributions or levies. With this in mind, I now propose to briefly examine the evidence for the existence and role of the financial officers.

The *Kōlakretai* were literally the ‘collectors’ or (in my opinion more likely) ‘carvers’ of hams or limbs (Harding 1994, 135) which seems to perfectly illustrate their original role with regard to sacrifices.¹²⁸ A fragment of Androtion (Harding 1994, F 36) recorded that they were to “give *argurion* (silver) for travel expenses from the Naukraric (lit: Naukleric) fund to those who go on sacred embassy to Delphi, and they are to make expenditure on any other matter that is necessary”.¹²⁹ However, we have no way of contextualising the date of these functions, and I contend that payment by the State of the expenses of its delegates on business abroad was a sixth century development.¹³⁰ Later still they were “stewards of public money”, specifically of pay for jury duty according to a scholion to Aristophanes *Birds* 1541, and probably more generally responsible for State payments, though Androtion (Harding 1994, F5) claimed they were replaced by the *Apodektai*. This seems unlikely to be correct because they were explicitly referred to in 418/7 (IG I³ 84) and were dissolved shortly afterwards (Harding 1994, 91-2).¹³¹

¹²⁷ Even the public fountain house was a ‘gift’ of Peisistratos. I contend the public buildings were modest enough to have been built by wealthy *genē*, and it is not unreasonable to suppose that each archon was responsible for the upkeep of their abode during their period in office. The *temenos* of a cult would generally have brought in sufficient produce to pay for its upkeep, and any excess ‘skimmed’ by its hereditary aristocratic master.

¹²⁸ Rhodes 1981, 139 opted for ‘collectors of hams’. I prefer ‘carvers’ as suggested by Busolt and Swoboda 1920-6, i. 589 because their later role was entirely distributive. I note the spelling κωλοκράτης for κωλοκρέτης in SEG 39.148 (Attica 4th c. BCE). This raises the possibility that the word meant control over (κρατέω) distribution of the parts of the sacrifice.

¹²⁹ The emendation by Wilamowitz 1893, i. 52 was based on the mention of a Naukraric Fund in *Ath. Pol.* 8.3. However, it is not inconceivable that a Naukleric Fund also existed especially given that ship owners would be the most likely group in society to be using silver at this time. See my discussion in Part 3.2.

¹³⁰ See discussion in Part 3.2. Hignett’s suggestion (1952, 78) that there was a central treasury receiving fines and confiscations is plausible, but implies a later date when silver was in wider use as currency.

¹³¹ For epigraphical references, cf. IG I³ 7.9; 11.13; 36.8; 73.26 and 28.

The earliest known reference to *Tamiai* was in Homer where they were “stewards who dealt out food” (*Il.* 19.44). The word (in the singular) was also used as an epithet of Zeus The Dispenser (*Il.* 4.84) and came to mean ‘treasurer’ especially at Athens of the sacred treasure on the Acropolis (*Hdt.* 8.51).¹³² This role could easily date to 600 but there is no evidence for it, and it is unlikely the *Tamias* of a sanctuary was under State control at this time, even if that was the case later.¹³³ In fact, Solon’s lament about the people’s leaders growing wealthy stealing sacred property (*West Solon* F4) may well refer to the exploitation of income from sacred *temenoi*. The first named *Tamiai* only appear ca. 550/49 (Develin 1989, 8).

Pōletai in Classical Athens were “officials who farmed out taxes and other revenues, sold confiscated property, and entered into contracts for public works” (*LSJ*; cf. *Ath. Pol.* 47.2-3). Their inclusion in *Ath. Pol.* 7.3’s list of offices to be held exclusively by the wealthiest class of Athenians seems suspiciously anachronistic (along with the mention of the Eleven), unless we suppose they had more limited duties, but there is no evidence to decide one way or another.¹³⁴

Naukraroi were mentioned in *Ath. Pol.* 8.3 as the officers responsible for levying and spending funds. It has long been thought they were connected with shipping in some fashion based on an inference that their name derived from *naus* (‘ship’, cf. Pollux 8.108) and leading to a conventional translation of ‘Ship-commissioners’ or ‘naval board’.¹³⁵ Gabrielsen (1985 and 1994, 19-24) tried to show that this etymology is questionable, though it seems likely they had some involvement in shipping or at least sacred travel given the Androton fragment (36) quoted earlier. He more successfully demonstrated that Athens did not have a state-controlled navy until late in the sixth century. Wallinga (2000) proposed that a cooperative regional system of coastal defence called the *naukraria* utilising privately owned ships and horsemen hardened into a state institution, but his arguments for this having

¹³² In the fifth and fourth centuries, the word came to be applied to many functions – the stratiotic and trireme funds, dockyards, rigging and so forth. See Develin 1989, 8-10 for a list.

¹³³ Control of the apparatus of religion was evidently vital. This is illustrated by the myth reported by Apollodoros (3.15.1) that when the king Pandion died, “his sons divided their father’s inheritance between them. Erekhtheus received the kingdom, while Boutes received the priesthood of Athene and of Poseidon Erekhtheus” (trans. Stanton 1990, 209). The *genos* Boutadai took its name from this eponymous hero along with the priesthoods, but the tradition illustrates the point. The *genē* made sacrifices and divided the proceeds, and presumably appointed the *Tamiai*.

¹³⁴ It is perhaps worth noting that the verb (*pōleō*) is not found in Homer except in the middle form where it has a meaning ‘to consort with’ or ‘frequent’.

¹³⁵ For instance, see Lambert 1993, 254-5 for a strong endorsement of this view plus references.

happened as early as the end of the seventh century required substantial (and unconvincing) special pleading.¹³⁶ Other etymologically based explanations have been advanced that *naukraroi* were ‘temple-heads’ meaning *tamiai* entrusted with guardianship of the temples and their finances, or alternatively administrators of districts of Attica.¹³⁷ The latter explanation is perhaps more convincing given *Ath. Pol.* 21.5 claimed demarchs replaced *naukraroi* and this is supported by the testimony of Photios, *Lexikon*, s.v. *naukraria* who quoted Kleidemos (*FGrH* 323, F8 = Harding 2008, 97, no. 107; albeit also with appeal to Aristotle and the laws of Solon). Herodotos 5.71.2 claimed the *naukraroi* played the leadership role at Athens in the Kylonian affair, and though this was probably incorrect (cf. Thuc. 1.126.8), it was clearly conceivable. There is even a text which states that “*Kōlias* – a place in Attica...was also a *naukraria*”,¹³⁸ which seems to put the matter beyond doubt. It is curious that *Ath. Pol.* 8.3 calculated that there were exactly forty-eight naukraries on the basis of twelve per tribe, which seems a very even distribution of territory. De Sanctis (1912, 308) suggested that it was an invention of the Atthidographers. Hignett (1951, 73-4) made the more pragmatic suggestion that there were forty-eight naukraries, or fifty according to Kleidemos at the time of Kleisthenes’ reforms (*ibid*), but they were not subdivisions of the tribes. If this is correct, we still must conclude that either the naukraries were much larger than subsequent demes, or they did not cover all of Attica. There is no evidence to suppose, as de Ste Croix (2004, 148) imagined, that the naukraries were like demes “in which ordinary citizens could play a part” because they were “a creation of the aristocratic state”, though he intriguingly suggested that the *naukraroi* may have been subject to *euthuna* (audit on retirement).¹³⁹ The reality is that we know very little about the *naukraroi*. However, I will argue later in this thesis that their exposure to finance and shipping, and especially their role in practical administration at a local level, was critical in the later sixth-century development of Athens.

¹³⁶ Wallinga 2000, 140-1 – he relied on the testimonies of Herodotos 5.71 and Harpokration *Lexeis* s.v. *naukrarika* (though the latter clearly states his reliance on Herodotos) regarding the involvement of the *naukraroi* in Kylon’s coup attempt being substantially correct. He supposes the conspiracy started on the coast and was dealt with by *prutaneis* who were a small committee of administrators of all 48 *naukraroi*, and who were abolished because of their role in this affair.

¹³⁷ Gabrielsen 1995, 23-4 summarised the arguments. The former is derived from Mycenaean etymology equating the *nau* prefix with *naōs* – temple + *kraros* – commander. The latter takes *nau* from *naiō* – ‘I dwell’ + *kraros* as an old form of *klēros* – a lot or piece of land.

¹³⁸ *Anecdota Bekker Lexica Segueriana* 1.275.20 – see the discussion in Lambert 1993, 252, n.35.

¹³⁹ Cf. IG I³ 244 and the audit of Skambonidai which dates before Ephialtes.

I now wish to very briefly consider the place of other institutions in the power structure of the time. There were a number of these. Attica was divided into four pre-Solonian tribes and trittyes, but whatever role these may have had in the past, they seem to have had little practical power by 600.¹⁴⁰ All ‘citizens’ seem to have belonged to a phratry. These were clearly territorial (Hedrick 1991), and could even stand in for a murdered man who had no relatives (cf. Drakon’s homicide law discussed earlier). The origins of the phratry are lost in the mist of time, but it is reasonable to suppose that they were originally voluntary self-help associations that helped protect the lives and property of members, and whose membership became hereditary with discrete traditions and cults (Hignett 1952, 58-9). *Ath. Pol.* fr. 3 claimed that each tribe was divided into three phratries in the “time of Ion”, but this was clearly a rationalisation. Within a phratry there could be a number of *gennetai*, *orgeōnes* and *thiasoi*. The *gennetai* consisted of Eupatridai who professed descent in the male line from a mythical founder ancestor, and thus had high social prestige. *Orgeōnes* and *thiasoi* were religious confraternities with broader membership. A statement recorded in the *Suida* s.v. *orgeōnes* (= *FGrH* 328 Philokhoros F35a) stated “But the *phrateres* were obliged to accept both the *orgeones* and the *homogalaktes*, whom we call *gennetai*”. It seems likely that the leadership of the phratries was dominated by aristocratic members, but perhaps this was not the case for all of them, and at a purely local level, wealthy non-Eupatridai and extended family connections must have accounted for considerable influence.

The only body that might potentially have represented the interests of the *dēmos* at an institutional level was the *Ekklēsia* (Assembly), the existence of which is generally assumed since in Homer there was an Assembly of men-at-arms who voted on matters of war and peace (cf. *Il.* 2.48-399).¹⁴¹ *Ath. Pol.* 7.3 claimed that Solon admitted *thētes* to it for the first time and (at 8.1) that magistrates were selected by lot. The latter is in conflict with *Arist. Pol.* 1274a 16-17 who claimed that following Solon’s reforms its functions were “to choose

¹⁴⁰ Cf. *Ath. Pol.* 8.3. A trittys is known from the Athenian Sacred Calendar – the Leukotainioi, along with the Phyllobasileis.

¹⁴¹ It is important to note that (a) the Homeric Assembly was called by the king as commander-in-chief and only when he wished, (2) it was comprised entirely of fighting men meeting under the duress of war, (3) only the opinions of senior commanders had any weight though importantly the ordinary soldier Thersites could speak (albeit at considerable personal risk), (4) the army shouted their massed approval or disapproval, and (5) the final decision was still up to the king. In essence, the king was looking for commitment from his army to a proposed course of action in a similar fashion to Alexander the Great on campaign, and I believe it is dangerous to find democratic parallels in all this unless we wish to believe that Alexander’s Macedonians were democrats too.

magistrates and call them to account". I do not wish to discuss that question here (though I tend to agree with de Ste. Croix 2004, 91-104 and others in favour of the version in *Politics* contra Rhodes 1981, 146-8), but I do note that the earliest evidence for a meeting was in 560 when Peisistratos "persuaded the people to give him a bodyguard, the resolution being proposed by Aristophon" (*Ath. Pol.* 14.1), and opposed by Solon (*Ath. Pol.* 14.2). The wording used by Aristotle to describe the resolution is anachronistic,¹⁴² and the mover had an aristocratic name. Some years earlier, before Solon's appointment as archon, when he wanted to persuade the people to back resumption of the war to recapture Salamis, he "sallied out into the Agora" and spoke on the "herald's stone" to the "large crowd" that had gathered (Plut. *Sol.* 8.2). And in Solon's surviving poems, there is no indication of the people having a formal venue to express their obvious discontent even though there was "civil strife" and "grievous conflict" (West *Solon* F4). This is not to deny that the Assembly met or even that its collective view mattered, but there is no evidence of who it comprised or what it did before Solon's reforms. Perhaps it was convened by members of the elite when they wanted something that required active cooperation from the *dēmos* as in the case of Peisistratos above, and as occurred in Homer (cf. *Iliad* Book 2 discussed above), but as de Ste Croix (2004, 73) noted, there would have been no equality with the aristocrats through counting of votes, just approval or disapproval en masse. It is difficult to envisage that the average Athenian had yet gained more individual rights or protection from his 'betters' in or through the Assembly than Thersites.

In summary, it would seem that central administration was overwhelmingly concerned with exercising and sharing legal and religious control among an elite body of Eupatridia qualified by "wealth and birth" (*Ath. Pol.* 3.1). These prominent men took turns at various magistracies like "rivals on the playground" while maintaining group solidarity (Foxhall 1997, 119-20). Domination of the priesthoods further entrenched their wealth, power and patronage. They also competed with one another for influence and prestige outside the formal institutions of Government, and this manifested itself in conspicuous consumption such as religious dedications and public sacrifices, construction of tombs, competition in games, and military exploits (Pritchard 2010, 12). Laws from Drakon's period in the last quarter of the seventh century were primarily designed to regulate infighting among this

¹⁴² Ἀριστίωνος γράψαντος τὴν γνώμην – though it does not follow the usual proposal formula, a resolution could be presented as a *gnōmē* (cf. IG I³ 89, 55 sqq, and IG I³ 127, 6).

group specifically in relation to homicide. The financial evidence points to the lack of a centralised bureaucracy, and practical administration seems to have been on a low level, *ad hoc* basis. The only institution keenly involved in local government was the *naukraria*, out of which the deme system evolved. Central power was inversely proportional to the closeness of an aristocrat to their local power base. This offers an explanation and repudiation of Anderson's claim (2003, 24-30) that substantial parts of Attica were not Athenian territory during the sixth century on the basis that elaborate funerary displays occurred in the Alkmeonid controlled south after Solon had passed sumptuary laws. Irrespective of the genuineness of the law, it is unlikely that the state could enforce its will on a powerful and unwilling aristocrat without support from a coalition of other aristocrats. The *hoi polloi* were fair game in a system that screamed unfairness and potential for exploitation, as vividly illustrated in Solon's poetry and a comment on the limited effect of the *seisakhtheia* usually attributed to Hekataios of Abdera (*FGrH* 264, F25 = Diod. 1.79.4).¹⁴³ It is not surprising that large elements of the population were deeply unhappy and agitating for change. However, only some of the wealthier ones among them were in a position to do anything about it.

¹⁴³ He claimed that all the *seisakhtheia* did was abolish slavery for debt. The comment is usually dismissed as being an "extreme interpretation" (cf. Frost 2005a [1987], 20), but might just mean that aristocratic exactions continued though control of law and local administration even though the penalty of slavery for debt had been abolished.

2.5 What do we really know about Solon?

Solon has exerted an hypnotic fascination over students of the sixth century since antiquity. As lawgiver and reformer he has been credited with carrying out the *seisakhtheia*, enacting a new *politeia* (constitution) which led to democracy as well as a complete and enduring code of laws inscribed on *axones*,¹⁴⁴ establishing or making changes to the operation of the Areopagos, establishing the *Hēliaia* (lawcourt) and a Council of 400, and instigating a system of coinage, weights and measures. In his spare time he travelled and traded, was instrumental in expanding Athenian territory with the conquest of Salamis, wrote poetry, and became revered as a sage. Clearly he was an extraordinary man, but how much of his story is true? Is it possible to peel back the layers of information and misinformation in the ancient sources to discern an historical Solon and substantiate with any degree of confidence what reforms he enacted? I need to establish this because so much of our understanding of the course of Athenian history in the sixth century depends on what this man did. To test how we 'know' what we know about Solon, I propose to examine a range of ancient literary sources including the testimony of fifth-century historians and fifth-and fourth-century orators, the researches of later historians especially Aristotle and the Atthidographers,¹⁴⁵ and Solon's own poems.

The evidence for Solon as a lawgiver is necessarily late.¹⁴⁶ He was first attested by Herodotos in *The Histories* written sometime up to ca. 430-25. We might have expected Herodotos to be our best source because he wrote before the Atthidographers corrupted the tradition, but instead he provided apocryphal and probably anachronistic stories such as Solon meeting Kroisos and being one of the seven sages.¹⁴⁷ Chiasson 1986 suggested that

¹⁴⁴ For the inappropriateness of the word 'code' see Part 3.1, n.3; cf. Hölkeskamp 1992. For scepticism about Solon's laws being authentically attributed see Osborne 1996a, 207.

¹⁴⁵ Their work formed the basis for later writers such as Plutarch.

¹⁴⁶ Herodotos is the earliest reference for Archaic Athens outside of fragments of contemporary poetry. Plutarch *Solon* 1.1 mentioned a certain Philokles, who probably was the fifth century playwright nephew of Aiskhylos and contemporary with Sophokles. This Philokles claimed that "Solon's father was Euphorion, contrary to the opinion of all others who have written about Solon". It is curious that in a society obsessed with lineage, especially among the Eupatridai, this fact would not be certainly known, and even more so if Solon had been so important. It also says something about record keeping, on which more later.

¹⁴⁷ Herodotos 1.29-33, 1.86, 2.177, 5.113. It is just possible to defend the historicity of the encounter with Kroisos in the late 550s/early 540s by separating Solon's archonship from his legislation. See Stanton 1990, 49,

Herodotos was familiar with at least some of Solon's poetry and reflected it in the stories, though all the examples he gave were archaic topoi.¹⁴⁸ The only 'law of Solon' which Herodotos mentioned was the one against idleness, taken he said from Egypt (2.177.2), but this law was also attributed to Drakon by others.¹⁴⁹ Moreover, he stated that Solon visited Amasis after his legislation (1.30.1), and this chronology is repeated with alleged reasons for leaving Athens in *Ath. Pol.* 11.1.¹⁵⁰ When providing background historical information on Athens and Sparta as part of Kroisos' inquiries into the Hellenes (1.56.1 ff), Herodotos specifically discussed Lykourgos' lawmaking (1.65.4-5) but not Solon's, though he did discuss in some detail the earlier attempt at tyranny by Kylon (632 BCE) and the later tyranny of Peisistratos. Thucydides it should be noted, did not mention Solon but maybe the explanation is that he had no particular reason to do so.¹⁵¹ The orator Antiphon might have been expected to cite Solon in a speech of 419 *On the chorus boy* (6.2) when he was specifically discussing the "oldest established laws", but he made no mention of Solon or Drakon for that matter. Compare this with the routine description of 'Solon's laws' by the

n.2. This would require disregarding one of the two traditions recorded in Plutarch *Solon* 32.3 derived from Phanias of Eresos that Solon died in the archonship of Hegestratos ca. 560/59 in favour of the other tradition from Herakleides of Pontos that he "survived a long time after Peisistratos became tyrant". Even so, he must have been an elderly man for such travel. Plutarch *Solon* 27.1 noted the controversy in antiquity about whether the meeting could have occurred on chronological grounds. He accepted that it did because the story was so well-attested and more importantly, conformed with Solon's character, magnanimity and wisdom.

¹⁴⁸ Herodotos 5.113 alludes to West *Solon* F19 of Solon's poems in which Solon praises Philokypros. Solon's ideal lifespan of seventy years (F27) matches that of Tellos – the happiest man in his reply to Kroisos. Also his concept of moderate wealth (F24) as opposed to excessive wealth which is inherently dangerous and subject to divine wrath, and observing the outcome (F13) have parallels in the Kroisos encounter.

¹⁴⁹ Lysias F10 (Thalheim) claimed Drakon introduced the law with the death penalty, which incidentally was the same penalty under Herodotos' Egyptian law for an illegal source of income, but Solon ameliorated it to a fine or *atimia*; Plutarch *Solon* 17.2-4 said that Drakon introduced the law with the death penalty.

¹⁵⁰ Herodotos claimed he visited Egypt and Lydia. Aristotle only mentioned Egypt for the purposes of trading and to escape being pestered about his laws. This could rely on tradition or deduction.

¹⁵¹ This has been a concern to historians for a long time. Gilliard 1907, 25-6 noted that Solon "could not have been omitted by Thucydides through negligence or ignorance" and therefore he could only have been known by fifth-century historians as being "without great importance" (my translations). Szegedy-Maszak 1998 endeavoured to show that whilst Thucydides never mentioned Solon by name, he used Solonian "motifs and slogans" that would have been instantly recognised by his readers. I do not find his examples compelling, but accept Thucydides would have been acquainted with the oral tradition and Solon's poems at least as much as was Herodotos. However, as Professor Stanton pointed out to me in private correspondence, Thucydides was not writing a general history in the manner of Herodotos, being overwhelmingly concerned with 431-404. His digression about Kylon was specifically to explain the curse on the Alkmeonidai, though the essay on the overthrow of the tyranny was incorporated without much justification.

orators in the fourth century.¹⁵² However, Solon was mentioned by late fifth century playwrights Kratinos, Eupolis and Aristophanes in a similar vein to Herodotos. Thus in the comic poet Kratinos' play *Kheirones* written probably in the 420s, the maxim-spouting centaurs conjured up the ghost of Solon from Hades on account of his wisdom and incorruptibility. This phantasmal Solon referred to his ashes being scattered over Salamis, which was evidently part of his mythology, but did not refer to his laws.¹⁵³ Kratinos also made an allusion to Solon and Drakon with a metaphorical joke about their *kurbeis* being treated as firewood, which implies they were the objects on which their writings were written (and not a 'code' on *axones* - cf. Part 7.3, Cit. 3). Solon was again conjured up from the dead in Eupolis' *Demes* ca. 417/6. He was one of four statesmen from an earlier age together with Aristides, Miltiades and Perikles, and was paired with Aristides in the phrase "when you and Solon governed" (F99.47). This could not have been meant literally because they were not contemporaries, with Aristides being a politician ostracised in his tussle with Themistokles almost a century later. Aristides was renowned for being 'just' (as in the description by Herodotos 8.79), and that is a key concern of Solon's poetry. Crucially, the character of Solon contributed nothing in the surviving fragments, and there is no mention of him having done so in discussion of the play by later commentators.¹⁵⁴ Solon was mentioned twice by Aristophanes. In *Clouds* 1187 dating to 423, the dissolute character Pheidippides says that "by nature old Solon was a friend of the people" when explaining how to exploit a 'law of Solon'.¹⁵⁵ In *Birds* 1660 produced in 414, the "very words of Solon's law" on inheritance are paraphrased for comic effect. The same phenomenon can be observed

¹⁵² There are many examples e.g. Demosthenes 24.142 – "those well tried laws of Solon..." and Aiskhines *Against Timarchos*, "Consider men of Athens, how much attention that ancient lawgiver, Solon, gave to morality, as did Drakon and other lawgivers of those days". Other examples make it clear the orators had little idea how Solon's time was different from their own. For instance Demosthenes 24.212 said he wanted to narrate something "which they say Solon once said when he was prosecuting someone who had proposed a bad law". He went on to speak of convincing the jurors and discussing coinage laws, all of which was anachronistic.

¹⁵³ Kratinos lived ca. 519-422. The date of the *Kheirones* (*Centaurs*) is unknown but was probably written in the 420s from a reference to Perikles at F258 – see Torello 2008, 46, n.26. Diogenes Laertios *Life of Solon* quoted Solon's opening lines (F228 of the play). Admittedly only fragments remain (maybe ten percent of the whole play) but no later commentator cited any laws from the play as might have been expected. Compare Plutarch's citation from Kratinos' *Pytines* discussed later in the testimonia (Part 6.3).

¹⁵⁴ Later commentators were Plutarch *Life of Perikles* 3; a skoliast on Aristides (Dindorf 1853, 3, 672) who named Gelon instead of Solon presumably by mistake; and Galen (Kuhn 1830, 5, 38).

¹⁵⁵ A close echo can be found in Demosthenes 18.6 where he described Solon as "a good democrat and friend of the people".

with Drakon whose name was not used earlier than the late fifth century to describe homicide laws. Before that they were simply the oldest laws which had stood the test of time, viz. Antiphon *On the murder of Herodes* 14-15, ca. 420 and *On the Chorus Boy* 4 written a year later.

Clearly at the end of the fifth century, the ‘laws of Solon’ were beginning to take on a life of their own. This is demonstrated in the review of legislation carried out by the *anagrapheis* in the period from 410/9 – 400/399. The speaker of Lysias 30 dating to 399 claimed that Nikomakhos, one of the *anagrapheis*, had been “instructed to publish the laws of Solon within four months. Instead he set himself up as lawgiver (*nomothetēs*) in Solon’s place”.¹⁵⁶ The task took a ten man commission a total of ten years – a huge expenditure of effort and resources in the very difficult times leading up to and past Athens’ total defeat in the Peloponnesian War.¹⁵⁷ Apparently it was not an easy matter to determine Solon’s laws notwithstanding community expectation that it would be simple. It strongly indicates no comprehensive body of genuine Solonian law readily existed at that date for Nikomakhos and his team to access. However, once the *anagrapheis* had finished, they had assembled such a comprehensive body, and it was generically known as the ‘laws of Solon’. I will argue in Part 3.1 that it was written on revolving wooden *pinakes* (painted boards) called *axones*, and later writers accessed this collection for specific laws, and not fragmentary relics from centuries earlier. A good example is the five volume work attributed to Aristotle in the anonymous *Vita Menagiana* (cf. Part 6.3) called *Περὶ τῶν Σόλωνος ἀξόνων* (*On the axones of Solon*). The work is otherwise unattested which is odd given the later interest in *axones* (cf. Part 3.1). Busolt (1893-7, 44, n.1) suggested it did not exist, but the simpler explanation is that Aristotle used the reinscribed collection for all his works on the Athenian constitution. Support for this view might be found in the reference in *Ath. Pol.* 8.3 stating that “in the laws of Solon no longer in use it is written in many places...”. Such laws may have

¹⁵⁶ Lysias 30.2. Translation and dating from Tod 2000, 296-307.

¹⁵⁷ Such commissions usually comprised ten men even though the attack was on Nikomakhos personally. Payment is confirmed by Lysias 30.2 “while receiving payment on a daily basis”. This is to be expected if Nikomakhos and his colleagues were effectively scribes as the title implies – one who writes up – and possibly had come from a relatively humble background. Lysias 30.27 says he has risen from being a low-grade clerk (*hupogrammateus*), but this, like the allegation of having slave ancestry (30.2 and 30.27) may be no more than the usual denigration tactic employed by orators.

been put into a deliberate category to avoid confusion.¹⁵⁸ It should be categorically noted that there is not a single reference to an *axon* before this reinscription (cf. Part 3.1).

Returning to the testimony of Lysias 30, the speaker added in his concluding remarks that “your ancestors chose as lawgivers Solon and Themistokles and Perikles”.¹⁵⁹ This is an interesting association because the latter two were admired for their leadership qualities in times of strife more than their legislating. Themistokles did propose legislation such as in 483 to use the proceeds of a rich vein of silver discovered at Laurion to build ships instead of its being disbursed amongst the citizens (*Ath. Pol.* 22.7), and ca. 480 the Themistokles Decree (though its authenticity is debated).¹⁶⁰ Likewise, Perikles initiated a number of proposals such as payment for jury duty (*Ar. Pol.* 1274a 8-9; *Ath. Pol.* 27.4; *Plut. Per.* 9.2-3), and the Citizenship Law (*Plut. Per.* 37.3, cf. *Ath. Pol.* 26.4). For both men, these were pragmatic measures with a political purpose. They were statesmen. Neither set out to draft a code of laws. It is a reasonable inference that this is how Lysias also perceived, or chose to represent, the historical figure of Solon.¹⁶¹

As mentioned in the previous chapter, Drakon’s homicide law was the first known to have been reinscribed by the *anagrapheis* in 409/8. This is possibly because it was the most venerable and easy to identify and copy, and maybe in response to some pressing need.¹⁶² Andokides 81-85 mentioned Solon and Drakon in quoting the Teisamenos decree of 403/2. Their laws were to be used “in accordance with tradition” whilst being vetted and

¹⁵⁸ Hignett 1952, 20 concluded “that in the fourth century ‘the laws of Solon still in use’ must be identical with the code of 401”.

¹⁵⁹ Lysias 30.28.

¹⁶⁰ The stele itself is probably one of a number of fourth century ‘forgeries’ as argued by Habicht 1961 – but see Meiggs and Lewis 1969, 48-52. Huxley 1968 even suggested it was created by the Atthidographer Kleidemos. For all that, Themistokles’ role in proposing the legislation is generally accepted.

¹⁶¹ It is very difficult to disentangle the historiographical biases of such sources as will be discussed shortly. The democratic tradition of glorifying key figures continued, so that a century later Xenophon could write about the same trio in *Symposium* 8.39: “You must try to find out what sort of knowledge it was that made Themistokles able to give Greece liberty; you must try to find out what kind of knowledge it was that gave Perikles the name of being his country’s wisest counsellor; you must reflect how it was that Solon by deep meditation established in his city laws of surpassing worth”.

¹⁶² Gallia 2004 plausibly suggested that the inscription went on to deal with lawful tyrannicide and was aimed at legitimising the assassination of Phrynikhos in 411 (*Thuc.* 8.92.2). I do not agree that the specific directions contained in the preamble make it inconsistent with the other, broader activities of the *anagrapheis*. The prominent and speedy republication of this specific law may have been felt necessary given the *stasis* of the time with its potential to escalate into tit-for-tat killings. The ease with which it was done may also have led to the unrealistically short time frame which Lysias 30.2 and 30.4 claimed was allocated to republishing ‘Solon’s laws’.

confirmed. It is thus salutary to consider Lysias 31 ca. 402/1. In this speech the defendant was accused of evading his responsibility to “participate in the civil strife that accompanied the democratic revolution” (Tod 2000, 308). However, the speaker did not refer to a law widely considered to be genuinely Solonian and quoted in *Ath. Pol.* 8.5 that “[i]f anybody did not take up a position alongside one of the two groups at a time when the city was in a state of *stasis* (civil strife), he was to suffer *atimia* (loss of civil rights) and to have no share in the city”.¹⁶³ Tod (2000, 308-310) rehearsed the arguments including the possibilities the law was a fourth century invention, or deliberately not mentioned, or obsolete.¹⁶⁴ It may simply be that before the laws were assembled by the *anagrapheis*, individual ones could easily be overlooked. Thus the accused in Andokides 1.116 claimed somewhat melodramatically to have been saved by the law on a stele literally where they were standing (cf. Thomas 1989, 68 ff). It brings to mind the complaint in Lysias 30.3 that “rival litigants presented contradictory laws in the lawcourts, both sides insisting they had received them from Nikomakhos”.¹⁶⁵

It is worth noting that even in Plato *Gorgias* 518e-519a written ca. 380, when Sokrates asked one of his dialectic victims Kallikles to name politicians who had benefited the Athenians, the reply was Themistokles, Kimon, Miltiades and Perikles, but not Solon.¹⁶⁶

References to Solon burgeoned in the later fourth century.¹⁶⁷ Clearly, as has long been realised, by this point in time the ‘laws of Solon’ meant the ‘laws of Athens’ irrespective of whether drafted by Solon or not (Schreiner 1913, 30). It was also the time when serious investigation was beginning to be made into the past including about Solon. The most direct evidence comes from *Ath. Pol.* 7.1. Aristotle said that Solon “established a constitution and made other laws, but the ordinances of Drakon they ceased using except those on homicide. Inscribing the laws on *kurbeis* they set them up in the Stoa of the Basileus and all swore to

¹⁶³ Also quoted in Plutarch *Solon* 20.1.

¹⁶⁴ Ironically, this was the position of Solon himself. See Szegedy-Maszak 1998, 208 on this and the correlation with Thucydides 3.69.85 on the fate of *ta mesa* during the stasis at Korkyra. See also the treatment of this question in a broader discussion of *atimia* by Rihll 1991.

¹⁶⁵ It makes me wonder if Lysias the metic logographer had personally had a problem with Nikomakhos obtaining access to laws and was getting some retribution, rather than the standard argument that it was a case of oligarch versus democrat. Also, the fact that an archive existed did not mean it was particularly useful or easy to trawl through.

¹⁶⁶ This is all the more remarkable considering the likely familial relationship (or at least close family friendship) between Plato and Solon – cf. Pl. *Tim.* 20e.

¹⁶⁷ McNerney 1994, 33, n.60 noted: “Solon is mentioned four times in the 75 extant speeches before 356, and 32 times in the 64 extant speeches after 356”.

observe them”.¹⁶⁸ It is known from archaeological investigation that the Stoa in question cannot have been constructed until the mid-sixth century at the earliest with a fifth century date more likely (Shear 1994). In fact, the classical Agora itself, if it existed, had no public buildings in it at all in Solon’s time.¹⁶⁹ So Aristotle was not accurate at least in this respect, but his understandable error was simply to assume the venerable building and its contents were older than they were.¹⁷⁰ If we take out this statement we are left with (a) Solon established the *politeia*, (b) passed other *nomoi*, and (c) everyone swore to observe them. De Ste Croix (2004, 312-5) made the vital observation that:

there is no trace of any explicit distinction between πολιτεία and νόμοι until well into the fourth century, when the writers on political theory required a more elaborate terminology. Certainly in the fifth century it was usual practice to refer to the constitution existing in a state, or devised by a legislator, as its or his νομοί.

Bearing this in mind, it seems that Aristotle’s detailed investigations and analysis (discussed *infra*) led him to believe that Solon’s principal accomplishment was his *politeia*, and secondarily “other *nomoi*” which can hardly be said to constitute a ‘code’. This is consistent with the rest of the *Ath. Pol.* in which Solon’s law-making activities are entirely of a political nature.¹⁷¹ Drakon by contrast, only “added his *nomoi* to an existing *politeia*” (Arist. *Pol.* 1274b). This distinction between *politeia* and *nomoi* is strongly argued in Aristotle’s *Politics* 1273b. Some lawgivers he said:

¹⁶⁸ In Part 3.1 I demonstrate that *kurbeis* were three sided, free-standing, timber objects carrying any kind of authoritative writing .

¹⁶⁹ The archaic *polis* may have used an Agora to the south-east of the Acropolis as was suggested by Robertson 1986. Schmalz 2006 claimed to have identified the long-sought Prytaneion in this area, though it may have been discovered in an alley off Tripodos Street based on an announcement by Drs. Matthaïou and Kavvadias at the 2010 Epigraphical Conference in honour of Harold Mattingly (held at the British School at Athens and the Epigraphical Museum – cf. Matthaïou, A. and Pitt, R., *ΑΘΗΝΑΙΩΝ ΕΠΙΣΚΟΠΟΣ: Studies in honour of H. B. Mattingly* [Greek Epigraphic Society: Athens 2012] forthcoming). This would accord with Pausanias 1.20.1. Papadopoulos 1996 suggested the classical Agora was not laid out until after the Persian Wars. He pointed out (p.123-5) that the area was used as a potters’ quarter (*kerameikos*) and burial ground because both activities took place away from housing areas. It was thus available to be appropriated. However, a date of 500-480 would be supported by the Agora *horoi* inscriptions which “represent the most explicit evidence for the establishment or formalisation of the market place” (p.114). Hall 2007, 47 pointed out that an Agora only needed a permanent location for commercial purposes, not as a meeting place.

¹⁷⁰ Though this has major implications for the debate about the *kurbeis* – discussed in detail in Parts 3.1 and 6.3.

¹⁷¹ Hansen 1989 considered (accurately in my view) that Aristotle and Isokrates reached a minimalist position about Solon’s reforms and especially his role in bringing about the democracy.

merely drafted laws alone, but others like Lykourgos and Solon made *politeiai*, establishing both the *nomoi* and the *politeiai*.

He refined what he believed Solon had done in the same section:

Those who say he was a good lawgiver put forth the following reasons: he broke up the absolute and undiluted oligarchy; he put an end to the enslavement of the people; and he set up the traditional democracy by mixing well the *politeia*. (Loeb trans. slightly adapted).

In essence, Aristotle promoted Solon to a pre-eminent political and constitutional role, but he did not credit him with writing an entire law code.¹⁷² It also means that when Aristotle read in Herodotus (1.29) that “Solon the Athenian made *nomoi* for the Athenians at their urging”, he would not have interpreted this to mean a law-code, and nor should we.¹⁷³

However, Aristotle may have failed to adequately discern between the historical and the legendary Solon, as the troubling pairing with the probably fictional Lykourgos shows. Arguably, the image of Solon was created in the literary tradition of the *heuretes*.¹⁷⁴ This was a convention of tracing back every development on the path to civilisation to a named individual such as the legendary Prometheus or quasi-mythological heroes such as Theseus. This is particularly evident with Plutarch, who later added meat to the bones of the Solonian legend, and loved enobling his characters. Aristotle (*Ath. Pol.* 5.3) cast Solon as the ideal, moderate sort of legislator, from a well-born but not overly rich background. In this context, he adduced selective quotations from the corpus of Solonian poetry. He also brought in a host of lawgivers in other *poleis* including Zaleukos of Lokroi, Kharondas of Katana, Philolaos of Korinth, and Pittakos of Mytilene.¹⁷⁵ These were discussed in an incisive article by Szegedy-Maszak (1978). He pointed out that the ‘legend’ associated with all the lawgivers is the same (p.208):

Initial stage – crisis in the state; rise of one man, uniquely suited for the task of legislation because of his virtue, education and experience. Medial stage – the crisis suspended; the man is selected to be lawgiver, promulgates the code and triumphs

¹⁷² The only basis for this belief could come from the work on Solon’s *axones* dubiously ascribed to Aristotle. See discussion in Part 3.1.

¹⁷³ Aristotle frequently referred to Herodotos – cf. the *Ath. Pol.*, the *Poetics*, the *Rhetoric*, the *Eudemian Ethics*, the *Historia Animalium* and the *De Generatione Animalium*, per de Ste Croix 2004, 270 quoting Weil 1960, 312-16.

¹⁷⁴ Linforth 1919, 281 put it well – “It was the universal Greek habit to attribute the great works of the past to definite persons without much critical regard to probability”.

¹⁷⁵ Aristotle *Politics* 1274a-b. The list also included Drakon.

over a challenge to it. Final stage – the crisis resolved; the code is firmly established, with some provision for its permanence, and the lawgiver departs.

The point he suggested, is the human creation of excellent laws marking the *polis*' progression from *anomia* to *eunomia*. The biographical details of the individual lawgivers were therefore only significant in contextualising the process. This has to make the evidence for the historical Solon somewhat suspect.

As is clear from the foregoing discussion, the leading source for a narrative of what Solon did is the *Ath. Pol.* Regardless of one's opinion as to Aristotle's personal contribution to writing the work (discussed earlier), few scholars would disagree it was at least written under his auspices, and that his method comprised a diligent search of the sources at Athens. Aristotle and the members of his school knew where to look, who to ask, and had full linguistic and cultural understanding. They were much closer in time to the events they described than writers such as Plutarch and Diogenes Laertios. Sadly they lacked a critical understanding and perspective of the historiographical processes informing much of their evidence, and their use of deduction and assumption to fill in gaps can be frustrating, but that is the challenge for us as historians. Given all this, it is important to consider what sources Aristotle and his researchers could have accessed concerning Solon and the sixth century more generally.¹⁷⁶ It is likely these included:

a. The archon list

The archon list extended at least as far back as Solon's archonship. We know this because in Plato *Hippias i.* 285e Sokrates jokingly said to Hippias, "you're lucky the Spartans don't enjoy it when someone lists our archons from the time of Solon". This implies the list could be used for dating just as Aristotle did, quoting one archon by name for the seventh century,¹⁷⁷ six for the sixth century,¹⁷⁸ and sixteen for the fifth century (cf. Cadoux 1948). Thus the reference to Solon being chosen archon (*Ath. Pol.* 5.2) would have established the date of his reforms absolutely for his contemporary readers. The question of the date of his legislation is a separate issue (cf. Hignett 1952, 316), and I suspect that the reason there was a problem

¹⁷⁶ See also the comprehensive discussions in de Ste Croix 2004, 277-327, Rhodes 1981, 15-30 and Higbie 1999.

¹⁷⁷ If one at least accepts the reference in *Ath. Pol.* 4.1 to Drakon's laws being passed in the archonship of Aristaikhmos as genuine.

¹⁷⁸ For the sixth century, archons named in *Ath. Pol.* are: 13.1 - Solon, 13.2 – Damasias, 14.1 - Komeas, 17.1 - Philoneos, 19.6 – Harpaktides, and 21.1 - Isagoras.

with it in antiquity is because much of it was wrongly attributed to Solon (cf. Part 3.1). Cadoux (1948) took the list back to Kreon 683/2 who was the first annual archon according to tradition. This has been optimistically endorsed by many scholars (Stroud 1978, 32ff, Harding 1994, 46) though it may never have been a complete list except by “imaginative reconstruction” (Thomas 1989, 288), and any argument to the contrary is a matter of speculation (cf. the discussion on dating by association with monuments *infra* and Jacoby 1949, 171-6). A now fragmentary version of the archon list was inscribed at the end of the fifth century ca. 435-415 just bearing names (Meiggs and Lewis 1969, no. 6), though Hedrick (2002, 13-32) argued that this list was inscribed for honorific rather than chronological purposes. It is unlikely to be a coincidence that archon dates only began to appear on Athenian inscriptions from 421/0 (Papazarkadas 2009, 68). Diogenes Laertios (1.22, 2.7, and *Life of Thucydides* 32) mentioned a list of archons compiled by Demetrios of Phaleron (a younger contemporary of Aristotle), though oddly he did not mention the work in his catalogue of Demetrios’ work (5.80-1). This reminds us to beware of the historiographical forces at work on the sources.¹⁷⁹

b. Solon’s poetry

Presumably this was a larger corpus than we now have.¹⁸⁰ It clearly formed the basis for Aristotle’s understanding of the crisis which led to Solon’s appointment as arbitrator and archon, and he quoted from it extensively.¹⁸¹ There can be no doubt he and Attic tradition considered the poems to be an unimpeachable source. Three times only in the *Ath. Pol.* did Aristotle make a point of claiming unanimity for an event or circumstance which he described (Rhodes 1981, 25). Each concerned Solon and quoted his poems (*Ath. Pol.* 5.3, 6.4, 12.1).

c. The works of earlier historians and Atthidographers

¹⁷⁹ Hedrick 2002, 14-19 noted that “after the Athenian Arkhon-List, the first examples of publically inscribed lists of magistrates date to the fourth century” - Thasos ca. 360 and Miletos ca. 335.

¹⁸⁰ See discussion in Part 2.1. It is however possible (even likely) that only a partial corpus from the original works survived to the fourth century.

¹⁸¹ There are 60 lines in the *Ath. Pol.* alone, plus other lines in the *Politics*, *Metaphysics* and *Rhetoric*.

Herodotos' work was definitely used by Aristotle (cf. earlier discussion).¹⁸² In addition there were a number of *Atthides* (histories of Athens),¹⁸³ of which those with some claim to have been of use to Aristotle were:¹⁸⁴

- i. Hellanikos of Lesbos (end of the fifth century) – writer of the first *Atthis*. He was immensely important in the Atthidographic tradition because he organised and historicised early mythological material in an annalistic framework, and his form, methods and interests were followed by the later Atthidographers. Unfortunately from the point of view of dispassionate research into the early history of Athens, it does not appear he had much by way of reliable records or tradition to work with (Pearson 1942, 19-20), and all of Athenian history to the end of the fifth century fitted into his first book (Harding 1994, 49). He was predominantly interested in *aitia* (mythological explanation), religion and topography, and was pointedly criticised by Thucydides 1.97.2 because he “records dates both briefly and inaccurately”. We know of no direct quotation of Hellanikos in the *Ath. Pol.* but it is inconceivable that his work did not at least form the basis of the early (now fragmentary) mythological section of the *Ath. Pol.* Thus it informed Aristotle's background understanding of Athenian ‘history’ which must have influenced his discussion of Solon.
- ii. Kleidemos (before mid-fourth century) – also referred to as Kleitodemos by Athenaios, Plutarch, and some lexicographers. He was later believed to be the earliest native Athenian Atthidographer (Paus. 10.15.6),¹⁸⁵ and an Exegete if a work called the *Exēgētikon* is correctly attributed to him (cf. Pearson 1942, 59). This is certainly borne out by a keen interest in ritual in his surviving fragments.

¹⁸² Herodotos (similarly Thucydides) occasionally quoted his sources such as votive offerings, but only rarely inscriptions. He was mentioned by name once in *Ath. Pol.* 14.4. Later historians (Thucydides, Xenophon and Ephoros) and partisan political writers were used by Aristotle but not in any known way for Solon.

¹⁸³ The fragments were collected by author by Jacoby in *FGrH* volume 3b, nos. 323a-334 and commented on by him in his 3b Supplement I (*Text*) and Supplement II (*Notes*), and his *Atthis* (Jacoby 1949). A revised chronological treatment has recently been provided by Harding 2008 following a more detailed treatment of Androtion in Harding 1994.

¹⁸⁴ I do not include Phanodemos because he was a contemporary of Aristotle and there is no indication from his twenty seven surviving fragments that Aristotle used him, but it is useful to note that he was also researching early Athenian history from an extremely Athenocentric perspective – cf. Harding 1994, 28-31.

¹⁸⁵ Wilamowitz 1893, 260-90 argued in favour of a lost *Atthis* ca. 380 which fixed the tradition after Hellanikos, but it has to be said there is no evidence of such a work in any ancient authority, and the suggestion was demolished by Jacoby 1949 *passim*.

He wrote only a few decades before Aristotle sometime after 357. De Ste Croix (2004, 282-3) noted that Aristotle seems not to have used Kleidemos when he might have, for instance in the Phye story, though in that case he alluded to there being a number of accounts (*Ath. Pol.* 14.4). Kleidemos gave different information from Aristotle on the *naukrariai* (*FGrH* 323 F8 versus *Ath. Pol.* 21.5), and the manning of the ships in 480 (*FGrH* 323 F21 versus *Ath. Pol.* 23.1 - cf. Pearson 1942, 66-9; Rhodes 1981, 21). From this we can infer that even if a number of traditions were available, Aristotle did not always report them.

- iii. Androtion (probably published soon after 344/3) – is widely believed to be a very important source (especially Jacoby *FGrH Supp.* ii, 101; 1949 *passim*; Rhodes 1981, 17-21), but this was emphatically rejected by de Ste Croix (2004, 283-6). He noted that Androtion wrote in exile, and while he was politically active in the middle fourth century and from a political family, could hardly have been an expert on affairs from centuries earlier. Furthermore, the fragments we have from the period about the *seisakhtheia* and the currency reform were not used by Aristotle. Rhodes (de Ste Croix 2004, 326 in the ‘Afterword’) considered Androtion was one source among many, and in Rhodes (1981, 21, n.128) that he was the direct source in some instances.

d. Laws, monuments, and inscriptions

Aristotle and his students were the first diligent collectors of these types of information,¹⁸⁶ however the reliability of documentation ‘discovered’ in the fourth century has been called into question (Habicht 1961).¹⁸⁷ Aristotle was arguably deceived by a forgery of the ‘*politeia* of Drakon’ and possibly the qualifications of the census class.¹⁸⁸ Most importantly, he was able to examine ‘laws of Solon’ (cf. Sickinger 2003, 338-350).¹⁸⁹ Traditionally these have

¹⁸⁶ Aristotle himself compiled the lists of victors in artistic and athletic competitions. Theophrastus (νόμοι), Demetrius of Phaleron (περὶ τῶν Ἀθηναίων πολιτειῶν and περὶ τῆς Ἀθηναίων νομοθεσίας) and later Krateros (*FGrH* 342 - ψηφισμάτων συναγωγή or perhaps περὶ ψηφισμάτων) who also provided a narrative of each inscription according to his biographer (Arist. 26, *FGrH* 342 F12), and who I take as being the later Krateros who lived after Aristotle 321-255, and Philokhoros (*FGrH* 328).

¹⁸⁷ See also Thomas 1989, 84ff for a wider discussion of the reasons such documentation was produced.

¹⁸⁸ De Ste Croix 2004, 321 suggests Aristotle could have been taken in by inauthentic copies that looked like ‘documentary evidence’, drawn wrong conclusions from other evidence, or followed the work of predecessors.

¹⁸⁹ He suggested that for the Atthidographers to have come up with their accounts and dating, there must have been other documents available at the time which cannot be accounted for by resort to oral tradition. He

been taken to be original, early sixth century *axones* of Solon, however, as briefly discussed earlier and argued in detail in Part 3.1, I believe the version he consulted was the late fifth century reinscription.

Hedrick (2002, 14-19) pointed out that “[f]or the sixth and seventh centuries no likely documentary sources have been identified”. He suggested there was an alternative in the monumental tradition. He cited dedications by Athenian officials and *didaskalia* (inscriptions used to record the outcomes of drama and music festivals in Athens) to demonstrate these could have been the physical base to which oral history was connected. This followed a long tradition of making dedications to commemorate events and victories, and especially votive offerings that accumulated in temples, for which lists were kept such as those by the Treasurers of Athena.¹⁹⁰ Hedrick showed how writers such as Herodotos, Thucydides and Pausanias used this type of information in constructing their narratives.

e. Oral tradition, festivals, plays, and private records

Members of prominent families would have passed down oral memory of significant events in their families. However, Thomas (1989, 125-7) demonstrated that this rarely extended past the third generation before becoming very hazy (contra Jacoby 1973, 169-70). Therefore it is unlikely that Aristotle could have gleaned much useful information from this source for the early sixth century, except for isolated events which had passed into folklore, such as Kylon’s attempted tyranny and the associated curse on the Alkmeonidai. These memories might have been attached to other media. A good example is *Ath. Pol.* 19.3 which preserves a *skholion* (drinking song) of the Alkmeonidai about their abortive effort to return to Athens under the rule of the Peisistratidai by fortifying a place called Leipsydriion. The song seems to have formed a basis for what they ‘remembered’, and it suited them to claim that they had been implacable opponents of the tyrants. One might accept this if it were not for finding the Alkmeonid Kleisthenes’ name as archon under the Peisistratids in 525/4 on the archon list (IG I³ 1031, cf. discussion in Part 4.1.4). Such reinterpretation served to make this sort of family based history somewhat unreliable, but Aristotle may not have known

pointed primarily to the wooden *axones* of Drakon and Solon as proof that such documents existed, but this is a circular argument.

¹⁹⁰ Though it should be noted the earliest extant physical evidence dates to 434. Hedrick 2002, 21 cited the Treasurers of Athena mentioned in connection with Drakon, but the sources are probably unreliable – *Pseudo Xenophon* (= *The Old Oligarch*) and *Ath. Pol.* 4.2 which is probably a later interpolation.

that. Another medium for preservation of memories was cult. Frost (2005b [1999], 63) noted:

Most early Athenian history had been preserved in a piecemeal way by the officials of various cults who had the responsibility for remembering myth and ritual. One duty was to preserve the geneology of the *aristoi* who served as the hereditary priests of the cult, thus explaining their right to wealth and power in the lands they controlled. Just as important was the preservation of the founding myth, the calendar of sacrifices, and all the ceremonial ritual that had to be followed on every hallowed occasion...(They) would also have preserved the record of every event that had serious ramifications for the cult and its hereditary families.

Perhaps an additional source of otherwise unaccounted information was the tragic plays, especially the early ones. It is worth remembering that as a literary medium, plays went back to the second half of the sixth century. There was a genre of historical tragedy exemplified by Phrynikhos' lost play ca. 493-1 entitled *Capture of Miletos* which so embarrassed and enraged the Athenians they fined him 1000 drachmas and ordered the play never be performed again (Hdt. 6.21.2). This discouraged future playwrights from producing plays which could be perceived as directly critical of Athens and to opt for more remote mythological settings, but the tradition did continue as evidenced by Aiskhylos' *Persians* dating to 472. Most plays, like other 'historical' writings, had no clearly defined boundary between what is now considered myth and genuine history. But consider what is known about Athens from the few surviving works of Aiskhylos and Sophokles. How much more could have been gleaned at the time from the vast corpus now lost?¹⁹¹

Given this array of sources, it is surprising that the account in Aristotle was not more specific about Solon's laws, but instead he described the laws as "not drafted simply nor clearly" and even noted that some people have deduced they were purposely made obscure.¹⁹² Wilamowitz (1893, 45-6) suggested the explanation was that Aristotle was not much of an original researcher. This is patently unfair as his laborious work on the list of Pythian victors demonstrates. His value lies as Rhodes (1981, 29) said "in what he preserves of material that is now lost, and in what he shows us of the way in which a fourth-century

¹⁹¹ For instance, Sophokles wrote one hundred and twenty three plays of which only seven survive in complete form – cf. Suda s.v. *Sophokles*.

¹⁹² See *Ath. Pol.* 9.1 and 10.1 with their focus on demonstrating which reforms seemed to be democratic.

writer tried to reconcile conflicting sources and to solve historical problems”.¹⁹³ Wallace (1985, 4) provided a more blunt assessment: “*Ath. Pol.* is not hard evidence for early Athens but only a fourth-century reconstruction”. It demonstrates that even the best of the sources could not provide a reliable answer because such was not available in the fourth century. It confirms the comment made by Thucydides 1.1.3 that even events which immediately preceded the Peloponnesian war could not be clearly ascertained.

To prove the issue with sources was not just a question of Aristotle’s lack of diligence, it is possible to compare his works with the efforts of the Atthidographers. It may be assumed they also set out to research any available documents from the period and would quote what they found, as did Androtion on the law concerning the *kolatretai* (Harding 1994, 69, F36). So the fact that, as Hignett (1952, 25) noted, “the Atthidographers, when discussing problems raised by the constitution of Solon, deal with them not by reference to the text of his laws but by the use of arguments from probability” should be considered decisive. The probable reason can be found in the ideological battles of the late-fifth and fourth centuries between democrats and oligarchs, in which the former positioned Solon as the father of democracy. Jacoby (1949, 154-5 and 155 n.20) noted that Hellanikos, like Herodotos, had to have known of the law-making tradition about Solon, but failed to consider it important politically. It was only in the later *Atthides* of the fourth century that Solon was “established as the creator of the laws, and when the code was revised the democrats could not possibly simply leave him to the conservatives”. And as Pearson (1942, 24) acutely noted, “[n]o fragment of the Atthidographers refers to any important Athenian event in the early historical period which is not recorded elsewhere”.

This brings me back to considering the evidence from Solon’s poems which began to be quoted by the orators in the second half of the fourth century (cf. Demosthenes 19.255; Perlman 1964), and which was the key common source for Aristotle, Plutarch, Diogenes Laertios and other researchers in antiquity. The surviving corpus comprised the ones they wanted to use because they bore best on the topics of Solon’s character, and constitutional and law giving activities. It is therefore useful to observe what Solon said he actually did on the political and legal fronts. This can be summarised as: urged action over Salamis (West

¹⁹³ An excellent discussion of the historiographical biases that permeated the sources is provided by McInerney 1994.

Solon F1,2,3); lamented and berated both the citizens (*astoi*)¹⁹⁴ and the leaders for their avarice, unjustness, lawlessness, civil strife and inter-tribal war (West *Solon* F4, 4a, 4c, 34); acted as an independent arbiter (West *Solon* F5, 37); gave privileges to the people¹⁹⁵ (West *Solon* F5, 37) but restrained them (West *Solon* F36, 37); refused to be a tyrant despite having the opportunity (West *Solon* F32, 33, 34) and took no personal profit (West *Solon* F37); opposed tyranny in others (West *Solon* F9, 11); did not take pointless measures (West *Solon* F34); refused wealth redistribution (West *Solon* F34); pulled up the *horoi* (West *Solon* F36); freed and brought back ‘many men’ to Attika who were enslaved or who had fled (West *Solon* F36); wrote impartial laws (West *Solon* F36).

It is important to note that Solon in his extant poems did not indicate that he established a new constitution or wrote an entire lawcode. It is difficult to see how his position as a champion of justice differs from the Homeric ideal. Sarpedon in *Iliad* 16.541-2 was praised as a chief “who defended the Lykians with his judgments and strength”. Compare this with Solon’s claim (West *Solon* F36.15-17) that “[t]hese things I did by the exercise of my power, blending together force and justice”.¹⁹⁶ Furthermore, Solon positioned himself metaphorically as “taking up the goad” (*kentron*) on his fellow Athenians who were therefore being portrayed like beasts (West *Solon* F36.20), and as a wolf turning on a pack of dogs (West *Solon* F36.27). Neither attribution is likely to have endeared Solon to his compatriots, and a lone wolf is surely a dangerous outsider (Irwin 2006, 73-4; Stehle 2006, 92-4). Ironically, Solon’s resort to force might have been seen as tyrannical. He pleased no-one and was left without supporters, whoever they might originally have been. Little wonder that “they all look sideways at me with their eyes as an enemy” (West *Solon* F34.4-5). Solon judiciously departed and Athens fell back into lawless *stasis*. It is even arguable that despite Solon’s *post factum* claims to have resisted becoming a tyrant, he actually had an insufficient

¹⁹⁴ *Astoi* is translated by *LSJ* 1996 as townsmen or citizens, and Gerber 1999 concurred using the word ‘citizens’ which I have followed. However, arguments have been advanced for translating it as the free male inhabitants of the whole *polis* of Attika, or just the nobles in contrast to the *demos* in F4.7. See Stehle 2006, 83, n.12 and my discussion in Part 2.3.

¹⁹⁵ Note that Plutarch has ‘*kratos*’ (power) in contrast to ‘*geras*’ (privileges) in *Ath. Pol* – a clear example of two versions of the same poem and textual change for party-political purposes. See Lardinois 2006, 28ff.

¹⁹⁶ Translation from Gerber 1999 who used *kratei homou* following the Berlin papyrus as endorsed by Rhodes 1981, 176 and generally accepted in recent publications, such as the collection of articles on Solon edited by Blok and Lardinois 2006 and Lewis 2008. Stanton 1990, 56, n.5 preferred the version given in the London papyrus *krateeinomou* which he translated as ‘by strong law’, but Rhodes argued this use of *nomos* is anachronistic primarily based on the study of the word by Ostwald 1969.

power base to do so, rather like Peisistratos in his first coup attempt, and his attempt to use force backfired, leading to self exile. Furthermore, it is interesting that his ten year period of exile matched the later period imposed by ostracism.¹⁹⁷

So far I have based my discussion on an assumption that the poems should be ascribed to the hand of Solon, and therefore provide us with the best evidence for Solon himself. However, recently there have been attempts to question this. Lardinois (2006) in an article entitled 'Have we Solon's verses?'¹⁹⁸ He noted that the verses came mainly from Aristotle and Plutarch, and that "it was not uncommon in antiquity to assign the works of later, lesser-known authors to a well-known predecessor. This happened to Homer and Hesiod, and, within the genre of elegy, to Tyrtaos, Simonides and Theognis". He pointed out there must have been other sixth-century Athenian poets but only the elegies and iambics of Solon are extant. Perhaps "they were gradually assigned" to him.¹⁹⁹ Two fragments appear to contain anachronisms. West *Solon* F19 was probably addressed to a non-contemporary,²⁰⁰ and F12 seems to refer to the cosmological system of Anaximander ca. 547/6.²⁰¹ The sayings were basically gnomic expressions that could have been composed by anyone such as "the danger

¹⁹⁷ Having political power provided the opportunity to impose exile on one's opponents, but clearly people who felt themselves at risk might choose to flee fearing a worse fate, such as befell the followers of Kylon. After Peisistratos had been exiled in 557/6, he was also absent for ten years before his return to Attica and power. The whole topic of exile and ostracism was extensively treated by Forsdyke 2005 though with a focus on proving a link between the "politics of exile" and democracy.

¹⁹⁸ Lardinois 2006, from whom the ensuing discussion about Solon's poetry comes except where noted.

¹⁹⁹ The quotes in this paragraph are from Lardinois 2006, 15, 16 and 18 respectively. Knox 1978, 43 noted that "apart from these fragments of Solon, we do not have a single line, not so much as a word, which can be attributed to an Athenian writer and securely dated between the Arkhouship of Solon and the battle of Salamis". The point was made earlier by Linforth 1919, 123, who also noted that given this, it is odd that more was not made of Solon as the first and only surviving archaic Athenian poet by later Athenians (p.125-7).

²⁰⁰ This fragment addresses Philokypros, king of Soloi on Cyprus, whose son Aristokypros, according to Herodotos 5.113.2, ruled the island in 498/7 making it unlikely he was a contemporary of Solon. Hignett 1953, 320 espoused the possibility as part of his justification for dating Solon's reforms to the 570s, and the idea has received support, for instance Stanton 1990, 50, n.5. Strongly opposed was Wallace 1983 who argued that "there is insufficient reason to reject the traditional date". If my argument in Part 3.1 is correct and there was no large body of Solonian legislation apart from his reforms in 594, then there is no need to search for another time in which it was made. Aristokypros must have been long lived if his father was old enough to have been "praised above all other tyrants" by Solon visiting in the 560s (Herodotos 5.113.2). As an aside, it is interesting to ponder why there was a tradition of Solon praising any tyrant given his attitude to tyranny in his poems.

²⁰¹ Lardinois 2006, 17 noted this was first pointed out by B. Gentili (*non iudem*) in 1975. Lewis 2006, 8 suggested that Anaximenes might merely have developed Solon's cosmological ideas. However, it is a bit of a stretch to go from Solon's observation that "[t]he force of snow and hail comes from a cloud and thunder from a flash of lightning" (West *Solon* F9) and that "the sea is stirred up by a wind" (F12) to Anaximander's understanding of the link between evaporation and rainfall. Solon is more likely to have been using an analogy – strife comes from greed and so forth.

of tyranny, the instability of wealth, or the pleasures of love". Very few were even addressed to an Athenian audience. Many also appeared in the Theognidai, a collection of excerpts of elegies ascribed to the Megarian poet Theognis.²⁰² Lardinois suggested the answer is that they were passed on in an oral tradition and only written down much later. It appears likely that repeat sympotic performance resulted in variations, and perhaps "variant performance traditions" as argued by Irwin (2006, 54).

The iambics seem to bring the historical Solon into focus as he was speaking or was the subject, but as Lardinois (2006, 26-7) asked (maybe a little too sceptically), was the poet relating personal experience, or operating with a 'fictive persona?' He suggested the persona (West *Solon* F7) was of an elder statesman looking back at his reforms which had not received the acclaim they deserved. He could have been a tyrant but chose not to and so forth.²⁰³ Fränkel (1975, 226-7) commented that the trimeter verses are not archaic in style in respect to their grammatical structure. He took this as an indication of Solon's genius for innovation, but it may simply be confirmation they were anachronistic. Lardinois (2006, 28ff) suggested that possibly the iambics were composed much later in Peisistratos' time by disgruntled aristocrats for their symposia, for whom all this would be grist to the mill. He also noted where lines were manipulated and key words altered making it clear that the poetry was "part of a still living, (largely) oral tradition". The point was well reinforced by Stehle (2006) who questioned how one can be sure the poems were written by Solon. She noted that there seems to be an implicit acceptance of the view put forward by Linforth (1919, 9-10) that "Solon's poems were recorded in writing by himself" and survived into the fourth century notwithstanding the "sheer implausibility" of this having happened, especially as Solon appears not to have had direct descendants with an interest in preserving them. This means the poems survived through oral transmission and may have mutated to a greater or lesser extent, or even been "created in Solon's name by someone with good

²⁰² The *Souda* puts Theognis at the fifty-ninth Olympiad of 544-1BC but some of the poetry is anachronistic referring to events much earlier and much later. It therefore must be a collection gathered under one name as noted by Hall 2002, 238. See also Shaw 2003 on the unreliability of Olympiad dating.

²⁰³ Against Lardinois, Professor Stanton pointed out to me in private correspondence that it could have been Solon's concern for *doxa* and *time* similar to the concern of Roman politicians for posthumous *gloria*. In a similar vein, see Stehle 2006 for an incisive discussion of the persona of Solon with its remoteness from his contemporaries who uniformly fail to understand him, and concern to address a future audience who will. Robb 1994, 132 suggested Solon was boasting about what he had achieved, and defensive against criticism that in retrospect, he might have done more. The warnings about tyranny could have been inserted later to boost his reputation.

poetic talent” (p.109), like the document forgeries mentioned earlier. She strongly suspected that the persona of Solon as a politician, “and the collection which produces it (were) a new creation in the fourth century, spawned by debates over democracy” (p.110).

Based on the the fragments of the poems, it is difficult to see how Solon could have envisaged himself promoting some kind of proto-democracy, much and all as some modern writers have backed this position. For instance, Wallace (2007, 69) claimed that Solon gave the *dēmos* “great power” and “created the basic institution of Athens’ democracy”, but this is at odds with the decidedly aristocratic and condescending rhetoric in the poems. His explanation was that Solon composed the poems for “an audience of aristocrats” to explain how moderate he had been in the face of the *dēmos*’ demands (p.71). This vision of a Solonian *mea culpa* that none of the *dēmos* would hear about is unsatisfactory. However, if the poems were only selectively preserved in symposia, then they would have been the ones favoured by the aristocrats.

The vagaries of transmission of the oral tradition can readily account for how Theognis came to be credited with poems of Solon. Other Athenian poets were being recited as is known from Plato *Timaeus* 21b, even if only Solon was actually named by him because of his relevance to the context and (possible) filial relationship. However, a curious piece of information surfaces in that regard. One of the speakers, Kritias, recalled taking part in the Apatouria (festival) as a ten year old boy. He said that he and the other young aristocratic contestants sometimes sang Solon’s poems because “they were new at that time”. Kritias was described as approaching ninety and Socrates with whom he was conversing (amongst others) died in 399. Thus the ‘new’ Solonian poems notionally dated to some time early in the fifth century or just a little before.

So where does all this leave us? Pearson (1942, 22-4) aptly noted there was a lack of an authoritative tradition for early Athenian history even for epochal events, and that “by the middle of the fourth century people had become aware that a great deal of ‘interpretation’ was needed before the story of the origins of their constitution could be understood”. Plutarch (cf. *Solon* 27.1) was unhappy about the gaps in information, but this did not stop him also trying to fill the void (Higbie 1999, 44). The problem was as Finley (1983, 203) noted, that “Greek historians failed to develop techniques of source criticism or ways of dealing satisfactorily with derivative authorities”. *Ipso facto* we have history by anecdote, often reworked and reinterpreted over time. Of course we must take the scraps we have

and use them, but cautiously. In particular, we need to note the tendency of later democratic writers to attribute everything worthwhile to Solon, and the corresponding reluctance to credit the Peisistratid tyrants. This is notwithstanding the tradition that Peisistratid's rule was like the golden age of Kronos (*Ath. Pol.* 16.7; cf. *Thuc.* 6.54.5-6). In the next part of the thesis, I will explore some of the legal, monetary and commercial elements of this in detail.

PART 3

MAJOR STUDIES

This Part presents the three major studies which are the core of the thesis. Each has been written as a stand-alone article and therefore contains its own bibliography. They are reproduced here as closely as possible to the printed versions.¹ The details of their relevance to the thesis, Conference presentation, and publication are as follows:

1. *Axones* and *kurbeis* – a new answer to an old problem. This article summarises and draws conclusions from the research presented in full in Part 6.3. Its purpose is to critically examine the epigraphic and literary evidence about *axones* and *kurbeis* to establish what these much-discussed objects were, and their relationship to the laws of Drakon and Solon. Its main conclusion is that the collected laws attributed to Solon were only inscribed on numbered *axones* at the end of the fifth century. Furthermore, while free-standing timber *kurbeis* were widely used in the Greek world including at Athens in the sixth and early-fifth centuries to record laws and other important documents, *axones* were unique to Athens. This confirms my suspicions from looking at the nature of the evidence about Solon in the last section, that the tradition crediting Solon with writing a comprehensive ‘code’ of laws was a later political invention (and also a convenient shorthand for ‘all valid laws’). The tradition has been retained by modern scholars reluctant to abandon a cherished narrative notwithstanding its lack of credibility. It is well accepted that the ‘epigraphical habit’ at Athens only began slowly at the end of the sixth century, yet we are expected to believe that almost a century earlier, one man had written an entire code which was startling in its prescience, range of material, and even numbering. This code showed so little sign of having been implemented that *Ath. Pol.* contended it had “fallen into

¹ Only my name and contact details have been left out from the end of the articles. I regret some slight inconsistencies in transliteration of Greek words.

disuse" under the tyranny (*Ath. Pol.* 22.1) despite a very strong tradition that the tyrants administered everything according to the existing laws (*Hdt.* 1.59.5; *Thuc.* 6.54.6; *Ath. Pol.* 16.8), but it was re-adopted unchanged at the end of the Peisistratid tyranny. Surely a more conservative interpretation is that the laws were written gradually over time in response to specific needs, and only began to all be attributed to Solon (except the homicide laws which were similarly attributed to Drakon) from the 420s. If this is true, then a great deal of what we think we know about the development of sixth-century Athens has to be reinterpreted.

A short version of the article was read at the Australasian Society for Classical Studies Conference in Perth, Australia in February 2010. It was published in *Historia* 60/1 (2011) 1-35.

2. Dating the drachmas in Solon's laws. *Prima facie*, mentions of drachmas in Solon's laws are anachronistic because archaeological evidence has demonstrated that coinage was not introduced at least until the middle of the sixth century. Scholars have ingeniously contrived a solution that the Athenian economy in Solon's day did use silver as currency in the form of drachma weights. This paper argues against that notion, and reveals that Athens probably had an agrarian economy in which silver was little used except for foreign trade and travel. This conclusion reinforces my contention that the accounts in *Ath. Pol.* and *Solon's Life of Plutarch* cannot be relied upon to provide accurate information about Solon. Indeed, it is far more likely they were attributing developments to him which occurred under the tyrants. Of significance is the fact that the law prohibiting the export of agricultural produce except olive oil was cited on the 'first *axon*' yet provided a monetary penalty (*Plut. Sol.* 24.1). Hitherto a law on an *axon* was axiomatically considered to be genuinely Solonian (Ruschenbusch 1966), but under my interpretation this can no longer be sustained. If this particular law was ever promulgated, which I doubt (cf. the earlier reservations of Foxhall 2007, 17-18), it certainly was not obeyed as there is clear archaeological evidence of sixth-century wine exports (cf. Dietler 2010, 194-6). Thus another plank in support of Solon's alleged legal and economic reforms is stripped away.

An extract of the article was read at the Conference entitled 'Money and the Evolution of Culture' held at Victoria University Wellington in July 2011. It is being published in *Historia* 61/2 (2012) 127-158 (forthcoming).

3. **Where are all the little owls?** This article picks up where the previous one left off in considering the use of fractional coinage at Athens under the Peisistratids and early democracy. Based on my research which has created a comprehensive new corpus of early Attic coins derived from coin sales catalogues, the article demonstrates that coinage was introduced with a full suite of denominations, and that there were more fractions than larger denominations. This is consistent with recent evidence from studies in other early coin-using *poleis* that the reason for the introduction of silver coinage was primarily for small transactions in the Agora, rather than trade. Furthermore, when the authorities switched from minting the so-called *Wappenmünzen* to 'owl' tetradrachms following the exploitation of large quantities of silver at Laurion at the end of the sixth century, they continued to strike 'wheel' type *Wappenmünzen* fractions for domestic use. This implies that from the outset the 'owls' were primarily intended for export, and crucially that the change of type was not linked to the change of regime.

A draft of the article was read at the Australasian Society for Classical Studies Conference held in Auckland in January 2011 where it won first prize for "Outstanding Postgraduate Conference Presentation". It is being published as an invited contribution in the forthcoming festschrift entitled "*ΑΘΗΝΑΙΩΝ ΕΠΙΣΚΟΠΟΣ: Studies in honour of H. B. Mattingly*" (=Davis 2012b).²

² The Conference which I attended was held at the British School at Athens and the Epigraphical Museum Athens in honour of Harold Mattingly in May 2010 and entitled "Η ΤΩΝ ΑΘΗΝΑΙΩΝ ΑΡΧΗ. The Athenian Empire: old and new problems".

3.1 Axones and kurbeis: a new answer to an old problem¹

ABSTRACT: What were axones and kurbeis, and why are they important to understanding law-making in late archaic and classical Athens? This paper presents a new solution to the long standing riddle. It is based on a comprehensive collection of the literary and inscriptional sources which are summarised in chronological order, and analysed by shape, material, content and period. It demonstrates that kurbeis were 3-sided, free-standing, wooden objects used throughout the Greek world in the archaic period. As such, they were precursors of stelae bearing authoritative texts, including laws. Axones were 4-sided, wooden objects, probably rotating, upon which only the legislation collectively known as the ‘laws of Solon’ was inscribed. It is argued that these laws were gradually enacted from the time of Drakon and were kept in a variety of places according to subject matter. At the end of the fifth-century, the anagrapheis responsible for the laws’ republication reinscribed them on the axones to sort out the legal confusion entailed in the previous haphazard system, and they were kept in the Metroon. The first law they reinscribed was Drakon’s homicide law with a copy on stone for public display.

1. Background

According to Herodotos (1.29), Solon the Athenian, made *nomoi* for the Athenians at their urging.² These *nomoi* are conventionally taken to refer to a code of laws though

¹ This paper was offered in a shorter form at the Australian Society for Classical Studies Conference in Perth in February 2010. I am grateful to Prof. Kurt Raaflaub who heard the presentation for encouraging me to submit it for publication. I appreciate the support of my doctoral supervisors Drs. David Phillips, Ken Sheedy and Ian Plant from Macquarie University, Sydney, and Assoc. Prof. Greg Stanton for his critique of an earlier stage of my research, and the valuable suggestions from the anonymous readers at *Historia*.

² Σόλων ἀνὴρ Ἀθηναῖος, ὃς Ἀθηναίοισι νόμους κελεύσας ποιήσας. Solon in his poems claimed to have made laws. Cf. fr. 36, 18-19 M West ed. *Iambi et elegi Graeci ante Alexandrum cantati* 2 : Callinus, Mimnermus, Semonides, Solon, Tyrtaeus, Minora adespota, (Oxford revised ed. 1992): “And statutes alike to the base man and to the noble/fitting straight justice onto each man’s case”. Also fr. 31: “First let us pray to King Zeus son of Chronos/ to bring good luck and renown to the statutes” (translations J Lewis, *Solon the thinker: political thought in archaic Athens* [London 2008] 161) though the latter fragment is considered dubious as it is the only verse attributed to Solon in hexameters – see D Gerber,

the word in its primary sense means ‘customs’ or ‘habitual practices’.³ The traditional date for the introduction of the legislation was 594 BCE based on Aristotle (or his school).⁴ This has been challenged with some preferring a date two years later (based on Plut. *Sol.* 14.3; 16.3), or even twenty five years later c.570 BCE to deal with certain chronological problems.⁵ On the somewhat dubious evidence of *Ath.Pol.* 4.1, Solon’s lawmaking activities followed an earlier first attempt at written legislation by Dracon c.621/20 BCE which Solon annulled entirely except for some law(s) relating to homicide.⁶ Where and how the laws were recorded and what they included has been the basis of dispute from the fourth century BCE onwards. Two descriptive words for the objects containing the laws gained currency – *axones* and *kurbeis* – but despite dozens of references in antiquity including many definitions in lexicæ, no-one is sure to what the words referred or even their derivation. This is unfortunate because comprehending the nature and role of these objects is pivotal to understanding the political and legal development of the Athenian *polis*. Rhodes summed up the mainstream scholarly view when he wrote that Solon produced “a complete (law)code which was superseded only piecemeal” and that *axon* and *kurbis* were alternative

Greek elegaic poetry (Cambridge 1999) 153. The concept and desirability of ‘straight justice’ goes back to Homer (cf. *Il.* 18.506-8), and is closely echoed in Hesiod (*Theog.* 84-6). The fragment itself does not justify Solon’s laws being described as comprehensive legislation. Solon used the word *thesmos* for ‘law’. For the distinction between *nomoi*, *thesmoi* and *thesmia* see M Ostwald, *Nomos and the beginnings of the Athenian democracy* (Oxford 1969) 9-56, and J Sickinger *Public records and archives in classical Athens* (Chapel Hill 1999), 12-13.

³ ‘Code’ is not a satisfactory word to describe “the legal activity of Solon and others” as one of the anonymous readers pointed out, because there is no ancient Greek equivalent of the English term. Throughout this work, wherever possible I employ *nomoi* or the phrase ‘laws of Solon’ which were used in antiquity, or ‘legislation’, except when quoting another author.

⁴ *Ath.Pol.* 5.2. I treat *Ath.Pol.* as being written under the auspices of Aristotle on the basis that there is no compelling reason not to, and no ancient authority doubted his authorship. However, I accept that it is not written in the style of his other works and therefore is unlikely to have been written by him personally. This has ramifications when there is a conflict of evidence with the *Politics*. See the comparison on the treatment of Solon in Aristotle’s *Politics* and the *Ath.Pol.* by H-J Gehrke, “The figure of Solon in the Athenaion Politeia” in J Blok, & A Lardinois (Eds.), *Solon of Athens: new historical and philological approaches* (Leiden 2006) 276-89 who concluded that common authorship of the two works cannot be excluded. For a comprehensive discussion of authorship see the introduction to P Rhodes, *A commentary on the Aristotelian Athenaion Politeia* (Oxford 1981).

⁵ Suggested by C Hignett, *A history of the Athenian constitution to the end of the 5th century BC.* (Oxford 1952) Annexure 3.

⁶ It is likely Chapter 4 of *Ath. Pol.* was a later interpolation – see Rhodes, *Commentary* (as in n.4) 84-87 for a summary of the arguments.

words describing the same object.⁷ Both these statements have been extensively but not convincingly contested by many historians, and it has perhaps been reasonable to conclude as Sealey did, that the evidence is not adequate to allow definitive conclusions.⁸ However, it is thirty years since the last major study (by Stroud) was published,⁹ during which time there have been major advances in interpreting the physical and cultural environment of archaic Athens. I believe re-analysis of the sources, including many previously ignored or down-played, does permit some reasonably secure conclusions about the nature and use of the objects.

2. Modern theories

I will start by summarising the theories of major twentieth-century scholars who have written about *axones* and *kurbeis*, showing how modern thinking has developed.

Bury believed Solon had his legislation inscribed on “wooden tablets set in revolving frames called *axōnes*, which were numbered, and the laws were quoted by the number of the axon. These tablets were kept in the public hall. But copies were made on stone pillars, called in the old Attic tongue *kyrbeis*, and kept in the portico of the king”.¹⁰ Bury left unstated the reason why copies of the *axones* needed to be made on stone *kurbeis*.

Gilliard thought it was likely the Solonian *axones* had deteriorated over time, or that they were done away with at the time of Kleisthenes’ reforms of 508/7 BCE which superseded them.¹¹ He wrote: “if, by some extraordinary chance they had survived, one can be assured they were burnt with the building containing them during the capture of Athens by the Persians” (in 480/79 BCE). They were then copied on new *axones*. *Kurbeis* were further copies in stone and synonymous with stelae.

⁷ Rhodes, *Commentary* (as in n.4) 131.

⁸ R Sealey, *The Athenian Republic: Democracy or the Rule of Law?* (London 1987) 140-5.

⁹ R Stroud, *The Axones and Kyrbeis of Drakon and Solon* (Berkeley-Los Angeles 1979). Any scholar considering this subject owes a debt of gratitude to Stroud’s masterly work and it may seem presumptuous to tackle it again. However, his hypothesis has not been generally accepted, and there is other, relevant evidence that needs to be considered.

¹⁰ J Bury, *History of Greece* (Edinburgh 1900) 187.

¹¹ C Gilliard, *Quelques réformes de Solon* (Lausanne 1907) 34. My translation follows.

The destruction concept was taken up by Sondhaus who claimed that all the laws revised at the end of the fifth century were in fact Solonian, but they had been altered in detail as required from time to time.¹² Schreiner pointed out the obvious difficulty with this proposition by demonstrating examples of laws that clearly were first enacted later than Solon. He proved, and it is fully admitted by scholars today, that the phrase 'Laws of Solon' as used by the orators simply meant **all** laws, whether or not they were genuinely Solonian in origin.¹³ This led him to hypothesise (p.40-1) that any fundamental changes in the constitution, such as those of Kleisthenes and Ephialtes (462/1 BCE), must have required a complete revision of the publication of the laws, though there is no evidence for this prior to 410 BCE in the literature. It is interesting to observe that Wilamowitz had already proposed that constitutional laws, as distinct from general laws, were not extant in the fourth century because they were not available to be consulted, and surmised they could not have been on *axones*.¹⁴ This is still generally accepted though I am not convinced enough is known of sixth century lawgiving to conveniently base a case on such a distinction.

Linforth set out the main problem with identifying *axones* and *kurbeis*.¹⁵ He observed that there were several inconsistent descriptions of them in the ancient authors, lexicographers and scholiasts. "Apparently no one had taken the trouble to describe them as long as everyone knew what they were. Later some thought (they) were identical; others distinguished them in various ways". He suggested that *axones* revolved and were wooden or metal plates on a wooden frame, or even "revolving tables of stone". He derived the last suggestion from the "curious wedge-shaped fragment of marble...found in Athens in 1885 which some think was part of an axon...which was inscribed on its opposite faces".¹⁶ The piece was IG I³ 233. Dow supported the suggestion and dated it very tentatively to the early fifth-century based on letter forms.¹⁷ I have examined the piece. There are insufficient letters to

¹² C Sondhaus, *De legibus Solonis* (Jena 1909).

¹³ J Schreiner, *De corpore iuris Atheniensium* (Bonn 1913) 30.

¹⁴ U von Wilamowitz, *Aristoteles und Athen* (Berlin 1893) i.55.

¹⁵ I Linforth, *Solon the Athenian* (Berkeley 1919) 284ff.

¹⁶ Linforth, *Solon* (as in n.15) 285.

¹⁷ S Dow, "The 'AXON': Inscriptiones Graecae 1,2 2", *American Journal of Archaeology* 65 (1961) 349-356.

reconstruct any of the contents, and I believe there is no substantive reason to call it an *axon*. (See Figure 1).



Figure 1: IG I³ 233 – photograph taken by the author with the kind permission of the Greek Epigraphical Museum, Athens.

Freeman noted that any distinction between *kurbeis* and *axones* could not be of content, because of examples of religious and secular laws on both.¹⁸ Concerning the *axones* she wrote: “we can state with certainty...(they) contained a complete copy of the laws...and...there were at least twenty-one of them”. She asked the question that will pervade the rest of this paper: “were Axon and Kyrbis different names for the same thing, or were they two sets of copies of the laws, differing in material and shape, and kept in different places?” Her answer was that the *axones* were an official copy of the laws, definitely made of “wooden tablets fitted around an axis, so as to make a four-sided solid with oblong rectangular faces” and kept indoors. These were inscribed boustrophedon on all faces. The *kurbeis*, she suggested were a public copy, at first partly made of wooden “or metal tablets, which were fastened to three sided or perhaps pyramidal blocks of wood or stone, and placed in the Stoa Basileios”. When they “wore out or were destroyed, their contents were transferred to ordinary stone Stelae, which continued to be called Kyrbeis”.

Oliver, based on the discovery in 1933 of the principal fragment of the reinscribed Athenian sacred calendar with trierarchic laws and regulations on the reverse, proposed that whatever its origin, the word *kurbeis* in the fifth century BCE had a

¹⁸ K Freeman, *The life and work of Solon* (London 1926) 143-7.

purely abstract meaning of “the ancient Law of the Land”.¹⁹ The actual objects he felt were the wooden *axones*, and therefore that “*kyrbeis* and the *axones* were really the same”.

Holland suggested that Solon drafted a comprehensive civil code on wooden *axones*, as distinct from the religious code which he supposed was developed by Peisistratos, and these new *axones* were identical in form but called *kurbeis*.²⁰ Further changes by Kleisthenes and Ephialtes were recorded on *kurbeis*, replacing Solonian *axones* as necessary. The older Solonian *axones* were damaged or destroyed in the Persian sack of Athens and had to be reinscribed on *kurbeis* which is why they were rarely mentioned. In turn, *kurbeis* were dispensed with after Nikomakhos’ reinscription of the laws at the end of the fifth century and later antiquarians were thus left to ponder what they might have looked like.²¹ This left only fragments of the old *axones* extant in the Prytaneion. He imagined the form of *axones/kurbeis* to be upright, prism shaped objects, set in pivots so they could be rotated to display their three inscribed faces. Their form was retained in the *periaktoi* props of the late Greek stage.²² (See Figure 2). The original *axones* were made from logs, but the later *kurbeis* were bronze.

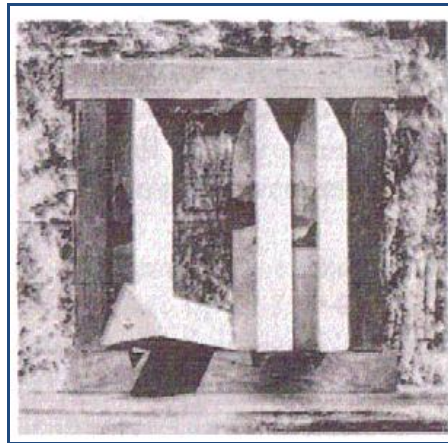


Figure 2: Holland, *Axones* (as in n.20) 357, Fig.2, showing “Axones turned toward the edge, with one demounted to show triangular section”.

¹⁹ J Oliver, “Greek inscriptions”, *Hesperia* 4 (1935) 5-32.

²⁰ L Holland, “Axones”, *American Journal of Archaeology* 45/3 (1941) 346-362.

²¹ Nikomakhos was one of ten *anagrapheis* tasked with collecting and writing up the laws and transcribing the sacred calendar. It should be noted they were clerks not law-makers. See especially Lysias 30.2-4 and 17-30.

²² Holland, *Axones* (as in n.20) 359. For *periaktoi* see Polydeukes, *Onomastikon* 4.126, and Vitruvius 5.6.8.

Jacoby, followed more recently by Andrewes and Rhodes, adopted a completely different approach, though each with variations on a theme.²³ For them, *axones* and *kurbeis* were alternative names for the same objects on which Solon's laws were inscribed, with *kurbeis* being the archaic term. Jacoby summed up the position succinctly. "The relationship between *thesmoi* and *nomoi* is the same as between *kyrbeis* and *axones*: the former words are archaic, the latter modern".²⁴

Dow, working from the further discovery and identification of State Calendar fragments, proposed another theory.²⁵ The word *axon* he believed "clearly implied" that *axones* revolved on axles, "doubtless...vertical", wooden and prism shaped. The etymology of the word *kurbis* gave him no direct clue, but the reinscribed State Calendar did. He believed it represented a copy in marble of original Solonian freestanding screen walls made of timber and inscribed opisthographically with crowning architectural ornamentation. This was the sort of structure on which the comic storks in Aristophanes' *Birds* (1353-7) could rest. He deduced that *axones* equalled secular law and *kurbeis* equalled sacred law.²⁶ His case was that there was a complete separation by Solon of religious and secular law necessitated by publishing requirements. A calendar needed the broad uninterrupted surfaces provided by his reconstruction of *kurbeis* while secular laws did not.

Jeffery adhered to the traditional belief that Solon's lawcode was inscribed on a set of wooden *axones* which she suggested consisted of "long logs of wood squared and well trimmed...probably inscribed lengthways...set horizontally in their frames like rollers which would be the easiest way to read and turn them".²⁷ She listed some of the evidence on the etymology of the word *kurbis* and noted that none of it was satisfactory conjecturing that it was a non-Greek word possibly from Krete. She supposed *kurbeis* was a generic term and that reference to them as concrete objects

²³ F Jacoby, *Atthis – the local chronicles of ancient Athens* (Oxford 1949). A Andrewes, "The survival of Solon's axones" in D Bradeen & M McGregor (Eds.), *Phoros, Tribute to Benjamin Dean Meritt* (New York 1974) 21-28. Rhodes, *Commentary* (as in n.4) 131.

²⁴ Jacoby, *Atthis* (as in n.23) 309, n.64.

²⁵ S Dow, "The law codes of Athens", *Proceedings of the Massachusetts Historical Society* 71 (1953-7) 3-36.

²⁶ This theory was first propounded by Aristophanes of Byzantium in the late third century BCE – see Annexure, Cit. 30.

²⁷ L Jeffery, *The local scripts of archaic Greece* (Revised ed. A Johnston, Oxford 1989) 51-55. First published in 1961.

constituted a confusion by later writers with other objects such as *axones*, *sanides* (white washed boards) and bronze *pinakes* or *deltoi* (both forms of writing tablets).

Ruschenbusch provided a collection of testimonia of Solon's laws that has become a standard reference.²⁸ He considered the best-attested laws were those assigned an *axon* number, principally because he assumed *axones* were written boustrophedon in the "old Attic alphabet". The fragments covered so wide a range of legal subjects they must have constituted a full 'code', and being written pre-530 BCE (when he believed boustrophedon went out of use), one can accept the evidence of ancient authors that the code's author was Solon.²⁹ He argued that the laws were not arranged according to magistrate by Solon, but were set in this fashion when recodified at the end of the fifth century. Crucially for his theory, the *axones* survived unaltered by later lawgivers to be used by Aristotle who wrote a five book treatise on them. For Ruschenbusch, *axones* and *kurbeis* were both parts of one contraption and therefore the words could often be used synonymously. He went so far as to provide a reconstruction with the *axones* being square-shaped wooden rollers some two metres in height and inscribed on all four sides, three of which were positioned upright in an open wooden frame or box which was called a *kurbis*. (See Figure 3).

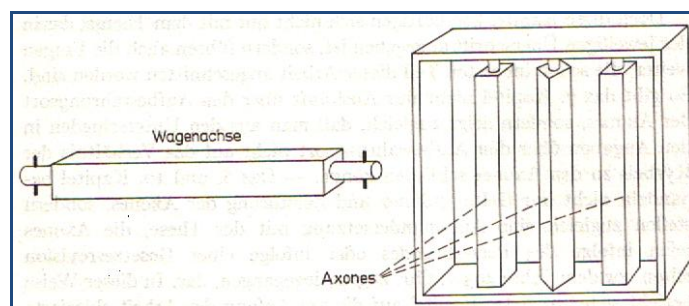


Figure 3: Ruschenbusch, *Solonos nomoi* (as in n.28) 24.

Stroud provided the most comprehensive assemblage and analysis of the evidence.³⁰ Like his predecessors, he accepted that Solon's legislation was on *axones*. He

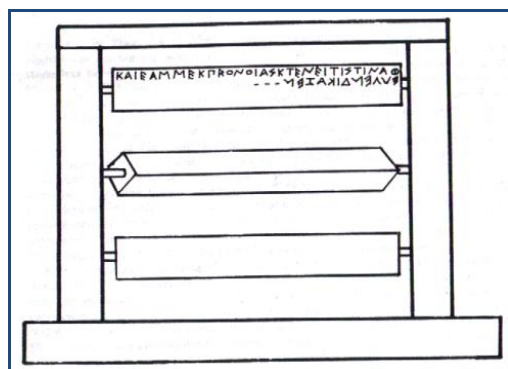
²⁸ Ruschenbusch, *Solonos nomoi*. *Historia Einzelschriften* 9 (1966) did not like any theory involving a triangular shape for the objects and simply left such evidence out of his ostensibly comprehensive collection of fragments and testimonia. This point was made by Stroud, *Axones* (as in n.9) 38, n.122.

²⁹ The dating basis of this argument is probably incorrect. For instance, Jeffery, *Local scripts* (as in n.27), 75: "Even in Athens the remains of the *boustrophedon* system persisted to the end of the archaic period".

³⁰ Stroud, *Axones* (as in n.9).

suggested these were four sided revolving timber beams each at least 2m long and set in large frames, containing Drakon's first two *axones* and all Solon's laws separately numbered. This amounted to the equivalent of "35-40 pages of a modern book" (see Figure 4). Due to deterioration, he proposed they were transcribed on the *kurbeis* which were three or four-sided free-standing pillars with pointed tops made of bronze or stone (see Figure 5). His strong preference was bronze. This was predicated largely on four stone bases which he claimed were for three-sided stelae, one with remains of bronze in the top surface, found on the western side of the Agora.³¹ Stroud believed the reinscription must have happened prior to 461 BCE by which date Ephialtes had transferred both sets of documents from the Akropolis, "depositing the older wooden objects as museum pieces in the Prytaneion and setting the more durable *kyrbeis* in the Agora, probably at the Royal Stoa".³²

Immerwahr followed Stroud to the extent of envisaging two physically different types of objects, but with Solon's laws being originally inscribed on bronze or stone *kurbeis*, and later copied boustrophedon onto wooden *axones*, probably by Ephialtes, in order to be placed in the Stoa Basileios.³³ He suggested that "the *axones* were a very special and sophisticated contraption made to be housed in a building, while the *kurbeis* could stand in the open as was customary for permanent publication".



³¹ The bases could have been for the ephebic lists inscribed on bronze stelai in the fourth century mentioned in *Ath. Pol.* 53.4. Each list had formerly been inscribed on whitened boards but by then was "on a bronze stele" set up in front of the Bouleuterion alongside the eponymous heroes (where the bases are currently located), as Stroud, *Axones* (as in n.9) 51 himself noted. It is even possible they are bases for some other object(s) as cuttings for two of the triangles overlap. (See Figure 6). See also Polydeukes' *deltoi* (Annexure Cit. 53).

³² Stroud, *Axones* (as in n.9) 24.

³³ H Immerwahr, "The date of the construction of Solon's axones", *Bulletin of the American Society of Papyrologists* 22 (1985) 123-35. T Figueira, *Excursions in epichoric history* (Lanham 1993) 236, n.18 went further pondering whether a "Peisistratid redaction of Athenian laws" was a possibility worth exploring, noting the significance of "the costs of sacrificial animals expressed in money from the 16th axon".

Figure 4: Stroud, *Axones* (as in n.9) 23. Reconstruction of *axones*.

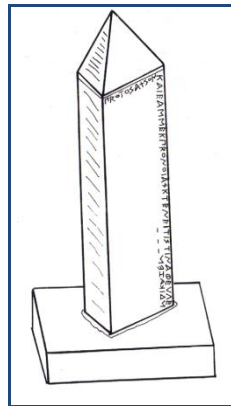


Figure 5: Stroud, *Axones* (as in n.9) 46. Reconstruction of a *kurbis*.



Figure 6: Photograph by the author of two of the four stone bases found on the western side of the Agora, taken with kind permission of the American School at Athens. Note the triangles on the left are joined.

Shear agreed with Stroud's hypothesis that there were two discrete sets of objects and that Ephialtes removed them in 462 BCE from the Akropolis to the lower city.³⁴ In order to explain why there needed to be two copies of the same inscriptions, he suggested that a second copy was made by the new democracy around the date of construction of the new Stoa Basileios c.500 BCE with the motivation of making the laws "available to magistrate and private citizen alike". However, there is no evidence to support such a reinscription. He supposed both sets were stored on the Akropolis

³⁴ T Shear, "Isonomia t'Athenas epoiesaten: the agora and the democracy", *The archaeology of Athens and Attica under the democracy. Proceedings of an international conference celebrating 2500 years since the birth of democracy in Greece, held at the American School of Classical Studies at Athens* (Oxbow 1994) 225-48.

while repairs were made to the Stoa after the Persian destruction of 479 BCE and not available for relocation until the 460s.

Table 1. Summary of principal modern theories about *axones* and *kurbeis*

PROPONENT	THEORY	MATERIALS
Bury 1900	Solon's legislation was on revolving <i>axones</i> in the 'public hall'. Copies were on <i>kurbeis</i> in Royal Stoa	<i>Axones</i> - wood <i>Kurbeis</i> – stone
Linforth 1919	<i>Axones</i> were prism shaped and revolving	<i>Axones</i> – wood, metal or stone
Freeman 1926	<i>Axones</i> were the official version. <i>Kurbeis</i> were later public copies on stelae called <i>kurbeis</i>	<i>Axones</i> - wood <i>Kurbeis</i> - wood, metal, stone
Oliver 1935	<i>Kurbeis</i> had abstract meaning of "the ancient Law of the Land"	<i>Axones</i> - wood
Holland 1941	<i>Axones</i> and <i>kurbeis</i> were both rotating prisms – the former with Solon's civil code; the latter including a 'Peisistratid' religious code and other later additions	<i>Axones</i> - wood <i>Kurbeis</i> - bronze
Jacoby 1949 – Rhodes 1981	Both words applied to the same objects. <i>Kurbeis</i> was the archaic word. Rotating squared beams	<i>Axones</i> and <i>Kurbeis</i> – wood
Dow 1953-7	<i>Axones</i> were rotating prisms with secular law. <i>Kurbeis</i> were walls in the Royal Stoa with sacred law	<i>Axones</i> - wood <i>Kurbeis</i> – wood, stone
Jeffery 1961	<i>Kurbeis</i> was the generic term. <i>Axones</i> the objects	<i>Axones</i> - wood
Ruschenbusch 1966	<i>Kurbeis</i> and <i>axones</i> were both parts of the same contraption	<i>Axones</i> and <i>Kurbeis</i> – wood
Stroud 1979	<i>Axones</i> were 4-sided revolving beams with Drakon's and Solon's laws. Transcribed on <i>kurbeis</i> - 3 or 4-sided pillars with pointed tops	<i>Axones</i> – wood <i>Kurbeis</i> – bronze
Immerwahr 1985	Solon's laws were on <i>kurbeis</i> . Copied boustrophedon on <i>axones</i>	<i>Kurbeis</i> – bronze, stone <i>Axones</i> – wood

3. Inscriptions and literary references

I have gathered all the inscriptions and literary references I could find to the words *kurbis* (in its various spellings) and *axon* (in its meaning of some kind of inscribed document). In total I have gathered one hundred and twenty four items but only ninety five provide discrete pieces of evidence, with the remainder copying or directly quoting earlier work, or adding nothing of value in understanding the objects. The evidence is summarised in the Annexure (given as eighty one citations [= Cit.], many with sub-points) together with brief notes on contentious items. The citations in the Annexure form the basis for the analyses into **shape**, **material** and **content** (Analyses 3.1, 3.2 and 3.3). Then in Analysis 3.4 I have broken down the totality of the information (ie: all one hundred and twenty four items) by **period** to show how the ancient understanding and use of the words evolved.³⁵

It should not be assumed that all evidence has equal value. Sometimes information is derivative and much of it is from late antiquity. However, the ancient evidence is surprisingly uniform and definitive given the range and uncertainty of modern opinions.³⁶

³⁵ The full set of data includes the citations in the Annexure (though it should be noted there are also repetitions of some of the information provided by authors in the Annexure which I have not listed here), and the following other citations (given in their Latinised form to facilitate looking them up): Anthologia Graeca, Bk 15, epigram 36; Apostolius, Michael, *Collectio paroemiarum* 10.27; Choniates, Michael, *Orationes*; Gabalas, Manuel, *Epistulae* B9 and B34; Gennadius, Scholarius, *Grammatica* 52.2; Gregorius II Patriarcha, *Paroemiae* 2.53; Joannes Chrysostromus, *In acta apostolorum* 154.60; Lexica Segueriana, s.v. *kurbeis*; Lexica Synonymica, *De differentia vocabulorum* s.v. *axones* and *kurbeis*; Lexicon Patmense, s.v. *kurbeis*; Lexicon Vindobenense, s.v. *kurbeis*; Photius, *Bibliotheca*, s.v. *kurbeis*; Planudes, Maximus, *Publii Ovidii* 15 ; Psellus, Michael, *Poemata* 6; Stilbes, Constantinus, *Oratorio in honorem Georgii Xiphilini* 14.7 and *Praelocutio* 10; Synesius, *Catastases* oration 2, 5; Thomas Magister, *Ecloga nominum et verborum Atticorum*; Tzetzes, Joannes, *Chiliades* 12.406; Pseudo-Zonaras, *Lexicon* s.v. *kurbeis*.

³⁶ I am aware that I am open to criticism for relying too heavily on ‘counting’ the ancient evidence rather than ‘weighing’ it. An item of information could be repeated by numerous ancient authors, as one reader pointed out, without making it more credible. However, I believe the range and quantum of data provided in the Annexure proves that the evidence goes well beyond mere copying of limited sources. The objects were important, widely known and discussed throughout antiquity. If there were substantial contrary views, these would surely have been represented in the literature, and the absence of such evidence should not be dismissed for being an argument *ex silentio*. I find it more untenable that theories have been advanced which clearly are not in accord with the ancient evidence.

3.1. Analysis of shape

Table 2. Shape

SHAPE	KURBEIS	AXONES
3 sided	17	1
4 sided	2	12
Like stelae	5	
Like a pyramid/ <i>kurbasia/pilos</i>	6	
Stretched up to a peak	6	
Upright	3	1
Rotating/ in a frame	1	5

Table 2 summarises the evidence about shape. It shows convincingly that *kurbeis* and *axones* were physically different objects. *Kurbeis* had three sides and were free-standing objects with a peaked or crested top. The reference to them being four-sided came from Seleukos (Annexure Cit. 41) who probably considered *kurbeis* and *axones* to be identical stating: “For both (*axones* and *kurbeis*) the construction is as follows”. The entry from late antiquity following Seleukos in the *Souda* (s.v. *kurbeis*, Annexure Cit. 78) which dealt with the use of the word as a proverb, contained the only other claim that *kurbeis* were four-sided. The same entry provided the sole suggestion that *axones* were three-sided and it therefore seems safe to disregard it.

Axones were undoubtedly four-sided though whether this meant a four-faced object or rectangular board is not clear from the sources, and the Greek word *tetragōna* (literally ‘with four angles’) can imply either. A number of references described them as rotating and/or in a frame. Once again, the only ancient authority to imply that *kurbeis* also rotated was Seleukos as part of the above-mentioned citation.

3.2. Analysis of material

Table 3. Material

MATERIAL	KURBEIS	AXONES
Wood	8	10
Whitened or plastered boards	3	
<i>Pinakes</i>	4	1
<i>Sanides</i>	4	

MATERIAL	KURBEIS	AXONES
Stone	4	3
Bronze	1	1
Silver	1	

Table 3 summarises materials. Both *kurbeis* and *axones* were usually described as being made out of wood. In the case of the *kurbeis*, three descriptions actually specified whitened or plastered boards, and a further eight considered them like *pinakes* or *sanides* which usually meant wood unless otherwise qualified (as in Annexure Cit. 66). It is unlikely Athenian *kurbeis* were made of stone. Two of the four stone citations were non-Athenian - a grave stele from Kyzikos, and a description in Agathias of an elegy on a 'stone' *kurbis* probably implying this was not the usual material for a *kurbis* (Annexure Cits. 47 & 74). The remaining two stone citations were quoting the late second century BCE Apollodoros (Annexure Cits. 33 & 36). The former may have arisen from confusion with Aristotle's statement that the *kurbeis* were placed in the Royal Stoa and wrongly identified them with the late fifth-century sacred calendar (Annexure Cit. 15 plus note). The latter seems to indicate that the word *kurbis* in the singular was being used by that time as a generalisation for all *kurbeis* and stelae. The citation continued: "Later, writing on whitened boards, they called them similarly *kurbeis*". This was specifically confirmed in a further Apollodoros citation (Annexure Cit. 35).

There were several citations of stone *axones* including the physical republication of Drakon's homicide law (Annexure Cit. 7). However, the material was not mentioned again until well into the common era in an otherwise inaccurate scholion (Annexure Cit. 65ii plus note) which was refuted by another scholiast (Annexure Cit. 77i), but picked up by Michael Italicus in the 12th century CE (Annexure Cit. 79). The only reference to a bronze *kurbis* was in an unsourced and in other respects unreliable scholion to Aristophanes, *Birds* (Annexure Cit. 66 plus note). The bronze *axon* citation was in Polydeukes (see Annexure Cit. 53 plus note). The 'silver' *kurbis* was a dedication at Delos (Annexure Cit. 20).

It seems reasonable to conclude that Athenian *kurbeis* and *axones* were both made of wood with the exception of the stele bearing Drakon's law which was deliberately copied in stone.

3.3. Analysis of content

Table 4. Content

CONTENT	KURBEIS	AXONES
Secular and private laws	21	20
Sacred laws	10	4
Non-legal writings	10	
Metaphorical	8	1
A city	2	
Boustrophedon	1	1
Non-Athenian	8	

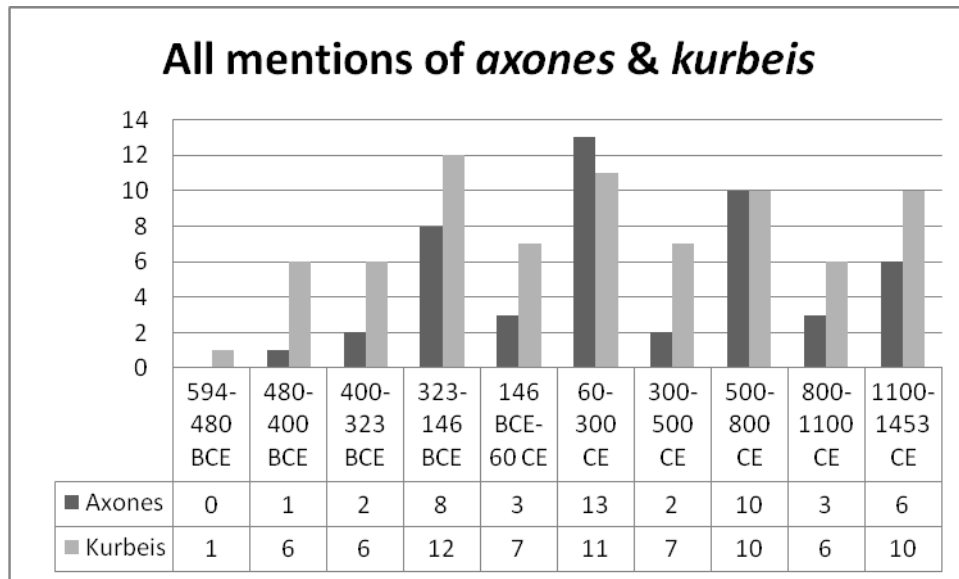
Table 4 summarises content. It is clear that no distinction should be made between *kurbeis* and *axones* in regards to the type of laws they bore. However, while *axones* only dealt with Athenian laws, *kurbeis* had a large number of unrelated writings. These included prophecies, oracles, a dedication, a grave inscription, a pledge, an elegy, a map, ancestral lore, lists of soldiers, philosophical writings and frequent metaphorical usage. In addition, the word *Kurbē* was the name of two *poleis*, and it should be noted there were two other archaic *poleis* with the root *kurb-* (see footnote 37).

There are indications that *kurbeis* were used for laws in Greek *poleis* other than Athens. Apollodoros was quoted by a scholiast as saying that some believed “the laws and public regulations for festivals of the *poleis* were written up” on *kurbeis* (Annexure Cit. 34). Plutarch mentioned “the sacred books which he [Numa] had written out with his own hand like the *nomothetai* of the Greeks [wrote] the *kurbeis*” (Annexure Cit. 45). In both cases the use of the plural (*poleis*, *nomothetai*) is significant. Theophrastos in discussing ancestral practices of making sacrifices specifically stated that the *kurbeis* which testified to them were copied from Kretan Korybantic rites (Annexure Cit. 17). Many other citations refer to ‘the ancients’ or ancient practices and it should not be assumed these were uniquely Athenian.

Although few in number, the instances of *axones* bearing sacred laws are well attested (Annexure Cits. 22, 43, 72iii and 73i), making the hypothesis that *axones* only dealt with ‘secular’ laws untenable.

3.4 Analysis by period

Table 5. Graph by Period



I will now analyse the information by period. I recognise there is a danger in putting labels on groups of writers and periods, and the cut-off points are arbitrary (and arguable). Table 5 provides a summary.

- i. **Archaic period** (594-480 BCE) - *Kurbē* was recorded as the name of a *polis* in Pamphilia. The related name Kurbasa was a *polis* in Karia.³⁷
- ii. **Classical period** (480-400 BCE) - there were six mentions of *kurbeis* all in plays, but none provided a description presumably because the audience knew what they were. Crucially, in this period *kurbeis* did not have to relate exclusively to laws. They could be summed up as physical objects bearing

³⁷ The *polis* name Kurbasa clearly has the same root *kurb-* and dated to the archaic period as it was recorded by Hekataios, *Asia* (per Herodian *Prosody* s.v. *Medmasa*, c.180-250 CE) and Stephanos, *Ethnika* s.v. *Kurbasa*, c.sixth century CE. A third town of Kurba in Krete was recorded by Stephanos, *Ethnika* s.v. *Kurba*, and it is likely he derived this information directly or indirectly from Hekataios too, but there is no proof. See P Fraser, *Greek ethnic terminology* (Oxford 2009), Annexure 3 for Stephanos' reliance on Hekataios. An ancient 'lost' *polis* of *Kurbē* in Rhodes was recorded by Diodoros – see Annexure Cit. 39. I have recorded no examples of *axones* from the archaic period. It is possible to argue that Drakon's law on homicide which the *anagrapheis* were instructed to obtain from the *Basileus* (IG I³ 104, 5-7) already existed on at least two numbered *axones*, though "we do not know in what form he preserved it" as R Meiggs & D Lewis, *A selection of Greek historical inscriptions to the end of the fifth century B.C.* (Oxford 1969) 266 pointed out. Irrespective of the merits of that argument, this summary places the testimony in the period when it was inscribed.

writing, including a prophesy (in the earliest example),³⁸ a message, and archaic laws. The word could already have a metaphorical meaning with a negative connotation. The first actual attestation of the word *axon* came late in the period as the heading on a stone stele bearing a partially extant reinscription of Drakon's homicide law.

- iii. **Late classical period** (400-323 BCE) – *kurbeis* were physical objects with laws and sacrifices according to the contemporary Athenian writers Lysias, Lykourgos, Plato, and Aristotle and a stele of the Salaminioi *genos*. *Axon* occurred only in a reference to homicide law by Demosthenes (see note to Annexure Cit. 12). In all the foregoing mentions, there was still a clear assumption the audience was familiar with the objects. However, there was also the first combined descriptive comment about Athenian *kurbeis* and *axones*, and it was by a non-Athenian writer, Anaximenes of Lampsakos, who was himself using second hand information, and being quoted third hand over five hundred years later (see note to Annexure Cit. 14). This need to rely on information at a significant remove from its original source is a major problem from this point on.
- iv. **Hellenistic period** (323-146 BCE) - there were two types of sources. Firstly, there were non-Athenian items of physical evidence including a mortgage stone describing a pledge on a *kurbia*, and a dedication at Delos in the shape of a *pilos*. Both of these reflected the earlier general use of the word *kurbis* to describe an object bearing an inscription. Secondly, there was information from many of the leading philosophers and scholars of the age, who were mostly men of considerable erudition undertaking serious historical investigation, textual analysis and commentary.³⁹ They provided a mixed bag

³⁸ Oracles were being recorded in Athens late in the sixth century. Herodotos 7.6.3 noted the case of Onomakritos who was the *khresmologue* (compiler of oracles) at the court of the Peisistratids exiled by Hipparkhos for inserting words into an oracle of Mousaios. Herodotos had many examples of oracular collections, including the oracles of Lysistratos – 8.96; Bakis (whether a person or a collection) – 8.20, 8.77, 8.96, 9.43; and Mousaios himself, the quasi mythical founder of priestly poetry and oracular predictions at Athens – 9.43.

³⁹ At Athens these were Theophrastos and Phantias (Aristotle's followers in his Peripatetic School), Philokhoros (the Attidographer), Khrysippos and Krates of Mallos (two prominent stoic philosophers - the latter founded the school at Pergamon), and Polemon of Athens (Head of the Academy). At the

of information including the first discussion of *axones*, in particular that they contained Solonian laws and were four-sided, while *kurbeis* were three-sided. The less reliable Euphorion added that *axones* and *kurbeis* were written boustrophedon.⁴⁰ They also made the first guesses about the derivation of the word *kurbeis*. In particular, Theophrastos claimed they were copied from the Korybantic rites of the Kretans.⁴¹ It is noteworthy they preserved two more specific instances of Athenian *kurbeis* being used for ancient, but non-legal writings. According to Polemon the *axones* were still preserved in the Prytaneion implying that he had seen them.

v. **Roman period** (146 BCE-60 CE) – this saw a continuation of the trends evident in the last phase. The period was represented by only two scholars, but the earlier of them, Apollodoros of Athens, was of considerable importance. He was active at Pergamon and provided the first comprehensive information about the nature and content of *kurbeis*. In seven surviving references he gave the details that the *kurbeis* were three-sided, wooden, plastered, stretched to a peak like a *kurbasia*, and contained state and festival laws. Crucially, he also had the first mention of stone ‘like stelae’ as a material, though this is probably a misunderstanding of what he wrote (see earlier discussion under 3.2). These comments were copied frequently by later writers. He himself copied Theophrastos in claiming *kurbeis* were invented by the Korybantes, as well as provided another fanciful etymological derivation. Didymos wrote a work about Solon’s *axones* which has not survived, though it was available to Plutarch.

vi. **Second Sophistic period** (60-300 CE) - in contrast to the paucity of commentators on the *axones* and *kurbeis* in the previous period, this one had

library of Alexandria were Kallimakhos (who was educated at Athens), Asklepiades of Samos, Apollonios Rhodios (pupil of Kallimakhos and second head librarian), Eratosthenes (probably also at some time a student at Athens and third head librarian), and Aristophanes of Byzantion (fourth head librarian). At Antioch there was Euphorion of Chalkis (a poet partly educated in Athens and founder/librarian).

⁴⁰ See my note to Annexure Cit. 29 about the problem with this evidence.

⁴¹ One can only surmise as to what he was alluding to. The Kretan Korybantes/Kouretes were known for their ecstatic male dances, being seers, and metal working. It may just be part of the trend of the time to see civilising archaic developments such as lawgiving coming from Krete, or it may be that *kurbeis* actually were in Krete and have not otherwise survived in the epigraphic or literary record.

seventeen, mostly from the second century CE. This relative abundance can be explained in terms of the era's "proliferation of popularizing commentaries and summaries of literary works" together with lexicæ, and the relatively high rate of survival of material.⁴² Although everything almost certainly was derivative, the writers provided a considerable quantity of completely new information, including separate descriptions by Seleukos Homerikos, Erotianos and Plutarch of *axones* being contained in frames and revolving. In particular, Plutarch in his *Life of Solon* detailed many of Solon's laws which he claimed were written on *axones* preserved in the Prytaneion.⁴³ Likewise Pausanias (1.18.3) noted Solon's laws (*nomoi*) were preserved in the Prytaneion. *Kurbeis* were described as being triangular in shape and/or on painted timber boards by Diogenianos, Zenobios and Demonstratos. Opinion was divided as to the nature of the content of the objects. There were two metaphorical uses of 'bad' *kurbeis* and one of 'virtuous' *axones*. This was the only period in which mentions of *axones* outnumbered *kurbeis*. It also uniquely had an object with an inscription describing itself as a *kurbis*, though in a non-Athenian context. It is a grave stele and reinforces yet again that the word could describe any object bearing an inscription.

- vii. **Third Sophistic/Byzantine rhetoric period** (300-500 CE) – intellectually the period was dominated by the teaching of rhetoric applied to hermeneutics.⁴⁴

⁴² E Dickey, *Ancient Greek scholarship: a guide to finding, reading and understanding scholia, commentaries, lexicæ, and grammatical treatises, from their beginnings to the Byzantine period*. (Oxford 2007) 8. She also pointed out (p.10) "The remaining fragments of such commentaries can be of considerable value today, in part because their authors had access to older scholarship, and when treating an archaizing author a commentator often needs to discuss matters that significantly predate the author himself".

⁴³ Evidently Plutarch had access to a corpus of Solon's poems from which he frequently quoted, though it should be noted none of these quotations mentioned *axones* or *kurbeis*. He consulted a number of sources naming Didymos and Asklepiades as writers on *axones* (see Annexure Cits. 40 and 31). He was evidently uncertain as to the relationship of *axones* to *kurbeis* wanting to conflate the two but aware of sources which distinguished between them – see especially *Solon* 25.1-2 and Annexure Cit. 44i with note.

⁴⁴ A Quiroga, "From sophistopolis to episcopopolis. The case for the Third Sophistic 1", *Journal for Late Antique Religion and Culture* 1 (2007) 31-42 usefully summarises the case for a 'Third Sophistic' period directly following the Second Sophistic in which rhetoric was a "hermeneutic tool the purpose of which ranged from grammatical analysis and biblical exegesis to literary propaganda" (p.35). The fifth century

In this paper, it was represented by five writers and a variety of information. Timaios' lexicon entry summed up the consensus from earlier periods that a *kurbis* was a three-sided pyramid shaped stele with laws. Nonnos described upright standing *kurbeis* containing ancient oracles. This harks back to the archaic use of the word. Furthermore, Nonnos used *pinax* as a synonym for *kurbis*. Aristainetos provided another example of the word being used metaphorically to describe something bad in the expression '*kurbeis* of evil'. Themistios said: "Plato has a *kurbis* full of the laws and proofs". Stroud interpreted this as a metaphor for "imaginary objects on which the 'laws' of the old Attic schools of philosophy were inscribed".⁴⁵ I agree it is a metaphor but suggest the accumulated evidence has demonstrated that writings other than laws were on *kurbeis*. There is no reason to exclude the 'proofs' (*tekmēria*) of philosophical arguments from hypothetically being on *kurbeis* too. Themistios also made specific reference to writing on an *axon*.

- viii. **Late antiquity/Early Mediaeval/Byzantine period** (500-800 CE) – this period included (probably) a significant proportion of the scholia and many of the lexica entries, though some of it is unreliable.⁴⁶ For instance, a scholion to Apollonios (Annexure Cit. 65.ii) stated *axones* were made from stone even though Apollonios did not mention *axones* (Annexure Cit. 23). The scholiast seems to have been contrasting *kurbeis* and may have had in mind the stone reinscription of Drakon's law. Bronze was suggested (for the first time!) as the material for *kurbeis* in a scholion to Aristophanes *Birds* 1354 as part of an incorrect claim that Aristotle said in the *Ath.Pol.* that *axones* had the laws of the city-states and public regulations for festivals (see Annexure Cit. 66). A second example of a stone *kurbis* was given as an object inscribed with an elegy by Agathias. There were more metaphorical uses of *kurbeis*, examples

CE saw the dominance of 'Byzantine rhetoric' as the key to success especially in the civil service after the founding of the Pandidakterion in 425 CE.

⁴⁵ Stroud, *Axones* (as in n.9) 38.

⁴⁶ Dickey, *Scholarship* (as in n.42) 13 wrote: "The precise date and manner in which this crucial change from separate commentary to scholia took place is disputed, with suggested dates ranging from the fourth to the tenth century". She continued that the change from *hypomnemata* to scholia probably began gradually in the fifth century and was mostly complete by the ninth, on the basis of which I have placed them in this period.

of texts on *axones*, and a detailed description of the turning mechanism used for *axones* which does not match the earlier information from the Second Sophistic period.

- ix. **Byzantine revival/Middle Mediaeval period** (800-1100 CE) – this period had information from the two major lexical sources of Photios and the *Souda*, and scholia to Plutarch. There was considerable repetition of earlier information but also some useful new details such as the archaic variant spelling of a word on one of the *axones*.
- x. **Great schism to the fall of Byzantium** (1100-1453 CE) – this final period was similar to its predecessor in terms of information gleaned, albeit with a large number of passing comments and entries in lexica reflecting a late surge in interest. It is intriguing to see that scholarship concerning the objects continued to the end of late antiquity.

4. Conclusions from the evidence

I have sought to demonstrate that the current descriptions and explanations for the *axones* and *kurbeis* are not correct. We can now dispense with theories that they were identical, or differentiated by the types of laws they held, or that Athenian *kurbeis* were made from bronze or stone. My studies have led me to the firm conclusion that *kurbeis* and *axones* were physically unrelated objects used for different purposes. *Kurbeis* were widely employed throughout the Greek speaking world in the sixth century BCE to early fifth century BCE to carry any authoritative text and the word went on to develop a metaphorical meaning. They were in the form of some kind of free-standing, three-sided pyramid or obelisk usually made from wood that had been whitened or plastered to bear an inscription.⁴⁷ *Axones* were used only at Athens and

⁴⁷ To all practical purposes, a three-sided timber object, especially with a solid base and a peaked cap has just as much structural integrity and stability as a four-sided object, if not more. A three-sided, slightly tapering 'obelisk' with a pointed cap would allow a regular inscription, in the same way as did stone stelae which usually tapered upwards. A comparison can be found in the three sided stelae used as victor catalogues for the Isthmian Games preserved at Korinth from the Roman period, see J Geagan, "Corinthian/Isthmian three sided steles", *Ancient World* 36.2 (2005) 146-155. When the change was made to stone, a flat 2-sided object offered structural integrity and economy of material. The conclusion about the shape of a *kurbis* is supported by the etymological evidence of the related word *kurbasia*,

were numbered. They were uniformly described as being rectangular wooden objects and there is significant evidence that they turned or rotated.

5. A new hypothesis

As repositories of written laws along with other important writings in the late archaic period, it seems that *kurbeis* acted in a formal documentary sense as precursors of stelae. At Athens they included laws that had been written down when the need required.⁴⁸ A proportion of these may well have gone back to Drakon's time or even earlier (depending upon one's acceptance or otherwise of the role of the *thesmothetai* in *Ath.Pol.*3.4).⁴⁹ Some laws were enacted by Solon, especially those connected with his appointment as "*diallaktēs* (mediator)⁵⁰ and *nomothetēs* (legislator) for the crisis" (Plutarch *Solon* 14.2). However, his laws as described in *Ath.Pol.* chapters 7 -10 were essentially of a constitutional and economic nature rather than an all encompassing legal code. *Ath. Pol.* 7.1 stated that Solon "established a *politeia* (constitution) and made other laws" which were written up on *kurbeis*. Elsewhere Aristotle was more specific. In *Politics* 1273b he wrote that Solon's claim to be considered "a good **legislator**" rested on "the following reasons: he broke up the absolute and undiluted oligarchy; he put an end to the enslavement of the people; and he set up the traditional democracy by mixing well the constitution".

I believe it makes better sense to envisage a gradual process of enacting written laws throughout the late seventh and sixth-centuries to remedy specific problems not satisfactorily covered by customary law, rather than a comprehensive 'code' authored entirely by Solon followed by a near vacuum in law-making for the next eighty or so years, albeit with occasional modifications. The orators hint at this. Demosthenes

which was a peaked cap or upright tiara or rooster's crest (Hdt. 5.49 and 7.64, Ar. *Birds* 487, Hsch. *Lexicon* s.v. *kurbasia*, Phot. *Lexicon* s.v. *kurbasia* and *kurbasian*), and the same word described the shape of the cover for a dressing over a woman's breast (Hp. *Mul.* 2.186).

⁴⁸ A significant number of studies have been written on the subject of what led to laws being written down, and I do not propose to go into it here. I suspect there is a danger of looking too simplistically for a single explanation when many factors could have been at work.

⁴⁹ See the discussion in Sickinger, *Public records* (as in n.2) 10-14.

⁵⁰ The word *diallektēs* usually had the sense of intervening in war or personal enmity – cf. Euripides *Phoenissae* 468, Thucydides 4.60, Isaeus 7.44, Aristotle *Ath. Pol.* 38.4, Herodotos 1.22.3, the Salaminioi decree.

24.142 made the point when he spoke of “those well tried ‘laws of Solon’ enacted by their forefathers” (as distinct from Solon himself). Aiskhines 1.13 said, “Consider men of Athens, how much attention that ancient lawgiver, Solon, gave to morality, as did Drakon and other lawgivers of those days”. Isocrates 12.144 in his potted history of Athens described the early laws as “few in number though adequate”. The point is reinforced when considering the evidence for poetry. Just as there must have been other poetry composed in sixth-century Athens but only the elegies and iambics of Solon are extant, it is inherently unlikely no other laws were passed for most of the remainder of the century.⁵¹ A more plausible scenario is that both the poetry and the laws of others were assigned to Solon.

It is worth noting that for a majority of modern scholars, the laws with the best claim to have been actually written by Solon were on *axones* (except for Drakon’s homicide law). However, examination of the thirteen references to Solonian *axones* in the literature yields a different story. (See the Annexure citation for details and references to each item discussed). A law on adultery (Cit. 50) appears to date back to Drakon, casting doubt on the statement in *Ath.Pol.* 7.1 and Plutarch *Solon* 17.1 that Solon repealed all the laws of Drakon except homicide. A number of *axones* mention involvement of the *dēmosion* (State): the *Dikē Exoulēs* provided an equal penalty payable to the *dēmosion* and the injured party on the 5th *axon* (Cits. 32 and 70); the *Genesia* was stated to be an *heortēs dēmotelous* (festival at public expense, Cit. 22); and the institution of *sitos* (providing food for women and orphans at State expense) was on the 1st *axon* (Cit. 57). The *Bolitou Dikēn* (stealing of cow dung law) was on another *axon* (Cit. 80). Prices were expressed in drachmas before the invention of coinage on the 16th *axon* (Cit. 43). The word *psephides* (relating to voting pebbles?) (Cit. 69), and even a sophistic precept (Cit. 62) were stated to be on *axones*. All these

⁵¹ A Lardinois, “Have we Solon’s verses?” in J. Blok, & A. Lardinois (Eds.), *Solon of Athens: new historical and philological approaches*, (Leiden 2006) 15: “it was not uncommon in antiquity to assign the works of later, lesser-known authors to a well-known predecessor. This happened to Homer and Hesiod, and, within the genre of elegy, to Tyrtaios, Simonides and Theognis”. He suggested that in similar fashion, Athenian poetry was gradually assigned to Solon. B Knox, “Literature” in W. Childs (Ed.), *Athens comes of age: from Solon to Salamis*, (Princeton 1978) 43 noted that “apart from these fragments of Solon, we do not have a single line, not so much as a word, which can be attributed to an Athenian writer and securely dated between the Arkhonship of Solon and the battle of Salamis”. The point was made earlier by Linforth, *Solon* (as in n.15) 123.

examples are unlikely to have dated to Solon's time. But even without such apparent anachronisms, any scholar considering *kurbeis* and *axones* to be discrete objects as I believe has been convincingly demonstrated (including Gilliard, Sondhaus, Schreiner, Freeman, Holland, Stroud and Immerwahr in my list of earlier theories) has had to suggest some explanation for the transcription of the laws. No one has been able to provide a convincing explanation backed by evidence for when and why this might have happened before the end of the fifth century.

I suggest it is not by chance that *axones* only appear in the evidence at the end of the fifth century BCE. I believe they were connected with the reinscription of Athen's laws at precisely that time, as documented in Lysias 30 and Andokides 81-85, as well as on the stele bearing the reinscription of Drakon's law. This collection of laws was generically known as 'Solon's laws' and had been recorded in various forms including *kurbeis*, *stelae* and *pinakes*. The laws were to be found in disparate places including the Akropolis, Bouleuterion, Areopagos, Royal Stoa and buildings relating to other magistracies, as well as sanctuaries for sacred rites, depending on each laws's subject matter. The *anagrapheis* were tasked with assembling and copying the laws to sort out the confusion this haphazard system entailed. This they did, numbering as they went, which incidentally is unexceptional at the end of the fifth century, rather than in the early sixth century when such a practice would be otherwise unattested.⁵² Crucially this explains why it took the *anagrapheis* the equivalent of a hundred years of collective effort (assuming the usual ten man body working for a decade) to republish the laws and sacred calendar (admittedly in tough times). I suggest the *anagrapheis*

⁵² R Stroud, *Drakon's law on homicide*. University of California publications: Classical Studies 3, (Berkeley 1968) 31 toyed with this idea: "It is possible that Drakon himself may have numbered the axones on which his laws were first published, or perhaps the assignment of numbers is no older than the the copy of the homicide law which the Basileus supplied to the Anagrapheis in 409/8. There is also the possibility that the numbers were introduced by the Anagrapheis themselves in order to facilitate references to the code". At page 33, n.14 he pondered "whether the (Solonian) numbering system was introduced by...a fourth-century or Alexandrian scholar"? He seemed to have lost these doubts at least about the numbering of the *axones* themselves (though not the laws) in his later work, Stroud, *Axones* (as in n.9) 41 when he stated in his 'Historical Reconstruction': "Axones at Athens carried exclusively the laws of Drakon and Solon; there is no evidence that such objects were used for inscriptions after the latter's nomothesia...There were at least 16 Solonian axones, numbered in series beginning with no. 1 like those of Drakon, and the individual laws on each were capable of being separately numbered, perhaps by Solon". However, this is an argument *ex silentio* and a particularly weak one given the evidence for *axones* inscribed after Solon.

transcribed the laws they collected onto painted wooden boards, which may well have been in some rotating frame or contraption for the sake of access and space.⁵³ They placed the collected body of laws in the Metroon (the Old Bouleuterion) which was used as the public records office no later than 407/6 BCE.⁵⁴ This enabled individual laws/*axones* to be subsequently accessed and quoted.

In addition, the *anagrapheis* inscribed Drakon's law and the calendar of sacrifices in stone pursuant to specific instructions. The *anagrapheis* started with Drakon's law which they obtained from the *Basileus*, as is known from the prescript to IG I³ 104, 5-7. This was the first document to be collated, so they gave its initial section the designation 'first *axon*' which they also inscribed on the stone, followed by 'second *axon*' further into the text. That is why the text of the law commences with the word '*Kai*'. Irrespective of whether this word is a connective meaning 'And', or an adverb intensifying the meaning of the following word 'if' ('Even if'), it seems unlikely Drakon's original document would have commenced in such a fashion, and therefore it was not Drakon's 'First *axon*'.⁵⁵ The double publication should not be seen as unusual, as

⁵³ Hence the name *axon* meaning axle. I note that the *anagrapheis* employed the practice of engraving opisthographically (on both sides of a document) when inscribing the Athenian sacred calendar. It seems reasonable to suggest that they may have employed the same practice with the *axones*.

⁵⁴ T L Shear, "Bouleuterion, Metroon and the archives at Athens", in M Hansen, & K Raaflaub (Eds.), *Historia Einzelschriften 95: Studies in the ancient Greek polis* (Stuttgart 1995) 158-190. There is evidence the Bouleuterion was used for archive storage after its construction. Andokides in his speech *On the return* c.410-405 BCE referred to the text of a decree to be found "in the Bouleuterion". A number of fifth century proxeny and dedicatory decrees specified double publication with the copy to be on a wooden tablet (*pinakion* or *sanis*) in the Bouleuterion – see R Thomas, *Oral tradition and written record in classical Athens* (Cambridge 1989) 75, and Sickinger, *Public records* (as in n.2) 81-2. It would also seem to be a natural function of the secretary of the Boule to have access to the legal records.

⁵⁵ For attempts to demonstrate this was possible see Stroud, *Drakon's law* (as in n.52) 37-40 who argued other provisions about intentional homicide followed, and M Gagarin, *Drakon and early Athenian homicide law* (New Haven 1981) who suggests such an opening would carry the implication that the penalty for intentional homicide would be the same. As A Gallia, "The republication of Draco's law on homicide", *The Classical Quarterly* (2004) 456, n.31 noted, their positions have not been widely accepted. Gagarin himself conceded (pp.109-110): "The main difficulty with this theory is that the ellipsis in the opening sentence is extreme and, as far as I know, unparalleled. Even if the implications of the opening sentence are clear, it may seem unlikely that Drakon would have written his law in this way". I might add a suggestion that the reason the *anagrapheis* required the seemingly unnecessary assistance of the secretary of the Boule in obtaining the law from the *Basileus* was that the Boule had provided specific instructions as to what was to be inscribed. Otherwise they could have just requested 'Drakon's first and second *axones*'.

around this time it seems to have become normal practice to have an archive copy plus a public stele for important documents.⁵⁶

It was this consolidated collection of *axones* ('laws of Solon') that was primarily cited by the orators and others. For instance, Aristotle used it to write his five book work entitled *Concerning Solon's axones* of which nothing is known except the title (see Annexure Cit. 16 with note on authorship). My reconstruction explains the troubling dichotomy implicit in Solon's laws thus being on *axones*, but also on *kurbeis* according to the statement in *Ath.Pol.* 7.1. It is simpler to propose that the archaic 'Solonian' laws were on *kurbeis* and copied on *axones*.

Subsequently the *axones* were moved from the Bouleuterion to the Prytaneion. The time frame can be narrowed down a little. Anaximenes implied that in the mid fourth century BCE they were in the Bouleuterion as might be expected (Annexure Cit. 14), but by the early second century BCE, Polemon described them in the Prytaneion (Annexure Cit. 27). Almost certainly they had outlived their usefulness, but there the venerable objects survived for over three hundred more years to be seen in fragmentary condition by Plutarch and Pausanias.

6. Implications

I fully accept that Solon made important changes to the *politeia* of the Athenians which ensured he was remembered as a significant lawmaker, but the details belong to an orally recorded past where history and myth are interwoven. They reflect, as Prof Raafaub wrote of Homer, "historicizing fiction rather than genuine historical memories".⁵⁷

I suspect that Athens at the beginning of the sixth-century was not more advanced than contemporary *poleis* in writing and law-making.⁵⁸ It was in the ideological battles

⁵⁶ See Thomas, *Oral tradition* (as in note 54) 39ff. Also see Gallia, 'republication' (as in n.55) 451-460 on the specific importance of publishing this particular law.

⁵⁷ K Raafaub, "A historian's headache: how to read 'Homeric society'?", in N. Fisher, & H. van Wees (Eds.), *Archaic Greece: new approaches and new evidence*, (London & Wales 1998) 184.

⁵⁸ Archaeological investigation has suggested that Athens at the beginning of the sixth century was actually an economic backwater relative to many other *poleis*. Cf. I Morris, "Poetics of power: the interpretation of ritual action in archaic Greece" in C Dougherty, & L Kurke (Eds.), *Cultural poetics in archaic Greece*, 15-45 (New York 1998) 35-6: "There is no evidence during most of the seventh century

between democrats and oligarchs in the fifth and fourth centuries that Solon assumed increasing significance as the source of Athens' laws. Legends grew around him and the practical failure of his measures was overlooked. Despite reservations, modern authors have largely subscribed to this ancient historiographical tradition. While understandable a hundred years ago, more recently scholars have sought explanations for anachronisms such as Solon's alleged reform of coinage, conquest of Salamis, and now the writing of comprehensive legislation recorded on *axones*.⁵⁹ I believe it is preferable to take a more conservative approach to the evidence. Freed from the inherited position it tells a different story.

Annexure

Summary of inscriptions and literary references (Citations = Cit.) of *kurbeis* and *axones*⁶⁰

Cit.	OBJECT	SOURCE	DATE	QUOTED BY/DATE	INFORMATION PROVIDED
1	<i>Kurbē</i>	Hekataios, <i>Asia</i>	c.560 – c.485 BCE	Stephanos, <i>Ethnica</i> s.v. <i>Kurbē</i> , 6 th c. CE	<i>Kurbē</i> was a <i>polis</i> in Pamphilia

for Athenian involvement in Panhellenic games, hoplite warfare, colonisation, or a host of other 'Greek' activities". C.600 BCE Athens was on the cusp of transition. *Kouroi* were being set up above graves and the old Temple to Athene was soon to be constructed on the Akropolis. However, Athens appears to have had puny military strength despite her large territory as evidenced by her inability even to conquer Salamis until well into the sixth century. Regarding law-making in the Greek world, it should be remembered that the earliest laws from Krete were short and procedural – see M Gagarin, *Early Greek law* (Berkeley 1989) 97. The first examples from Dreros have been dated on highly circumstantial grounds to the second half of the seventh or into the sixth century BCE – see Jeffery, *Local scripts* (as in n.27) 311-2, but the extensive texts of the Gortyn Code have been conventionally dated to the fifth century BCE. The explosion of writing in Attika did not occur until the second half of the sixth century BCE. J Whitley, "Cretan laws and Cretan literacy" *American Journal of Archaeology* (1997) 635-61 usefully collected the evidence..

⁵⁹ There are other clues. For instance, why did Solon, alone of the archaic legislators, not obtain oracular approval for his reforms but rely instead upon the people swearing an oath? How could there be monetary penalties on specific *axones* if the *axones* predated coinage? I am examining the latter question as part of a forthcoming article entitled "Dating the drachmas in Solon's laws".

⁶⁰ The date is only given the first time a source is quoted. Contentious items are footnoted. The sources are given in their Greek form consistently with the text. The full list is in my PhD thesis along with texts, translations and detailed analysis of each source. I regret, with deference to the comment of one reader, that there is not space to include all this information in the current article.

Cit.	OBJECT	SOURCE	DATE	QUOTED BY/DATE	INFORMATION PROVIDED
2	<i>Kurbis</i>	Aiskhylos, fragment of unknown play, P.Oxy 2246	Early – mid 5 th c BCE		An authoritative text; carried a prophecy ⁶¹
3	<i>Kurbeis</i>	Kratinos, unnamed play	c.2 nd half 5 th c BCE	Plutarch, <i>Solon</i> 25.1, c.50-120 CE	Wooden objects pertaining to Drakon & Solon ⁶²
4	<i>Kurbis</i>	Akhaïos, <i>Iris</i>	c.mid 5 th c BCE	Athenaios 10.74, 3 rd c. CE	Synonym (probably metaphorical) for a Spartan <i>skytale</i> bearing an encrypted message
5	<i>Kurbis</i>	Aristophanes <i>Clouds</i> , 447-8	423 BCE		A metaphor characterising a person who could work the law to his advantage
6	<i>Kurbeis</i>	Aristophanes <i>Birds</i> , 1353-7	414 BCE		Physical objects with archaic laws
7	<i>Axon</i>	IG I ³ 104 - Stele erected by the <i>polis</i>	409/8 BCE		Stele bears a reinscription of Drakon's homicide law(s) under the heading 'First <i>axon</i> '. Possible trace 'Second <i>axon</i> ' ⁶³

⁶¹ Stroud, *Axones* (as in n.9) 6 was sceptical of the restoration, but E Lobel, (Ed.), *The Oxyrhynchus papyri*, Vol 35 (London 1968) who edited the text believed all letters of *kurbis* could be read except the rho. The fragment reads: "He will flee /from an attack, as an an[cient] *ku[r]bis* says./And another land will receive him". I am grateful to Prof. A Sommerstein for his assistance and for providing this translation.

⁶² Prentice (as quoted by Linforth, *Solon* [as in n.15] 281, n.1) suggested the objects used in Kratinos' joke - "By Solon and by Drakon whose *kurbeis* now are used to parch our barley –corns" - could have been bronze but this seems unlikely as barley was usually roasted in shallow clay pans and any proposed shape for *kurbeis* makes them seem unsuited. Alternatively N Robertson, "Solon's axones and kyrbeis, and the sixth-century background", *Historia* 35.2 (1986) 148-53 ingeniously suggested a metaphor for barley cakes eaten in the Prytaneion pursuant to Solon's laws on display, but this seems unconvincing.

⁶³ The restoration by Stroud, *Drakon's law* (as in n.52) 16-18 of the second heading is widely accepted based on letter sizes, spacing, and the uninscribed space to the right of the alleged heading. Nevertheless, it should be noted that only one letter of *deuteros* (the omicron) can be read clearly and no letters of *axson*. No whole word can be securely read from the preceding fifteen lines or from what follows. The prescript calls for the republication of "the law (singular) of Drakon", and the text under the

Cit.	OBJECT	SOURCE	DATE	QUOTED BY/DATE	INFORMATION PROVIDED
8	<i>Kurbis</i>	P.Oxy 35 (1968) no.2743, fr.26, 7-8	c.late 5 th c BCE		Either a metaphor for a pettifogger (cf. Cit.5) or literally ‘worn smooth by rubbing’ implying a physical and perishable object. (Note: a very small fragment)
9	<i>Kurbeis</i>	Lysias 30.17, 18, 20	399/8 BCE		Multiple references to them being physical objects with the ancestral State sacrifices
10	<i>Kurbeis</i>	<i>Hesp.</i> 7 (1938) 5, 87. Stele erected by the Salaminioi <i>genos</i>	363/2 BCE		<i>Polis</i> -sanctioned sacrifices on <i>kurbeis</i>
11	<i>Kurbeis</i>	Plato, <i>Politikos</i> , 289d-e	c.360 BCE		Documents with laws. Virtually a synonym to stelae
12	<i>Axon</i>	Demosthenes 23.28, 23.31	352 BCE		Referred to a homicide law (possibly Drakon’s, cf. Cit. 7) ⁶⁴
13	<i>Kurbeis</i>	Lykourgos, <i>Concerning the priestess</i>	c.390-325/4 BCE	Harpokration, <i>Lexicon</i> , s.v. <i>kurbeis</i> , late 2 nd c CE	Implication that <i>kurbeis</i> were concerned with sacred law
14	<i>Kurbeis</i> & <i>axones</i>	Anaximenes of Lampsakos, <i>Philippika</i>	c.380-320 BCE	Harpokration, <i>Lexicon</i> s.v. <i>Ho katōthen nomos</i> (<i>The</i>	Ephialtes transferred the <i>axones</i> and the <i>kurbeis</i> from the Akropolis to the

rubric *prōtos axon* commences with a connective or adverb (*kai*) which is not easily explained – see discussion in the text under Section 5.

⁶⁴ The logical assumption is that this quote was extracted from Drakon’s *axon* as indeed Demosthenes explicitly claimed (23.51). However, the quoted text does not fit neatly on IG I³ 104 and reference to the Heliaia makes it unlikely to be Drakon’s as Stroud, *Drakon’s law* (as in n.52) 54-7 pointed out. The text is standardly amended to insert <α’> (= ‘first’) following C Cobet, *Novae Lectiones quibus continentur observationes criticae in scriptores Graecos* (Leiden 1858), but in my opinion the arguments advanced for it are weak especially as the quotation is cited in Harpokration s.v. *axoni* (Cit. 57) without the emendation.

Cit.	OBJECT	SOURCE	DATE	QUOTED BY/DATE	INFORMATION PROVIDED
				<i>law below, or from below</i>) quoting Didymos c.80-10 BCE (possibly also quoting Euphorion c.220 BCE)	Bouleuterion and the Agora ⁶⁵
15	<i>Kurbeis</i>	Aristotle (?), <i>Ath. Pol.</i> 7.1	c.329/8 BCE		Physical objects inscribed with the laws set up in the Stoa Basileios ⁶⁶
16	<i>Axones</i>	Aristotle (?) completed by Theophrastos (?), <i>Concerning Solon's axones</i>	Some time after c.330 BCE	Hesychios of Miletos (?), <i>Vita Menagiana</i> 140, 6 th c CE	At least 5 books containing or commenting on Solon's <i>axones</i> ⁶⁷

⁶⁵ There have long been doubts about this, for instance Wilomowitz, *Aristoteles* (as in n.14) i.45,7 called it a "false conclusion of Didymos from a rhetorical phrase of Anaximenes" (my translation), and argued it represented a metaphorical transfer of authority to the democratic institutions. Quite apart from the reliability of the long chain of information, Anaximenes' own source is unknown, as is the reason he would include discussion of the matter in a work on King Philip of Macedon. Elsewhere, his attribution of the funeral oration to Solon is considered unlikely – Anaximenes FGrH 72, F13 = Plut. *Pub.* 9.11. See F Jacoby, "*Patrios nomos*: state burial in Athens and the public ceremony in the Kerameikos", *Journal of Hellenic Studies* 64, (1944) 39 and n.8. See also Polydeukes' version substituting the Prytaneion for the Bouleuterion (Cit. 53). Then there is the question of the logic of describing the destinations of the objects as the Bouleuterion and the Agora when the former is in the latter. In my hypothesis the explanation is that the *kurbeis* may well have been brought down from the Akropolis to the fifth century Agora by Ephialtes, but the *axones* were placed in the Bouleuterion when they were inscribed by the *anagrapheis* and one of the sources has rationalised the story.

⁶⁶ "Inscribing the laws (just drafted by Solon) on the *kurbeis* they set them up in the Stoa Basileios and all swore to observe them". There is an obvious difficulty with this statement in that the Stoa's likely date of construction was the early fifth century and therefore well after Solon. See J Camp, *The Athenian agora* (London 1992) and Shear, *Bouleuterion* (as in n.54). It is far more likely that Aristotle saw the antique building with the *kurbeis* and assumed that both had been there all along, or that the *kurbeis* were indeed only placed in the Stoa after they were inscribed but were not Solonian. It is important to remember that the *kurbeis* mentioned in the *Ath. Pol.* were physically not the laws and sacred calendar inscribed in stone by the *anagrapheis* at the end of the fifth century and set up in the Stoa.

⁶⁷ From a list of works ascribed to Hesychios which ascribes this work to Aristotle. It is otherwise unknown. It should be set against the preceding entry in the *Ath. Pol.* stating unequivocally that Solon's laws were inscribed on *kurbeis*. In my theory, this work was commenting on the later collected *axones* – see discussion in the text under Section 5.

Cit.	OBJECT	SOURCE	DATE	QUOTED BY/DATE	INFORMATION PROVIDED
17	<i>Kurbeis</i>	Theophrastos <i>On Piety</i>	c.370-288/5 BCE	Porphyrrios, <i>On abstinence</i> , 2.20-1, 232/3- c.305 CE; Photios <i>Lexicon</i> s.v. <i>kurbeis</i> , 9 th c CE; scholia to Aristophanes, <i>Birds</i> 1354 and Demosthenes (unknown work), <i>Patmos Lexicon</i> s.v. <i>kurbeis</i>	Contained sacrificial law; copied from Korybantic rites of the Kretans
18	<i>Kurbeis</i>	Phanias of Eresos ⁶⁸ , unnamed work	2 nd half of 4th c BCE	Seleukos, <i>Commentary on Solon's axones</i> , c.1 st c BCE-1 st c CE	Name <i>kurbeis</i> derived from “these matters being sanctioned in writing” (cf. Cit. 31 for the subject)
19	<i>Kurbia</i>	SIG ³ , 1198 - a mortgage <i>horos</i> stone	3 rd c BCE		Mentions “pledges on <i>kurbia</i> ”
20	<i>Kurbe</i>	Delian temple inventories, IG XI ² 161, B76 + 3 subsequent mentions ⁶⁹	280/79 BCE		A dedication in the shape of a <i>pilos</i> (a pointed felt cap or helmet) nailed on a <i>sanis</i>
21	<i>Kurbis</i>	Kallimakhos, <i>Aetia</i> fr. 103	270-245 BCE		Implied a physical object with ancient writing probably from Phaleron (the old port

⁶⁸ Changed from Epheros in the text on the convincing suggestion of Holland, *Axones* (as in n.20) 348, n.14.

⁶⁹ The subsequent mentions are: IG XI² 1996, 10 – 274/3 BCE; IG XI² 287B, 36 – 250/49 BCE; BCH (1882) 33, 36 – 185-80 BCE. The dedication was first described as a *kurbe* and later as a *pilos*. The name of the dedicator –Koskalos son of Kleandros – is only known from this dedication. Kleandros is well attested as an Attic name. By this date Delos was independent, but direct Athenian administration had only ceased some thirty five years earlier in 314 BCE, and residual Athenian cultural and linguistic influence could be expected.

Cit.	OBJECT	SOURCE	DATE	QUOTED BY/DATE	INFORMATION PROVIDED
					of Athens)
22	<i>Axones</i>	Philokhoros, <i>Atthis</i> (?) ⁷⁰	c.261/0 BCE	<i>Anecdota Graeca</i> 1.86	Contained authority for the <i>polis</i> festival of the <i>Genesisia</i> ⁷¹
23	<i>Kurbia</i>	Apollonios Rhodios, <i>Argonautika</i> 4.257-8 + 4.277-81	c.260 BCE?		Preserved ancestral writings from a prophesy with geographical information (cf. Cit. 65 for the scholiast's comment)
24	<i>Axones</i>	Khrysispos, <i>Fragmenta logica et physica</i> 24	c.280-207 BCE	Galen, <i>De differentia pulsuum libri</i> 4, 8.631, 2 nd c CE	Solon set customs (<i>nomismata</i>) for the Athenians
25	<i>Kurbeis</i> & <i>axones</i>	Eratosthenes, unnamed work, <i>On old comedy</i> (?) ⁷²	275-194 BCE	Scholia to Apollonios Rhodios 4.279-81 and	<i>Kurbeis</i> were also called <i>axones</i> at Athens and contained laws ⁷³

⁷⁰ F Jacoby, "GENESIA: A forgotten festival of the dead", *The Classical Quarterly* 38 (1944) 73 noted the uncertainty about which work of Philokhoros is referred to. It could be his *Peri heortōn* with its calendar dates of Athenian festivals (cf. Harp. s.v. *Halōia* and *Khutroi*) or more likely his *Atthis*. If the latter, Solon's legislation seems to be in Book 3 but he discussed Solon's law about phratries in Book 4 (cf. Phot., *Souda* s.v. *orgeōnes*) which evidently started c.461/0 BCE.

⁷¹ From the *Antiattikista* – an anonymous lexicon of the 2nd century CE. This important quotation reads: "*Genesisia*. Since there was a festival at public expense on the fifth of Boedromion called *Genesisia*, according to Philokhoros and Solon on the *axones*". The *Genesisia* was a "common Hellenic festival" per Hdt. 4.26. Jacoby, *Genesisia* (as in n.70) 73 noted the power of the archaic *genos* strongly depended upon its control of cult and festival. At some stage it may have been deliberately appropriated by the Athenian State and given a fixed place on the State calendar of 5 Boedromion with a small sacrifice (EM 8001 = Oliver, *Hesperia* 4, 1935, 23), if Dow's linkage of the festival with the fragment is correct (quoted by J Mikalson, *The sacred and civil calendar of the Athenian year*, [New Jersey 1975] 49 and generally accepted). The date at which this occurred is unknown but the usage of the word *dēmoteles* (public funding) is unlikely to be Solon's as R Parker, *Athenian religion: a history* Oxford 1996) 5 n.17, 49 n.27 noted. It also seems improbable that the Eupatrid families had surrendered their control of cult and festival so early in the sixth century which means it is unlikely to have been on a genuinely Solonian *axon*.

⁷² Cf. commentary by Jacoby FGrH 241, F 37.

⁷³ There was controversy between Eratosthenes and Polemon (cf. Str. 1.2.2) and one of the issues vexing the polymaths was the physical shape and nature of the *kurbeis* and *axones*. Eratosthenes has often been taken as saying that the objects were one and the same, and had three sides. Some scholars have

Cit.	OBJECT	SOURCE	DATE	QUOTED BY/DATE	INFORMATION PROVIDED
				Aristophanes, <i>Clouds</i> 448	
26	<i>Kurbeis</i>	Eratosthenes, unnamed work (as above)	275- 194 BCE	Seleukos, <i>Commentary on Solon's axones</i>	<i>Kurbeis</i> were 3-sided, not 4-sided
27	<i>Axones</i>	Polemon, <i>Against Eratosthenes</i>	End 3 rd - early 2 nd c BCE	Harpokration, <i>Lexicon</i> s.v. <i>axoni</i>	<i>Axones</i> were 4-sided; preserved in the Prytaneion; inscribed on all sides . Sometimes gave the illusion of being 3- sided when viewed on an angle
28	<i>Kurbeis</i>	Polemon, <i>Concerning the spurious naming of inscriptions</i>	End 3 rd - 270/26 9 BCE	Athenaios, <i>Deipnosophist ai</i> 6.234e	Quotation from a <i>kurbeis</i> concerning the heralds of the <i>genos</i> Kerukes, their mission to Delos, and serving as <i>parasites</i> in the <i>Dēlion</i> ⁷⁴
29	<i>Kurbeis</i> &	Euphorion, <i>Apollodoros</i>	c.275 (or	Harpokration, <i>Lexicon</i> s.v. <i>Ho</i>	Written boustrophedon ⁷⁵

considered this evidence most important (notably Rhodes, *Commentary* [as in n.4] 132). Polemon seemed to be contradicting him stating the *axones* were four sided but “they sometimes give the illusion of being three sided when they are inclined toward the narrow part of the corner angle”. Given that Eratosthenes managed to brilliantly calculate the circumference of the earth, it is unlikely he could not tell whether an object had three or four sides. Also, he actually lived at Athens for a period. It seems to me the debate has been contrived. Eratosthenes said according to the scholiast that a *kurbis* is an *axon* on which the laws are preserved. While it is possible to interpret this as meaning they were one object with two names, a more straight forward interpretation is that there were two types of objects. This was surely the opinion of the scholiast because he added that *axones* were four-sided of stone (thinking of Drakon’s *axon*?) and *kurbeis* were three-sided.

⁷⁴ This is an important citation because it refers to “the *kurbeis* concerning the *Dēliastai*” and quotes the actual text.

⁷⁵ At face value this would imply an archaic date for both objects. However, Euphorion mainly wrote mythological poetry in notoriously obscure language which does not inspire much confidence. The information came through Didymos adding another layer of uncertainty. It is a strange coincidence that Didymos was quoting Euphorion that *axones* were written boustrophedon, and named Solon’s father as Euphorion “contrary to the opinion of all others who have written about Solon” as Pl., *Sol.* 1.1 remarked. Is it possible he made a mistake and also meant to write Exekestides?

Cit.	OBJECT	SOURCE	DATE	QUOTED BY/DATE	INFORMATION PROVIDED
	<i>axones</i>		later) – c.187 BCE	<i>katōthen nomos</i> (<i>The law below, or from below</i>) quoting Didymos	
30	<i>Kurbeis</i> & <i>axones</i>	Aristophanes of Byzantion, unnamed work	c.257- c.180 BCE	Seleukos, <i>Commentary on Solon's axones</i>	<i>Kurbeis</i> were similar to <i>axones</i> except <i>kurbeis</i> contained sacrifices while <i>axones</i> contained laws
31	<i>Kurbeis</i>	Asklepiades of Nikaia (?), <i>Exegesis of the axones</i>	c.200 BCE (?)	Seleukos, <i>Commentary on Solon's axones</i>	<i>Kurbis</i> , either the inventor of sacrifices - an otherwise unknown deity, or a document setting out boundaries (<i>horoi</i>) on properties ⁷⁶
32	<i>Axones</i>	Krates, unnamed work ⁷⁷	1 st half of 2 nd c BCE (?)	Scholion to <i>Iliad</i> 21.282	Cited the <i>dikē exoulēs</i> on an <i>axon</i> – probably the 5 th (cf. Cit. 70)
33	<i>Kurbeis</i>	Apollodoros, <i>Concerning the gods</i>	2 nd half 2 nd c BCE	Harpokration s.v <i>kurbeis</i> and <i>Souda</i> s.v. <i>kurbeis</i>	Had laws; stood upright; made of stone like stelae; called <i>kurbeis</i> because they stretched up to the top like a peaked cap on the head (<i>kurbasia</i>)

⁷⁶ Stroud *Axones* (as in n.9) 29 pointed out the figure (deity?) *Kurbis* is not attested elsewhere. The passage is found in various Byzantine lexica and the *Souda*. At issue is the word *ousias* found in most manuscripts conventionally being changed to *thusias* with the 'mistake' attributed to scribal error. On this basis the translation would be: "Asklepiades...(gets the name) from *Kurbis* who determined the form (*horisantos*) of sacrifices". However, if *ousias* were retained, the passage would imply a relationship between *kurbeis* and *horoi* and the sentence could be translated: "...from the *kurbis* which sets out the bounds of properties" or even: "set *horoi* on the properties". This has implications for Solon's debt relief measure by providing some additional evidence for the archaic Athenian use of *horoi*.

⁷⁷ The identity of Krates is subject to debate. Stroud, *Axones* (as in n.9) 29 suggested Krates of Pergamon (without any stated justification). Ruschenbusch, *Solonos Nomoi* (as in n.28) 52, n.138 suggested Krates of Athens. The former is more likely because the citation is from a discussion of the *Iliad* about which that Krates is known to have written (even being known as 'Homerikos'), whereas the third century BCE Athenian Krates was a Cynic philosopher who wrote poems and possibly tragedies.

Cit.	OBJECT	SOURCE	DATE	QUOTED BY/DATE	INFORMATION PROVIDED
34	<i>Kurbeis</i> & <i>axones</i>	Apollodoros, unnamed work (<i>Concerning the gods?</i>)	2 nd half 2 nd c BCE	Scholion to Aristophanes, <i>Birds</i> 1354	<i>Kurbeis</i> were 3-sided <i>axones</i> with laws of the states (plural) and public regulations for festivals (Note: scholiast also erroneously cited <i>Ath.Pol</i> for the same information)
35	<i>Kurbeis</i>	Apollodoros, unnamed work (<i>Concerning the gods?</i>)	2 nd half 2 nd c BCE	Scholion to Demosthenes, unknown work, s.v. <i>kurbeis</i>	Were 3-sided wooden constructions with state laws; named on account of stretching up to a peak or because they became hard covered with plaster
36	<i>Kurbeis</i>	Apollodoros, unnamed work (<i>Concerning the gods?</i>)	2 nd half 2 nd c BCE	Scholion to Apollonios Rhodios 4.280	All public writings & laws were called <i>kurbis</i> (sic) because ancients used to set up stones & publish decisions on them; called them <i>stelae</i> because they stood up; name derived from <i>kurpheis</i> (with phi changed to beta); later, writing on whitened boards they also called them <i>kurbeis</i>
37	<i>Kurbeis</i>	Apollodoros, unnamed work (<i>Concerning the gods?</i>)	2 nd half 2 nd c BCE	Photios, <i>Lexicon</i> s.v. <i>kurbeis</i> , 9th c CE	<i>Kurbeis</i> named from stretching up to the top or from becoming hard
38	<i>Kurbeis</i>	Apollodoros, unnamed work (<i>Concerning the gods?</i>)	2 nd half 2 nd c BCE	Souda s.v. <i>kurbeis</i>	Called <i>kurbeis</i> from their peaked shape; named by the Korybantes who

Cit.	OBJECT	SOURCE	DATE	QUOTED BY/DATE	INFORMATION PROVIDED
					invented them ⁷⁸
39	<i>Kurbia & Kurbē</i>	Diodoros of Sicily 5.57	90–21 BCE		<i>Kurbia</i> was the eponymous queen of <i>Kurbē</i> – a lost town in Rhodes
40	<i>Axones</i>	Didymos, <i>Concerning Solon's axones – a reply to Asklepiades</i>	c 80-10 BCE	Plutarch, <i>Solon</i> 1.1	Wrote a work about the <i>axones</i> of Solon
41	<i>Kurbeis & axones</i>	Seleukos, <i>Commentary on Solon's axones</i>	1 st c CE	Also Photios, <i>Lexicon</i> s.v. <i>orgeones</i> .	<i>Kurbeis</i> dealt with festivals. Their structure like peaked caps. 2 etymologies – tiara like (<i>kurbasia</i>) or concealing (<i>krubeis</i>) the god's business. Construction of both <i>axones</i> & <i>kurbeis</i> was a large frame, the height of a man, supporting fitted 4-sided inscribed pieces of wood covered with writing with pivots at either end for turning. Implication that <i>axones</i> included information on <i>orgeones</i> ⁷⁹
42	<i>Axones</i>	Erotianos, <i>Glossary of Hippokrates</i> s.v. <i>phliai</i>	1 st c CE		<i>Axones</i> were framed/held in timber posts
43	<i>Axones</i>	Plutarch, <i>Solon</i> 19.4, 23.4, 24.2	c.50-120 CE		Cited a number of specific laws enacted by Solon recorded on

⁷⁸ The information about the Korybantes was possibly copied from Theophrastos, see Cit. 17.

⁷⁹ This was the first actual mention of *axones* rotating. Seleukos specifically stated that both *axones* and *kurbeis* had the same construction probably because he considered them to be identical.

Cit.	OBJECT	SOURCE	DATE	QUOTED BY/DATE	INFORMATION PROVIDED
					numbered <i>axones</i> , both secular and sacred. 19.4: the 13 th <i>axon</i> contained amnesty provisions; 23.4: the 16 th <i>axon</i> contained prices for sacrificial victims; 24.2: the 1 st <i>axon</i> prohibited exports except olive oil ⁸⁰
44	<i>Kurbeis</i> & <i>axones</i>	Plutarch, <i>Solon</i> i- 25.1 ii- 25.2	c.50-120 CE		i- Solon wrote laws on <i>axones</i> to have force for a hundred years; <i>axones</i> in revolving, oblong, wooden frames; Plutarch saw “slight remnants” preserved in the Prytaneion and says they were called <i>kurbeis</i> according to Aristotle. ⁸¹ ii- alternative tradition that <i>kurbeis</i> had sacred rites and sacrifices and the rest of the laws were on <i>axones</i>
45	<i>Kurbeis</i>	Plutarch, <i>Numa</i> 22.2	c.50-120 CE		Numa wrote sacred books which were like “the <i>kurbeis</i> written by the <i>nomothetai</i> of the

⁸⁰ See Cit. 57 plus note for another measure supposedly contained on the 1st *axon*. Clearly this 1st *axon* could not be the same as Drakon’s as Stroud, *Drakon’s law* (as in n.52) 33-4 pointed out.

⁸¹ Plutarch wrote: “Slight remnants of these (*axones*) were preserved in the Prytaneion still in my time (*eti kath’ hēmas*), and they were called, according to Aristotle, *kurbeis*”. Plutarch did live for a year at Athens when a young man in 66/7 CE, and the passage implies he had seen the remnants. The location of the *axones* in the Prytaneion was earlier noted by Polemon, see Cit.27. Further confirmation may be adduced from Pausanias 1.18.3 who wrote: “Hard by is the Prytaneion in which the laws (*nomoi*) of Solon are inscribed”. Aristotle did not say *axones* were called *kurbeis*.

Cit.	OBJECT	SOURCE	DATE	QUOTED BY/DATE	INFORMATION PROVIDED
					Greeks”
46	<i>Axones</i>	Dion Khrusostom, <i>Orations</i> 80.5	1 st c - early 2 nd c CE		<i>Axones</i> were cherished – implication they were still preserved
47	<i>Kurbis</i>	Inscribed gravestone for Apollonides at Kyzikos	1 st or 2 nd c CE	Mordtmann 1881, 123, no 5	10 line acrostic epitaph describing the stone as a <i>kurbis</i>
48	<i>Kurbeis</i> & <i>axones</i>	Ammonios, <i>Concerning similar and different words</i> 57	1 st – 2 nd c CE		<i>Axones</i> and <i>kurbeis</i> were different. <i>Axones</i> 4-sided with private laws. <i>Kurbeis</i> 3-sided with sacred state laws
49	<i>Kurbeis</i>	Pseudo-Aristotle (Apuleios of Madauros?), <i>On the cosmos</i> 400b	2 nd c CE?		Definitive laws were on <i>kurbeis</i>
50	<i>Axon</i>	Loukianos, <i>Eunoukhos</i> 10	2 nd c CE		An <i>axon</i> dealt with adultery ⁸²
51	<i>Axones</i>	Aulus Gellius, <i>Attic nights</i> , 2.12.1	2 nd c CE		Contained the ancient laws of Solon on wooden boards
52	<i>Kurbeis</i>	Diogenianos, <i>On proverbs</i> 5.72 s.v. <i>kurbeis kakon</i>	2 nd c CE		Physically a sort of <i>pinax</i> with the laws. Metaphorically, <i>kurbeis kakon</i> referred to a multitude of evils
53	<i>Kurbeis</i> & <i>axones</i>	Polydeukes, <i>Onomastikon</i> 8.128	2 nd half 2 nd c CE		<i>Kurbeis</i> 3-sided, pyramid shaped <i>sanides</i> with laws; <i>axones</i> 4-sided & bronze with laws; <i>deltoi</i> were bronze with sacred & ancestral

⁸² Traditionally a law of Drakon, not Solon, despite Plut. *Sol.* 23: “He (Solon) permitted an adulterer caught in the act to be killed”. Cf. Paus. 9.36.8, Ulpian in Just., *Digest* 48.5.24, Ath. 13.569d (quoting Xenarkhos, fr. 4 [Edmonds]), and Dem. 23.53.

Cit.	OBJECT	SOURCE	DATE	QUOTED BY/DATE	INFORMATION PROVIDED
					matters; originally both <i>axones</i> & <i>kurbeis</i> were on the Akropolis and were relocated to the Prytaneion and Agora ⁸³
54	<i>Kurbeis</i>	Zenobios 4.77	2 nd c CE		3-sided <i>sanides</i> with laws. <i>Kurbeis kakon</i> – a proverb for exceeding villainy
55	<i>Kurbeis</i>	Demostratos, unknown work	2 nd c CE	Ailianos, <i>On the nature of animals</i> 15.9, 2 nd – 3 rd c CE	Innards of a certain fish (a <i>geranos</i> – cranefish?) had spines which were triangular and pointed like <i>kurbeis</i>
56	<i>Axones</i>	Galen, <i>Interpretation of the words of Hippokrates</i> 19,66	2 nd c CE		Solon's <i>axones</i> used obsolete words and language ⁸⁴
57	<i>Axones</i>	Harpokration, <i>Lexicon</i> s.v. <i>axoni</i> & <i>sitos</i>	2 nd c CE		Solon's laws were written on wooden <i>axones</i> ; <i>sitos</i> was on Solon's first <i>axon</i> ⁸⁵

⁸³ The passage also referred to 'The law below' and thus must come from the same source tradition as Harpokration (cf. Cit.14) through Didymos back to Anaximenes and his unknown source. The location of the original Prytaneion is unknown, though it may have been discovered in an alley off Tripodos Street based on an announcement by Drs Matthiou and Kavvadias at the 2010 Epigraphical Conference in honour of Harold Mattingly (held at the British School at Athens and the Epigraphical Museum). This would accord with Pausanias 1.20.1. See also G Schmalz, 'The Athenian Prytaneion discovered?', *Hesperia* 75 (2006) for a review of the evidence. The interesting suggestion by V Rosivach, 'Why seize the Acropolis?', *Historia* 57/2 (2008) that it was on the Akropolis is less plausible if Polydeukes had replaced the Bouleuterion with the (classical era) Prytaneion merely because that was where the remnants of the *axones* were kept at that time - cf. Cit.44 and note. A proclivity to alter facts to suit his understanding may explain his unique claim that *axones* were bronze.

⁸⁴ He mentioned the phrase 'strengthless heads' in *Od.* 10.521 quoted in Aristophanes' lost first play *Daitales* of 427 BCE, possibly because it dealt with justice for the weak.

⁸⁵ *Sitos*, the money provided by the *polis* for food for women and orphans, was said to be on Solon's first *axon*. If correct, this would demonstrate that Solon's *axones* were numbered separately from Drakon's. *Sitos* came under the purview of the arkhon according to *Ath.Pol* 56.7 though it was not directly attributed to Solon and seems unlikely to have been his measure. Another item on Solon's first *axon* was

Cit.	OBJECT	SOURCE	DATE	QUOTED BY/DATE	INFORMATION PROVIDED
58	<i>Axones</i>	Diogenes Laertios, <i>Solon</i> 1.45, 1.63	1 st half 3 rd c CE		Solon's laws were on wooden <i>axones</i>
59	<i>Axones</i>	Pseudo-Zonaras, <i>Lexicon</i> s.v. <i>axones</i>	3 rd c CE		4-sided <i>pinakes</i> with private laws. Metaphor for virtuous deeds ⁸⁶
60	<i>Kurbeis</i>	Eusebios, <i>On the life of Constantine</i> 1.3.2	4 th c CE		Honorific inscriptions were on <i>kurbeis</i> and stelia
61	<i>Kurbis</i>	Timaos, <i>Lexicon Platonikon</i> 993b s.v. <i>kurbis</i>	4 th c CE (?)		3-sided pyramid-shaped stele with laws concerning gods
62	<i>Axones</i> & <i>kurbis</i>	Themistios, <i>Orations</i> 2.32b, 23.287d, 26.315a, 26.327c	4 th c CE		Expanded on Plato <i>Politikos</i> 298d with metaphorical use of <i>kurbeis</i> bearing authoritative writings including letters and philosophical proofs. A precept of the sophists was inscribed on an <i>axon</i> and readily accessible ⁸⁷
63	<i>Kyrbia</i>	Nonnos, <i>Dionysiaka</i> 12.29-34, 12.37, 12.42-4, 12.55 &	4 th or 5 th c CE?		Upright standing panels with ancient oracular writings and drawings. The word <i>pinax</i> was used as a

given by Plut., *Sol.* 24.1 (Cit. 43) forbidding the export of produce except oil, though this did not fall under the jurisdiction of the arkhon according to the list given at *Ath. Pol.* 56.

⁸⁶ Perhaps in contrast to the *kurbeis kakon*.

⁸⁷ Note especially 26.315a: "(For Plato) the sophist is one who generally speaks briefly and is prepared to take on only one opponent at a time. Also this is the last of the writings on the *axon*. Thus easily would I be exposed if I cheat and tamper with the law". It possibly was intended metaphorically, but seemed to be stating a fact, in which case it seems unlikely that a sophistic principle could be on a document dating to Solon's time.

Cit.	OBJECT	SOURCE	DATE	QUOTED BY/DATE	INFORMATION PROVIDED
		12.64-9			synonym of <i>kurbis</i>
64	<i>Kurbis</i>	Aristainetos, <i>Letters</i> 1.17	5 th c CE		Metaphor for an amoral person
65	<i>Kurbeis</i> & <i>axones</i>	Scholia to Apollonios Rhodios 4.280, s.v. <i>kurbias</i>	?		i- <i>Kurbeis</i> = stelae. Meant <i>axones</i> on which laws were written citing Aristophanes the comic poet. ⁸⁸ ii- <i>Axones</i> were 4-sided of stone and <i>kurbeis</i> 3-sided both with laws. <i>Kurbeis</i> were some sort of <i>pinakes</i> with a map of the earth ⁸⁹
66	<i>Kurbeis</i>	Scholion to Aristophanes, <i>Birds</i> 1354	?		Bronze <i>sanides</i> with laws ⁹⁰
67	<i>Kurbis/kurbeis</i>	Scholia to Aristophanes, <i>Clouds</i> 447-8	?		i– a <i>sanis</i> with laws ii– a stele with laws iii– a metaphor for a person clever at the law
68	<i>Kurbeis</i>	Scholion to Demosthenes, unknown work ⁹¹	?	Lexicon Patmense s.v. <i>kurbeis</i>	3-sided wooden constructions with laws
69	<i>Axones</i>	Scholion to Homer, <i>Iliad</i>	?		The word <i>psephides</i> was on the <i>axones</i> ⁹²

⁸⁸ There is no reason to believe the playwright Aristophanes wrote the word *kurbeis* when he meant *axones* (cf. Cits. 5 & 6). There is no extant play by Aristophanes mentioning *axones*.

⁸⁹ Apollonios did not mention *axones* – see Cit. 23. Perhaps the explanation was offered as a contrast to the *kurbeis* for which the scholiast offered two explanations.

⁹⁰ The scholiast continued with the incorrect claim that Aristotle said in the *Ath.Pol.* *axones* had the laws of the city-states and public regulations for festivals.

⁹¹ The word *kurbeis* does not appear in any extant work of Demosthenes.

⁹² The scholiast wrote: “The *psephides* are not from Homer’s work, but the Attic word. For even so they are on the *axones*”. *Psephides* is a diminutive of *psephos* which in the Attic context was a voting pebble used for secret ballots in the lawcourts, and was a feature of democratic Athens. It is not impossible that Solon brought in such voting (as opposed to a show of hands), but it seems unlikely and there is no

Cit.	OBJECT	SOURCE	DATE	QUOTED BY/DATE	INFORMATION PROVIDED
		21.260			
70	<i>Axon</i>	Scholion to Homer, <i>Iliad</i> 21.282	?		The <i>dikē exoulēs</i> was on an <i>axon</i> , probably the fifth ⁹³
71	<i>Kurbeis</i> & <i>axones</i>	Scholion to Plato, <i>Politikos</i> 289e s.v. <i>kurbesi</i>	?	Pausanias Attikos, <i>Collection of Attic names</i> , s.v. <i>kurbesi</i>	<i>Kurbeis</i> were 3-sided <i>pinakes</i> . <i>Axones</i> were 4-sided with private matters. Some said they were no different
72	<i>Axones</i> , <i>kurbis</i>	Hesychios, <i>Lexicon</i> s.v. i- <i>korumbon</i> ii- <i>kurbis</i> iii- <i>proptorthia</i> iv- <i>treis theoi</i>	5 th – 6 th c CE		i- <i>kurbis</i> shaped like a peaked object ii- <i>kurbis</i> shaped like a triangular stele or wooden <i>axon</i> with laws iii- the <i>axones</i> mentioned the word <i>proptorthia</i> ⁹⁴ iv- an oath prescribed by Solon or Homer was on the <i>axones</i> .
73	<i>Axones</i> & <i>Kurba</i>	Stephanos, s.v. i- <i>agnous</i> ii- <i>Kurba</i>	6 th c CE		i- on the <i>axones</i> was a sacrifice to Leos at Agnous ⁹⁵

evidence of the practice being used until the reforms of Kleisthenes. However, Diogenes Laertios (1.59) mentioned pebbles in connection with Solon being used in calculations.

⁹³ The word *axon* is clear but the word before has been variously restored as the 5th, 9th or last (*axon*). H Erbse, *Scholia Graeca in Homeri Iliadem* (Berlin 1969) favoured the 5th. The passage quotes the text on the *axon*: “Ejectment – the full value of a settlement awarded in a lawsuit to be owed to the *dēmosion* (public), and an equal amount to the individual to whom it was awarded if the unsuccessful party prevented the individual from collecting the award”. It seems unlikely the law was written in this fashion by Solon. The *dikē exoulēs* is also cited by Dem. 21.44.

⁹⁴ The LSJ 1996 New Supplement (p.261) deleted its previous translation (citing this fragment) of a “projecting branch” and replaced it with “adj. applied to a sacred animal, probably an indication of its age, *eriphos proptorthi[os]* Sokolowski 3.18.46”. The derivation is presumably from *ptorthios* which means sprouting or budding (as in a young branch), so *proptorthios* aptly describes a very young goat before its horns have budded. A similar type of description was applied to a sheep on the main fragment of the Athenian State Calendar said to be *leipognōmona* - lacking its first teeth (F Sokolowski, *Lois sacrées des cités Grecques* [Paris 1962] 10, 28, 38). It is a further indication that *axones* also contained sacrifices.

Cit.	OBJECT	SOURCE	DATE	QUOTED BY/DATE	INFORMATION PROVIDED
					ii- Kurba was a <i>polis</i> in Krete
74	<i>Kurbias</i> , <i>kurbies</i> & <i>kurbis</i>	Agathias, i– <i>Greek anthology</i> 4.3.83 & 4.3.134-5 ii– <i>Historiae</i> p.54	6 th c CE		i- metaphorical use for Pillars of Herakles; a type of object with writing like stelae ii– a kind of stone <i>kurbis</i> which contained an elegy
75	<i>Axones</i>	Paulos of Aigina, <i>Medical Compendium in seven books</i> 6.117	7 th c CE		<i>Axones</i> were in upright wooden frames turned by leather straps
76	<i>Axones</i> & <i>kurbeis</i>	Photios, <i>Lexicon</i> s.v. i- <i>andraphonon</i> ii– <i>kurbeis</i> iii– <i>orgeones</i> iv- <i>bibliotheka</i>	9 th c CE		i- a variant spelling on one of Solon’s <i>axones</i> ⁹⁶ ii- <i>kurbeis</i> 3-sided <i>axones</i> or <i>pinakes</i> iii– see 41 iv- <i>kurbeis</i> was masculine in Attic and neuter in Kallimakhos
77	<i>Axones</i>	Scholia to Plutarch, <i>Solon</i> 19.4 s.v. <i>axon</i>	10 th or 11 th c CE		i– some said <i>axones</i> were 3-sided objects with laws which turn but this was wrong. <i>Kurbeis</i> were 3-sided stelae with military catalogues as per Aristophanes <i>Peace</i> ⁹⁷

⁹⁵ Agnous was presumably an older variant spelling of the deme name Hagnous. The hero Leos became eponym of Tribe 4 in the late sixth-century reforms of Kleisthenes. Alternatively Plut. *Thes.* 13 provided a story of a herald named Leos from the ‘deme’ Hagnous which was an independent town before the *synoikismos*.

⁹⁶ Given the word concerns homicide, it was more likely to have been Drakon’s *axon* (see Cit. 7). The word is tentatively restored in line 27 of IG I³ 104 but with the correct spelling. Presumably there is a case to restore the alpha instead. The word does not appear elsewhere in the surviving document.

⁹⁷ The surviving version of *Peace* does not contain a mention of *kurbeis*. Stroud, *Axones* (as in n.9) 53-4 argues it may have been in another version of the play.

Cit.	OBJECT	SOURCE	DATE	QUOTED BY/DATE	INFORMATION PROVIDED
					ii– <i>axones</i> were 4-sided & wooden pre-dating hides and skins for writing civic laws. <i>Kurbeis</i> were 3-sided & wooden with lists of soldiers
78	<i>Axones</i> & <i>kurbeis</i>	<i>Souda</i> s.v. <i>axones</i> , <i>nomos</i> , <i>Solon</i> & <i>kurbeis</i>	Late 10 th c CE		<i>Axones</i> were wooden & square-shaped but triangular according to some with Solonian laws. Different from <i>kurbeis</i> . <i>Kurbeis</i> were 4-sided <i>sanides</i>
79	<i>Kurbeis</i> & <i>axones</i>	<i>Italicus Letters</i> 35.218	12 th c CE		<i>Axones</i> were stone, 4 sided; <i>kurbeis</i> were 3 sided with Solon's laws which were transcribed onto <i>axones</i>
80	<i>Axones</i>	Greek proverbs s.v. <i>bolitou dikēn</i>	12 th c CE?		A specific Solonian law on the <i>axones</i> concerned stealing cow dung ⁹⁸
81	<i>Kurbeis</i> & <i>axones</i>	<i>Anecdota Graeca</i> s.v. i- <i>axones</i> ii- <i>kurbeis</i>	Date not known; after 6 th century CE		i- <i>axones</i> were wooden, 4 sided, & rotating on a pin with Solonian laws ii- <i>kurbeis</i> were wooden triangular pyramids with laws

⁹⁸ A law on Solon's *axones* was said to punish the wealthy even for the trivial offence of stealing cow dung. The mention comes from a proverb and may be apocryphal as it seems unlikely for the early sixth-century, though it fits the Solonian legend. The actual law may well have been passed under the democracy, but it could not then have been on a Solonian *axon*. It may have been sacred law – see IG I³ 4, line 11, the Hekatompedon Inscription.

3.2 Dating the drachmas in Solon's laws

Abstract

Can the drachmas in the 'laws of Solon' be explained as silver weights, used in the Athenian economy as a silver standard before the adoption of coinage in the second half of the sixth century BCE? I believe the answer is a firm no. In this paper I marshal historical, archaeological, numismatic and literary evidence to demonstrate that pre-Peisistratid Athens had an essentially agrarian economy in which local trade was usually denominated in barley, and weighed silver was used only to a limited extent in foreign trade and travel. It was the expanding trade of the Peisistratid era that led to the adoption of coinage, following a well-established Ionian model.

1. Introduction

Athenian historians and orators from the late fifth century BCE routinely attributed to Solon the writing of a set of laws that formed the basis of their ancestral constitution.¹ They also credited him with reform of their weights, measures and currency. How much they really knew about Solon is debatable, for undoubtedly he was a convenient *heures* figure around whom myths and facts were mingled.² Half a millennium later, Plutarch too wrote about

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¹ The probable reason for Solon's pre-eminence in the literature can be found in the ideological battles of the late-fifth and fourth centuries between democrats and oligarchs in which the former positioned Solon as the father of democracy. The triumph of the democrats is especially notable in the later *Atthides* of the fourth century BCE when, as F. Jacoby, *Atthis: the Local Chronicles of Ancient Athens* (Oxford 1949) 154-5, 155 n.20 noted, Solon was "established as the creator of the laws". For the oligarch's position compare *Ath. Pol.* 29.3 which states that in 411 BCE, during the brief government of the oligarchic Four Hundred, a certain Kleitophon suggested "that the commissioners elected (to draft new public safety measures) should also investigate the ancestral laws laid down by Kleisthenes when he was establishing the democracy". J. McInerney, "Politicizing the Past: the Atthis of Kleidemos", *CA* 13.1 (1994) 17-37 33, n.60 noted: "Solon is mentioned four times in the 75 extant speeches before 356, and 32 times in the 64 extant speeches after 356". Reform of weights, measures and coinage - *Andoc.* 1.83, *Ath. Pol.* 10.1-2.

² I. Linforth, *Solon the Athenian* (Berkeley 1919) 281 provided a good definition of a *heures*: "It was the universal Greek habit to attribute the great works of the past to definite persons without much regard to probability".

Solon. He provided much of the specific information on which modern historians have come to rely including crucially, details of fines and payments in Solon's laws denominated in drachmas. However, it has been convincingly demonstrated that coinage *per se* could not have been used in Solon's time.³ A solution put forward by Rhodes was that ancient authors simply assumed Solon reformed coinage as well as weights since the former was named after the latter.⁴ He suggested silver weights "served as a form of currency", and "Solon in 594/3 enacted laws which expressed values in drachmae".⁵ Strong endorsement for this suggestion has come from Kroll's reading of the literary evidence, which he has backed up with reference to contemporary use of a silver standard in Western Asia Minor.⁶

In this paper, I test the hypothesis against a fuller set of evidence. My assumption is that silver could not have been used as a standard unless and until there was an adequate supply of the metal in Athens to meet day-to-day commercial requirements. I rule out *ab initio* that the Athenians in this period were economically sophisticated enough to have operated under a virtual standard, expressing values in silver without significant quantities of the actual metal to satisfy debts. I start by seeking to understand the role of silver in the Athenian economy, especially in trade, and the archaeological evidence for its use. I then look at how silver coinage came to be adopted. Based on this understanding, I critically examine the Western Asia Minor analogy, and finally the literary evidence. My investigation leads me to propose, firstly, that in the pre-Peisistratid period Athens had an essentially agrarian economy in which domestic transactions were usually denominated in barley, and there is little evidence for the use of weighed silver other than in foreign trade and travel. Secondly, the Athenians adopted the Near Eastern invention of coinage in response to

³ The clearest statement of the reasons was in J. Kroll & N. Waggoner, "Dating the earliest coins of Athens, Corinth and Aegina", *AJA* 88 (1984) 325-33. However, doubts were raised as far back as E. Robinson, "Coins from the Ephesian Artemision reconsidered", *JHS* 71 (1951) 156-167, and stated explicitly by C. Kraay, *Greek coins* (London 1966) 324, and a c.545 date for the first Athenian coinage was suggested by M. Price & N. Waggoner, *The 'Asyut' Hoard* (London 1975) 68.

⁴ P. Rhodes, "Solon and the numismatists", *NC* 15 (1975) 1-11.

⁵ P. Rhodes, *A Commentary on the Aristotelian Athenaion Politeia* (Oxford 1981) 152-3 and 168.

⁶ Rhodes' solution was endorsed by Kroll and Waggoner, *Dating the earliest coins* (as in n.3) 325-33, and strongly amplified in J. Kroll, "From Wappenmünzen to gorgoneia to owls", *ANSMN* 26 (1981) 1-32 & plates 1-2, J. Kroll, "Silver in Solon's laws" in R. Ashton and S. Hurter (eds.), *Studies in Greek Numismatics in Memory of Martin Jessop Price* (London 1998) 225-32, J. Kroll, "Observations of monetary instruments in pre-coinage Greece" in M. Balmuth (ed.), *Hacksilber to Coinage: New Insights into the Monetary History of the Near East and Greece* (New York 2001) 77-91, and J. Kroll, "The monetary use of weighed bullion in archaic Greece" in W. Harris (ed.), *The Monetary Systems of the Greeks and Romans* (Oxford 2008) 12-37

domestic requirements in the second half of the sixth century. Thirdly, the ‘Solonian laws’ quoted by Plutarch which included penalties in drachmas, along with other literary references to pre-Peisistratid coinage, are anachronistic.

2. Silver use in the late Archaic Athenian economy

There were several principal ways substantial amounts of silver could have entered the late Archaic Athenian economy: mining, warfare, and trade.⁷ The Laurion mines had been exploited in Mycenaean times, but there is little evidence of any appreciable mining there until the second half of the sixth century,⁸ and studies have indicated that the early Athenian (*Wappenmünzen*) coinage was not minted from Attic silver.⁹ Peisistratos drew some revenues from the Strymon region from mining, though the amount is disputed, and this is well after Solon.¹⁰ The Athenians struggled to defeat tiny Megara early in the century, and we know of no other military successes that would have brought in substantial booty. This leaves trade as the remaining possibility. To establish whether it is a sufficient explanation, we need to understand its nature and quantum, and the people involved.

2.1 Silver in trade

At the beginning of the sixth century, the honourable source of wealth at Athens was landed property.¹¹ In fact, Solon’s reforms directly linked (or reinforced the link of) agricultural

⁷ I exclude gift exchange as an adequate basis.

⁸ Mycenaean exploitation – N. Gale, W. Gentner and G. Wagner, “Mineralogical and geographical silver sources of Archaic Greek coinage” in D. Metcalf and W. Oddy (eds.), *Metallurgy in numismatics*, Vol. 1, (London 1980) 29, n. 4. Sixth-century mining – see O. Picard, “La découverte des gisements du Laurion et les débuts de la chouette”, *RBN* (2001) 1-10 who demonstrated that mining must have been occurring from around 540 BCE.

⁹ This is generally accepted based mainly on Gale et al., *Silver sources* (as in n.8).

¹⁰ Hdt. 1.64.1 supplemented by *Ath. Pol.* 15.2. B. Lavelle, “The Peisistratids and the mines of Thrace”, *GRBS* 33 (1992) 5-23 argued that the Peisistratids could only have derived negligible income from this source because (1) there is no archaeological evidence for an archaic Athenian settlement, (2) Peisistratos still needed contributions from allies, (3) Thucydides did not mention this source of revenue, (4) there is no proof of where the metal for their coinage came from, and (5) the coinage was minimal. I do not believe any of these points is decisive enough to overrule the literary evidence. In particular, the remains of an Athenian settlement could lie undiscovered in many parts of the Strymon region.

¹¹ Notwithstanding Plutarch’s rationalising attempt to portray merchants in a good light – cf. *Sol.* 2.3-4.

produce with status and position.¹² Most economic activities were household based, and agricultural production probably rarely resulted in more than a small surplus.¹³ There was some manufacture and trade, with evidence for export of Attic 'SOS' amphoras dating to the seventh century. Pottery vessels have been found throughout the Mediterranean and even the Black Sea. There is some suggestion they may not have been carried on Athenian ships,¹⁴ but there can be little doubt that Athens was linked in to wide-ranging networks of trade and exchange. Trade required (in modern economic jargon) either a 'comparative advantage' – the ability to provide goods at a lower cost than competitors, or a 'competitive advantage' – the creation of premium quality goods to sell at high prices which outperform competitors. Sixth-century Athens increasingly did both in the form of exporting olive oil and 'luxury' goods such as perfume and pottery.¹⁵

Trade was conducted by individuals, not the state, and those individuals were usually foreigners.¹⁶ Merchants, as Dietler put it, "by virtue of specialized knowledge of disparate markets, were able to make connections between areas with complementary sets of

¹² *Ath. Pol.* 7.3-4.

¹³ Claims have been made that the land was being more intensively cultivated, principally to back theories of the nature of the conflict Solon had to resolve, but the evidence from survey archaeology is unresponsive – see S. Forsdyke, "Land, labor and economy in Solonian Athens: breaking the impasse between archaeology and history" in J. Blok and A. Lardinois (eds.), *Solon of Athens: New Historical and Philological Approaches* (Leiden 2006) 341-2 with references. See the Annexure regarding the statistical chance of surplus or famine.

¹⁴ Some ancient testimony supports the notion that early Attic SOS amphoras may have been transported by the Phoenicians (e.g., Pseudo-Skylax, *Periplus* 112). See M. Aubet, *The Phoenicians and the West: Politics, colonies and trade* (Cambridge 1993) 287, S. Houby-Nielsen, "Attica: a view from the sea" in K. Raaflaub and H. van Wees (eds.), *A companion to Archaic Greece* (West Sussex 2009) 198, and D. Gill, "Pots and trade: spacefillers or objets d'art?", *JHS* 111 (1991) 40-42.

¹⁵ 'Luxury' is not really an adequate term despite its widespread use in ancient history discourse. I use it in the sense of distinguishing goods of high value relative to their bulk, from 'staples' or 'necessities'. It is a complex issue for which see N. Morley, *Trade in classical antiquity* (Cambridge 2007) 39-43. L. Foxhall, "Village to city: staples and luxuries? Exchange networks and urbanization", in R. Osborne and B. Cunliffe (Eds.) *Mediterranean urbanization 800-600 BC* (Oxford 2005) 240 used the terms 'everyday luxuries', 'semi-luxuries', and 'delicacies' as they describe imports consumed occasionally by non-elites as well as by elites in greater quantities. Gill, *Pots and trade* (as in n.14) 29-47 argued from shipwreck evidence that pottery itself was of relatively minor importance in trade and merely accompanied more bulky goods.

¹⁶ S. Humphreys, *Anthropology and the Greeks* (London 1978) 70, 160, 167-9 showed this was the case even in the Homeric texts, notwithstanding examples of aristocrats travelling to finance the acquisition of goods and luxuries for their own use. For a contrary view see D. Tandy, *Warriors into traders: the power of the market in early Greece* (Berkeley 1997) 4, and for a balanced summary see C. Reed, *Maritime traders in the ancient Greek world* (Cambridge 2003) 64-5..

demands and goods to exchange”.¹⁷ Their motive was profit. It is unlikely these people were Athenian *Eupatridai*, unless they were impoverished.¹⁸ Members of wealthy citizen families could profit through owning ships, or selling goods from their estates to the traders,¹⁹ but they “were not the ones to sail off and haggle with ‘barbarians’ ”.²⁰ Ship owners were *naukleroi*, and distinct in the sources from *emporoi* who were the actual traders.²¹ This is important when we come to consider the later literary evidence about *naukleroi*. Some of the ships may have been quite small, and suited to local cabotage, hawking goods along the coast, such as the triakonter (thirty-oared vessel) used in Solon’s raid on Salamis.²²

It is unlikely the *polis* took a direct interest in trade in Solon’s time except possibly to tax imports and exports.²³ This is because Athens had rudimentary institutional and bureaucratic structures.²⁴ There was no standing military force.²⁵ There were few (and modest) public buildings, and little by way of infrastructure works.²⁶ This meant the *polis* must have had

¹⁷ M. Dietler, *Archaeologies of colonialism: Consumption, entanglement, and violence in Ancient Mediterranean France* (Berkeley 2010) 100. I accept that Archaic Greece was “a world of interdependent markets” where “those engaged in trade (were) aware of varying demand for particular commodities in different places” - R. Osborne, “Pots, trade and the archaic Greek economy”, *Antiquity* 70 (1996) 31.

¹⁸ B. Bravo, “Remarques sur les assises sociales, les formes d’organisation et la terminologie du commerce maritime grec à l’époque archaïque”, *Dialogues d’histoire ancienne* 3 (1977) 24-5 made this suggestion. Solon himself is a good example, cf. Plut. *Sol.* 2.1.

¹⁹ Financing trade is another possible way in which wealthy people could profit discreetly. However, we have no evidence for bottomry loans before the fourth century, though their existence is inferred by some in the early to mid fifth century, cf. Reed, *Maritime traders* (as in n.16) 40-1.

²⁰ Dietler, *Archaeologies* (as in n.17) 142.

²¹ Reed, *Maritime traders* (as in n.16) 9 and 12.

²² Plut. *Sol.* 8.2.

²³ Dietler, *Archaeologies* (as in n.17) 140. As trade developed, there would have been increased need for harbour infrastructure, a dedicated market space (*emporion*), and laws to deal with disputes, but there is little evidence for this before the late archaic period.

²⁴ There were holders of official posts, though their roles and functions are debatable. For instance, in the Kylonian conspiracy’ of ca. 630 BCE, the officials were either *naukraroi* or archons. We learn of *basileis*, *ephetes*, *thesmotetes*, and a *polemarch*, along with bodies such as the *Areopagos*, courts and a general assembly, but it is unlikely any of these required a paid secretariat.

²⁵ F. Frost, “The Athenian military before Cleisthenes”, *Historia* 33 (1984) 283-94 convincingly demonstrated that there was no state army until the citizen hoplite army created by Kleisthenes’ reforms, except for the forces maintained by the tyrants. Warfare at the beginning of the century was characterised by thieving raids (cf. *Dig.* 47.22.4 = E. Ruschenbusch, *Solonos nomoi* [Weisbaden 1966] fr. 76a) and border conflicts. Expeditions were manned on a volunteer basis, such as Plutarch’s report of Solon’s capture of Salamis (Plut. *Sol.* 9.2).

²⁶ Athens in the seventh century had been in Camp’s word ‘quiescent’ (J. Camp, *The Athenian agora: excavations in the heart of classical Athens* [London 1986] 34). This situation changed dramatically during the sixth century, but at the commencement of the century the process was just beginning. On the Acropolis, there may have been a temple to Athena Polias preceding the ‘Bluebeard’ temple, and there were possibly other buildings on its east slope – a Bouleuterion and Prytaneion were identified by Thucydides 2.15.2 in an area

minimal requirement for money. Well attested ‘Solonian’ measures may have actually reduced economic activities. The cancellation of debts was, in economic terms, a huge ‘sovereign risk’, and it is not surprising Plutarch records that “the rich were vexed because he took away their security” (*Sol.* 16.1), and profiteering (insider trading) was alleged to have occurred (*Sol.* 15.6-7, *Ath. Pol.* 6.2). Security for domestic loans was diminished by the law against borrowing on the person of the borrower (*Sol.* 15.4).

One measure we hear of which may have directly affected trade was Solon’s law against selling Athenians into slavery, potentially a lucrative cargo, but this was for political and social, not economic reasons.²⁷ Another alleged measure was the banning of the export of all agricultural produce except oil (*Plut. Sol.* 24.1). In theory, this would have lowered food prices temporarily until production of non-exportable produce fell to the reduced level of demand, and distorted the market.²⁸ However, Frost usefully asked: “Would such a ‘law’ have prevented Marathonians from trading with the Euboian coastal towns?”²⁹ Foxhall noted that it would almost certainly have been unenforceable with the limited coercive powers of the state at the time, and that the measure is not well supported archaeologically, given that amphoras from the period probably carried wine as well as oil.³⁰ I suspect that not much agricultural produce was being exported given the competing local demand, the costs and economies of scale required to export bulky goods efficiently, the cost of risk of loss, and the prudent requirement for a farmer to retain a surplus against future crop failure.³¹

plausibly identified as an early *polis* centre - see N. Robertson, “The city centre of archaic Athens”, *Hesperia* 67 (1998) 283-302. Financing possibly came privately from aristocrats as prestige offerings. We have no evidence for any substantial infrastructure works.

²⁷ Slave trading is generally an archaeologically invisible cargo, but can be inferred from Solon’s poems, cf. M. West, *Iambi et elegi Graeci ante Alexandrum Cantati II* (Oxford 1998) fr. 4.17-25 and 36.8-12. Homeric and archaic slavery is discussed in Humphreys, *Anthropology* (as in n.16) 161-4.

²⁸ See G. Stanton, *Athenian politics c.800-500 BC: a sourcebook* (London and New York 1990) 60, n.1 and 65, n.1. Methodologically I fully agree with Prof. Stanton (in a comment made to me privately) that we should accept what the ancient sources say unless there is some reason to reject it. However, for the reasons following in this paper, I suspect Plutarch was providing a later explanation, or possibly even recording a law enacted later than Solon.

²⁹ F. Frost, “The rural demes of Attica”, *Politics and the Athenians* (Toronto 2005) 14, n.4 (originally in W. Coulson et al. [eds.] *The archaeology of Athens and Attica under the democracy* [Oxford 1994]).

³⁰ L. Foxhall, *Olive cultivation in ancient Greece: seeking the ancient economy* (Oxford 2007) 16-17. Also see note 34.

³¹ The price paid locally for grain should generally have exceeded the price able to be paid by an importer covering large costs and risk (including loss from piracy and shipwreck) – see the Annexure on price volatility and statistical risk of crop failure. Export of other, less bulky agricultural produce is certainly possible, such as

Furthermore, Osborne noted that regular trade links as evidenced by the pottery finds “presuppose more or less consistent exchange patterns, not the capricious patterns which are the product of periodic agricultural crisis”.³² The ‘law’ recorded by Plutarch may therefore just have been a later explanation for an economic reality.

Archaeological evidence demonstrates that non-domestic markets were very narrowly targeted.³³ For instance, the market in southern France was restricted to wine and drinking ceramics, including Attic drinking cups.³⁴ This is not particularly surprising. Traders would have learnt early on that demand is not based primarily on availability of goods. Buyers have to want a product, and be willing and able to afford it.³⁵

So where were Athenian products sold in Solon’s time? Osborne has analysed pottery finds for the sixth century.³⁶ His statistics reveal that “Most Athenian pottery manufactured in the first quarter of the 6th century has been found in Athens and Attica”. Specifically, he tabulated 310 items of which 207 (67%) were found in Attica. The remainder travelled mostly to Aigina, Naukratis, and Vari (in Etruria), with scattered finds elsewhere.³⁷ Gallant stated there was very small pottery production in the first quarter of the century. He arrived “at a figure of 10-15 men working at any one time”.³⁸ Webster recorded a mere eight painters and five groups for the entire period.³⁹ Osborne’s figures then show that in the second quarter, pottery production had more than doubled (310 to 810), albeit off a very low base, with only 237 (29%) found in Attica, and the rest widely distributed from Marseilles to Naukratis.⁴⁰ In the second half of the century, production increased dramatically with distribution all around the Mediterranean and Black Sea, and Attic pottery

wool and textiles, olives, pomegranates and so forth, but these are rarely visible in the archaeological record. Attica was later a net importer of food, especially of grain in the fourth century.

³² Osborne, *Pots* (as in n.17) 39.

³³ Dietler, *Archaeologies* (as in n.17) 194. The evidence comes from finds in excavations and shipwrecks.

³⁴ All from Dietler, *Archaeologies* (as in n.17) 194-6. We know the amphoras were used for wine from the presence of pitch lining their interiors. They cannot have been used for olive oil, because pitch is soluble in oil.

³⁵ There has been a great deal written recently on demand. See especially L. Foxhall, “Cargoes of the heart’s desire: the character of trade in the archaic Mediterranean world”, in N. Fisher and H. Van Wees (Eds.), *Archaic Greece: new approaches and new evidence* (London 1998) 295-309.

³⁶ Osborne, *Pots* (as in n.17) 31-44. The quotation in the next sentence is from p.34.

³⁷ Our knowledge of the distribution of wares is strongly influenced by “the vagaries of excavation, identification and publication (Osborne, *Pots* [as in n.17] 31). However, the fact that quantities were substantially less in the first quarter of the sixth century than later seems undeniable.

³⁸ T. Gallant, “Agricultural systems, land tenure, and reforms of Solon” *BSA* 77 (1982) 121.

³⁹ T. Webster, *Potter and Patron in Classical Athens* (London 1972) 2.

⁴⁰ Osborne, *Pots* (as in n.17) 36-7.

was driving Corinthian pottery from the market.⁴¹ The relationship between “surviving and vanished pots is uncertain”, though various guesses as to a likely multiplier have been made, based (it seems to me) on numbers that writers imagine ought to have been there.⁴² More useful for this study is the trend of almost exponential growth of numbers of surviving pots from relatively small numbers at the beginning of the sixth century to large numbers at its end. This virtually forces the conclusion that income to the *polis* in silver from taxation of trade in Solon’s time must have been minimal. It could not have constituted an adequate supply of silver to operate a silver standard.

The situation had changed dramatically by the second half of the century. The substantially growing maritime trade would have brought in port taxes. There was increasing urbanisation, building, and specialisation of manufacturing.⁴³ These required raw materials, labour, some of it brought in or attracted from abroad, and most importantly, finance. Peisistratos had to pay his mercenaries, and fought wars.⁴⁴ Arguably, these are the circumstances which led to official monetary change. Until then, ubiquitous barley was an adequate monetary standard as an official means of specifying value, but Descat is probably correct in characterising the economy as one employing “multiple money”.⁴⁵ By this he meant anything that was commonly accepted, including barley, livestock, and precious metals. However, commodities would not have been the ideal denominator for more complex trading transactions involving people outside Athens on account of their price

⁴¹ H. Shapiro, *Art and cult under the tyrants in Athens* (Mainz 1989) 10. The same trend was tabulated by Gill, *Pots and trade* (as in n.14) 47, Table E for imported Greek pottery arriving in Etruria (using Meyer’s data). Attic pottery: 625-600 – 1 (0.04%); 600-575 – 17 (0.68%); 575-550 – 99 (3.96%); 550-525 – 443 (17.72%); 525-500 – 1470 (39.32%).

⁴² Osborne, *Pots* (as in n.17) 40 summarised these.

⁴³ Urbanisation – see I. Morris, “The early polis as city and state” in J. Rich and A. Wallace-Hadrill (eds.), *City and country in the ancient world* (London/New York 1991) 25-57; building – see J. Boersma, “Peisistratos: building activity reconsidered” in H. Sancisi-Weerdenburg (ed.), *Peisistratos and the tyranny: a reappraisal of the evidence* (Amsterdam 2000) 49-56; specialisation – see Osborne, *Pots* (as in n.17) 31 who recorded that 96% of the production of the Nikosthenic workshop went to the Etruscan area. I do not propose to enter into the discussion of how much of the building work was directly attributable to Peisistratos, just to note that it was occurring. For a general summary, see Houby-Nielsen, *Attica* (as in n.14) 206-7.

⁴⁴ Herodotos 5.94.1 mentioned that Peisistratos seized Sigeion in Asia Minor from the Mytilenians, and maintained overlordship of the Chersonese (Hdt. 6.35-41), which Miltiades obtained with the help of mercenaries (Hdt. 6.39.2). Peisistratos himself used mercenaries to help establish his tyranny (Hdt. 1.61.4 and 1.63.1).

⁴⁵ R. Descat, “Monnaie multiple et monnaie frappée en Grèce archaïque”, *RN*, 6th series, 157 (2001) 71.

volatility, and bulky, ephemeral nature.⁴⁶ Precious metals would gradually have become more and more acceptable because of their durability, portability, and acceptability by trading partners. When the State intervened by adopting the Ionian system of a legally supported and guaranteed currency, all transactions would have had to be performed and expressed in the State's coinage. This enhanced State control, with a financial benefit to the *polis* through a charge on minting.

3. Archaeological evidence for silver use before coinage

There are no recorded finds of *Hacksilber* (silver as bullion) in Athens or mainland Greece dating to the sixth century. Kroll accounted for this evidential deficiency by appealing to:

“the minimal value that such scraps of silver could command on the antiquities market; any chance finder or clandestine excavator of a silver hoard would have little choice but to melt it down. As for controlled excavations, it is usually cemeteries and sanctuaries that produce 8th- and 7th-century finds in metal; early strata of urban sites, where savings are most likely to have been secreted, were normally chewed up and plundered in later building activities”.⁴⁷

These points were well made, but *Hacksilber* hoards have been found throughout the Near East where silver was used in commerce.⁴⁸ Mixed hoards of sixth-century *Hacksilber* and coinage have also been found in Magna Graecia and the Greek East, but none in mainland Greece.⁴⁹ Controlled excavations over many decades have been conducted in many ancient Greek mainland *poleis* and sanctuaries, which make it increasingly unlikely such deposits would have left no trace if they existed.⁵⁰ Markoe concluded that the

⁴⁶ See the Annexure. People had been paid in grain and other produce in Egypt for millennia, and this practice would continue into Hellenistic times. Cf. D. Crawford, “Food: tradition and change in Hellenistic Egypt”, *World Archaeology* 11 (1979) 136-46. However, Egypt had long-standing traditions and administrative practices quite different from Mesopotamia and Greece, and the worker payments were within the domestic economy.

⁴⁷ Kroll, *Observations* (as in n.6) 78.

⁴⁸ Over two dozen according to Kroll, *Silver* (as in n.6) 229.

⁴⁹ Kroll, *Weighed bullion* (as in n.6) 24-35 conceded this, as well as providing details of bullion finds in Magna Graecia, but he pointed to the “asymmetry of Greek vs. NE excavation” (in private correspondence). Kroll, *Observations* (as in n.6) 77-8 himself reported upon a find of ‘hackgold’ from late eighth-century Eretria.

⁵⁰ G. Markoe, “In pursuit of metals: Phoenicians and Greeks in Italy”, in G. Kopcke and I. Tokumaru (Eds.) *Greece between east and west: 10th-8th centuries BC*. (Mainz 1992) 70 noted the “paucity of native-manufactured silverwork in late 8th- and 7th-century Greece is accompanied by a corresponding absence of

“exclusive presence of gold and the corresponding absence of silver in tombs and deposits of this time leads to a single conclusion: that there was neither a market for silver at this time in Greece nor was there any native silverworking tradition”.⁵¹ The problem may be indicative of a lack of supply of silver, or expertise, or both. Treister noted: “In contrast to the Classical period the treatment of precious metals was not developed in the Athenian workshops; all that is known is one silver sphinx dated to ca. 560 B.C.”⁵²

The archaeological evidence points to very little use of silver in Athens in the first half of the sixth century. Can this be accounted for purely in terms of survival? In the classical period, there is good evidence that silver and gold objects such as cups were usually made to standardised coin weights. Vickers and Gill usefully summarised the recorded weights of silver dedications in the Pronaos of the Parthenon dating to near the end of the third quarter of the fifth century.⁵³ They noted that the “inventories appear to show a preponderance of material made to a Persian, as opposed to an Attic standard”.⁵⁴ This implies that even then they were still rare and frequently imported from the east,⁵⁵ notwithstanding the enormous output from Athenian silver mines. A silver cup in Aristophanes *Babylonians* 68 was used to make a payment, but it was a major asset valued in minas.⁵⁶ This was presumably beyond the reach of all but the wealthier Athenians, and makes it unlikely that silver objects, other than coinage, were ever in wide general use.

4. The adoption of coinage at Athens

In this Section, I look at how a silver standard came to be adopted in the form of coinage. I note at the outset that there have been many studies into the beginnings of coinage use in

Near Eastern silver imports”, especially notable at the major sanctuary sites of Delphi and Olympia where such objects might be expected.

⁵¹ Markoe, *Metals* (as in n.50) 71.

⁵² M. Yu Treister, *The role of metals in ancient Greek history* (Leiden 1996) 63. Silver was natively found in northern Etruria - Markoe, *Metals* (as in n.50) 73.

⁵³ M. Vickers and D. Gill, *Artful crafts: ancient Greek silverware and pottery* (Oxford 1994) 46-51. The exact dating is contested, but unimportant here.

⁵⁴ Vickers and Gill, *Artful crafts* (as in n.53) 49.

⁵⁵ I do not accept the unjustified assertion in Vickers and Gill, *Artful crafts* (as in n.53) 49 that “there is some evidence that the Persian standard was in general use at Athens even in the thirties and twenties of the fifth century”.

⁵⁶ The debt was 200 drachmas (2 minas). It was normal for valuable objects to be valued in round figures of minas – cf. Vickers, *Artful crafts* (as in n.53) 40-1.

Greek *poleis*, and they tend to look for generally applicable reasons for its invention and spread.⁵⁷ Ideally, it would be preferable to base this understanding on detailed knowledge of the particular circumstances in each case, but for most Greek *poleis* such knowledge is not available. However, we do know that by the time Athens introduced coinage, it was already a well known phenomenon in Ionian *poleis* and possibly elsewhere.⁵⁸ This suggests that it could have been implemented rapidly using some other system as a model, albeit with local variation. Weighed silver probably already had a growing role in trade, but silver would only be accepted outside the *polis* at its bullion value. Any minting costs would be a loss to the merchant.⁵⁹ This provides an explanation for the hoard found at Kolophon dated to the late sixth century, which attests to the introduction of a “bi-specie monetary system: small coins for very low level transactions, and bullion weighed on the balance for transactions involving more substantial sums”.⁶⁰ Of key importance here is the fact that the use of coined money at Kolophon was apparently implemented in a very short period.⁶¹

4.1 Coinage at Athens

⁵⁷ The spread of coinage was not uniform or universal. See C. Kraay, “Hoards, small change and the origin of coinage”, *JHS* 84 (1964) 76-91 for a general summary, and more recently G. Le Rider, *La naissance de la monnaie: Pratiques monétaires de l’Orient ancien* (Paris 2001) 71ff, and H. Kim, “Small change and the moneyed economy”, in P. Cartledge, E. Cohen and L. Foxhall (eds.), *Money, Labour and Land: approaches to the economies of ancient Greece* (London and New York 2002) 44-51.

⁵⁸ It has usually been stated that Aigina’s coinage predated that of Athens. Kroll and Waggoner, *Dating* (as in n.3) 335 ff, and T. Figueira, *Aegina, society and economy* (New York 1981) Chapter 2 both suggested a date in the second quarter of the sixth century, but this is now considered to be too early (including by Kroll in private correspondence). K. Sheedy, *The archaic and early classical coinages of the Cyclades* (London 2006) 6-10 dated his Phase 1a of the Aiginetan coinage to c.555-550 BCE based on counting back issues from the Apadama foundation deposit at Persepolis (now convincingly dated to 515-510 BCE) which contained a Phase 2b silver stater. However, H. Nicolet-Pierre, *Numismatique Grecque* (Paris 2002) 137 argued that there is no conclusive evidence of Aiginetan coinage before the last quarter of the sixth century, and sought to compress the earlier issues into a shorter time span making it roughly contemporary with, or later than the introduction of coinage at Athens.

⁵⁹ Prior to the availability and wide acceptance of so-called ‘trade coinages’ such as Athens’ coinage became in the Classical Period.

⁶⁰ H. Kim and J. Kroll, “A Hoard of Archaic Coins of Colophon and unminted Silver (*CH I.3*)”, *AJN Second Series* 20 (2008) 53.

⁶¹ The authors noted that “[i]n all likelihood, the coinage entered circulation in two contiguous phases, beginning with a sizeable initial issue” - Kim and Kroll, *Colophon* (as in n.60) 61. The authors contended that silver bullion use was already well established, and the introduction of coinage extended its use for low value transactions.

When the Athenians adopted coinage in the second half of the sixth century, their earliest coinage known as '*Wappenmünzen*' had the following characteristics:

1. Use of both electrum and silver apparently concurrently⁶²
2. Multiple types
3. Abundant fractions (coinage denominations of a drachma or less)

Each of these characteristics must have had a function or purpose that requires explanation. Both the silver and electrum coinage appear to be based on the Attic-Euboic standard. They must have related by weight and value but we do not understand how.⁶³ The weight of an electrum hemihekte equalled approximately one sixth of a silver didrachm.⁶⁴ However, in value the electrum coin would have been worth many times more than a sixth of a silver didrachm. Jongkees suggested that the electrum hemihekte equalled a silver tetradrachm in value, meaning that "the ratio of electrum to silver would then be about 12,6 (*sic*) which is not inconceivable in a country which possessed silver mines, but had to import its electrum".⁶⁵ This ratio seems too high, and a better explanation is required for the existence of a bi-metallic currency.⁶⁶ It may relate to a distinction in use. *Wappenmünzen* coinage has

⁶² A summary of Athenian electrum coinage is in J. Jongkees, "Notes on the coinage of Athens", *Mnemosyne* 12 (1945) 81-117, but much more work needs to be done especially as regards dating. Electrum coinage is part of the 'Early Attic Coin Project' at Macquarie University, Sydney - a comprehensive new study of early Attic coinage down to 480/79 BCE being undertaken by the writer and Dr. Kenneth Sheedy. A sufficient number of the find spots of electrum coins were in Attica for there to be little doubt they were Athenian. The principal types of the owl, bull and wheel reinforce this. Some scholars with very good eyes have identified a Δ on the reverse of the owls. This could be an alpha for Athens (Jongkees, *Notes* [as above] 94-6 and Kroll, *Wappenmünzen* [as in n.6] 8, n.26), a delta for Delphi (J. Six, "Monnaies grecques inédites et incertaines", *NC* [1895] 179) or Delos (C. Seltman, *Athens: its history and coinage before the Persian invasion* [Cambridge 1924, reprint Chicago 1974] 81), or no letter at all. Kroll, *Wappenmünzen* (as in n.6) 8, n.26 proposed that it is the same alpha or alpha-tau monogram found on some bronze spearheads on the Acropolis, and as a shield device on later Athenian armour tokens.

⁶³ According to the frequency table of Jongkees, *Notes* (as in n.62) 97, the normal weight of a hemihekte was 1.35 grams. It should be noted that for the electrum coins (unlike the silver coins), there is very little weight variation with most examples falling within 5%. The exceptions were the 'eye' and 'flying beetle' types which I suspect were not Athenian. (NB: Since publication of this article Prof Kroll has pointed out to me that the electrum coins were on the Phokaic standard of 1.34g, and thus related to the mostly later electrum coinage of Mytilini, Phokaia and Kyzikos – I thank him for the advice. This must raise doubts as to whether they are genuine Attic issues).

⁶⁴ This is understandable considering the Attic use of a duodecimal and decimal system. For instance, there were six obols in a drachma, but 100 drachmas in a mina.

⁶⁵ Jongkees, *Notes* (as in n.62) 98.

⁶⁶ See the article on the relationship of electrum to silver and gold by J. Melville-Jones, "The value of electrum in Greece and Asia" in R. Ashton and S. Hurter (eds.), *Studies in Greek Numismatics in Memory of Martin Jessop Price* (London 1998) 380-93. He demonstrated that in 409/8 BCE the ratio of electrum to silver was 6.66 to

not been found in any appreciable quantity outside Attica,⁶⁷ meaning it was used for intra-*polis* transactions, rather than inter-*poleis* trade like Aiginetan coinage.⁶⁸ The fact it was dominated by fractions suggests silver filled a need for small coinage in the Agora.⁶⁹ The more valuable electrum coins could have been used for larger transactions and wealth storage, before being replaced by tetradrachms at the end of the *Wappenmünzen* series. More likely, it was a function of supply – the Athenian *polis* minted in electrum when it obtained a supply of that metal. It is important to note for the purposes of this study that initially the number of *Wappenmünzen* minted, though not insubstantial, must have been limited compared with later issues, with considerable increase in the last quarter of the sixth century.⁷⁰

6.75:1. At its highest, it is unlikely the ratio exceeded 10:1, and by the end of the sixth century, cementation was a well known technique for separating electrum into its main constituent parts.

⁶⁷ A careful study of provenances is part of the 'Early Attic Coinage Project' – cf. n.62. The clearest understanding of provenance comes from hoards. The overwhelming majority of *Wappenmünzen* have been found in Attica or Euboia, with only occasional examples elsewhere - Kraay, *Hoards* (as in n.57) 80-81 provided a summary. However, it should be noted that Kraay's list included several finds of 'wheels'. I have argued elsewhere ("Where are all the little owls?" in R. Pitt and A. Matthaiou [eds.], *Festschrift in honour of Harold Mattingly* [forthcoming]), that these may be late sixth to early fifth century in date. Furthermore, the Sakha Hoard (IGCH 1639) found in Egypt which contains the two horse type *Wappenmünzen* didrachms probably dates to the early fifth century, and its assortment of coins from very many different *poleis* and bullion suggests the hoard was valued as bullion.

⁶⁸ A crucial difference of Aiginetan coinage from earlier coinage was the use of a single static type. This may be explained in terms of the primary motivation for introduction of coinage at Aigina being inter-*poleis* trade, rather than internal use as in Lydia, or trade that was dominated by Lydia. Aiginetan 'turtles' acquired a wide degree of acceptance outside Aigina, and especially in the Peloponnesos where the Aiginetans traded. This is confirmed by historical sources (Pollux 9. 74 and Hesychios s.v. *chelōnē*), and the adoption by other *poleis* of the Aiginetan standard. Use of large denominations was a characteristic of trade coinages such as the later Athenian tetradrachm. There was relatively little fractional coinage because the smaller denominations were only required for local use.

⁶⁹ See G. Davis, *Owls* (as in n.67): 79% of *Wappenmünzen* were found to be fractions in a survey of all early Attic coins in coin catalogues carried out by the author. It is also amply demonstrated in Seltman, *Athens* (as in n.62) -see types B and D, even though his interest in assembling fractions was restricted.

⁷⁰ The 'Early Attic Coin Project' (cf. n.62) will also provide a better understanding of the number of dies than currently available using Seltman, *Athens* (as in n.62). It is impossible to know how many coins a single die could strike, even if it were used until it broke. F. de Callataÿ, *Quantifications et numismatique antique: choix d'articles 1984 – 2004* (Belgium 2006) summarised the scholarship and suggested between 10,000-30,000 coins per die. We should assume the very earliest dies performed much less well than later ones. For the sake of calculation, 1,000 didrachms = 0.3 Attic talents = ca. 8.6 kg of silver.

The multiple types followed the Ionian pattern, and are similarly best explained as magistrates' devices.⁷¹ The Athenians regarded themselves as autochthonous Ionians with strong links to their brethren in western Asia Minor, and it seems clear that Ionian practices exerted strong influence over them.⁷² Furthermore, it appears certain that coinage was first introduced to Athens by Peisistratos only after he had secured his pre-eminence in 545 BCE.⁷³ It is plausible that while in exile gathering troops and *chrēmata*, he came to understand the practicality of coinage as used in Ionia. Some of the mercenaries whom he recruited may have wished to be paid in electrum currency if this was familiar to them.⁷⁴ However, electrum would have been a limited and expensive resource to import. According to literary evidence, Peisistratos subsequently had access to better silver supplies from Attica and north-east Greece which he could use for local currency.⁷⁵

⁷¹ A useful summary of the types and the problems with current theories can be found in C. Flament, *Le monnayage en argent d'Athènes: De l'époque archaïque à l'époque hellénistique (c. 550- c.40 av. J.C.)*, (Belgium 2007) 9-16.

⁷² Solon called Athens the "most ancient land of Ionia" (West, *Iambi* [as in n.27] fr.4a). Kroll, *Wappenmünzen* (as in n.6) 7 put it well: - "under the cultural patronage of the Peisistratids an unprecedented wave of Ionian influence all but transformed Athenian architecture and sculpture" with references p.7, n.25.

⁷³ I broadly follow the reasoning provided by Kroll, *Wappenmünzen* (as in n.6) 23 based on counting back annual issues from the inception of the first 'owls'. He concluded on page 30 that the *Wappenmünzen* were "initiated between 546 and ca. 535". However, I note the point made by Flament, *Monnayage* (as in n.71) 16 that "rien n'atteste qu'Athènes, à cette époque, frappait monnaie chaque année".

⁷⁴ For Peisistratid use of "numerous mercenaries" see Herodotos 1.64.1. Many were from Argos (1.61.4) – one thousand according to *Ath. Pol.* 17.3. Herodotus 6.39.2 recorded that Miltiades under the Peisistratids in the Chersonese employed five hundred mercenaries. Mercenary use may account for the find of two electrum scarabs at Ephesos which the excavator suggested were Attic from their fabric, weight and type, but "the Euboic standard was in use in many places besides Athens" - see D. Hogarth (ed.), *British Museum Excavations at Ephesus, the Archaic Artemisia* (London 1908) 87, Nos 81 and 83. I do not mean to reprise Cook's discredited association of royal Lydian electrum with Asia Minor mercenaries as the reason coinage was invented (R. Cook, "Speculations on the origin of coinage", *Historia* 7 [1958] 259-60). Rather I suggest that the mercenaries known to have been employed by Peisistratos may have wished to be paid in a type of currency more familiar to them, and that mercenaries more generally in the Near East would have been paid in bullion for a long time. Possibly mercenary pay was a source of precious metal back to Greece in the middle and late archaic period.

⁷⁵ Herodotos 1.64.1 related that Peisistratos was "drawing increased revenues from both Attica itself and from the region of the river Strymon" (trans. A. Purvis in R. Strassler, [ed.] *The landmark Herodotus: the Histories* [New York 2007] 36). Electrum was also mined and panned in the Pangeion region of Thrace and some local cities like Dikaia minted an electrum coinage. Support for a non-Laurion, volcanic origin of the silver used in the *Wappenmünzen* comes from the metal analysis by H. Nicolet-Pierre, 'Monnaies archaïques d'Athènes sous Pisistrate et les Pisistratides (c. 545 – c. 510). II. Recherches sur la composition métallique des *Wappenmünzen*, en collaboration avec Jean-Yves Calvez', *RN*, 6th series 27 (1985) 30-31. However, this need not have been the only source. I favour the suggestion of Kroll, *Weighed bullion* (as in n.6) n.74 that a substantial part of the original source of *Wappenmünzen* silver could have been recycled bullion already on hand. When silver has been mixed, it is impossible to accurately determine its sources by analysis.

Coins may have been viewed with suspicion by members of any society using them for the first time, and especially at Athens where the weights of the early coins varied quite considerably. The histograms provided by Hopper show a 23% difference between the lowest and highest weight of the didrachms (7.4–9.1g).⁷⁶ Even the centre of the histogram (close to the point of maximum frequency with approximately 85% of the coins) has an 8.75% range (8–8.7g). The differences were more pronounced for the wheel drachmas (46% difference overall and 10% at the centre), and the horse hindquarter drachmas (90% difference overall and 28.5% at the centre). It seems clear the denomination could not have been relied upon for the intrinsic value of any particular coin. Indeed Carradice and Price argued that the “invention of coinage did not by any means spell the end of the age-old practice of weighing in transactions”.⁷⁷ However, this can only have been the case for bullion, as in the case of Kolophon mentioned earlier. When a *polis* adopted coinage, it guaranteed the value of its currency at a premium above its bullion value, and therefore must have enforced its exclusive use as *dokimon* (state-approved legal tender).⁷⁸

5. Contemporary silver use in western Asia Minor

I now wish to examine Western Asia in more detail, which Kroll has claimed as “an instructive monetary model”.⁷⁹ He noted that there, “silver, along with grain, had been used since the 3rd millenium for the full range of monetary purposes, including the making of payments and lending at interest, for exchange, for the storing of wealth, and as a standard measure of value”. In this he was undoubtedly correct, but is it a valid analogy?

⁷⁶ R. Hopper, “Observations on the Wappenmünzen” in C. Kraay and G. Jenkins (eds.) *Essays in Greek coinage presented to S Robinson* (Oxford 1968) 16-39 36-7 re-analysed the material collected in Seltman, *Athens* (as in n.62).

⁷⁷ I. Carradice and M. Price, *Coinage in the ancient Greek world* (Los Angeles 1988) 22.

⁷⁸ Some have suggested that the earliest coins were produced by other trusted authorities, such as moneyers, not necessarily the king, cf. A. Furtwängler, “Neue Beobachtungen zur frühesten Münzprägung”, *Schweizerische Numismatische Rundschau* 15 (1986) 153-65. However, this view has little current support. M. Price commented at the end of a paper by R. Wallace, “On the production and exchange of early Anatolian electrum coinages”, in *Revue des Études Anciennes* 91 (1989) 87-96 (p.95) that “There can be little doubt that the earliest coinage in electrum was valued at an artificial rate in excess of the value as bullion...If that is the case, the exact weight of each piece may not be so significant... Much more important would be the need for the mint workers to produce a particular number of coins from a given amount of metal”.

⁷⁹ Kroll, *Silver* (as in n.6) 229 for this and the continuation of the quotation following.

The Neo-Babylonian Empire ruled from Cilicia as far south as Egypt and east to Persia in the period from 626 to 539 BCE. It therefore was contemporary with the period under discussion, and its zone of dominance included the Phoenician city-states in the Levant who were major traders in the Mediterranean. The Empire was ruled by a King who to all practical purposes was the Government, albeit hemmed in by long-standing traditions, administration and bureaucracy. He was the most important landholder, and through a large centralised bureaucracy he controlled land use and labour. Other important landowners were the temples operating as an extension of government, and military landholders with direct obligations to the crown. Although primarily an agrarian-based economy, there was considerable specialisation of products and trade, together with a developed system of accounting. The King needed money for vast expenditure on public works (especially building and irrigation), his military apparatus, and patronage. He acquired it through taxation, feudal dues, and income from his estates. Most of all he liked to hoard it, forcing the conversion of surpluses into non-perishable forms, especially silver and gold.⁸⁰ The temples needed to acquire basic materials not readily available in Babylon through long distance trade, and silver was used in lieu of perishable foodstuffs. They also required substantial quantities of silver for manufacture of cult objects.⁸¹ Silver was still a commodity which could be bought and sold, but it operated within the system as a form of money as it had done for a millennium. Thus, as Van Driel pointed out, those “hired in Babylonia to do a job in Elam were certainly paid in silver and not primarily in agricultural goods”.⁸² However, the economic basis of this system, and its need for silver, was completely different from that of Athens in Solon’s time, and there were no (or very minimal) links between the two economies. Even in Babylon, Bongemaar has shown that silver was too valuable to be used

⁸⁰ G. Van Driel, *Elusive silver: in search of a role for a market in an agrarian environment. Aspects of Mesopotamia’s society* (Leiden 2002) 273 summarised his extensive evidence by noting: “The land for service system had evolved into a system of taxation in which all sorts of obligations had to be fulfilled by payments of silver”. He estimated (p.320) that “roughly one third of agricultural production plus what the government in all its ramifications received as a landlord” went to the King. The massive payments continued under Persian administration according to Herodotos 3.89-98.

⁸¹ A. Bongemaar, “Money in the Neo-Babylonian institutions”, in J. Dercksen (Ed.) *Trade and finance in ancient Mesopotamia: proceedings of the first MOS Symposium* (Leiden 1997) 167 and 171.

⁸² Van Driel, *Elusive silver* (as in n.80) 272.

as everyday money by the majority of the population.⁸³ Instead, they “used agricultural and other products as a medium of exchange on the basis of reciprocity”.⁸⁴

Western Asia does provide a useful demonstration of how use of a metal as currency is dependent upon supply.⁸⁵ During the eighth century, the Neo-Assyrian empire experienced a silver shortage. This was a period of stagnation for the empire and diminished revenues. The critical silver shortage has even been suggested as a causal factor in the Phoenician exploitation of silver in Spain.⁸⁶ As a result, copper (and bronze) was the metal used most often as currency, and competed against silver down to the late seventh century.⁸⁷ Silver only replaced copper as the most frequently used metal following the militarily successful campaigns of Sargon II (722-705 BCE), especially the Battle of Carchemish (717 BCE) which resulted in the capture of huge quantities of silver, and control of rich ore mines in the Taurus mountains. Similarly, Wallace has suggested that large stocks of electrum were an essential pre-condition for the adoption of the first coinages minted from that metal in Lydia and Ionia.⁸⁸

Another factor should be considered. The kingdoms in the east had an insatiable requirement for silver that could not be fully met by domestic supply.⁸⁹ They would have provided competition for Greek use of silver. This may have been exacerbated by a general shortage of supply in the sixth century, evidenced by a possible drop in quality and quantity of silver used in the Neo-Babylonian Empire.⁹⁰ By contrast in the fifth century, when the supply of silver had increased dramatically, the Babylonian evidence shows that the shekel only purchased on average a quarter as much barley as it had in the sixth century.⁹¹

⁸³ Bongemaar, *Money* (as in n.81) 159-174. A shekel of silver roughly constituted a month's pay for the average worker.

⁸⁴ Bongemaar, *Money* (as in n.81) 174.

⁸⁵ This information is from K. Radner, “Money in the Neo-Assyrian empire”, in J. Dercksen (Ed.) *Trade and finance in ancient Mesopotamia: proceedings of the First MOS Symposium* (Leiden 1997) 129.

⁸⁶ Aubet, *The Phoenicians* (as in n.14) 51 ff.

⁸⁷ Radner, *Money* (as in n.85) 129 noted that “bronze is used as a currency before and during the reign of Adad-nērārī III – who got 3,000 talents of bronze as tribute from Damascus – and not at all attested afterwards”. Adad's reign was 810-782 BCE. F. Fales, “Prices in Neo-Assyrian sources”, *State archives of Assyria Bulletin* 10/1 (1987) 20 suggested that “1 mina of copper corresponded roughly in value to 1 shekel of silver”.

⁸⁸ R. Wallace, “The origin of electrum coinage”, *AJA* 91 (1987), 385-397.

⁸⁹ This phenomenon continued into classical times. Kraay, *Hoards* (as in n.57) 84 noted, “Greek coins were attracted to the Near East as scrap silver”.

⁹⁰ See P. Vargyas, *A history of Babylonian prices in the first millennium BC: 1. Prices of the basic commodities*. (Heidelberg 2001) 47ff.

⁹¹ Vargyas, *Babylonian prices* (as in n.90) 128, Fig. 39.

6. Literary evidence

In this Section, I review the literary evidence in chronological order, with a focus on its reliability and dating. Much of it comes from Plutarch and Pollux who were both writing at the end of the second century CE when coinage was completely embedded in the economy and society. Clearly they simply did not realise that this was not the case in Solon's time. It is tempting to summarily dismiss all their 'evidence' on the basis that even if the Athenians had used weighed silver, these authors would not have known that.⁹² However, the fourth century Athenian writers and orators also believed coinage was used in Solon's time. Together, their evidence preserves fragments of information which can be extracted and interpreted especially for use of a barley standard. More importantly, this is the evidence principally relied upon by proponents of a pre-Peisistratid silver standard, and therefore it warrants full discussion.

6.1 Testimonia

a) Pollux 9.83

Pollux mentioned a tradition that the mythological kings Erichthonios or Lykos were the first to mint coins.⁹³ Clearly this was an invention.

b) Plutarch, *Theseus* 25

Ἔκοψε δὲ καὶ νόμισμα, βοῦν ἐγχαραξάς... Ἀπ' ἐκείνου δὲ φασὶ τὸ ἑκατόμβιον καὶ τὸ δεκάβοιον ὀνομασθῆναι.

"He (Theseus) also struck coinage, stamping an ox upon it...From this they say that *hekatomboion* and *dekaboion* (sacrifices of a hundred and ten oxen) got their names".⁹⁴

⁹² This was suggested by one of the Journal's readers.

⁹³ See *Ath. Pol.* fr.2. For a discussion of the treatment of these early kings by the Attidographers see P. Harding, *The story of Athens: the fragments of the Local Chronicles of Attika* (Abingdon and New York 2008) 39-50. Hyginus, *Fabula* 274 recorded that Erichthonios was the first "to bring silver to Athens".

⁹⁴ Text and translation J. Melville-Jones, *Testimonia Numaria: Greek and Latin texts concerning ancient Greek coinage, Volume 1: texts and translations* (London 1993) 36-37.

Plutarch seems to be recording a memory of a time when oxen were used as a unit of valuation, as is preserved in Homer.⁹⁵ It is possible his source had some knowledge of the ox-type of *Wappenmünzen*.⁹⁶

c) Pollux 9.60-1

δίδραχμον. Τὸ παλαιὸν δὲ τοῦτ' ἦν Ἀθηναίοις νόμισμα, καὶ ἐκαλεῖτο βοῦς, ὅτι βοῦν εἶχεν ἐντετυπωμένον. εἰδέναι δ' αὐτὸ καὶ Ὅμηρον νομίζουσιν εἰπόντα Ἑκατόμβοι ἑννεαβοίων. [61] Καὶ μὴν κὰν τοῖς Δράκοντος νόμοις ἔστιν ἀποτίνειν εἰκοσάβοιον.

“...didrachm. This last was in ancient times the coin at Athens, and was called an ox, because it had an ox represented on it. And they consider that Homer knew this when he said, ‘(Arms) worth a hundred oxen in exchange for those worth nine’. And we also find in the laws of Draco, ‘to pay twenty bulls’ worth (as a fine)’”.⁹⁷

The passage preserves a number of pieces of information which Pollux conflated. Didrachms were used at Athens, but only in the second half of the sixth century, and, as mentioned in the previous entry, one type had the image of an ox.⁹⁸ The term *eikosaboion* clearly indicates that oxen were used as a valuation unit, but in Drakon’s time, traditionally 621/0 BCE, this must refer to the animals, not the coins.

d) Ath. Pol. 4.2-3

Chapter Four of *Ath. Pol.* dealt with the *thesmoi* of Drakon. It has a number of monetary references including valuing property in minas (4.2), and fining Councillors in drachmas for failing to attend Council or Assembly meetings (4.3). These measures seem to reflect a

⁹⁵ There are many examples - for instance, at *Il.* 23.705 the value of a slave-woman is estimated at four oxen.

⁹⁶ Cf. Seltman (as in n.62) Group D, A49.

⁹⁷ Text and translation Melville-Jones, *Testimonia Numaria 1* (as in n.94) 440-43, No. 60. The passage went on to mention an alternative tradition that the ox was a coin of the Delians, which J. Melville-Jones, *Testimonia Numaria: Greek and Latin texts concerning ancient Greek coinage, Volume 2: addenda and commentary* (London 2007) 287 notes is also incorrect. The Homer quotation refers to *Il.* 6.234-6 when Glaukos exchanged his gold armour with Diomedes for bronze armour.

⁹⁸ A similar version was picked up by the scholiast to Aristophanes, *Birds* 1105-8 – τῶν προτέρων διδράχμων ὄντων, ἐπίσημον τε βοῦν ἔχόντων.

concern of the oligarchs in 411/10 BCE.⁹⁹ Furthermore, the wealth qualification for a general or hipparch was set higher than for an archon or treasurer, which was appropriate in the late-fifth century but certainly not in the seventh.¹⁰⁰ The references are therefore anachronistic.¹⁰¹

e) Solon's verses

Solon in one of the elegies attributed to him (possibly dubiously), described wealthy people as having "much silver and gold" along with land, horses and mules.¹⁰² Similar references can be found in Homer, but the difference is the inclusion and primacy of silver. For instance, in the *Iliad* 23.262-70, prizes in the games included gold expressed in talents, as well as livestock, cauldrons, tripods and a slave. And King Odysseus' treasure in his store-room included stocks of gold, bronze and wrought iron (*Od.* 21.9-10).¹⁰³ In Homer, silver was mentioned in decorating items such as furniture and cups. However, all the items described by Solon were being considered as stores (and possibly displays) of wealth, which is one function of money, but not its only one.¹⁰⁴ There is no evidence in the extant Solonian

⁹⁹ The measures include admittance to full citizenship by property qualification, and fining citizens for not attending the Assembly, rather than paying them to attend as under the democracy. For the latter see Rhodes, *Commentary* (as in n.5) 117.

¹⁰⁰ Rhodes, *Commentary* (as in n.5) 113.

¹⁰¹ The Chapter is widely condemned as an interpolation. The general view was well summarised by Rhodes, *Commentary* (as in n.5) 84-8 who did however admit 4.1 as being genuine. In its defence, R. Wallace, "Aristotelian Politeiai and Athenaion Politeiai 4" in R. Rosen and J. Farrell (eds.), *Nomodeiktes: Greek studies in honour of Martin Ostwald* (Michigan 1993) 269-286 reviewed the arguments for dismissing the chapter and demonstrated that they are not conclusive. He concluded that the chapter, though awkward and possibly derived from different source material from the remainder of the work, was an original component of the *Ath. Pol.* Regardless of this, the monetary references are anachronistic.

¹⁰² Plut. *Solon* 2.2 = West, *Iambi* (as in n.27) Solon fr. 24 = Theognis 719-21. Although this fragment is much quoted in the discussion of early silver use with the primacy of silver being stressed, it should be noted that the passage is also attributed to Theognis of Megara. Indeed, the final four lines of the elegy are only found in Theognis (724-8).

¹⁰³ See S. Morris, *Daidalos and the origins of Greek art* (Princeton, New Jersey 1992) 125-149 for a survey of the exploitation of copper and iron in the bronze and iron ages in the Mediterranean. The suitors in *Odyssey* 22.57-9 also sought to buy off the wrath of Odysseus for "the value of 20 oxen" repaid in bronze and gold.

¹⁰⁴ K. Polanyi, in G. Dalton (ed.), *Primitive, archaic, and modern economies: essays of Karl Polanyi* (New York 1968) 166-90 coined the term 'special-purpose money' to describe what other writers have called in less politically correct terms 'primitive money', that did not fill all the functions of 'general purpose money' - cf. A. Hingston Quiggon, *A survey of Primitive Money* (New York and London 1949) 3-4. Bullion could fit this as it had done for centuries before without being coined, but this merely places it in the hierarchy of exchange goods. Other necessary functions for it to be considered true 'money' are to constitute the recognised measure of value, and be the generally accepted means of payment. In the same way, cauldrons and tripods could be

poems of silver being used for any other monetary function. The word used in the quoted fragment was *arguros* meaning silver as a metal. It was not the word *argurion*, later used as a synonym for coined money. When Solon wanted to describe financial wealth more generally in his poems, he mostly used the word *chrēmata*.¹⁰⁵ This is the case even in the fragments quoted by Plutarch: *Solon* 2.3, “*Chrēmata* I desire to have, but wrongfully to get it, I do not wish”; *Solon* 3.3, “While *chrēmata* change their owners every day”; and *Solon* 18.4, “those who had power and *chrēmata*...”

f) Plutarch, *Solon*

All the evidence for the laws of Solon expressing prices in drachmas and obols comes from Plutarch’s *Life of Solon* summarised in the following table.

ITEM	REFERENCE	CONTEXT	QUOTATION
1	21.1	Laws against slander	The transgressor must pay ¹⁰⁶ 3 drachmas to the person injured, and two more into the public treasury. ¹⁰⁷
2	21.4	Restriction on	When they (women) went out, they were

“used in Homeric Greece as media of exchange without being used as standards of value” as P. Einzig, *Primitive Money*, (Oxford 1949) 313 pointed out. There has been extensive discussion in the literature on this question. See L. Kurke, *Coins, bodies, games and gold: the politics of meaning in archaic Greece* (Princeton 1999) 10-11, H. Kim, “Archaic coinage as evidence for the use of money” in A. Meadows and K. Shipton (eds.), *Money and its uses in the ancient Greek world* (Oxford 2001) 7-21, R. Seaford, *Money and the early Greek mind* (Cambridge 2004) and Sheedy, *Cyclades* (as in n.58) for differing points of view.

¹⁰⁵ The poems contain frequent references to wealth, however, J. Lewis, *Solon the thinker: political thought in archaic Athens* (London 2006) 97 noted, “The identity of wealth is ambiguous in Solon’s fragments; the terms he uses – such as *aphenos*, *ploutos*, *chrēmata*, *kteanon*, *agatha*, and *olbos* – span from physical goods to complex ideas associated with necessity, moral standards, social status and political authority”.

¹⁰⁶ The verb ἀποτίνειν is generally translated ‘to pay’ with a monetary connotation. However, the meaning had evolved. In West, *Iambi* (as in n.27) Solon fr. 4.16 = equals Thgn. 1c it meant ‘to take vengeance’, and in Homer, *Il.* 4.161 and 18.93 it had a sense of ‘to atone’.

¹⁰⁷ Kroll, *Silver* (as in n.6) 226 had the following addition, “For libel of the deceased, the penalties were 5 drachmas to the family and 3 drachmas into the public treasury (cf. Plut. *Solon* 21.1)” citing Ruschenbusch, *Solonos Nomoi* (as in n.25) F 32, 33. I note Ruschenbusch F 32a = Plut. *Solon* 21.1; F 32b = Lysias 10. 6-12 discussed penalties but not these; F 33a = F 32a; F 33b = Lex. Cantabr. 671.7 did indeed prescribe penalties for slander of the dead and the living, but they are 200 drachmas to the State (following the restoration of J. Lipsius, *Das attische Recht und Rechtsverfahren* [Leipzig 1905] 650, n.54) and 300 drachmas to the individual. Kroll’s suggestion requires emending the text, presumably on the basis that the figures were inflated from Solon’s time.

ITEM	REFERENCE	CONTEXT	QUOTATION
		women	not to carry...more than an obol's worth of food and drink.
3	23.1	Laws concerning violence against women	If a man committed rape upon a free woman, he was merely to be fined ¹⁰⁸ 100 drachmas; and if he gained his end by persuasion, 20 drachmas.
4	23.3 (a)	Valuations	In the valuations of sacrificial (or property) offerings, ¹⁰⁹ at any rate, a sheep and a drachma are reckoned at a <i>medimnos</i> (of grain).
5	23.3 (b)	Prizes	The victor in the Isthmian Games was to be paid 100 drachmas, and the Olympic victor 500.
6	23.3 (c)	Rewards	The man who brought in a wolf was given 5 drachmas, and for the wolf's whelp, 1; the former sum, according to Demetrios of Phaleron, was the price of an ox, the latter that of a sheep.
7	24.1	Penalty	100 drachmas to be paid into the public treasury by the Arkhon for failure to pronounce curses on anyone exporting agricultural produce other than olive oil. Cited on the 1 st <i>axon</i> .

As mentioned earlier, Plutarch believed that in Athens at the beginning of the sixth century, silver was monetised to the extent that all legal penalties, commercial transactions, and rewards were expressed in a common denomination of drachmas. For 'drachmas', Rhodes and Kroll ask us to understand 'weighed silver drachmas'. However, the examples Plutarch gave raise a number of difficulties. One of these is pricing, which defied his best effort at

¹⁰⁸ The noun ζῆμιά means a penalty or fine in a monetary sense. Its primary meaning is loss or damage.

¹⁰⁹ The manuscripts have τὰ τιμήματα τῶν θυσιῶν. U. Wilcken, "Zu Solon's Schätzungsklassen", *Hermes* 63 (1928) 236-8 suggested an amendment to οὐσιῶν meaning 'property'. He himself described the suggestion as a 'conjecture' and his argument was based purely on what suited his interpretation of Solon's reforms. Kroll, *Silver* (as in n.6) 226-7 and 226 n.13 strongly defended the emendation and like Wilcken saw the extract pertaining to Solon's property census. While the arguments have considerable merit, they are not decisive and seem to rest on a preference for seeing the passage dealing with property rather than sacrificial evaluations. M. Gagarin, *Early Greek laws* (Berkeley 1986) 71, n.92 wrote "we should probably retain the ms. reading and assign the fragment to Solon's religious legislation". G. de Ste Croix, *Athenian democratic origins and other essays*, D. Harvey and R. Parker (eds.), (Oxford 2004) 45-6 was emphatic in rejecting it. In the absence of a compelling reason, I also prefer to use the text as received.

rationalising: “For although the prices which Solon fixes in his sixteenth *axon* are for choice victims, and naturally many times as great (as those for ordinary ones), still, even these are low in comparison with present prices”.¹¹⁰ We need an explanation for how a sheep could have only cost one drachma in Solon’s day, when a sheep in the Athenian State calendar of sacrifices published at the end of the fifth century cost twelve to fifteen drachmas.¹¹¹ For this to be true, the earlier value of silver must have been extremely high (assuming there was not some phenomenal glut of livestock), and devalued as it became more abundantly available in the Aegean. The large increase in the supply of silver at Athens, which would have caused a dramatic reduction in the value of silver, only happened in the final quarter of the sixth century with the exploitation of the Laurion mines.¹¹²

Plutarch’s price comparisons present more serious problems. In 23.3 (Item 4) he stated, λογίζεται πρόβατον καὶ δραχμὴν ἀντὶ μεδίμνου. This was translated by Kroll as “a sheep and a drachma are reckoned as equivalent to a medimnos” (presumably of barley) which neatly preserves the ambiguity of the Greek.¹¹³ Waters pointed out that technically in Greek the sentence says a sheep plus a drachma equals a medimnos.¹¹⁴ Alternatively, it can loosely mean a sheep equals a drachma equals a medimnos.¹¹⁵ Plutarch had been informed by reference to Demetrios of Phaleron that a sheep cost a drachma (23.3 – Item 5), but in the classical period, when the afore-mentioned sacrificial sheep cost twelve to fifteen drachmas, a medimnos of barley cost three, and the two items cannot have had price parity.¹¹⁶ One

¹¹⁰ A key problem with Plutarch’s information is that he does not provide the original context, only his Roman recontextualisation, as a reader of this paper noted.

¹¹¹ The alternative is to accept, as one reader suggested, that the passage is inexplicable because it lacks its proper context.

¹¹² Much the same is true of the rest of the Aegean, for although the Siphnians had been exploiting their mines from earlier in the century, the “peak of their prosperity” when they were the “wealthiest of all the islanders” was c.524 BCE – Hdt. 3.57.2. I also consider that the extent of their fabulous wealth from mining has been overdramatised by modern commentators. At this financial ‘peak’, after annual distributions of the profits of the mines to the Siphnians less a tithe to Delphi (Hdt. 3.57.2) the Samians defeated the Siphnians and held them hostage. They succeeded in extorting 100 talents (2,600 kg of silver) which was a very large sum, but presumably it represented the entire, combined, accumulated, liquid wealth of the *polis*. By comparison, the Athenians in 483 BCE were to receive 10 drachmas per citizen from their Laurion mines (Hdt. 7.144). If there were say 30,000 citizens, then 300,000 drachmas equals 1,287 kg of silver as the *polis*’ share in one year only.

¹¹³ Kroll, *Silver* (as in n.6) 226.

¹¹⁴ K. Waters, “Solon’s “price-equalisation””, *JHS* 80 (1960) 185-90.

¹¹⁵ Most scholars have understood the passage this way.

¹¹⁶ There is little good information, but see W. Pritchett, “The Attic stelae: Part II”, *Hesperia* 25 (1956) 186 for the figure given here. See the Annexure for the variability of barley prices. It is important to note that Demetrios’ other information appears to have been internally consistent. Therefore an ox cost five drachmas,

explanation is that the prices were the result of Demetrios' rationalisation and should be rejected.¹¹⁷ It is probably better to envisage Plutarch having some accurate information from Demetrios and wrongly applying it to other non-contemporary items. Be that as it may, the importance to this discussion is that a sheep and a drachma were reckoned against (*anti*) the medimnos. Thus Plutarch's source was revealing that the usual unit of valuation was the medimnos of barley, not the silver drachma. One solution is to propose that the medimnos valuation was a legal relic relevant only to offerings,¹¹⁸ but as will be shown in examples to come, the medimnos valuation appears to have had more general application in the sixth century.

Item 2 refers to restrictions on the public appearances of women including a limitation on carrying food or drink worth more than an obol. Presumably such a law (even if true) could only have applied in a practical sense to upper class women as de Ste Croix pointed out, and not those who needed to make a living and had to handle money.¹¹⁹ It should be considered alongside the prohibition against a woman (or child) making legally valid agreements "greater than a medimnos of barley" which may also have dated to a time before drachmas were used.¹²⁰

which was five times the cost of a sheep. This was the same ratio as applied in classical times, for instance on the sacred calendar from Thorikos (IG I³ 256) c.440-30 BCE and the Salaminioi calendar (SEG 21, 527) c.363/2 BCE. This implies Demetrios had a good source, presumably *axon* 16. However, the problem remains that the silver value of animals is low, whilst the silver value of barley is high.

¹¹⁷ See D. Schaps, *The invention of coinage and the monetization of ancient Greece* (Ann Arbor 2004) Appendix 3 for a discussion of the problems and the rejection of Demetrios' reconstruction (p.239). The solution proposed by K. Freeman, *The life and work of Solon* (London 1926) 59 that a person could count a drachma as being equal to a medimnos if not a landholder seems unnecessary, as it is hard to envisage any situation before or after coinage when one medimnos of barley could not have been acquired. However, the theory was revived and extended by Schaps (p.238) to defend the equivalence of a sheep, a medimnos and a drachma as a "reasonable thing" payable for a ritual offence depending on one's occupation, but this too seems unlikely and optimistically utopian. A medimnos of barley might cost a drachma depending on the harvest and time of year purchased, as discussed earlier.

¹¹⁸ Given that the old Attic standards of value were in medimnoi, it might be argued that rather than change the existing laws that contained them when circumstances changed, it was preferable just to give alternate equivalents of value and payment.

¹¹⁹ G. de Ste Croix, "Some observations on the property rights of Athenian women", *The Classical Review* 20 (1970) 238. There is also no explanation as to how the law was to be enforced though presumably it was left to the woman's *kurios* as no penalty was provided.

¹²⁰ Ste Croix, *Democratic origins* (as in n.109) 39 pointed this out. The law is from Isaios. 10.10; (cf. Dio Khrys. 74.9 ; Harpokr., s.v. *hoti paidi*; parodied at Ar. *Ekkl.* 1025 plus schol.). There is, as one reader pointed out, a considerable chronological gap between pre-coinage Athens and Isaios in the fourth century. However, if the law was passed when coinage was regularly used and indeed *dokimon*, it seems unlikely that a medimnos of barley would be used as the measure of value by the State.

Item 5 refers to prizes in games. This is anachronistic as the Isthmian Games were probably not instituted until 582 BCE which was after Solon's archonship.¹²¹ The laws can only belong to Solon if his reforms are down-dated. However, as Wallace persuasively argued, there is "no good reason to reject the ancient tradition that Solon's legislation was passed during the course of his archonship".¹²² Furthermore, Gebhard noted from an examination of the archaeological evidence, that the Isthmian games were not expanded from local to Panhellenic games until after the middle of the sixth century.¹²³

Item 7 contains a curious dichotomy. The archon was required to pronounce curses on anyone who exported agricultural produce except olive oil, yet if he failed to do so, he was to be punished by a substantial monetary fine. As Foxhall pointed out, "[i]t is difficult to understand the purpose and impact of this law since we cannot easily fit it into an historical or social context", and it is hard to imagine how such a law could have been enforced.¹²⁴ However, the former penalty has the hallmark of belonging to an early law, and this is strengthened by its designation of being on an *axon*.¹²⁵ Whatever the social implications of the cursing, it seems to suggest a time before the use of money when the *polis* had limited

¹²¹ This traditional date of 581/0 BCE comes from Eusebios who said the games were founded in the 49th Olympiad. Rhodes, *Commentary* (as in n.5) 134, n.9 suggested "it is possible there were games called Isthmian before the *re-foundation*" (my emphasis) but provided no evidence.

¹²² R. Wallace, "The date of Solon's reforms", *AJAH* 8 (1983) 81-95 with quotation from page 87. The down-dating was first advanced by C. Hignett, *A history of the Athenian Constitution to the end of the fifth century B.C.* (Oxford 1952) 316-21 and has received considerable support, but I agree with Wallace that the grounds for so doing are weak and unsupported by any ancient testimony.

¹²³ E. Gebhard, "The beginnings of panhellenic games at the Isthmus" in H. Kyrieleis (ed.), *Olympia 1875-2000: 125 Jahre Deutsche Ausgrabungen* (Berlin 2002) 221-37. This would weaken any attempt to use Plutarch's evidence to down-date Solon's archonship.

¹²⁴ Foxhall, *Olive cultivation* (as in n.30) 17-18. If the provision is genuine, it probably tells us something about the limited area of control of the leaders in the *astu* of Athens before Peisistratos.

¹²⁵ The first in fact, though the order in which the *axones* were inscribed is more likely to relate to subject matter, given my contention that they were recorded later than Solon's time - see G. Davis, "Axones and kurbeis: a new answer to an old problem", *Historia* 60 (2011) 1-35.

practical power over its strongest citizens.¹²⁶ More importantly, its requirement for payment to the *dēmosion* is anachronistic for Solon's time.¹²⁷

Bearing this in mind, it is worth considering that the additional penalty for slander in Item 1 in the form of a fine payable to the *polis* was presumably imposed to assist the litigant in extracting payment.¹²⁸ However, the sums of two and three drachmas are relatively small, and perhaps Plutarch was wrong about the amounts. The fines cited in Lex. Cantabr. 671.7 for the offences were 200 and 300 drachmas. More likely this law too, or at least the monetary penalty, dated to a time later than Solon.

g) *Ath. Pol.* 7.2

According to *Ath. Pol.* 7.2 – Solon “divided the people by assessment” (Loeb translation). The Greek is τιμήματι διείλεν. Rhodes noted that a *timēma* “is a valuation in general and a valuation of property for political purposes in particular”, but the evidence for this is from the fourth century.¹²⁹ It is the same word used by Plutarch (*Sol.* 23.3). The name of the top class of wealthiest citizens was the *pentakosiomedimnoi*. Literally these were “the 500 medimnoi men” whose property produced annually at least this amount in “wet and dry” measures (*metra*).¹³⁰ Three other pre-existing property classes were also defined by their production of medimnoi.¹³¹ The information was repeated with slight variation by Plutarch

¹²⁶ There are three early fifth-century laws of Teos and Thasos “where the imprecations are not really primitive but seem to be regarded as a more powerful deterrent than a monetary penalty” (I. Arnaoutoglou, *Ancient Greek laws* [London and New York 1998] nos. 7-72). R. Parker, *Miasma: pollution and purification in early Greek religion* (New York 1983) 194 noted the offender would suffer public retribution especially if declared *atimos* but that is too extreme for this case. Perhaps the penalty was applied to the magistrate because he could not curse himself as Professor Kroll suggested to me (in private correspondence). For differing penalties, see Z. Papakonstantinou, *Lawmaking and adjudication in archaic Greece* (London 2008) 122-3.

¹²⁷ This was pointed out by R. Sealey, “Regionalism in archaic Athens”, *Historia* 9 (1960) 157.

¹²⁸ A feature of Athenian law through to classical times was the difficulty for a plaintiff of enforcing judgement except through self help. The *polis* might try to assist by boosting the penalty for non-compliance as in the *dikē exoulēs* (cf. Dem. 21.44), widely considered to be Solonian because it was said to be on an *axon* - but see Davis, *Axones* (as in n.125). It provided (scholion to *Il.* 21.282): “Ejectment – the full value of a settlement awarded in a lawsuit to be owed to the *dēmosion* (public), and an equal amount to the individual to whom it was awarded if the unsuccessful party prevented the individual from collecting the award”.

¹²⁹ Rhodes, *Commentary* (as in n.5) 136-7. The fourth-century *eisphora* (tax) was levied on the *timēma* of property assets over a certain value.

¹³⁰ *Ath. Pol.* 7.4. The income qualification had to come “from the produce of his estate” (ἐκ τῆς οἰκείας) in “dry and liquid measures” (τὰ συνάμφω ξηρὰ καὶ ὑγρὰ) .

¹³¹ *Ath. Pol.* 7.3 claimed the four classes were pre-existing. Plut. *Solon* 18.1 claimed that Solon distinguished a new class of *pentakosiomedimnoi*. The measures for the other classes could have been later rationalisations, cf.

(*Sol.* 18.1-2). Clearly we have no way of knowing whether these changes were really carried out by Solon, or simply represented rationalisations by the Atthidographers.¹³² Of importance to this discussion is that the assessments were not based upon property value, but upon yield expressed in medimnoi.¹³³

There is another more acute problem. Quantitatively and qualitatively, wet and dry measures were not the same, and no farmer would remotely contemplate such an equation.¹³⁴ A medimnos of wheat would be much more valuable than one of barley, both of which were staple crops. Likewise a medimnos of olive oil was far more valuable than one of wine, and neither would have had the same value as their dry counterparts. Furthermore, the medimnos measure was not used for wet measures.¹³⁵ Many other types of produce and livestock would need to be included in a comprehensive assessment and thus would have required valuation. In an economy supposedly sophisticated enough to be valuing everything else in silver drachmas, this seems impossibly clumsy, and clearly something is wrong with the received account. It is likely that the system as reported by *Ath. Pol.* and Plutarch was a simplified version of what actually operated. It makes more sense to envisage the medimnos of barley implicit in the name of the wealthiest class being the standard official measure of value,¹³⁶ with exchange for other products fluctuating according to the market for each at

L. Foxhall, "A view from the top: Evaluating the Solonian property classes", in L. Mitchell and P. Rhodes (Eds.) *The development of the polis in archaic Greece* (London and New York 1997) 131 and n.97.

¹³² W. Connor, "Tribes, festivals and processions: civic ceremonial and political manipulation in archaic Greece", *JHS* 107 (1987) 47 ff made the interesting suggestion that the grain classification was used by Solon to determine status in the first-fruit offerings presented in agricultural festivals. Central to this proposal is that grain was the measure used irrespective of how the income was derived, enforced by social pressure.

¹³³ Based primarily upon this passage, Ste Croix, *Democratic origins* (as in n.109) 37ff proposed that Athens in Solon's time had used a "barley standard".

¹³⁴ See the discussion in Ste Croix, *Democratic origins* (as in n.109) 33ff, and the summary in Rhodes, *Commentary* (as in n.5) 141-2.

¹³⁵ V. Rosivach, "The requirements for the Solonic classes in Aristotle AP 7.4", *Hermes* 130 (2002) 37, n.6 pointed out that if "the census ratings really were expressed in moist and dry measures as Aristotle says...we would expect the topmost class to have been called *pentakosiometroi*, not *pentakosiomedimnoi* (which only refers to dry measures)".

¹³⁶ The standard does not have to be barley. It could be wheat. However, the Athenians grew approximately four times more barley than wheat, cf. P. Garnsey, "Yield of the land" in B. Wells (Ed.) *Agriculture in ancient Greece: Proceedings of the Seventh International Symposium at the Swedish Institute at Athens, 16-17 May 1990* (Stockholm 1992) 147-8. Furthermore, *krithe* forms the smallest unit basic in the weight standard, and it is barley, cf. Theophrastus *De Lapidibus* 46 (though the passage is not without problems, cf. Theophrastus, *De Lapidibus* in D. Eichholz, ed., trans., and commentary [Oxford 1965] 74-5 and 118-9). A barley standard is accepted in the convincing discussion by H. van Wees, "Mass and elite in Solon's Athens: the property classes revisited", in J. Blok and A. Lardinois (Eds.) *Solon of Athens: New historical and philological approaches* (Leiden

any particular time. If this system was operating as the basis of the constitution, including defining status, rights and entitlement to hold office, there does not seem to be a significant place for official use of weighed silver in valuation or law as early as this.¹³⁷

h) *Ath. Pol.* 10, Androtion F 34, Philokhoros F 200

There has been enormous discussion in the literature on the meaning of the passages in *Ath. Pol.* (10) and Androtion (*FGrH* 324 F 34 = Plut., *Sol.* 15.4) regarding Solon's alleged raising of the standard of weights and measures and of coinage.¹³⁸ Of importance here is the remarkable and generally overlooked implication of the line in *Ath. Pol.* 10.2: ἦν δ' ἀρχαῖος χαρακτήρ δίδραχμον which Chambers translated as "The previous standard coin was the didrachm".¹³⁹ For this to make any sense, it must have been referring to the change from the didrachm to the tetradrachm which occurred at the end of the sixth century. This was appreciated by Philokhoros (*FGrH* 328 F 200) when he wrote that preceding the tetradrachms, "the previous coins that were didrachms had an ox as their device".¹⁴⁰ However, the statement in *Ath. Pol.* is directly linked to the previous statement, which claimed the mina was increased from a weight of seventy drachmas to one hundred, by the particle *de*. It is marked off from the following passage, which states three minas were

2006) 351-389. R. Osborne, *Classical landscape with figures: the ancient Greek city and countryside* (London 1987) 46 notes that Attica was famous for its high barley yields. I hope to settle the matter in metrological terms in a forthcoming article on late archaic Attic weights and measures.

¹³⁷ One would have to envisage two economies – the first using traditional agricultural wealth, and the second using silver presumably for mercantile activity. I am prepared to contemplate this, but do not see silver being dominant as a basis for evaluation and laws as early as Solon's time. In supporting this proposition, Kroll, *Silver* (as in n.6) 226 cited the study by A. Giovannini, *Rome et la circulation monétaire en Grèce au II^e siècle avant Jésus-Christ* (Basel 1978) 36-7, 115-18 as providing "a number of evaluations in local Greek monetary units that had become obsolete except as units of account, while the taxes or other payment on the properties were rendered in denarii". However, these were old and familiar coinages, minted and used locally for several centuries.

¹³⁸ Most discussion continues to be based upon the alternative interpretations of K. Kraft, "Zur Übersetzung und Interpretation von Aristoteles, *Athenaion Politeia*, Kap. 10", *Jahrbuch für Numismatik und Geldgeschichte* 10 (1959/60) 21-46C and Kraay, "An interpretation of *Ath. Pol.* Ch. 10" in C. Kraay and G. Jenkins (eds.), *Essays in Greek coinage presented to Stanley Robinson* (Oxford 1968) 1-9. See especially the analysis in M. Chambers, "Aristotle on Solon's reform of coinage and weights", *California Studies in Classical Antiquity* 6 (1973) 1-16. On my view, cf. n.136.

¹³⁹ Chambers, *Coinage and weights* (as in n.138) 3 with n.9 explaining why *charactēr* should be translated as "standard or most commonly used coin".

¹⁴⁰ It is interesting that all the later writers only conceived of the didrachms having an ox-type as we have seen earlier, when the ox was one of many didrachm types. It suggests reliance on one source, perhaps Homer or a folk-etymology.

added to the weight of a talent, by *de kai*, implying that that change occurred separately and, by inference, even later. It proves once again that the author of the *Ath. Pol.*, writing in the fourth century BCE, had no understanding of when coinage was introduced, but by passing on what he had gleaned from his sources, inadvertently revealed the changes were made much later than Solon's time.

i) The *naukrariai* and Androtion F 36

In a description of the Solonian constitution, *Ath. Pol.* 8.3 made reference to forty-eight *naukrariai* each headed by officials called *naukraroi* who, in Solonian laws “no longer in force”, were responsible for levying and expending *argurion*.¹⁴¹ The *naukrariai* were a venerable institution first attested in the Kylonian affair in the second half of the seventh century if Herodotos (5.71.2) is to be believed, but it also seems clear it was in place at least until the naval reorganisation of Themistokles early in the fifth century.¹⁴² It therefore overlapped half a century of true coin use in Athens. The attribution of this change to the time of Solon depends upon acceptance of the assumption that the law was actually enacted by Solon.¹⁴³ However, the stock phrase ‘Solon's laws’ does not prove this.¹⁴⁴ In fact *Ath. Pol.* specifically did not say Solon enacted the law, and switched deliberately to an impersonal construction to describe the tribes (*phylai*), ‘thirds’ (*trittyes*) and *naukrariai* as the author

¹⁴¹ Conventionally translated as Ship-Boards, *Ath. Pol.* 21.5 regarded them as the administrative units of Attika before the Kleisthenic reforms of 508/7 replaced them with demes, but this may not be correct. See Rhodes, *Commentary* (as in n.5) 151-2. The Attidographer Kleidemos (fr.8 = Phot. *Lexikon s.v naukraria*) evidently also connected them with ships and shipping.

¹⁴² Herodotos' evidence concerning the role of the *naukrariai* in the Kylon affair was implicitly contradicted by Thucydides 1.126.8 who did not mention them in his description of the same incident. The *naukrariai* may have retained a limited naval role after 508/7. For a compilation of the evidence about *naukrariai* and their likely evolution from providing local coastal defence using privately owned small ships and horsemen (per Pollux, *Onomastikon* 8.108) to an institution, see H. Wallinga, “The Athenian *naukraroi*” in H. Sancisi-Weerdenburg (ed.), *Peisistratos and the tyranny: a reappraisal of the evidence* (Amsterdam 2000) 131-146. For excellent discussions of the issues see Hignett, *History* (as in n.122) 68-74, 129-31 and P. Harding, *Androtion and the Atthis* (Oxford 1994) 134-8.

¹⁴³ As far as I can determine, this was the sole reason for Wilamowitz' attribution (U. von Wilamowitz-Moellendorff, *Aristoteles und Athen* [Berlin 1893] 51ff), followed by F. Jacoby, *Die Fragmente der griechischen Historiker*, texts and notes (Leiden 1954) 147 and others. A reader of this paper pointed out that the suggestion was first offered by Dobree a century earlier, cf. D. Holwerda, *Scholia in Vespas, Pacem, Aves et Lysistratas 3: Scholia vetera et recentiora in Aristophanes Aves* (Groningen 1991) l.1541, ap. crit.

¹⁴⁴ A century ago J. Schreiner, *De corpore iuris Atheniensium* (Bonn 1913) 30 provided examples of laws ascribed to Solon that clearly were first enacted later than Solon. He proved, and it is generally accepted by scholars today, that the phrase “Laws of Solon” as used by the orators simply meant all laws whether or not they were genuinely Solonian in origin.

supposed they existed in Solon's time. The arrangement was patently an artificial creation of the Atthidographers.¹⁴⁵ The laws concerning the *naukrariai* were not retained at the general revision of laws by the *anagrapheis* commencing 411 BCE for the simple reason that the institution itself was by then defunct.¹⁴⁶

The only known example of the use of *naukraric argurion* was to provide travelling expenses for sacred ambassadors to Delphi.¹⁴⁷ The relevant portion of F 36 has:

ὥς Ἀνδροτίων γράφει οὕτως τοῖς δὲ ἰούσι Πυθῶδε θεωροῖς τοὺς
κωλακρέτας διδόναι ἐκ τῶν ναυκληρικῶν ἐφόδιον ἀργύρια, καὶ εἰς ἄλλο ὅ
τι ἂν δέη ἀναλῶσαι.

Androtion writes as follows: the *kolakretai* are to give money for travel expenses
from the *naukraric* (?) (fund?) to those who go on sacred embassy to Delphi and
they are to make expenditure on any other matter that is necessary.¹⁴⁸

The translation relies upon an emendation of the text from '*naukleric*' to '*naukraric*' suggested by Wilamowitz in line with a fund of that name referred to in *Ath. Pol.* 8.3.¹⁴⁹ The so-called *ek-rubric* (underlined in the text) is reminiscent of the six such found in the Athenian State Calendar and others such as the military and theoric funds. Dow even doubted there were separate funds as such, and suggested that the rubric designated the legal source and purpose of the payment.¹⁵⁰ The word comes from the verb ναυκληρέω – to be a ship owner. It is not inherently unlikely that travel funds for a sacred mission were subsidised by wealthy and important ship owners, who were anyway the most likely group in society to be using silver (for trade).

¹⁴⁵ *Ath. Pol.* fragment 5 (= Lexicon Patm. p.152 Sakkel) related that there were four *phulai* divided into three to make twelve *trittyes* or *phratriai*, each with thirty *genē* imitating the seasons, months and days in the year. Hignett, *History* (as in n.122) 47ff convincingly demonstrated why this was an invention of the Atthidographers with no claim to authority.

¹⁴⁶ The *anagrapheis* were a board charged with recording the laws at the end of the fifth century. They are known from the prescript to the reinscription of Drakon's homicide law, and the speech recording the prosecution of one of their members Nikomakhos in Lysias 30.

¹⁴⁷ Scholion to Aristophanes, *Birds* 1541, includes Jacoby, *FGrH* (as in n.143) 324 F 36 (Androtion).

¹⁴⁸ Translation by Harding, *Androtion* (as in n.142) 69 (my question mark and brackets) with discussion pp.134-8. S. Dow, "The law codes of Athens", *Proceedings of the Massachusetts Historical Society* 71 (1953-7) 3-36 used the term '*ek-rubric*' to designate the funding sources in the sacrificial calendars.

¹⁴⁹ Wilamowitz, *Aristoteles* (as in n.143) i. 52. L. Pearson, *The local historians of Attica* (1942, reprint Michigan 1981) 83 rationalised the evidence by supposing "τὰ ναυκληρικά is a "modern spelling" for τὰ ναυκραρικά".

¹⁵⁰ Dow, *Law codes* (as in n.148) 3-36. I question whether the emendation of the text is warranted given the little that is known about *polis* finances in this period.

There was nothing specifically to tie the provision of travel expenses to Solon and this *theōria* and the *kolakretai* pre-dated him. The *kolakretai* had a variety of functions, and were probably only abolished at the end of the fifth century.¹⁵¹ It is therefore not possible to state when the laws were originally passed, and whether they referred to weighed silver or coinage. It really only tells us that at some stage during the sixth century, a fund was established which used *argurion* for travel expenses.

j) Lysias 10.8

In Lysias 10.8 the speaker quoted another “old law of Solon” that “*argurion* is to be weighed out (*stasimon*) for as much as the lender may choose”. Lysias was specifically explaining obsolete terms and went on to say: “This ‘weighing out’, my good man, is not a matter of placing in the balance, but of exacting interest at whatever rate he may choose”. Kroll rightly identified this passage as important, but interpreting it is difficult because it is out of context and refers to a practice which was out of use.¹⁵² There is no way of knowing when the law was enacted. Kroll contended it was Solonian and used the testimony to demonstrate that borrowing of silver precipitated a debt driven crisis which led to Solon’s appointment.¹⁵³ In my opinion this is going beyond the evidence. Lysias (10.20), writing in the early fourth century, simply said that “in some cases we do not use the same terms as we did formerly”. This could just as easily apply to any time in the sixth century, and even after the introduction of coinage. We also do not know why or in what circumstances such a law

¹⁵¹ The *kolakretai* were ancient ‘financial’ magistrates whose name possibly derives from collecting parts of victims of sacrifices (*kola* means limbs). They lost most of their functions to the *apodektai* in Kleisthenes’ reforms, cf. Harp. s.v. *apodektai*. The scholiast (Ar. *Birds* 1541) also mentioned on the authority of Aristophanes the Grammarian that they were “stewards of pay for jury duty” and for the “expenditures on the gods”. We have no evidence of their mention in literature after 411 BCE.

¹⁵² Kroll, *Silver* (as in n.6) 228. The inference is that many of the Athenians in the audience did not know this usage. We should be exceptionally wary of Greek etymological explanations. In another example provided by Lysias in the same passage, the obtuse meaning of a term in an archaic ‘Solonian Law’ may well be wrong. See E. Carawan, *Bryn Mawr Classical Review* 98.6.02 review of C. Carey, *Trials from Classical Athens* (London 1997) regarding Lysias’ gloss that *epiorkein* meant ‘to swear’ which was the opposite of its normal meaning ‘to swear falsely’. He noted that Lysias was either wrong, or misinterpreting the intended sense.

¹⁵³ Kroll, *Silver* (as in n.6) 226. He stated “Solon’s laws were published on pillars called *kurbeis* and on revolving wooden beams called *axones*” referencing Rhodes and Stroud though they have different interpretations - see Davis, *Axones* (as in n.125). He argued heavily that the laws citing money must have been Solonian and (p.229) “it follows that the debt crisis that led to Solon’s appointment as a lawgiver was largely precipitated by monetary borrowing in silver rather than by the simple lending of goods in return for produce and services in a barter type of exchange”. I do not believe the case for a monetary crisis being the principal cause for Solon’s appointment is convincing.

might have been passed, considering it was basically stating that the rate of interest was not to be controlled. This seems an unlikely and unnecessary interference in private matters by an archaic *polis*.¹⁵⁴

The passage does indicate that *argurion* was being used for lending in private transactions.¹⁵⁵ This too is of considerable importance because, as Kroll pointed out, “one does not borrow to store wealth, one borrows to put money to use”.¹⁵⁶ We need to ask who had to borrow this *argurion* and why? One candidate is merchants for trade purposes, rather than say farmers needing grain for seed, which would be borrowed in kind. Arguably the merchants specifically required silver because it was non-perishable and exchangeable at par for goods with overseas trading partners who used silver. Thus it was being valued intrinsically and needed to be weighed. In fact, merchants would not want to pay a premium for minting unless that cost could be passed on (or they were forced to pay it), and the lack of finds of *Wappenmünzen* outside Attica indicates this did not occur often. Another candidate might be elites borrowing to meet large expenses, and perhaps for social/political purposes, which had the side effect of enmeshing families in a network of mutual obligations.¹⁵⁷

On the assumption *argurion* in this passage meant bullion silver and not coined money made out of silver, Kroll was correct that it demonstrates “lending at interest was originally characterized by the weighing of silver”, and helps explain why silver came to be the dominant metal used as coinage.¹⁵⁸

k) *Obolostatai*

¹⁵⁴ The state did interfere to prevent lending on the security of the borrower’s person (Plut. *Sol.* 15.3), but that was to prevent citizens being sold into slavery.

¹⁵⁵ Kroll, *Silver* (as in n.6) 229.

¹⁵⁶ Kroll in private communication.

¹⁵⁷ I thank one of the Journal’s readers for drawing my attention to this. P. Millett, *Lending and borrowing in ancient Athens* (Cambridge 1991) 79-89 noted that even wealthy Athenians typically did not have much cash on hand to meet large expenses such as liturgies and dowries, yet land was very rarely sold. Despite conspicuous display, families were often poorer than popularly believed, and wealth was chronically unstable across generations. Lysias 19 provided a good example of all these things. Of special interest is Lys. 19.24-6 where it was proposed that a gold cup be lent as security for a loan of sixteen minas and redeemed at twenty (equals four minas interest), because the lender of the cup did not have sufficient cash to meet the requirements of a trierarchy. Foxhall, *Olive cultivation* (as in n.30) 48-50 commented on the social aspect of the *eranos* dowry loan. These examples come from classical times. It is unknown whether the same occurred in archaic times.

¹⁵⁸ Kroll, *Silver* (as in n.6) 229.

The word *obolostatēs* (in its various forms), literally a weigher of obols, was used to describe a petty money lender. Weighing in this context was glossed by the lexicographers as lending with a connotation of usury.¹⁵⁹ Kroll proposed that lending obols by weight was “another relic from this pre-coinage era”, and suggested that the obols may have referred to the rate of interest charged by the *obolostatai*.¹⁶⁰ However, there is no evidence that the term or concept went back to archaic times. The earliest reference to the word was in Aristophanes, *Clouds* 1155 produced in 423 BCE.

7. Conclusions

To sum up, there is no good evidence in the literary or archaeological sources for substantial use of silver before the advent of coined money in Athens, though probably it was used in trade and travel. Coinage did not develop out of weighed silver directly in the Greek world – it came out of Lydia and Ionia and was applied to the most suitable metal.

The change of standard from barley to silver did require a period of pre-conditioning. It has been demonstrated that there was a culture of increased exposure to maritime trade during the sixth century evidenced by the growing trade in Attic pottery. This meant there were more and more men in Athens who had familiarity with silver and electrum, and appreciated the advantage of these intrinsically valuable metals as a means of exchange and valuation, especially in comparison with barley with its constantly fluctuating value (see Annexure). Many of these men were wealthy and influential, and came to occupy important magistracies. Their experience will have paved the way for the successful adoption of currency, with silver winning out over electrum on account of its availability, and suitability for low value transactions in the Agora.¹⁶¹ When enough people were accustomed to using silver bullion as their medium of choice in bartering, the next step was for the State to step in with its own legally *dokimon* metal currency. The agent of change was undoubtedly Peisistratos. He went to the mining region of western Thrace to raise *chrēmata* in the form

¹⁵⁹ Harp. s.v. *obolostatai* = Melville-Jones, *Testimonia* 1 (as in n.94) number 784, is one of a number of such glosses. The derogatory connotation presumably arose from the very small amounts involved.

¹⁶⁰ Kroll, *Weighed bullion* (as in n.6) 16. The suggestion that “an obol per XX was a rate of interest” was made in private correspondence.

¹⁶¹ The smallest *Wappenmünzen* electrum fraction was a 1/24th which was still worth approximately 3 obols – too much for small purchases.

of bullion precisely because he understood the importance of money.¹⁶² Subsequently as tyrant, he had the power to mandate the use of coinage which transformed the Athenian economy when silver supply (from exploitation of the Laurion mines) and demand (especially for building) shot up towards the end of the sixth century.¹⁶³

Returning to the central question of laws denominated in drachmas, it is clear these could not have belonged to Solon's time as quoted by Plutarch. It is possible to make a claim that some of the laws were passed at or around that time, but the penalties in drachmas are more likely to have been added any time during or from the second half of the sixth century when coinage was being commonly used. This does not absolutely exclude from consideration the possibility that some of the drachma laws preceded coinage (referring to weighed silver), but there is no evidence to prove it.

Annexure – Price volatility of barley

One area where comparison with Western Asia is particularly valuable is in commodity prices.¹⁶⁴ Detailed work has been carried out by Vargyas on Babylonian prices, which were expressed in silver shekels.¹⁶⁵ The most useful indicator for our purposes is barley. The mean of the average price for Babylonian barley in the whole of the sixth century was 144 litres per shekel. To make this meaningful in an Attic context, an Attic medimnos equalled roughly 52.5 litres (dry volume), and a shekel was very close in weight to a *Wappenmünzen*

¹⁶² As Kroll pointed out to me in private correspondence, Peisistratos was not alone in this understanding. It was presumably shared by many members of the power elite in the Aegean at that time. For instance, a fragment of Alkaios mentions a payment by the Lydians to Greeks of 2,000 staters to attack a city in the early sixth century (Melville Jones, *Testimonia* 2 [as in n.97] number A41). Peisistratos simply put this knowledge to effective use in raising his army.

¹⁶³ Boersma, *Peisistratos* (as in n.43) 53 noted, "Building activities that are usually agreed to have a connection with the tyranny start after 528 when the Peisistratids began to compete with the building projects of the other tyrants". There was also building by leading families especially on the Acropolis. Athens presumably had a stock of silver accumulated over an extended period which only becomes visible in the sources in the time of Peisistratos. However, I see minting being directly related to supply and therefore providing indirect proof of the earlier scarcity of silver. I do not agree with the suggestion made by T. Cornell, *The beginnings of Rome* (London 1995) 397 and endorsed by Kroll, *Weighed bullion* (as in n.6) 37 that "[i]n economic terms, the introduction of coinage [was] not of great significance in itself". It is well accepted economic theory that the growth rate of an economy is directly linked to its money supply, and this was enabled by coinage. Furthermore, the velocity of money (the frequency with which a unit of money is spent) would have been vastly sped up by using coinage rather than 'multiple moneys' even including bullion.

¹⁶⁴ I do not seek to imply that the Athenian and Babylonian economies were directly linked.

¹⁶⁵ P. Vargyas, *Babylonian prices* (as in n.90). The study was based on the astronomical texts kept by the Babylonians recording the prices of basic commodities for half a millenium.

didrachm.¹⁶⁶ Therefore, one drachma on average purchased approximately 1.37 medimnoi (or one medimnos cost 0.73 drachma).¹⁶⁷

The Babylonian data indicates that the “average yearly movement of the price of...barley was around 50%” on account of seasonal factors.¹⁶⁸ Prices also varied enormously between years. In good years, the price fell as low as one drachma buying 3.45 medimnoi, but in a famine prices could rise catastrophically to the point where a drachma would only buy a single litre.¹⁶⁹ 26% of harvests were statistically ‘bad’, and 21% ‘failed’ to the point where the resultant shortage could be considered a famine.¹⁷⁰ Similar fluctuations must have occurred in Attica in the sixth century though we lack contemporary evidence for it.¹⁷¹

¹⁶⁶ One Babylonian shekel (*šiqḷu*) weighed 8.33 gr. (evidenced by four mina weights found in Persepolis weighing 499.80 gr divided by the 60 shekels in a mina). I averaged the 51 *Wappenmünzen* didrachms in Seltman, *Athens* (as in n.62) to arrive at 8.36 gr., though there is considerable variance between coins. I disregarded the question of fineness of silver for this rough guide, though coinage had greater fineness than the Babylonian silver used early in the sixth century, respectively c.93+% to c.87.5%, because by the end of the century, Babylonian silver under Persian control had a similar fineness to coinage. For Attic measures see A. Moreno, *Feeding the democracy* (Oxford 2007) Appendix 1.

¹⁶⁷ Vargyas, *Babylonian prices* (as in n.90) 128, fig. 39, based on figures from 39 years of available data. Of course, most land in Attica was not as productive as in Babylon. This was well attested in ancient sources, for instance Pl., *Crit.* 111b5 described Attica with its rocks and thin soil as “the bones of a wasted body”, and Plut. *Solon* 22.1: “most of the country was unfruitful and worthless”.

¹⁶⁸ Vargyas, *Babylonian prices* (as in n.90) 281a (the page is actually un-numbered but comes after p.281 and before 282. It is headed “11. Conclusions”).

¹⁶⁹ See Vargyas, *Babylonian prices* (as in n.90) 56-7 for examples.

¹⁷⁰ Vargyas, *Babylonian prices* (as in n.90) 119.

¹⁷¹ It is dangerous to compare prices from different time periods, but there is some Athenian evidence from the late fourth century attesting to short term price fluctuations. In ca.330 BCE, the price of barley was 5 drachmas per medimnos (IG II² 408, 13-14). One year later, the price was down to 3 drachmas per medimnos (IG II² 1672, 283). Also in the 320s, from Demosthenes 42.20 and 31 (*Against Pheinippos*), one can deduce a price of 6 drachmas per medimnos. This corroborates the substantial reduction in value of silver over two hundred years. See the discussion of Lysias 22 on the subject of grain profiteering in G. Stanton, “Retail pricing of grain in Athens”, *Hermes* 113 (1985) 121-3. Moreno, *Feeding the democracy* (as in n.166) 27 noted in his detailed study of the subject: “Because the average annual rainfall level is 400 mm, very close to the minimum amount required by the most important staples, Attica suffered from a permanent and considerable risk of crop failure”.

3.3 Where are all the little owls?¹

γλαῦκες ὑμᾶς οὐ ποτ' ἐπιλείψουσι Λαυρειωτικάί
ἀλλ' ἐνοικήσουσιν ἔνδον, ἔν τε τοῖς βαλλαντίοις
ἐννεοττεύσουσι κάκλέψουσι μικρὰ κέρματα.²

In 1964, Kraay expressed the influential opinion that whereas “the ‘Wappenmünzen’ issues (of early Athenian coinage) are well supplied with fractions down to the quarter-obol” with the wheel and Gorgoneion issues being particularly common, “the very large succeeding issues of archaic owls seem to be almost devoid of fractions”.³ He contended that the owls “were intended mainly for foreign trade, in which the smaller denominations had no place” and were little used in retail trade. Scholars have generally accepted this explanation, and debate has concentrated on dating the change from *Wappenmünzen* to owls.⁴ However, recent studies have indicated that elsewhere in the Greek world, fractional coinage was used in much greater quantities than previously believed.⁵ This raises the question of whether Athens did indeed make minimal use of smaller denominations for its owl coinage until after

* It was a great pleasure to attend the Conference held in Athens to honour Professor Mattingly. I thank the organisers for the opportunity to submit this brief paper in tribute to a great epigraphist and numismatist. I appreciate the valuable comments and encouragement of Professor Jack Kroll who read a draft of this paper.

¹ ‘Owl’ is the common English term for the famous coinage of classical Athens. It follows the ancient usage as in the quotation which follows.

² Arist. *Birds* 1106-8. “Lauriotic owls will never leave you, but will dwell within (your city), and will nest in your purses, and hatch out little (deposits of) small change”. Translation: Melville-Jones, J., *Greek and Latin texts concerning ancient Greek coinage*, Vol 1 (London, 1993): 39.

³ See Kraay, C., ‘Hoards, small change and the origin of coinage’, *JHS* (1964) 84: 87, (cited hereafter as Kraay, *Hoards*) for this and the subsequent quotation. For the purpose of this study, I am treating drachmas and smaller denominations as fractional coinage. *Wappenmünzen* is a German word for ‘heraldic coins’ deriving from a theory strongly espoused by Seltman, C., *Athens, its history and coinage before the Persian invasion* (Cambridge 1924): xviii (cited hereafter as Seltman, *Athens*) that “Every one of the devices stamped upon these coins appears as a shield-sign on some early Athenian vase” and that the coins were issued by the Eupatridai in Athens. The theory has been discredited but the name has stuck.

⁴ See Trevett, J., ‘Coinage and democracy at Athens’ in Meadows, A. & Shipton, K. (eds.), *Money and its uses in the ancient Greek world* (Oxford, 2001): 26-8, for a summary of the debate.

⁵ The best work in this area to date is the analysis by Kim, H. & Kroll, J., ‘A Hoard of Archaic Coins of Colophon and Unminted Silver (*CHI*.₃)’, *AJN* Second Series 20 (2008): 53-103, (cited hereafter as Kim and Kroll, *Colophon*). For general discussion see Kim, H., ‘Archaic coinage as evidence for the use of money’, in Meadows, A. & Shipton, K. (eds.), *Money and its uses in the ancient Greek world* (Oxford, 2001): 12-3.

the Persian wars. If this proposition is correct, an explanation needs to be provided for the relative abundance of some of the earlier *Wappenmünzen* fractions.⁶

Determining the validity of Kraay's hypothesis rests, as he himself noted, on the nature of the data.⁷ Our knowledge of types and quantities of coins of any given *polis* comes largely from two major sources. Firstly from hoards, which represent ancient accumulations of wealth, thus mostly excluding fractions, and are rarely able to be studied intact before dispersal by the finders. Secondly from modern collections, which usually concentrate on assembling representative samples especially of the rarest and finest coins, and dispose of duplicates.⁸ This has been compounded by older studies often providing cursory treatment of fractions. In the case of Athens, the major study by Seltman of coinage pre-480 BCE was made in the early 1920s, and included less than a quarter of known specimens.⁹

To address the problem of the data, the Australian Centre for Ancient Numismatic Studies has been assembling a new corpus of *Wappenmünzen* and pre-wreathed owls.¹⁰ At the time of writing the work is far from finished, but we do have comprehensive new data derived from researching all available coin sales catalogues. This information has the enormous advantage over previous data in that it includes the sale of every coin, no matter how

⁶ Ever since Kraay, C., 'The archaic owls of Athens: classification and chronology', *NC* 6 (1956): 43-68 (cited hereafter as Kraay, *Archaic owls*) it has been generally accepted that the *Wappenmünzen* preceded the owls. They commenced with a variety of types on the obverse such as the hindquarters of a horse, an owl, and a bull's head facing, with a simple incuse on the reverse. These types possibly represented magistrate's marks with a precursor in the near east, though many other explanations have been advanced. They were followed by gorgoneia which developed a 'feline' type on the reverse, firstly in a quarter, then on the whole of the flan. The other main *Wappenmünzen* type was the series of 'wheels' which will be discussed *infra*, but which Hopper, R., 'Observations on the Wappenmünzen' in Kraay, C. & Jenkins, G. (eds.), *Essays in Greek coinage presented to S Robinson* (Oxford, 1968): 20 and 22-3 (cited hereafter as Hopper, *Observations*) considered should be placed before the gorgoneia. The owls from their inception had types on the obverse and reverse.

⁷ Kraay, *Hoard*: 85.

⁸ There has been a long tradition of collecting the finest specimens for coin cabinets dating back to the eighteenth century (for Athenian coinage). Many of these collections formed the nuclei of today's major museum collections through gift or bequest. The original collectors' deplorably scant regard for provenance continues with many collectors and dealers to this day.

⁹ Seltman, *Athens*.

¹⁰ This is a joint project by the author and Dr. Sheedy at Macquarie University, Sydney. The corpus will include scans or photographs saved on a data base of every accessible specimen from museum and private collections, SNGs, and sales catalogues. The catalogues have been researched by my wife and I who recently spent several months in Athens working in the extraordinary library of Mr Basil Demetriadi. I wish to thank Mr Demetriadi for his generosity and Ms Pat Felch, his librarian for her unstinting assistance, and my wife Sharon for patiently going through approximately 40,000 catalogues finding the relevant coins for me to scan and record their details. I also wish to thank Noble Numismatics for giving me access to their catalogue collection and extensive numismatic library.

humble, small or poorly preserved provided it had a photograph.¹¹ Even so, the number of fractions is under-represented because earlier dealers tended not to photograph them, or included them in indistinguishable lots.¹²

The results are summarised in Table 1.

Table 1 – Athenian coinage pre-480 BCE taken from sales catalogues.¹³

DENOMINATION	EARLY WM	GORGONEIA	WHEELS	UNWREATHED OWLS
Fractions				
Tetartemorion	2 (2.7%)			3 (0.3%)
Hemiobol	9 (12.2%)		9 (4.4%)	16 (1.3%)
Obol	26 (35.1%)	41 (50.6%)	128 (62.4%)	41 (3.4%)
Diobol		1 (1.2%)		1 (0.1%)
Hemidrachm				4 (0.3%)
Pentobol			1 (0.5%)	1 (0.1%)
Drachma	13 (17.6%)		55 (26.8%)	17 (1.4%)
Total fractions	50 (67.6%)	42 (51.9%)	193 (94.1%)	83 (7%)
Larger denominations				
Didrachms	20 (27%)	19 (23.5%)	11 (5.4%)	
1/24 electrum stater	3 (4.1%)			
Tetradrachms		20 (24.7%)		1,108 (92.9%)
1/12 electrum stater	1 (1.3%)		1 (0.5%)	
Total larger denominations	24 (32.4%)	39 (48.1%)	12 (5.9%)	1,108 (92.9%)
TOTAL	74 (100%)	81 (100%)	205 (100%)	1,193 (100%)

¹¹ Coins are often resold, and the data base has enabled me to consolidate the provenances. The data which follows represents the consolidated number of specimens. It is probable that the number of owl tetradrachms will reduce as we continue our analysis, but is deemed fairly accurate for the fractions given their relatively small numbers.

¹² Dealers prior to the 1990s rarely provided adequate photographs of obols and smaller denominations. Ironically, dealers from the early twentieth century often produced better images than their later counterparts using photographs of casts, but did not bother with the fractions. Our data is restricted to coins we could photograph and compare, but frequently the coins were resold at which point we picked them up.

¹³ 'Early WM' is an abbreviation for 'Early *Wappenmünzen*' and includes all *Wappenmünzen* except the gorgoneia and wheel types. It is probable that at least one type of wheel of the 'cartwheel' variety (identifiable by having two cross bars) should be included with the early *Wappenmünzen* but it is not represented by any specimens in the sale catalogue data.

It is immediately clear from the above data that Kraay was correct in his claim that there are relatively few owl fractions, at only 7% of the total number of owls. However, there were several important reasons why the production of larger denomination silver coinage (tetradrachms) increased virtually exponentially from ca. 510 BCE to 480/79 BCE.¹⁴ Firstly, Athens had recently accessed rich deposits of silver at Laurion, and minting the silver facilitated exporting it.¹⁵ Secondly, money was required for military expenditure in the face of the growing threat from Persia, but also Aegina and other enemies close to home. In particular, the new trireme technology was extraordinarily expensive in terms of building and maintaining the ships, together with providing equipment, men, and facilities such as the new port.¹⁶ Thirdly, Athens was expanding its trade and commerce.

None of the above-mentioned reasons would necessitate minting fractional coinage. However, the last quarter of the sixth century also saw a marked increase in domestic commerce. Provision of adequate coinage for the market place is not known to have been a particular concern of *polis* administrators, but it is difficult to imagine how the Agora would have functioned with a *reduction* in coinage for day-to-day expenditure following a change to owl coinage, and why traders and their customers would have been prepared to tolerate this.¹⁷

Kroll recognised the problem and suggested that early on during the transition period to owls (Seltman's Group H), "the small change of Attica therefore must have continued to

¹⁴ Kroll, J., 'What about coinage?' in Ma, J., Papazarkadas, N. & Parker, R. (eds.), *Interpreting the Athenian empire* (London, 2009): 196 points to the staggering production of tetradrachms in the 490s and 480's which he estimates could be five million based on 250 obverse dies. We expect to be able to more accurately estimate the number of dies as our study progresses, but Kroll's order of magnitude is likely to be correct.

¹⁵ The *polis*' share from the Laurion mines in 483 BCE was sufficiently substantial to allow a proposed distribution of 10 drachmas per head though the money was put towards ship building (Hdt. 7.144, Plut. *Them.* 4.1, *Ath. Pol.* 22.7, Cornelius Nepos *Them.* 2.1-4). Other *poleis* known to have been mining for export were the Siphnians (Hdt. 3.57), and the Thasians (Hdt. 6.46). Another significant change may have been the *polis*' ability to actually extract the silver given this required sophisticated mining technology, skilled management of labour, and substantial financial investment by the individuals involved. This would have required a lengthy period of time to develop, especially to access deeper deposits. See Conophagos, C., *Le Laurium antique et la technique grecque de la production de l'argent* (Athens, 1980): 94, n.15, and Picard, O., 'La découverte des gisements du Laurion et les débuts de la chouette', *RBN* 147 (2001): 4-7.

¹⁶ See Professor Davies' contribution to this volume.

¹⁷ Figueira, J., *Excursions in epichoric history: Aiginetan essays* (Maryland, 1993): 66 must surely be right when he pointed out that "the economic role of the first coins themselves was not that great...There were not yet enough to dominate even intra-*polis* exchange until the last quarter of the sixth century" (my emphasis). The statistics given in Table 1 are robust enough to exclude lack of finds of owl fractions as an adequate explanation.

consist of wappenmünzen”.¹⁸ He considered these fractions were gorgoneia in the belief that they “have survived in the greatest numbers” and raised the possibility that the minting of gorgoneion didrachms and obols may have continued past the introduction of owl tetradrachms.¹⁹ Kroll further noted that it was after the earliest production of owls (in Seltman’s Group L) “that the Athenians were for the first time provided with a full range of post-wappenmünzen denominations” though with *Wappenmünzen* fractions (only) continuing in circulation.²⁰ I believe his solution is correct, except that the numbers in Table 1 do not support the gorgoneia being the most abundant fractional coinage.

Returning to Table 1, a second obvious fact is the remarkably high number of wheel fractions, more than double that of the owl fractions, but few corresponding wheels of larger denomination. Where do these belong chronologically? Usually they have been placed with the other *Wappenmünzen* before the gorgoneia. This is because their only higher denomination is the didrachm which was phased out when the tetradrachm was introduced. However, there are eight types (or varieties of types) of wheel with different arrangements of spokes. The wheel didrachms all fit into two of these types with corresponding examples among the fractions. The remaining types could well have come later. I suggest they continued to be minted into the fifth century along with the owls, which were principally minted in the larger denominations. Unlike the owl tetradrachms, the wheels were intended for domestic use, and were easy to strike. The symbol of the wheel was universal, but may have had particular relevance at Athens which was described by the Delphic oracle prior to the Persian invasion of 480/79 BCE as a “wheel shaped city”.²¹ The wheel, like the gorgoneion, head of Athena, and owl, can therefore be considered a civic symbol and acceptable in democratic times.

Corroborating evidence comes from the Acropolis Hoard (*IGCH* 12). This comprises fifty four coins and is associated with the Persian destruction of 480/79 BCE.²² The tetradrachms

¹⁸ Kroll, J., ‘From wappenmünzen to gorgoneia to owls’, *ANSMN* 26 (1981): 17-19, (hereafter Kroll, *Wappenmünzen*). This quotation is from page 18. The subsequent quotation is from page 19.

¹⁹ This was based on the data provided by Seltman, *Athens* as supplemented by Hopper, *Observations*.

²⁰ Kroll, *Wappenmünzen*: 20.

²¹ Hdt. 7.140 – πόλιος τροχαιδέος. A punning allusion because *trokhos* means ‘wheel’ but also ‘battlements’. The Herodotos reference was given to me in private communication by Daniel Kruger (formerly Curator of ancient Greek coins at the San Antonio Museum of Art) who also noted that in 480 BCE, if you were standing on the Acropolis, the city and its walls would appear wheel-shaped.

²² This is a crucial hoard but it was poorly recorded by the excavators. It is being restudied by Dr. Panagiotis Tselekas of the Athens Numismatic Museum as part of the Early Attic Coin Project, together with others

are owls of the last archaic types (Seltman Groups E, F and Gi).²³ Included are seventeen fractions. Of these, six only are owls of the most numerous and latest types. The remaining eleven are wheels comprising hemiobols, obols and one drachma. Their obverse types were a short-strutted variety for the smaller fractions, and a long-strutted wheel for the drachma, and on the reverse, a well formed cross in an incuse for the smaller fractions and a roughly quartered incuse for the drachma. The smaller fraction wheels are the same as on the Panathenaic frieze where two of the standard types can be seen depicted on chariots.²⁴ There is thus no need to view the hoard as a mixture of old and new issues, and it could have been a sacred dedication.²⁵ Interestingly, there is the same correspondence of roughly two to one in numbers of wheels to owls as in the sales catalogue data. The most reasonable conclusion must surely be that wheel fractions were being used alongside owls right down to 480/79 BCE.

Other hoard evidence supports the conclusion. The Eleusis find (*IGCH* 5) dated to 520-500 BCE included six fractions comprising three wheel obols, a gorgoneion obol, a bull's head

containing early Attic material, and hopefully he will shed more light upon them all. The hoard was reported by Kavvadias, P., 'Ἀνασκαφαὶ ἐν τῇ Ἀκροπόλει', *Eph. Arch.* (1886): column 78, n.1 as containing 62 coins including 8 *Wappenmünzen*, and later in Kavvadias, P. and Kawerau, G., *Die Ausgrabung der Akropolis vom Jahre 1885 bis zum Jahre 1890* (Athens, 1906) with 65 coins. Svoronos, J., *JIAN* 1 (1898): 367-78 + Plate 1A published a list of the coins, some commentary and illustrations as a hoard of 63 coins. Further publication and illustration in 1926 by Svoronos, J. (completed Pick, B.), *Corpus of the ancient coins of Athens*, (English trans. Higgin, L., Chicago, 1975): Plate 3 contained 54 coins. Of these, Number 54 is of a type later than 479 BCE and is generally regarded as an intrusion. Seltman, *Athens*: 147, n.1 also doubted Number 48 on the grounds that it and Number 54 "show no sign of having passed through a fire as do all the other 52 specimens". They were possibly found elsewhere on the Acropolis and added in, per Babelon, E., *Traité des monnaies grecques et romaines*, deuxième partie, ii (Paris, 1907): columns 767-8. The hoard is on display in the Acropolis Museum. Holloway, R., 'The early owls of Athens and the Persians', *RBN* (1999): 14-15 and 14 n.38 suggested the hoard "was formed in the aftermath of the Persian invasion and deposited in the sanctuary on the hill thus removing from circulation coins that were not acceptable currency". He based this on the unlikely supposition that the owls in the hoard were minted by the Persians. Vickers, M., 'Early Greek coinage: a reassessment', *NC* 145 (1985): 22 ff went further trying to downdate the burial to after 462 BCE but provided no substantial evidence and the theory has found little support. Whilst the stratigraphy surrounding the excavation is uncertain – see especially Bundgaard, J., *The excavation of the Athenian Acropolis*, 2 vols, (Copenhagen, 1974) – the dating ought to be around the time of the destruction, and the *Wappenmünzen* are all consistently reported as wheels.

²³ Seltman, *Athens*: 59 overwhelmingly ascribes them to the last Group E.

²⁴ For instance on the north frieze blocks XVII and XXIV.

²⁵ Hopper, *Observations*: 25, n.2 made the suggestion assuming the wheels must be old. Likewise, Kroll, *Wappenmünzen*: 18, n.51 was concerned by the lack of "intermediate pieces" between the wheels and owls and suggested the hoard was "a collection of two dedications rather than a currency hoard".

Hemiobol, and a Group L owl Hemidrachm.²⁶ Finds of *Wappenmünzen* in the Agora at Athens included seven specimens of which five were wheels, including the only coin found in a secure Archaic context.²⁷

Table 1 shows fractions accounting for 67.6% of the early *Wappenmünzen*. This seems to be a high percentage. However, a similar phenomenon was observed by Kim and Kroll at Colophon.²⁸ They demonstrated that the *polis* used fractional coinage for small transactions, at the same time as weighed bullion and some coinage for larger transactions. This should not strike us as being strange given that we use coins today only for small purchases. Cook noted that “even in the eighteenth century in Britain it was a fairly common practice not to accept gold guineas at their face value but to test them by weight, as is shown by the pocket guinea scales that were then familiar”.²⁹ I suspect that the Athenians at the inception of coinage in their *polis*, followed a similar model to the Colophonians and used weighed silver for larger items and trade with their neighbours.³⁰ They did not mint the larger tetradrachm denomination until they were mining silver in surplus quantities. They may also have used electrum coinage for a range of larger domestic purchases of goods and services, as even the smallest electrum pieces were too valuable for small transactions,³¹ but the coins tended not

²⁶ Further corroboration of the continued circulation of wheels comes from their presence in hoards dated 500 – 480 BCE – Pasha (IGCH 10), Fayum (IGCH 1646), Asyut (IGCH 1644), Tarento (IGCH 1874); and even the residual find dated to c.445 BCE in Jordan (IGCH 1482). The last four contain no other types of *Wappenmünzen*.

²⁷ Kroll, J., *The Athenian Agora Vol. 26: the Greek coins* (Princeton, 1993): 16-17.

²⁸ Kim and Kroll, *Colophon*: 53-103.

²⁹ Cook, R., ‘Speculations on the Origins of Coinage’, *Historia* 7 (1958): 259-60.

³⁰ This silver was probably in the form of *Hacksilber*. See the other examples provided by Kroll, J., ‘The monetary use of weighed bullion in archaic Greece’ in Harris, W., (ed.), *The monetary systems of the Greeks and Romans* (Oxford, 2008), 12-37.

³¹ The question of the buying power of money is notoriously problematic. A 1/96th stater was estimated to equate to a day’s subsistence by Carridice, I. & Price, M., *Coinage in the Greek World* (London, 1990): 27, and at 1/3rd of a goat by Seaford, R., *Money and the early Greek mind: Homer, philosophy, tragedy* (Cambridge, 2004): 135. The smallest denomination in the sales catalogues is a 1/24th stater. I contend that at least the owl type of electrum coinage belonged to Athens because many specimens are provenanced to find spots in Attica (see amongst others Koehler, U., ‘Numismatische Beiträge’, *Mitteilungen des Deutschen Archäologischen Institutes in Athen* [Athens, 1884]: 359), though the information is not specific and the implications of the alpha-tau ligature on the reverse are unclear. However, not all types may be correctly attributed, and the same doubt exists over certain of the silver *Wappenmünzen* types. We are exploring these questions in our study. The value of electrum is equally problematic. Suffice to say that the value of silver, electrum and gold all changed through time and place depending on supply and demand. For an excellent study see Melville-Jones, J., ‘The value of electrum in Greece and Asia’, in Ashton, R. & Hurter, S. (eds.), *Studies in Greek numismatics in memory of Martin Jessop Price* (London, 1998): 259-268. If high value coins and bullion were weighed, then there would

to circulate outside the zone where they were issued because of uncertainty over their gold content.³² In this, the *polis* may have been following the model and types prevalent in Western Asia Minor, and using bullion from sources in the region of the River Strymon.³³

The gorgoneia were the last *Wappenmünzen* coinage to be struck in higher denominations, and this is reflected in the balance of numbers being split fairly evenly between fractions and larger denominations. It should be noted that the gorgoneia have several different types of hairstyle which possibly served to differentiate issues. I suspect that although they were a civic type and highly identifiable with Athens' patron goddess, they were so widely used on coinage in the Greek world that some other specifically Athenian symbol was sought for its trade currency. Thus the owl, already used on both the electrum coinage and *Wappenmünzen* was adopted. It also should be noted that many different styles and denominations of owl coinage were experimented with before the Athenians settled upon their 'unchanging' type, and that was only after the Persian Wars.

If my hypothesis about many of the wheel types being minted at the same time as owls is correct, then the view that there was a clean change of type to the owl at the end of the tyranny must be finally discarded.³⁴ Consideration will also need to be given to the duration of the earlier issues. It may be that the limited number of types, even if they do each represent a magistrate's year, will further down-date the introduction of true coinage at Athens to later in the sixth century than currently accepted.³⁵ That would indeed be a fitting tribute to Professor Mattingly.³⁶

have been no practical difficulty with a bi-metallic currency. I discuss the question of electrum coinage in Athens in an article entitled 'Dating the drachmas in Solon's laws', *Historia* 61 (2012 forthcoming).

³² This seems to have been the case with electrum coinages generally. The likely reason is that electrum coins appears to have been routinely diluted with silver and thus over-valued compared with native ore. See Cowell, M. and Hyne, K., 'Scientific examination of the Lydian precious metal coinages', in Ramage, A. and Craddock, P. (eds.) *King Croesus' gold: excavations at Sardis and the history of gold refining* (London, 2000): 169-173.

³³ It is widely accepted that Peisistratos had access to bullion from this region (around Mt Pangaion) based on Hdt. 1.64.1 and *Ath. Pol* 15.2, but see Lavelle, B., 'The Pisistratids and the mines of Thrace', *GRBS* 33.1 (1992, Spring): 5-23 for a strenuous attempt to minimise the likely revenue to Peisistratos from this source.

³⁴ Price, M. & Waggoner, N., *Archaic coinage, the Asyut Hoard* (London, 1975): 64 forcefully restated the case for the change in Athenian coinage being associated with the change in government. The opposing view had been put by Raven, E., 'Problems of the earliest owls of Athens' in Kraay, C. & Jenkins, G. (eds.), *Essays in coinage presented to Stanley Robinson* (Oxford, 1968): 53.

³⁵ I do not wish to delve too deeply into this question here. The most persuasive analysis of dating remains Kroll, *Wappenmünzen*: 1-32 who proposed the earliest owl tetradrachms date to ca. 517-515 BCE. Dating the *Wappenmünzen* is even more problematic as there are no fixed dating points. Kroll's method was to work backwards from his starting point for the owls using annual magistrate years multiplied by types to arrive at a range of 18-30 years, thus 546-ca.535 BCE. This kept the issues within the rule of Peisistratos which seems

reasonable. He was only allocating two years to the wheel types (page 23) which is insufficient, but does not matter for the calculation if I am correct and the remaining wheel issues came later. Kraay's date of 575 BCE seems far too early (Kraay, *Archaic owls*: 43-68).

³⁶ This has been a rapid foray into the new evidence which we have collected and raises more questions than answers. When this evidence is collated with all the other sources and a die-link study undertaken, we hope to be able to provide more concrete answers.

PART 4

DISCUSSION

In the previous Part, I examined crucial aspects of sixth-century lawmaking and monetary use. I argued that while Solon should be credited with introducing a number of changes to the *politeia* that had important, if perhaps unanticipated consequences, he was not the creator of a comprehensive code of laws. He was also not responsible for the introduction of state-controlled coinage even to the limited extent of using silver in laws as *de facto* currency, and this important innovation should be attributed to the Peisistratids. I also sought to demonstrate how the use of fractional coinage evolved, and specifically that the fall of the Peisistratids did not immediately result in a significant change in minting policy. In this Part, I use these understandings as the base-line assumptions in re-evaluating how the legal system, economy, and politics changed during the sixth century. This leads me to propose a new paradigm for the democratic changes at Athens at the end of the century.

This Part has three chapters:

1. I begin by examining how Athens had changed legally, economically, and politically by the end of the sixth century. I argue that past scholarly understanding of the period has been misled by too much reliance on later writers who had a culturally elite view of the world, and access to limited sources of information derived from the same elite milieu. I contend that the evidence supports the existence of an embryonic *laissez faire* market economy boosted by investment in silver mining, the importance of which has been dramatically under-estimated, and a rapidly expanding money supply and trade surplus in which people could and did make economically rational decisions. This led to an expansion of the number of Athenian citizens with interests in business¹ of one kind or another, large and small, who sought *isonomia*, in contrast to Solon's *eunomia*. Based on this understanding, I redefine the political groups at the time of the overthrow of the Peisistratids.

¹ I use the word 'business' in the broad sense of encompassing a wide range of commercial activities engaged in for the purpose of making a livelihood or profit. I do not intend it to have modern corporate overtones.

2. This allows me to present a new reading of the events from 511-506. I propose that an alliance of political groups took advantage of the turbulent times to discreetly and successfully remould the political order to their advantage.
3. Finally I look at the evidence for the influence of people with a commercial family background in the fifth century, and briefly explore why the development of a market economy petered out. In particular, I propose that democracy was in a sense too successful, because wealth redistribution mechanisms prevented adequate accumulation of capital for business expansion and investment, while state investment was less productive and competed for funds. Meanwhile, market rationality became increasingly subordinated to other concerns, especially status, which discouraged active participation by wealthy Athenian citizens in commerce, as opposed to passive investment. Athens' loss in the Peloponnesian war then dealt a significant blow to market integration.

4.1 A changed society

In this chapter, I examine how Athens changed after Solon's time in the areas of law, economics and politics. I do not attempt a full diachronic narrative as there is too little evidence to be confident of such a reconstruction. The sections on law and politics are based primarily on a close and critical reading of literary sources. The section on economics privileges the physical evidence especially from mining, numismatics, and trade, as this provides a reality check and a revealing comparison with the literary sources.

4.1.1 The legal situation.

A key concern of Solon was *eunomia*. This described the proper behaviour of a person (a quality), or a well-ordered society (a condition). It contrasted with its antonym *dusnomia* (lawlessness; Ostwald 1969, 62).² The origin of this thinking is attested in Hesiod *Theog.* 901-6, who described the goddess *Eunomiē* as the daughter of Zeus and Themis. Solon used the word and the personification to define the ideological basis of his program for political change:

These things my heart bids me teach the Athenians,
that *Dusnomiē* brings the *polis* countless ills,
but *Eunomiē* manifests all that is orderly and fitting,
and often places fetters around the unjust.
She makes the rough smooth, puts a stop to excess, tames *hubris*,
dries up the blooming flowers of ruin,³
straightens out crooked judgements, softens [the impact of] arrogant
deeds, puts an end to acts of dissention,⁴
and stops the anger of grievous strife. Under her
all things are seemly and prudent among men.
(West, *Solon* fr. 4.30-39).

Solon was realistic enough to acknowledge there were practical limits to what could be achieved. *Eunomiē* did not always place "fetters around the unjust", nor hope to do more than "tame *hubris*". Scholars have usually associated Solon's avowed aim with the drafting of

² I have used Ostwald's fundamental study (1969) as the basis for this part of the discussion.

³ *Atē*, caused by judicial blindness.

⁴ *Dichostasia*, lit: standing apart.

a comprehensive set of laws, based on ancient accounts, especially Plutarch's *Life of Solon*. However, in Parts 2 and 3, I demonstrated that Solon's legal changes were primarily restricted to the *politeia*. Furthermore, Ostwald (1969, 62) pointed out that in Solon's time the word *eunomia* had "little or nothing to do with νόμος = 'statute' ". It was a compound of *nomos* used in the sense of 'proper behaviour'. The Spartans allegedly achieved *eunomia* through Lykourgos' reforms of their social and political order without written laws (Hdt. 1.65). By contrast, Solon wrote at least some "*thesmoi* (statutes) equally for the base man and the noble, fitting straight justice onto each man's case" (West *Solon* F36.18-20), but that was to achieve harmony among the upper echelons of an elite-dominated society as his dichotomous choice of language shows (*kakos* versus *agathos*). The *kakoi* should not be equated with the *dēmos* in its fifth-century meaning. More likely they were the *nouveaux riches* who agitated against the Eupatridai and succeeded in being included in the new Solonian social order based on wealth as well as birth.⁵ Even in the fifth century, Ostwald (1969, 34), in a summation of his lengthy examination, contended that *nomoi* (plural) were "norms which a people regards as valid and binding in its social, religious, and political life". This is especially true of Herodotos' usage (cf. Ostwald 1969, 35). So when Herodotos stated (1.29) that the Athenians urged Solon to make *nomoi* for them, we should not assume he meant a code of *thesmoi*, or that the ranks of the Athenians doing the urging had yet extended beyond the wealthy.

In the event, Solon's reforms did not succeed even against his own modest benchmark. On his departure Athens descended back into civil strife, with society and law firmly in the grip of the elite. Order was finally established by Peisistratos who, according to Aristotle, took personal control - he appointed district judges (*dikastai kata dēmous*), and "often went to the country on circuit in person, inspecting and settling disputes" (*Ath. Pol.* 16.5). There is a strong fifth-century tradition that he did not change the actual laws: Herodotos 1.59.5 – "he neither disrupted the existing political offices nor changed the laws"; and Thucydides 6.54.6 – "the city was left in full enjoyment of its existing laws". Aristotle also wrote that Peisistratos "was willing to administer everything according to the laws in all matters" (*Ath. Pol.* 16.8), but then added that "the tyranny had obliterated the laws of Solon by disuse" (*Ath. Pol.* 22.1). Plutarch (*Sol.* 31.1) concluded that Peisistratos "retained most of Solon's

⁵ This is now widely accepted. See a brief summary of scholarship in Ober 1989, 60-63. Arguably there was less chance of the laws being fairly applied to the benefit of genuinely poorer people.

laws”, but made others himself, and provided two examples, commenting that fourth-century writers attributed them too to Solon (*Sol.* 31.2).⁶ These statements are clearly incompatible as Hignett (1951, 115-6) noted. Once again the difficulty comes from believing that Solon had written a comprehensive code of laws. If there was no such code, then the difficulties diminish (cf. Part 3.1). Aristotle’s second statement above can be dismissed as an internally inconsistent rationalisation, as can modern efforts to explain what happened to the alleged physical copy of the ‘code’ in the form of Solonian *axones* (such as Persian destruction, cf. Gilliard 1907, 34). It is preferable to accept that Peisistratos kept the existing political offices, and followed *customary* law. Mostly this was orally transmitted. Some laws were written on wooden *kurbeis* as the practice of writing official documents slowly became more accepted and widespread, and these, plus the laws later inscribed on stelai formed the collection later known as the Solonian ‘code’.

There is no evidence as to the legal basis for Peisistratid control of the armed forces. Peisistratos had come to public notice for his military achievement in the war against Megara (*Ath. Pol.* 14.1) presumably commanding as Polemarch. Conceivably he could simply have retained this position, or had people occupy it who would do what he wanted. However, there is also a tradition that Peisistratid disarmed the people (*Ath. Pol.* 15.4-5, or later under Hippias - Thuc. 6.58.1-2),⁷ and “fortified his tyranny with many mercenaries and revenues, derived partly from Attica and partly from the River Strymon” (Hdt. 1.64; cf. also *Ath. Pol.* 15.2). The mercenaries would have given service to the tyrant personally, and not to the state. This policy evidently continued under Hippias who called upon his allies the Thessalians to fight against Kleomenes, but his military supporters in Athens were so few in number that they could all be locked up in the Pelargikon at the west end of the Acropolis (*Ath. Pol.* 19.4). If this evidence is correct, then there is no place for large numbers of middling citizen hoplites training and fighting together and constituting an Athenian army during the tyranny (cf. Frost 1984). Some other non-military explanation is required for the development of a civic identity.

⁶ Plut. *Sol.* 31.2 – (a) “those who are maimed in war shall be maintained at public expense” – Herakleides claimed it built upon a Solonian precedent, and (b) the law against idleness – Theophrastos attributed it directly to Solon.

⁷ Stanton 1990, 126, n.8 and 128, n.7 suggested that Thucydides had confused the two tyrants in the ruse to disarm the people, and that the version in *Ath. Pol.* is to be preferred.

Arguably, the tyrant was the state as he largely controlled its political and legal affairs, fought its wars, sacrificed on its behalf and embellished it (Thuc. 6.54.5),⁸ albeit with the tacit consent of a substantial part of the population. Peisistratos himself had the *kudos* derived both from military success and putting an end to the worst excesses of the former aristocratic regime, combined with political *savoir faire* and sensitivity. His administration was seen as a blessing by much of the population (*Ath. Pol.* 16.7).⁹ We may see it being unashamedly aimed at self benefit, but this would have been a relative concept for people long used to aristocratic exactions. His son Hippias was perhaps more pro-active in terms of the development of material culture at Athens (Boersma 2000), but he seems to have lacked his father's authority, and his administration became harsher after the assassination of his brother, including arbitrary executions (Thuc. 6.53.3). This was a catalyst for change, and he suffered the usual fate of second generation tyrants throughout the ages.¹⁰ Even so, his expulsion required armed intervention from outside Athens (*plus ça change*). The general population appeared to play no discernible part, and Ober's claim that the Peisistratids enjoyed the active support of the people (as opposed to passive acquiescence) overplays the evidence.¹¹ The dissaffected were primarily wealthy and ambitious members of the elite whom the Peisistratids encouraged to participate in administration, but who were vulnerable if they did not toe the party line. A good example is Kleisthenes. He can probably be identified with the archon of 525 mentioned on the archon list (discussed *supra* - Part 2.5a). Sometime thereafter he headed the exiles plotting a return, but their efforts were "complete failures" until in desperation (according to Aristotle) they "acquired a sum of money for the assistance of the Spartans" (*Ath. Pol.* 19.3-4).¹² We need to bear in mind their small domestic support and the nature of their resources when considering subsequent events.

⁸ Though not preventing others the right to make public displays, as the building and dedications on the Acropolis demonstrate, cf. Hurwit 1999.

⁹ The existence of this tradition in the fourth century, notwithstanding the later antipathy to tyranny, makes it likely to be true.

¹⁰ Current events in the 'Arab spring' provide a fascinating insight and analogy to the study of ancient tyranny.

¹¹ Ober 1989, 66-7 – "Like Solon, Pisistratus realised the potential power of ideological integration of the populace as a source of support for the existing order". He based this on Peisistratid "propaganda" through his building program and sponsorship of theatre constructing a "cult of personality". Some support can be found in the statement in *Ath. Pol.* 16.2 that Peisistratos was merciful to offenders (but for what sort of offences?), and helped the poor.

¹² This is discussed in more detail in the next chapter.

I now wish to briefly consider the roles of the central institutional bodies in the *polis* before the Kleisthenic reforms. There were four of these according to our sources, though I believe the existence of the fourth of them – the Council of 400 – is unlikely, for the reasons given below.

- a. The Areopagos – its membership comprised ex-archons. However, as the archons were Peistratid family or *philo*i (friends - in the sense of adherents or collaborators), the Areopagos could presumably be relied upon to support the regime (Hignett 1952, 94). An actual example may be found in Diogenes Laertios 1.49 (if we can trust his late evidence) who stated that “the members of the *Boulē*, who were of Peisistratos’ party” supported him against Solon (cf. the discussion in Rhodes 1981, 201-2). Under Hippias, especially after the death of Hipparkhos, this support evidently waned and some began to actively oppose the regime, though we only know the name of Kleisthenes (*Ath. Pol.* 19.1-3). Aristotle emphasised the importance of the *Boulē* of the Areopagos attributing to it *nomophulakia* (guardianship of the laws) “as had existed also before” (*Ath. Pol.* 8.4 presumably referring to 3.6), and the ancient duty of selection of office bearers (cf. *Ath. Pol.* 8.2), but in addition “keeping watch over the greatest number and the most important of the affairs of state” including the right to fine and punish, and trying offenders for treason. This is likely, but Anderson (2003, 63) was right to caution that it may be no more than an assumption.
- b. The *Ekklēsia* (Citizen-Assembly) – it is difficult to determine its composition, role and powers. *Ath. Pol.* 7.3 (followed by Plut. *Solon* 18.2) credited Solon with admitting the *Thētes* to the *Ekklēsia* and the Lawcourts (see below). Hignett (1951, 79, 117-123) argued this right was limited to those owning land, and the admission of landless *Thētes* came under Peisistratos through forced registration in the phratries. I prefer Rhodes view (1981, 141) that “it is unlikely there was a formal distinction between full citizens, who could attend the assembly, and inferior citizens who could not...[A]ssemblies were rarely held and little business was laid before them”. Many scholars have gone further suspecting it is unlikely that the principle of *isēgoria* (equal right of speech in the Assembly) extended beyond the elite until well into the fifth century pursuant to Ephialtes’ reforms or even later (Sinclair 1988, 14-15 with references). The one clear example we have

of their activities was the voting of a bodyguard of *korunēphoroi* (club-bearers) to Peisistratos (Hdt. 1.59.5; *Ath. Pol.* 14.1; Plut. *Sol.* 30.2).¹³

- c. The *Heliaia*¹⁴ – this was probably “the ekklesia sitting in a judicial capacity” (Hignett 1952, 97 endorsed by Rhodes 1981, 160). A key reform of Solon’s was the right of appeal (*epheasis*) against a magistrate’s decision (*Ath. Pol.* 9.1; Plut. *Solon* 18.2-3) “to those who wished” (Plut. *Solon* 18.2), though probably this right did not extend to a decision made by the Areopagos (MacDowell 1978, 30-2). However, the word used for the court was *Dikasterion* which was anachronistic. The identification of the *Heliaia* with the *Dikasterion* rests on an archaic law quoted by Lysias (10.16) and Demosthenes (24.105). The claim in Aristotle (*Politics* 1274a4) that Solon set up *dikasteria* (plural) “composed of all citizens” is exceedingly unlikely, but his greater claim that the right of appeal ultimately, albeit unintentionally (*ibid*) helped lead to democracy is important (MacDowell 1978, 32), as it over-rode the basis for aristocratic stranglehold on power through control of the legal magistracies. Arguably though, this could only have been of practical use for much of the century to those with sufficient resources and influence to bring a case to the *Heliaia*. I am not aware of any specific evidence for such an appeal before the Kleisthenic reforms. *Ath. Pol.* 16.5 claimed that Peisistratos organised *Dikastai* (Judges) and “went on circuit in person, inspecting and settling disputes, in order that men might not neglect their agriculture by coming into the *astu*”, so perhaps this contains an oblique reference to the practice.¹⁵
- d. *Ath. Pol.* (21.3) claimed there was a Solonian Council (*Boulē*) of 400 created out of representatives from the four tribes, in addition to the *Boulē* of the Areopagos. Rhodes (1981, 153-4) defended its authenticity. He followed Plutarch (*Sol.* 19.2)

¹³ The reason is uncertain – perhaps it was because they were recruited from lower class supporters, though the idea they were emulating Herakles seems extreme (Rhodes 1981, 201). They sound more like thugs, but perhaps the heavily-armed elite believed (wrongly as it transpired) such men could never be a real threat to them.

¹⁴ Or more properly the *Eliaia* as this is how the word was spelt on inscriptions, cf. Meiggs and Lewis 52, l.75.

¹⁵ It was however directly linked to Peisistratos’ interest in encouraging farming, keeping people out of the city, and levying a tithe – *Ath. Pol.* 16.3-4 (διὸ καὶ...)

in attributing to it probouleutic duties though there is no evidence for this.¹⁶ Rhodes found attractive the suggestion that Plutarch's metaphor (*ibid*) comparing the two *Boulai* to ship's anchors derived from a lost poem of Solon, and noted the epigraphical evidence for two Councils in Khios before ca. 550 (cf. Meiggs & Lewis 8). Hignett (1952, 92-6) argued that this *Boulē* was first mentioned in the oligarchic constitution of 411 and was a fabrication designed to give an antecedent to their own Council of 400. Another Council of 401 members was inserted into the anachronistic *Ath. Pol.* 4. He suggested the metaphor belonged to Plutarch himself who would have said if he was quoting from a Solonian poem, and that the Chian evidence is of dubious value.¹⁷ He asked what function Solon could have envisaged for this Council, and noted it played no recorded role in the debate about Peisistratos' bodyguard (see above). I note that Plutarch actually suggested the Council of 400 was created after the *seisakhtheia* in response to further unrest by the *dēmos* which is a detail not included by Aristotle, and implies he was giving power to the people. As Plutarch was forced to rely upon deduction for his opinion about the establishment of the Council of the Areopagos itself, I suspect this was anachronistic. More tellingly, Aristotle (*Ath. Pol.* 9.1) did not include the creation of this Council in his list of the most radical features of the 'Solonian constitution' which is an extraordinary omission (Anderson 2003, 59-60). Support for the Council comes from scholars who believe Solon intentionally gave the *dēmos* an active role in government (cf. Wallace 1998, 20). Given the lack of evidence, it seems more likely that the Council of 400 was a later invention and there was just one *Boulē* of the Areopagos.

Arguably, at the overthrow of the tyranny, the legal position had not improved for the general population since before the tyranny. In fact, given that legal jurisdiction had been

¹⁶ There is no doubt Plutarch believed Solon created two Councils – cf. Plutarch *Publicola* 25.2 – Publicola “did not create a second Council as Solon did”.

¹⁷ The stele was dated to 570 – 550 by Jeffery 1956 on epigraphical grounds with the lower date based on the absence of later examples with similar letter forms, and is thus an argument made *ex silentio*. The Chian alphabet has been updated by John Boardman in his study of Chian pottery, cf. references in Kroll 2008, 19, n.25. The mention of staters for payment of fines concerned her, and she suggested (p. 160) that perhaps it referred to bullion. It should be noted that the existence of two Councils is only an implication of the restored text (p. 166).

exercised by the tyrant's judges who presumably lacked coercive power when he was gone, there may well have been something of an official legal vacuum. The obvious candidates to fill this void were the old elite. They had continued to exercise local power through their prestige which was institutionalised by religious authority ('cult-power' as Davies 1981, 105 neatly put it), and wealth from property (property-power - Davies 1981, 130 and *passim*). However, I argue that they were not the only players. There was opposition to Isagoras which cannot be accounted for solely among the landed elite (cf. Part 4.2). This came from a much wider group among the *dēmos* with non-land generated income agitating not for admittance to the elite club (though some may have aspired to this), but for *isonomia* (the principle of political equality – Ostwald 1969, 97) and civic rights. *Isonomia* may well have been adopted at Athens by aristocrats as a slogan against the tyrants,¹⁸ (cf. the skolia celebrating the tyrannicides Harmodios and Aristogeiton – Ath. 15.694c – 695f), but the very composition of the word gives little doubt that it encompassed a desire for equality (*isos*) before the law, rather than the whim of a magistrate or elite leader. Herodotos contrasted it to the violence and arbitrariness of the monarch (3.80.3-5), saying that *isonomia*, "the rule of the majority", had "the most beautiful and powerful name of all" (3.80.4), and explicitly equated it with democracy (6.43.3). If I am correct and there was a significant group of non-elite men agitating for political and legal rights, then I need to demonstrate who they were and the natures of their income. To do this, I need to examine economic developments during the second half of the sixth century.

4.1.2 The economic situation

Hopkins (1983, ix) acutely remarked in his introduction to an edited volume on ancient trade that "[t]he ancient economy is an academic battleground". One problem is that while economic history is cross-disciplinary, few classical historians have formal training in economics, and even fewer economists have training in classics. However, the ancient data are seldom sufficient to permit the use of the sophisticated and often abstract mathematical modelling which forms the basis of so much economic theorising, and the models are rarely

¹⁸ Herodotos used the word in several non-Athenian situations (1) 3.142-3 - the odd (apocryphal?) attempt of Maiandrios to give up the tyranny of Samos in 522; (2) 3.83.1 - the debate of the Persian nobles about the best form of government ca. 521; (3) 5.37.2 – the claim by Aristagoras of Miletos to give up his tyranny in 499. A further example in a fragment of Alkmaion preserved by Aëtios containing a medical metaphor should probably be dated to ca. 450 rather than 500 (cf. Ostwald 1969, 97-99 and 177-8).

able to be applied to pre-modern societies without misleading assumptions potentially leading to a forced outcome. Gains are possible at the level of broadly understanding the economic factors which affected historical developments. This is a discussion in which historians can validly engage provided they have a good general knowledge of economic theory, and do not allow preconceptions from ancient sources or ideology to cloud their judgement (cf. Silver 2004, 82). I start this section with a brief review of how the 'battle' has raged, concentrating on Greek history.

The most intense and long-standing fighting has been between advocates of the so-called 'modernist' and 'primitivist' positions. The former goes back at least to Grote (1869) who proposed a neoclassical view of industry, commerce and banking, and saw analogies between the ancient and the (then) modern world. This was further refined by Meyer (1924) who sought to make direct comparisons between Greece in the seventh and sixth centuries and early modern Europe, (similarly Rostovtzeff 1926 for Rome). Against this view, scholars such as Meyer's great opponent Bücher (cf. Finley 1979), and especially Hasebroek (1932; cf. Cartledge 1983) argued that the ancient state was purely a political entity, and its sole economic concerns were supplying necessities and obtaining revenue through tolls and duties. Later scholars refined this understanding by showing that the economy was not theoretically conceptualised, and that distribution and exchange of commodities took different forms from the modern world. In particular, in the 1950s Polanyi (cf. 1968 collected essays) took a 'substantivist' position, arguing that the Greek economy was 'embedded' within a framework of institutions and networks, as opposed to the 'formalist' view in which universal principles of economic rationality are applicable to ancient economics. The publication of Finley's deceptively small 1973 work entitled *The Ancient Economy* decisively turned the argument in favour of the 'primitivists' and has virtually monopolised the terms of the debate until recently. The five articles which appeared in the Hopkins *et al* trade volume (quoted at the beginning of this section) were all written from the primitivist perspective, and by 1995 Meikle could write (pp. 234-5) that modernism had suffered "repeated and apparently fatal blows", and anyone who dared put a contrary position was "insensitive to criticism based on contrary evidence", a rebuke directed especially at Cohen (1992) and his discussion of fourth-century Athenian banking practices (cf. similar criticism in Morris 1994). The last decade has seen a major change with many scholars recognising that Finley's views were based on a very narrow reading of mainly literary sources, and

substantially ignored or dismissed evidence from archaeology, inscriptions, papyrology and numismatics (cf. Bresson 2000; Harris 2001). In addition, professional economists entering the debate have tended to be critical of the primitivist position (cf. Silver 2004; Amemiya 2005; Moreno 2007,5), and there have been efforts to describe new models based on general propositions tested against specific evidence (Morris and Manning 2005, 38). However, this has made little discernible impact on the study of the economy of sixth-century Athens which is still deemed by most scholars to be primitivist and embedded, though Osborne (1996a) and Foxhall (1998) pointed to market-oriented production and exchange, and van Wees (2009) recently argued that the economic position was “far more complex than the usual picture suggests” (p.444).¹⁹

It might help if I state clearly at the outset that I am **not** trying to claim that Athens ca. 500 had a market economy in the modern sense in which the market was the system which drove and auto-regulated the entire economy, or that there was an integrated labour market. I fully recognise that a majority of Athenians worked in or were connected with agriculture, and Athens, like other contemporary Greek communities aimed for *autarchy* (self-sufficiency) in terms of food production as far as possible,²⁰ and land ownership was the key determinant of social status. That said, the primitivists’ position relies almost entirely upon negative criticism of their opponents’ views. They claim it is a mistake to apply any modern economic concepts to the ancient world because it lacked a “system of exchange value or market economy”, and relied exclusively on “use value” (Meikle 2002, 234).²¹ According to this view, goods were purchased for use by and for the buyer and this

¹⁹ Even Cohen (cf. 1993, 198) only conceived of a market economy functioning in Athens in the fourth century.

²⁰ I do not intend to enter into the debate about the possible importation of grain by Athens in the sixth century as there simply is no good evidence for it (cf. Bissa 2009, 155-9 for a general discussion of grain trade in the archaic period). Osborne 1987 and Garnsey 1988 and 1992 argued for, and Moreno 2007 argued against self-sufficiency, but their figures are rubbery and relate to the Classical Period. The ‘Solonian law’ against exporting agricultural goods reported in Plut. *Sol.* 24.1 discussed in Part 3.2 (even if genuine) is insufficient to build a case. Certainly grain had long been a semi-luxury import (Foxhall 1998), and in the Classical period was imported in huge quantities (cf. for example Dem. 20.32), so we might expect some importation was required in times of bad harvests as later happened, cf. Part 3.2 Annexure, but that was because it was a central concern of government. It is more likely that people who could not afford inflated prices went hungry.

²¹ Meikle drew on Finley 1985, but see the comments of Saller 2002 demonstrating that Finley’s position has been misrepresented to a certain extent in polemical discussion of his work. I agree with him that the modernist versus primitivist debate has run its course, and contend that the dichotomy is actually unhelpful. Irrespective of whether my arguments are correct for the late-sixth and early-fifth centuries, Meikle’s argument is hard to sustain against the known operation of the *sitopolai* (grain dealers), cf. Lys. 22, and bottomry loans (discussed below) cf. Xen. *Poroi* 3.19, and the leasing out of slaves for a return, cf. Xen. *Poroi* 3.14.

established their price ('use value'), and not by buyers purchasing goods wholesale for resale to others ('exchange value'). Support for this position comes from the lack in Greek (and Latin) of words for "labour, production, capital, investment, income, circulation, demand, entrepreneur, utility" in any abstract economic sense (Finley 1985, 21). It has been argued that money was used for transactional purposes and not for investment. This implies that there were no capital markets, and 'economic activity' should not be confused with a 'market economy'.

I contend the primitivists' criticisms are based upon four false premises. Firstly, the argument about what the 'ancients' understood about economics is mostly derived from Aristotle's writings which, though insightful in very many respects, were inextricably linked to his endeavour to understand morals and politics, not business.²² Secondly, the other ancient accounts that bear on economic matters (either directly or indirectly) were written by elite writers who were mostly suspicious of and antipathetic towards people who made money through commerce (as I shall demonstrate later). I contend that their accounts reflect a struggle between elite and commercial modes in which the elite writers disparaged their opponents in the same way as litigants did in the lawcourts.²³ Our opinion is unbalanced because we have only one side of the story, but if we allow for the polarity, the writings do contain useful evidence of economic practice. Thirdly, it is not necessary to have a degree in economics or live in a modern economy to understand and react to market forces. Success in business is largely experiential, and in my opinion, this is misunderstood by many academics.²⁴ Economic theory is indeed a modern phenomenon, but the lack of the appropriate jargon is not *a priori* evidence that economic fundamentals were ever different or failed to affect behaviour in predictable ways. We simply need to observe the actions of

²² Cf. especially Aristotle *Politics* Chapter 1 *passim* where the concepts were first articulated, and *Ethika Nikomacheia* Chapter 5 *passim*. Simply put, use-value for Aristotle depended upon the utility of a commodity to the good of an individual – it was thus the qualitative aspect of value and varied subjectively, whereas exchange-value was a quantitative reflection of scarcity and demand. The problems are exacerbated because Aristotle's work was picked up by Marx with his value-laden interpretations.

²³ There was a long pedigree to this culture of insulting opponents. Consider the invective hurled at one another by Homeric heroes, cf. Aeneas in *Il.* 20.200-202 – "Son of Peleus, do not expect to frighten me with words, as if I were a child, since I know well myself how to utter both taunts and proper words". Perhaps Meikle is heir to this tradition.

²⁴ A favourite (apocryphal?) story in management classes is of the illiterate immigrant man who ran a highly successful street-side stall for many years based on close personal contacts with suppliers and customers, until his son got a degree in economics, and persuaded him he needed to take out a loan to expand his business, employ staff, advertise, and implement proper accounting systems. Upon doing so, he went bankrupt.

participants in any given economy to form a view without a generalising label.²⁵ Fourthly, the discussion is usually framed in terms of ‘the ancient economy’ as if it were one entity, and with major foci on evidence from the Roman Empire and to a lesser extent fourth-century Athens, when it is actually “vastly more complex” (Morris and Manning 2005, 5 quoting John Davies). I contend that Athens at the end of the sixth century and during the fifth century was unusual in the ancient world in experiencing the rapid development of an embryonic market-oriented economy, and this path was diverted by her loss of *Arkhē*.²⁶ In many crucial ways the culture at Athens and the geopolitical climate was different after 400, and understood differently by contemporaries, so we should not extrapolate back without extreme caution. Curiously, while scholars have long understood that fourth-century writers and orators often had an anachronistic understanding of political developments and lawmaking from one or more centuries earlier, they have frequently failed to recognise that the same holds true for economic matters.²⁷ The later writers and orators could not recognise non-elite participants who had left no records of their activities (cf. the discussion of sources in Part 2.5), and probably would not have wanted to do so anyway given their antipathy towards people working at *banausikas tekhnas* (menial trades, cf. Xen. *Oec.* 4.3; Arist. *Pol.* 1278a, 25-6).

Athens did face enormous handicaps in developing a market economy. These included the difficulty of integrating markets with either commercially unsophisticated and potentially unreliable trading partners (such as Thracian tribesmen), or openly hostile rivals (Aiginetan traders); the large cost and risk of transport (especially from storm and piracy); the difficulty of storing goods safely and securely in foreign ports, or long-term (due to perishability); imperfect and slow access to market intelligence;²⁸ and the general lack of enforceable

²⁵ The point was made by Silver 2004, 81 – “The fact that the ancients did not formulate a body of abstract economic principles does not mean, that if only by means of trial and error and imitation, they did not conform to economic law...Economic actors who simply ignore or misunderstand changes in costs, returns, tastes, and the like, are less likely to flourish and leave their mark on the economy than those actors who, however imperfectly, heed trends in economic variables”. An excellent paper describing economic rationalism in fourth-century Athens is Christesen 2003.

²⁶ The discussion is also peculiarly centred on Greece and Rome. Arguably, the Phoenician states and Carthage do not fit the primitivist model either.

²⁷ Cohen 2008 made the same observation about some modern writers. He also convincingly refuted the proposition of Finley 1973, 198 that Athens had an absence of credit. Cf. also his debunking of Pringsheim 1950 on the alleged requirement for simultaneous settlement of price and delivery of goods.

²⁸ Who wanted to buy and sell what, and for how much. We should not assume that such information was poor just because it was slow relative to modern times. Consider Ischomachos’ comments in Xen. *Ec.* 20.27-8:

international law.²⁹ Athens' development of her *Arkhē* in the fifth century went a long way towards solving many of these problems,³⁰ but it is easy to overlook that well before this, the habit of urban living in towns and villages all across Attica (despite the high level of involvement in agriculture) predisposed the development of markets and specialisation (shop-keepers, traders, and craftsmen). The introduction of coinage must have made such activities enormously simpler because it provided a single denominator for exchange, and allowed for a high volume of tiny transactions.³¹ I contend it is no accident that coinage denominations were mostly small – they were intended for local commerce. There would have been no point in the authorities minting money, for instance to pay building contractors or soldiers, if the recipients could not spend it freely. Coinage was legal tender (*dokimon*) only where the government writ ran, and before the days of empire, that meant Attica.

I argue that Athens did initially develop an embryonic *laissez-faire* (free-market) economy in which prices for certain goods and commodities were determined by the laws of supply and demand and with little government intervention.³² If this is correct, what might we expect to see? Friedman (1980, 11) explicitly linked economic freedom to personal and political freedom. It is very tempting to consider whether democracy would have been possible without the economic freedom which came with (and I will argue partly motivated) the Kleisthenic reform agenda. But leaving such speculation aside, according to standard

“merchants sail wherever they hear [grain] is plentiful...[Having bought a supply] they do not dispose of it in just any random place, but they go wherever they hear that grain is particularly valued and people prize it most highly and hand it over to those men”.

²⁹ However, business has always relied upon personal relationship based on mutual self interest. If you have to litigate, you will not have ongoing dealings.

³⁰ As well described by Pseudo-Xenophon, (= the ‘Old Oligarch’), *Constitution of the Athenians*, 2.11-13. He argued that all *poleis* relied on trade for the key resources of timber, iron, copper and flax as none had all of them natively, but control of the seas enabled Athens to exploit them and to deny this opportunity to rivals.

³¹ A problem of barter is the requirement to find equivalent value goods in exchange. A farmer selling a major item like an animal might have to accept less than full value in the absence of a willing buyer, or be prepared to accept goods which again had to be on-traded. A further problem is finding goods to exchange which were non-perishable and relatively portable, hence the attractiveness of coinage. Perishable goods have a diminishing value over time, and their value fluctuates according to supply and demand.

³² Initially, the state was set up in this fashion. An example is the proposal by Themistokles that the new fleet of triremes be built by lending the money to rich people and making them responsible for the outcome (*Ath. Pol.* 22.7). The system of leasing mining and other rights worked entirely on a *laissez-faire* basis. I dispute the attribution to Solon of the law forbidding the export of produce except olive oil (Plut. *Sol.* 24.1), and suggest that such a law, if it ever actually existed, belonged to the fifth century (cf. Part 3.2). I believe it is a mistake to retroject state interventionary practices of the fourth century (cf. market regulations such as the law on silver coinage of 375/4 and the grain tax law of 374/3).

economic theory, a *laissez-faire* economy should result in efficient but ruthless exploitation of resources marked by an increase in *per capita* income associated with economic growth. Is this discernable?

There are five generally accepted causes (and indicators) of growth in an economy (Saller 2002, 261). I will look at each of them and assess their applicability:

- a) Trade – undoubtedly this was expanding enormously. In Part 3.2 (cf. 2.1), I discussed the virtually exponential growth of pottery export during the sixth century. It is important to note the degree of specialisation and market segmentation in this industry which Osborne (1996b, 32) usefully described as the “systematic targeting of precise foreign markets by particular exporters”. This relied upon sophisticated market intelligence, distribution networks and contracts, rather than itinerant traders going from port to port (Dietler 2010, 10). It also attests to a quantitative valuing of product as the pots were not all sold directly to their end users, but through middle men, thus invalidating Meikle’s key criticism. Another good example of the existence of substantial bilateral and multilateral trade comes from the mining industry (discussed separately below).
- b) Capital investment – this requires money to be used for purchase of fixed assets such as land, buildings, plant and machinery with an expectation of income through generated earnings. The prime example is the mining industry with its vast investment which rationalised production and distribution (cf. discussion below). Closely allied to capital investment is the development of lending practice. This is first attested in Lysias 10.8 referring to some time before coinage in which silver was “to be weighed out for as much [interest] as the lender may choose” (cf. Kroll 1998, 228-9; and discussion in Part 3.2 – 6.1.j). The development of bottomry loans with their substantial risk and return is another indication of lending practice.³³

³³ There is limited hard evidence for the inception of bottomry loans dated to the late fifth century. Eupolis *Marikas* (PCF F192.96-8 = *P. Oxy.* 2741) dated to 421 and Lys. 32.6 referring to events prior to 409 both suggest it was a well established practice. De Ste Croix 1974, 44 and n.13 argued that bottomry loans were introduced ca. 475 in response to funding the growing grain trade. I can see no reason why they would not have been much earlier in response to funding the import requirements of the mining industry – see later discussion. The profit of a bottomry loan given in Lys. 32.25 (written in 400) was 100% though that would reflect wartime risk. I am inclined to consider the aside in Xenophon *Poroi* 3.9 that the profit on bottomry loans was 20% (actually 18.25% if one does the mathematics) as being a rhetorical minimisation (though he was writing some fifty years later) because the calculations for his proposed scheme (3.8-10) against which it was being disingenuously compared are commercial nonsense (suggesting that smaller investors would receive five times the profit of

Arguably, the adoption of coinage facilitated borrowing and investment generally because it was fungible.³⁴ The ‘New Model’ of Classical agriculture also argues for a transformation of agricultural practice ca. 500 with building of dispersed residences, terracing, bringing marginal land into cultivation, and more frequent crop rotation generating “higher yields and greater overall prosperity, but also higher labour inputs and greater risk” (Morris 1994, 364 with references).

- c) Improved technology – a key area of change in the Mediterranean states in the sixth century was in naval technology.³⁵ This included the development of the *samaina*, a larger form of the traditional pentekontor with a wide beam presumably for bigger cargoes attributed to Polykrates of Samos (Plut. *Perikles* 26.3-4), sail-powered merchant ships (cf. Humphreys 1978, 166-9 for literary and iconographic evidence), and the trireme by ca. 525 (Davison 1947; Wallinga 1993, 103-4). The trireme was adopted at Athens by the early fifth century and possibly before.³⁶ Most importantly, technology was responsible for making the mining industry viable at Laurion late in the sixth century. The invention of the beneficiation workshops (*ergasteria*) which enriched ore and thus reduced smelting costs enabled the profitable processing of low grade ore (Kakavoyannis 2001). It is not generally recognised that very little of the ore at Laurion was rich enough to

larger ones), or he may have been reflecting the real return if ships or cargoes were lost (see my later calculations). Cf. Davies 1981, 60-62 for a list of Athenian citizens, metics and foreigners known to have engaged in bottomry loans, and Reed 2003, 38-41 for a fuller discussion of the evidence.

³⁴ The vital difference between coinage and other valuable items being used as a standard of exchange is that all coins of the same weight and standard issued by the same authority are interchangeable. Cf. Davis 2011b.

³⁵ Gabrielsen 2001, 78 noted the “pronounced economic function which was intimately tied” to the strategic significance of naval ships. Their need to “satisfy an ever-present demand for manpower, provisions, and naval materials – not least shipbuilding timber – turned them into arterial systems of recruitment, logistical support and fleet maintenance”. I would add that many of the same requirements held true for commercial shipping.

³⁶ Thuc. 1.14.3 states that prior to Xerxes’ invasion, Αἰγινῆται γὰρ καὶ Ἀθηναῖοι, καὶ οἱτινες ἄλλοι, βραχέα ἐκέκτηντο καὶ τούτων τὰ πολλὰ πεντηκοντέρους – translated Strassler 1996 as “Aegina, Athens and others may have possessed a few vessels, but they were principally fifty-oars”. This does not explicitly rule out triremes. The passage later states that even the ships built at the instigation of Themistokles “were still without decks”, implying on-going development of naval technology (and the use of the words ‘may have’ in the translation is unwarranted). Thucydides could have been ill-informed as we know there were significant merchant fleets operating in the late-sixth century (Cartledge 1983). We cannot rule out Athens possessing one or more triremes before Themistokles’ proposal to use the silver from Maroneia to build a fleet of them, as competence to construct and sail them cannot have developed overnight. Hdt. 5.85.1 explicitly stated that the Athenians despatched a single trireme to Aegina in 505 (?), but had many ships (Hdt. 5.86.1). At Hdt. 5.99.1 he stated that in 499 “[t]he Athenians came to Miletos with their twenty ships (*eikosi nēusi*) and brought along with them five triremes (*pente triēreas*) of the Eretrians”. Did this mean the Athenian ships were triremes?

economically smelt directly. Without the *ergasteria*, “none of the deposits poor in argentiferous lead were utilizable in practice” (Kakavoyannis 2001, 365). Advances in farming around this time have already been mentioned.

- d) Human capital investment – this period is associated with the spread of literature and education across all levels of society and parts of Attica, both urban and country (cf. generally Missiou 2011, 27-35 with references). The trend gathered pace towards the end of the sixth century and into the fifth. Traders and craftsmen acquired a degree of literacy relatively earlier than the general population as evidenced by graffiti and *dipinti* presumably because it was helpful in commerce. Langdon (2005) even found an abecedarium and associated writings apparently dating before 500 carved by shepherds whiling away their time in the hills of Vari. The use of *ostraka* for ostracisms (probably 502)³⁷, and the growing use of public inscriptions implies contemporary belief that sufficient citizens could at least write a name and read a little. Writing made possible efficient communication within the physically spread-out *polis* where face-to-face communication was of limited use, and this was important for the new democracy following the Kleisthenic tribal organisation. A good example is the military rosters which were written up and displayed on notice boards (*Ath. Pol.* 57.3; *Ar. Peace* 1183-4).³⁸
- e) Institutional framework – the whole institutional framework of the state was altered at the end of the sixth century to bring in equality before the law (see discussion of *isonomia* above), and shared participation in government, law, and decision making, as well as the construction of public buildings in the new Agora and the demes.

While it is difficult to numerically quantify the effect of the above-mentioned factors owing to an absence of data, it would be obtuse to argue that they do not indicate a marked increase in *per capita* income at the end of the sixth century, and that this trend continued under the *Arkhe*.

³⁷ This is contested given the discrepancy between *Ath. Pol.* 22.1 and Androtion *FGrH* 324 F6 *ap. Harp. Hipparkhos*. The general consensus now is that ostracism was brought in as part of the reforms, even though the first ostracism was in 488/7 given the support for Aristotle in Philokhoros *FGrH* 328 F30, and the uncertainty about the accurate transmission of the Androtion text as quoted by Harpokration— see the comprehensive summary in Phillips 1982.

³⁸ Missiou 2011, 26ff and *passim* goes further, suggesting that the whole system of tribal reorganisation and deme communication required literacy.

Another sign of a developing market economy is the availability of credit. This is a vexed issue because of the lack of evidence. Millett (1983, 39-47) clearly demonstrated the pervasiveness of lending and credit in the fourth century. However, he concluded that “traders depended on maritime credit because of their poverty” (p.47). This is a misunderstanding of how finance works. An analogy is with property development. Developers usually borrow close to 100% of the cost of a project. This is not because they are impoverished. Quite the opposite; it is to leverage money, enabling them to undertake larger (or more) projects than would otherwise be possible, and to spread the risk. The same is true for lenders. Take for instance the loan in Lysias 32.25. The expected return was 100%, but that was related to the risk that the ship would be sunk.³⁹ A prudent lender would spread their investment over say five such loans. If only three in five ships returned safely, they would get back their capital plus 20%. If four returned, they would make 60%, and if all five returned, 100%. Arguably, this was why syndicated investments were so popular in a range of activities including trading, mining, banking and tax collecting (Christesen 2003).⁴⁰ The fact that making money out of lending could be used to denigrate an opponent in a lawcourt (cf. Dem. 45.69), especially in comparison to socially acceptable *eranos* loans, does not mean the practice was not widespread among the wealthy elite. In fact, it is likely Demosthenes himself lent money on maritime loans (Hyperides *Against Demosthenes* F4, coll. 17), and certainly his father did (Dem. 27). It is impossible to know when this practice started routinely, but we are told that Solon personally engaged in trading voyages (Plut. *Sol.* 2.1), and this apparently did not hold him back either socially or politically, any more than it did for Odysseus and Hesiod. It was Plutarch who felt the need to explain away the

³⁹ The risk was clearly higher in wartime but should not be overdramatised as much of our evidence comes from court cases where something bad had happened (such as Dem. 32). Reed 2003, 13 quoted the evidence of Katzev 1972 (*non iudem*) that “the fourth-century Kyrenia merchant vessel that he uncovered in 1968/9 was at least eighty years old when it sank”.

⁴⁰ Most of the evidence is later. As an aside, I suspect this was what was happening with fourth century and later public building contracts. Local parties are known to have provided a guarantee, but surely this was not as a *de facto* liturgy. It was because they were the financial investors looking for a profit. As such, they were actually the ones responsible for performance, not the itinerant builders. The locals would have acted like modern day developers, and organised the contracts, finance, labour and materials which they could readily do since they lived in the *polis* and knew how the place worked. Unlike the formally inscribed contract(s) with the state setting out the details of construction, the agreements between the parties would have been private and destroyed at the end of the agreement. Syndication would have shared the risk, with one person being up-front in each case. An analogy from tax farming is found in Andokides 1 (*On the mysteries*) 133 where Agurrihios was the chief contractor for “those men who met under the white poplar”. The prominence of known bankers in such arrangements should be noted.

perceived social stigma – “he belonged to a family which always helped others” (equals made *eranos* loans); “he travelled to get experience and learning rather than to make money”.⁴¹ Arguably the stigma of making money in this fashion, and especially of being dependent upon it, was a later elite topos. We should not assume it was the same in Athens in the sixth century, though owning property was always socially important among the elite and a vital source of power. More importantly, money must have been invested by some members of the elite in financing commercial and mining activities in the latter part of the sixth century, even though we do not possess the actual evidence, or such activities could not have massively increased as they did.

4.1.3 The importance of silver mining

I now wish to consider in more detail one factor which I believe was of crucial importance in the transformation of Athens at the end of the sixth century, namely mining.

According to Herodotos 1.64.1, Peisistratos exploited the silver mines in Thrace in “the region of the river Strymon” and Attica. Despite the misgivings of Lavelle (1992; cf. Part 3.2, n.10), there is no good reason to doubt this occurred at least to some extent, and we can be fairly certain that coinage was introduced during Peistratos’ tyranny (cf. Part 3.2 and 3.3). However, as mentioned in Part 3.2, chemical and lead-isotopic analysis have so far only indicated that at least some of the early coinage was probably struck from non-Laurion silver.⁴² This does not necessarily mean that the sole source was Thrace, as insufficient testing has been done to create a reliable diagnostic guide.⁴³ In Table 1 I summarise the

⁴¹ Sightseeing was the reason given by Herodotos 1.29-30 for Solon’s travels. This is often uncritically accepted by modern commentators, for instance Reed 2003, 69-70 – “Solon probably [traded] to finance a sightseeing trip”.

⁴² The two available methods are (1) chemical analysis of one form or another which provides the actual composition of the coin, and (2) lead isotopic analysis (LIA). The first method is usually destructive and therefore rarely able to be performed, hence my high hopes for non-destructive analysis using XRF and allowing a correction for alterations to the surface composition over time. It will rely on large numbers of samples to identify the diagnostic markers of particular ore sources. The second method is also destructive but more reliable as lead isotopes do not alter during the manufacturing process, and large numbers of actual ores have been sampled for reference. However, some ore sources have a similar composition, and when several metals are mixed, it is impossible to tell their origin. (Because lead isotope ratios exhibit co-linearity, if two sources were mixed, the sample would plot between the original data points depending upon the percentage of lead from each). A further drawback of the second method is that it is testing lead which may have been added for the cupellation process, not the silver.

⁴³ See Part 6.2.

published data for *Wappenmünzen* and ‘early owls’.⁴⁴ It is clear that there are a number of significant problems including (1) the use of different analytical methods and renormalisation meaning that results cannot be compared;⁴⁵ (2) not capturing the right sort of information;⁴⁶ and (3) the number of samples being too few to be statistically meaningful. Very little should be read into the limited results except that the lead isotope ‘fingerprint’ of the Laurion field has been reasonably securely identified and shown to be fairly homogenous, thus non-Laurion or mixed silver can be differentiated from Laurion silver using LIA.⁴⁷ Unfortunately LIA is destructive, and therefore it is neither practical nor desirable to use it on many coins.⁴⁸

Table 1 – Testing of *Wappenmünzen* (WM) and ‘early owls’ (Owls)

NAME	DATE	TYPE	NUMBER	METHOD	ELEMENTS REPORTED
Kraay, Emeleus	1962	WM Owls	13 23	NAA	Cu, Au
Conophagos, Badécas, Tsāimou	1976	WM Owls	4 2	XRF	Cu, Ag, Pb
Cowell (Cited in Gale <i>et al</i> 1980)	1980	WM	7	XRF	Cu, Ag, Au, Pb
Gale, Gentner, Wagner	1980	Owls	11	XRF LIA	Cu, Ag, Au, Pb, Na, Mn, Co, Ni, As, Sn, Sb, Ir, Bi Pb isotopes
Pászthory and Hurter. Pászthory	1981 1982	WM Owls	11 35	XRF	Fe, Ni, Cu, Zn, Au, Pb, Bi,
Nicolet-Pierre, Barrandon, Calvez	1985	WM Owls WM Owls	43 28 7 1	PAA LIA	Cu, Au, Pb, As, Sn Pb isotopes

⁴⁴ From an unpublished presentation I made at the International Numismatic Congress Conference in Glasgow in September 2009. ‘Early owls’ means unwreathed owls minted before the Persian wars. I do not include metallurgical studies of later ‘owls’.

⁴⁵ Renormalisation takes the sum of only the elements reported to 100%.

⁴⁶ For instance, gold is a vital diagnostic element but it was not tested by Conophagos *et al*.

⁴⁷ Stos-Gale 1998, 353 – “the isotopic compositions of lead-silver ores from Lavrion...seem to be quite unique”, though not everyone agrees. Budd *et al* 1996, 4: “The source fields that seem more precisely defined are achieved by rejecting ‘outlying’ samples collected from an ore body but somehow not thought to be representative of its lead isotope field”. My reading of the published data in Stos-Gale *et al* 1996 tends to suggest that there is more overlap of fields than the researchers have acknowledged, especially of minor silver sources in the Greek islands such as Kea and Seriphos with Laurion. We do not know how much silver was mined from such sources, and they were ignored by extant historical writers.

⁴⁸ The coins are rare and valuable. Owners are understandably reluctant to have holes drilled in them – even little ones.

METHODS OF ANALYSIS

NAA Neutron activation analysis
XRF X-ray fluorescence

LIA Lead isotope analysis
PAA Proton activation analysis

ELEMENTS REPORTED

Cu	Copper	Ag	Silver	Au	Gold	Pb	Lead
Na	Sodium	Mn	Manganese	Co	Cobalt	Ni	Nickel
As	Arsenic	Sn	Tin	Sb	Antimony	Ir	Iridium
Bi	Bismuth						

There were many alternative sources to Thracian silver. Siphnos is a commonly touted possibility (Hdt. 3.57.2) though it is generally considered that the island's supply was monopolised by Aeginetan traders, as Aegina did not have a native source of silver.⁴⁹ I suspect its supply was far more limited than a cursory reading of Herodotus would suggest given the Siphnians themselves produced insignificant coinage.⁵⁰ In any event, the mines had virtually played out some time around the end of the sixth century (Paus. 11.2 is not precise). Other sources exploited in the Mediterranean, Anatolia, and the Near and Middle East in ancient times were the Chalkidiki, southwest Spain, Sardinia, Iran, Afghanistan, Turkey, and Saudi Arabia (Stos-Gale 2001, 54). Sometimes it has been tentatively possible to identify a discrete source,⁵¹ but the influential 'Gale hypothesis' (Gale, Gentner and Wagner

⁴⁹ Figueira 1981, 144 ff suggested that the Aeginetans were middlemen in the silver trade and would have traded silver from all major sources including Siphnos. For traditional Siphnian links with Aigina, cf. Isok. 19.

⁵⁰ Siphnos is prominent in discussions as being a major source of archaic silver due to the story in Herodotos 3.57-8. But even in his anecdote, the accumulated sum of Siphnian wealth at the end of productive mining ca. 524 was only the 100 talents extorted by the Samians (presumably they would have got more if they could), plus the construction of the treasury at Delphi, and the facing of their Agora and Prytaneion with Parian marble. The fact that her mint produced "insignificant" coinage in the archaic period as both Price 1980, 51 and more recently Stos-Gale 2001, 60 noted, is probably reflective of this, contra Sheedy 2006, 56-7 who contended that coinage was only used in very specific contexts, his example being the distribution of profits to citizens. This seems futile if they were not using coinage more generally. An alternative is that minting in the islands, especially for Aegina against which Sheedy dated the other coinages, should be downdated. Sheedy 2006, 6-10 dated his Phase 1a of the Aeginetan coinage to ca.555-550 based on working back from the Apadama foundation deposit at Persepolis (now reasonably convincingly dated to 515-510) which contained a Phase 2b silver stater. Nicolet-Pierre 2002, 137 argued that there is no conclusive evidence of Aeginetan coinage before the last quarter of the sixth century, and sought to compress the earlier issues into a shorter time span making it roughly contemporary with, or even later than the introduction of coinage at Athens. If Nicolet-Pierre is correct, then a plausible reason the Siphnians minted few coins is that by the time they started (after the Samian raid), their mines were almost depleted, and therefore their silver could not have been used extensively in other coinages of the time.

⁵¹ For example, Stos-Gale 2001, 67 claimed to be able to match two Chian coins ca. 525 with Spanish silver, though in an early article which she co-authored, Sardinian silver was claimed to be the source, and the

1980, 3-49, restated in Stos-Gale 2001, 72-4) went a lot further by claiming that the sources of Greek archaic silver were not mixed, and limited to several definable sources. This seems untenable given silver had been used for millennia. It is inherently more likely that minting followed a period of trade in bullion as proposed by Kroll (2008, 36, n.74).⁵² In that case, it is difficult to conceive how the earliest mintings could **not** have been mixed, as communities would have first used the silver that had accumulated over time.⁵³ However, it is plausible to suggest that later mintings on a larger scale required a single reliable source, and the testing does suggest that Aegean silver was used predominantly for Greek minting (Stos-Gale 2001, 60) as we might expect.⁵⁴ I believe the upshot of all this is that it is only realistic, given the problems with identifying specific sources mentioned above, to try to detect changes in the “pattern of metal procurement and use”, rather than securely assign provenance to every coin (Budd *et al* 1996). That is what I have suggested could be achieved using large scale, non-destructive testing by XRF (cf. Annexure 7.2).⁵⁵

Laurion silver had probably been exploited since the Middle Helladic Period with a *terminus post quem* of ca. 1600 suggested by Gale (1978, 166 and 177).⁵⁶ A more secure attestation comes from the 9th century at Thorikos (Gale *ibid*).⁵⁷ This was likely to be from exploitation of readily accessible deposits of silver at or near the surface (the ‘first contact’) which presumably were well and truly depleted by the sixth century. However, the question arises why, if the existence of this valuable commodity was known along with the technique

considerable overlap of fields using LIA was noted (Hardwick *et al* 1998). LIA rarely provides unambiguous answers, and more depends on probability than is generally appreciated by historians.

⁵² Kroll elaborated in “Minting for export: Athens, Aegina and others” read at the Conference in Athens of the Ecole française d’Athènes on 15 April 2010. See also my comments in Part 3.2, n.163.

⁵³ As I proposed at my unpublished presentation to the International Numismatic Congress Conference in Glasgow in September 2009.

⁵⁴ Even so, the supply of minting could not have been entirely limited to one source. For instance, the ransom paid to the Athenians by the Boeotians and Chalcidians in 506 was substantial. Hdt. 5.77.3 claimed 2 minas (200 drachmas) was paid per captive. There were allegedly 700 Boeotians = 23.3 talents, plus an unknown number of Chalcidians. The story is likely to be true as the Athenians constructed a bronze four-horse chariot from a tithe of the ransom (Hdt. 5.77.4; Raubitschek 1949, 1914 = No. 168).

⁵⁵ For instance, the study by Flament and Marchetti 2004 of fifth century Athenian material was able to differentiate ancient imitations from real owls using the PIXE method. Cf. also Flament 2007b.

⁵⁶ This was based on the find of lead cakes formed by cupellation in a secure context in a house at Velatouri, per J. Servais (1965), ‘Les fouilles sur le haut du Vélaturis’, *Thorikos III*, Brussels, 9-30 (*non iudem*), and the assumption that the cakes were derived locally. This is likely but not certain.

⁵⁷ Based on an excavation report by J. Bingen, ‘L’établissement du IX^e siècle et les nécropoles du secteur ouest 4’, *Thorikos II*, Brussels, 103 (*non iudem*).

of cupellation to extract it, it was not mined more substantially before late in the century. I suspect there were three main reasons:

- a. Economies of scale. Extracting silver from argentiferous lead ores (AgPb), mainly argentiferous galena (PbS), and cerussite (PbCO₃ – commonly called lead carbonate or white lead which forms within the oxidisation zone of galena), was a very difficult and costly business. It was only viable on a large scale, and the investment had to be “paid for before any production” (Rihll 2001, 134). A typical ore had a total lead content of about 20% (Conophagos 1980, 127), and a tonne of lead had approximately 2 kilos per tonne (2%) of silver (Christesen 2003, 40; Rihll 2001).⁵⁸ The ore had to undergo many stages of finding, mining, dressing,⁵⁹ smelting, and cupelling before the purified silver was obtained,⁶⁰ together with some financially worthwhile by-products such as lead, copper, zinc, ochres, pigments and salves (Rihll 2001; Rihll and Tucker 2002). It required substantial resources of skilled and unskilled labour, infrastructure (housing, furnaces, washeries, cisterns), equipment, and imports (such as vast quantities of charcoal, hydraulic cements and plasters for the cisterns, iron for tools, bone and marl ash for cupels, hides for bellows and containers, hemp for ropes and so forth) which had to be organised and purchased. I will discuss the economics of this process shortly, but suffice for now to say that mining at deep levels (the third contact at Camareza was 70-100m below ground – Conophagos 1980, 161) was a major industrial process, not a cottage industry.
- b. Technology. In addition to development of the techniques of beneficiation discussed above, an obvious barrier to entry was technological know-how. Rihll and Tucker

⁵⁸ I note that Athenian silver was not “exceptionally high grade” and it did not come from an “extraordinarily rich vein” (Kroll 2009, 195), though such comments are commonly made by historians. Purity is a function of refining. Rihll and Tucker 2002, 278-9 noted that only when melted silver reaches 98% purity will it spirt, releasing the oxygen it has absorbed in solution, which provided a simple and foolproof sign for ancient refiners. In our testing of archaic silver coinages, most have approximately this purity. Those that do not probably had copper added after being initially purified (cf. Annexure 7.2). It is true that silver mined in ancient times only came from fields with higher mineral concentrations than can be productively mined today, but Laurion silver, despite its reputation, had relatively poor grade ore compared with other ancient mines (Conophagos 1980, 85, n.** [sic]; Picard 2001, 4). There just happened to be a lot of it.

⁵⁹ This involved “preliminary sorting, breaking, re-sorting, grinding, washing, re-sorting, drying and pelleting” (Rihll 2001). Rihll 2001 provided a detailed account of the processes.

⁶⁰ The result was very pure silver, but not efficient extraction. Strabo 9.1.23 (end 1st century BCE-early 1st century CE) noted that after silver mining had ceased at Laurion, there was sufficient silver in the slag to be worth reprocessing, and the reprocessed material was again reprocessed in modern times, starting in 1865 and continued by the Compagnie Française des Mines du Laurium to 1977 (Conophagos 1980, 44-54).

(2002, 277-9) usefully explained how mining and smelting relied upon practical experience, rather than theoretical or scientific understanding of chemistry and metallurgy. However, the processes were complicated, multifactorial, and extremely dangerous.⁶¹ A logical assumption is that when mining and processing commenced at Laurion in the second half of the sixth century, expertise came, or was brought in, from abroad.⁶² There are two strong candidates (and they are not mutually exclusive). Firstly, it is unlikely to be a coincidence that the location of the famously productive silver strike mentioned in *Ath. Pol.* 22.7 was called Maroneia (as noted by Dermatis 2007, 57-8 citing Kakavoyannis 1985, though his suggestion that the site was actually named by Thracian slaves is questionable). Maroneia was a *polis* on the coast of Thrace plausibly associated with mining since Homeric times,⁶³ albeit with only small coinage production of its own in the late-sixth century (May 1965). It was located some distance to the east of the Strymon region where Peisistratos raised revenue pending his final and successful attempt at tyranny (Hdt. 1.64.1; *Ath. Pol.* 15.2). Secondly, I have already mentioned that the Siphnian mines had played out (or at least were nearing the end of their life). Siphnian miners could have seen the potential of Laurion or been recruited to work there.⁶⁴

⁶¹ Dangers included mining cave-ins and lack of ventilation, toxic fumes, and dealing with metals heated to c.810° C. Modern scholarship still has not convincingly solved the problem of how the early ancient mines were ventilated, as air from the surface quickly reaches a point in a shaft past which it cannot be easily forced to travel due to airway resistance unless it can exit another shaft (the early mines do not seem to have used these), and oxygen underground is soon exhausted by breathing and lamps. In 2010, my wife and I were fortunate to accompany the team of Speleo-archaeologists from Ermina under the direction of Denis Morin (Université de Nancy 2) who, among other things, were studying the airflow characteristics of the various types of shafts at Lavrion, and experimenting with possible ancient solutions such as large sails trapping and funnelling air, and the spiral arrangement of the stairs breaking down airway resistance. I thank Denis and his team for their wonderful generosity, Dr Fabienne Marchand (Oxford University) who introduced us and made the arrangements, and the Ecole Française d'Athènes for their permission to accompany *l'équipe*.

⁶² It would be interesting to know where *ergasteria* were first used. I suspect this technology was imported and made possible the extensive mining at Laurion.

⁶³ There is a possible allusion to mining in *Od.* 9.196-211. It was a Thracian town settled by the Greeks in the middle of the sixth century by the Chians according to Ps-Scymnus 676ff (Müller, *GGM*), and was mentioned by the seventh-century poet Archilochos F2 (Diehls). For a fuller discussion cf. Isaac 1986, 114-7.

⁶⁴ A clear example is the family of Stesileides of Siphnos, resident in Athens in the fifth and fourth centuries as *isoteleis* and as mine lessees (Davies 1971, 590ff s.v. C12 with *SEG* XXXIX and XLI 9 for new fifth century evidence). I thank Prof Davies for pointing this out to me. Dr. K. Sheedy also noted to me in private discussion that he identified some Siphnian names in South-East Attica in a presentation to the 13th INC conference in Madrid, 2003, paper forthcoming.

- c. Security. This is one of the most significant but decidedly under-rated contributions of the Peisistratids to the development of Athens. Security was particularly important for mining as without it, no-one would sensibly make the large investments required.

I now want to amplify my earlier comment about the scale of investment required to generate the State's 100 talent share of silver from the find at Maroneia (*Ath. Pol.* 22.7). The calculations in Table 2 show that approximately 62,208 kg of silver had to have been produced.

Table 2 – Calculation of silver production

COINAGE	SILVER
1 drachma	4.32 g
6000 drachmas = 1 talent	25.92 kg
100 talents	2,592 kg
2,400 talents (assuming the State's share was 1/24 th of production (cf. Suda s.v. <i>agrophou metallou</i>))	62,208 kg

According to Rihll (2001, 128-9 using figures based on Conophagos 1980, 343), the ratio of "ore selected after sorting by hand" to silver was 3711:1 which equates to 0.027%.⁶⁵ On this basis, a staggering 230,400 tonnes of processable ore had to be dug by hand, and probably as much again of rock and ore that was too low grade to process.⁶⁶ Of this, approximately 8.35% was initially removed at the *ergasterion* when the rocks were broken up and ground, and a further two-thirds by washing (the heavier mineral-rich material sank), resulting in an ore 'concentrate' (Conophagos 1980, 343). A major benefit of refining the ore was cost efficiency from savings in the amount of charcoal used. Charcoal (*anthrax*) was essential in smelting as it burnt hotter and more evenly than firewood (Olson 1991, 412). Using primitive technology, it took approximately 7 kg of wood (depending on its density and moisture

⁶⁵ Picard 2001, 4 deduced a yield of 0.04% but this is inaccurate given he claimed to base it on Conophagos' figures. Rihll 2001, 128-9 also used Conophagos' figures to provide the ratio given above, and confirmed it with a control example from the 17th century. Some of her other figures are internally inconsistent and I have reworked them, but it does not matter a great deal as all the estimates have a large margin of error. I am only interested in demonstrating the scale of the operation.

⁶⁶ Conophagos 1980, 126 noted "Les morceaux abandonnés étaient d'une teneur en plomb bien inférieure à 7% environ", which he claimed (*ibid*) was readily able to be gauged with experience by weight in the hand. Access tunnels and ventilation shafts also had to be dug.

content) to make 1 kg of charcoal (*ibid*), and most of it had to be brought in from rural Attica or abroad.⁶⁷ The beneficiation process reduced the net costs by approximately 38% according to Conophagos' calculations (1980, 214-5).⁶⁸ A kilo of cerrusite ore could be smelted directly - it required approximately 500 g of charcoal (Rihll 2001, 121). Galena is a sulphide ore, and had to be roasted before smelting, but then required only about 20% of its own weight of charcoal. The ore concentrate had a ratio of 1140:1 (Rihll 2001, 129) or 0.09%. The 62,208 kg of silver in Table 2 therefore were locked within ca. 69,120 tonnes of concentrate, and required say 30,000 tonnes of charcoal to liberate, which derived from ca. 200,000 tonnes of wood.⁶⁹ Yet more wood was then required for the cupellation process.

Clearly the effort and expenditure required to produce that 100 talents of silver to the State had been immense, and leads me to suggest four conclusions:

1. The 100 talent State share must have taken many years to accrue. The question is how long? Long ago Ardaillon (1897, 136) put the discovery of the 'third contact at Maroneia "at the beginning of the fifth century" (my translation). Conophagos (1980, 94) suggested mining started slowly around 540 and accelerated down to 490. He noted that major mining would have been preceded by preparatory works including reconnaissance, digging of pits and construction of surface installations, with equipment mostly procured from abroad (*ibid* p.125 ff and *passim*). He placed the exploitation of Maroneia "well before 483...at least 5 to 10 years" (*ibid* p. 94, my translation) when the state's share was disbursed. Raven (1968, 58) had already made the point that the first issue of owls surely pre-dated 512 when the Thracian mines were lost to the Peisistratids owing to the Persian conquest (Hdt. 5.12), as it "depended on a secure supply of bullion". Picard (2001, 6-8) insisted that the 'discovery' of the 'third contact' must have been before 500. He based this conclusion largely on the metal analysis data indicating that the owls had an homogenous composition and Laurion source. He linked the production of the owls directly and 'precisely' to this discovery (perhaps 'capacity to exploit' would be

⁶⁷ Unlike Thrace where both silver and trees could be found in abundance (Hdt. 5.23.2), and the silver production was easier – Hdt. 5.17.2 reported that Alexandros of Macedon received a daily income of a talent of silver from a single mine.

⁶⁸ Christesen 2003, 43 calculated the costs of processing beneficiated ore were 38 dr per ton, compared with 61 dr per ton without such refining.

⁶⁹ For timber sources cf. Bissa 2009, 111-6.

better), which he connected with the monetary reform of Hippias (Ps. Aristotle, *Economics* 2.1347a, 8, cf. my discussion in Part 3.3) dated ca. 520-15 (Picard 2001, 9-10). I believe he is likely to be correct as Kraay (1976, 61) and Kroll and Waggoner (1984, 328-9) have demonstrated that there are too many issues of pre-480 owls to fit comfortably after the beginning of democracy. The loss of the Thracian mines in 512 would have provided a strong impetus for more intense development of the Laurion mines, and possibly the transfer of trained Thracian miners. Hippias' monetary reform could be connected with the change of type to the Gorgoneia *Wappenmünzen*, associated with a limited initial phase of exploitation of Laurion silver. The stories of the immense wealth of Kallias II nicknamed *lakkoploutos* before the Persian Wars provides indirect support for this proposition (Davies 1971, 260-1).

2. Mining required the development of sophisticated management and organisational skills. I have seen no discussion which has satisfactorily acknowledged the role and importance of management in this scale of enterprise. The logistics were extraordinary. Virtually every item had to be sourced and brought in including equipment, supplies, food, charcoal and other raw materials required for processing, all of which required pre-planning, contracts, shipping and land transport. A huge and diverse workforce,⁷⁰ bigger than the population of most *poleis* at the time had to be obtained,⁷¹ housed, guarded, fed, ministered to, and organised into productive shifts. Buildings, *ergasteria*, cisterns, furnaces and so forth had to be constructed and maintained. Risk capital had to be raised and accounted for, and leases entered into. Buyers had to be found for a large range of products including silver, but also lead, copper, zinc, ochre (used in vase painting, walls, sculpture and other decoration), pigments, ointments and salves (Rihll 2001, 135). Product had to be minted and otherwise packaged and safely transported. Many of these activities were subdivided specialties undertaken by different sets of individuals and groups, but even so they had to inter-relate and work effectively. I suggest that this new, jumbled, frenetic,

⁷⁰ Rihll 2001, 133 suggested a list of trades: "basketmakers, potters, tanners, woodworkers, ropemakers, wheelwrights, hauliers, quarrymen, masons, bronzeworkers, ironmongers and engravers".

⁷¹ Conophagos 1980, 343-8 (summarised p. 348) calculated 11,000 workers were required to extract 20,000 kilos of silver per annum – his estimate of annual production in peak Classical times. Picard 2001, 5 claimed "notre économiste estime que la production d'une tonne d'argent nécessitait de 500 à 1.000 esclaves à l'année". On this basis, the 62,208 kg of silver required 62 x say 750 = 46,500 slaves = as much as a decade of production in the late-sixth century.

non-agricultural environment was where many Athenians of all walks of life, especially in the far south of Attica, learnt to work cooperatively, and some obtained the skill-set required to help implement the Kleisthenic reform program. It was a hothouse for democracy.

3. Mining involved substantial and ongoing capital investment. We have no direct evidence of investment in mining in the sixth century, but we can safely assume certain things: (a) such investment did occur and initially at least must have mostly come from wealthy members of the elite. It should be noted that lending was always an invisible (*aphanēs*) market even in fourth-century Athens, as were bank deposits and investments generally (Cohen 1993, 202-6). Our lack of direct evidence of lending practice in the sixth century cannot be taken as an argument that it did not exist;⁷² (b) those involved in the business must have had good trading connections both inside and outside of Attica; (c) a substantial proportion of those actively involved would have been from the south-eastern part of Attica where the mining occurred. In this respect, the local prominence of the Alkmeonidai, and their known links with Delphi and Phokis (Camp 1994) and elsewhere is crucial.
4. Mining provided a number of substantial revenue streams to the State. These included leasing out the mining concessions (assuming this was like later practice),⁷³ taking minting fees, and levying customs duties. These revenues would have been very lucrative for the Peisistratids and offered a compelling motivation for them to encourage more mining. It would have substantially funded their building programme (including Temples, roads, water supply systems, and other public infrastructure), warfare, sacrifices, and patronage of the arts.⁷⁴ Furthermore, it is

⁷² Some confirmation can be found in the later make-up of investors, principally because they became the subject of dispute or notice in legal cases. Shipton 2001 demonstrated that 12-20% of people who are known to have purchased mining leases which were visible because they were disclosed (*phanera*) in the fourth century were members of the liturgical class.

⁷³ In fact we do not know when the State first took a share from mining in the form of leasing out mining rights, but it is a reasonable inference that it would have been associated with the beginning of coinage which is an indicator the State had control over all Attica.

⁷⁴ Thuc. 6.54.5 - the Peisistratids "splendidly adorned their city and carried on their wars, and provided sacrifices for the temples"; Hdt. 1.64.2 - Peisistratos conquered Naxos and purified Delos; Hdt. 1.64.1, and Thuc. 6.55.3 - Peisistratos employed numerous mercenaries. The Peisistratids had enough money to start construction on the hugely ambitious Olympieion, and water supply systems. They were also patrons of the arts (Slings 2000). The ancient explanation for their wealth (in addition to revenues from Thrace already discussed) was a tax of 5% (Thuc. 6.54.5) or 10% levy on produce (*Ath. Pol.* 16.4) levied on all Athenians, but I am dubious about the

clear there is a strong correlation between spending under the sons of Peisistratos (rather than Peisistratos himself when expenditure appears to have been negligible) and the dramatic increase in mining revenue from exploitation of the third contact.⁷⁵ Although they probably did not realise it, expenditure in areas such as mining, building and warfare also would have had a 'multiplier effect'. This is where expenditure in one area requires further expenditure in another and so forth.⁷⁶ This cascade of spending boosts economic activity many times more than the original sum. It greatly increases overall demand in the economy and the money supply.

To sum up, mining silver was literally mining money, but its exploitation was a function of geopolitics. No-one could do anything about the money sitting under their feet until certain things happened technically and politically to enable its extraction and sale. The right set of circumstances combined under the Peisistratids which contributed to their wealth and the prosperity of Athens, but also encouraged the awakening and participation of more Athenians in politics. Of course mining was not the only important factor changing the economy. Trade and Agora-based activities also played vital roles. But arguably mining, and the huge liquidity it brought to the economy, was what made the difference between the paths of development of Athens and most other *poleis*, and this has been too long under-appreciated in mainstream scholarship.⁷⁷ Money enabled Athens to equip and field an army big enough to defeat both the Boeotians and the Chalcidians. Money allowed Athens to build and man the most powerful fleet among the Greek States. Money and opportunity drew people and goods to Athens. Most importantly, money transformed Athenian society.

authenticity of this. Pollux 8.130 claimed that a tax on a sliding scale was introduced by Solon, but de Ste Croix 2004, 56-9 showed why this was very unlikely (cf. similarly Rhodes 1981, 215). The new imposition of a tax would surely have been deeply resented and widely remarked upon as proof of tyrannical exactions, whereas Thucydides mentioned it favourably (6.54.5 - "only 5%"). It would have required extensive State apparatus to collect which is unattested (cf. Welwei 1992, 235). It seems possible that Thucydides, or his source, was aware that the Peisistratids had a substantial revenue stream, and attributed it to a tax, not realising the importance of the other revenue streams associated with domestic mining detailed above.

⁷⁵ Limited expenditure under Peisistratos – see Boersma 2000.

⁷⁶ A stone block has to be quarried and transported before it is dressed and laid. The quarry requires equipment which has to be made, transported and purchased, and so forth.

⁷⁷ For instance, Reed 2003 in his excellent volume on maritime traders in the ancient Greek world which has a major concentration on Athens, did not even mention silver mining or its importance to trade. The splendid volume entitled 'Origins of Democracy in Ancient Greece' edited by Messrs Raaflaub, Ober and Wallace (2007) which I have used extensively does not have a single index entry for the words 'mining', 'silver', 'coinage' or 'money', but dozens for 'hoplite', 'military' and 'navy'.

No longer could the agriculturally-wealthy elite completely dominate politics and law. Now there were other players. It is the background to the contest between political groupings to which I shall turn next.

4.1.4 The political groupings before the overthrow of the Peisistratids

In Part 2.4, I considered how power was held and exercised in Solon's time. I now wish to consider how this had changed during the sixth century, with a concentration on the role in the State's power structure of the various factional groupings in the period leading up to the overthrow of the Peisistratids. I am particularly concerned with the part played by the *dēmos*.

Wallace (2007) recently reiterated and reinforced the standard view of earlier scholarship that the post-Solonian *politeia* of Athens had democratic features gained as a response to a "vocal mass of people" demanding and receiving "a good share of power in 594" (p.72).⁷⁸ He claimed the people "forced reforms...freeing their lands and bodies from the grasp of the aristocracy and obtaining a good measure of political and judicial power" (p.74). When this did not translate through to real improvements, he maintains they "ended the squabbling [among the aristocrats] by supporting Peisistratus as tyrant" (p.75). He noted that Solon himself blamed the *dēmos* for their foolishness in falling into the 'slavery' of a tyrant (West *Solon*, fragments 9.3-4 and 11), and quoted Aristotle *Pol.* 1305a:

Since cities at that time were not large and the *dēmos* lived in the countryside fully engaged in making their living, when the leaders of the *dēmos* became warlike, the *dēmos* grasped for tyranny.

Wallace also noted Aristotle's comments that "the demos trusted Peisistratus from their hatred of the rich" (*Pol.* 1305a), and that he was *dēmotikōtatos* (*Ath. Pol.* 14.1)", meaning "most inclined to the demos" (p. 75).

These points are well taken. However, much hinges on who Solon meant when he referred to the *dēmos*? In my view (argued in Part 2.3), he was speaking of people with property (mostly wealthier farmers) who felt discriminated against under a social and legal system run by and for the *Eupatridai*, and who had the resources in wealth and leisure to enable participation in the political process. The passage quoted by Wallace (2007, 61) serves to illustrate the point:

⁷⁸ Rhodes is another influential supporter of this view (cf. 1981, 186).

Public ill comes home to every single man, and no longer do his courtyard gates avail to hold it back, high though the wall may be. (West *Solon* F4.26-7).

He was referring to “every single man” who owned a city house with high walls. It is highly unlikely Solon remotely contemplated that the wider population of *thetes* or artisans should have an equal share in government.⁷⁹ It is interesting that Aristotle in the quotation above assumed the *dēmos* had leaders, though he did not (or could not?) name any of them - I will return to this important point in the next section.

Another tradition related in Herodotos 1.59.3 described the existence of ‘parties’ in the lead up to Peisistratos’ tyranny:

...When the Athenians of the coast (the *Paraloi*), headed by Megakles son of Alkmeon, and those from the plain (*ek tou pediou* = the *Pediakoi* in *Ath. Pol.* 13.4), headed by Lykourgos son of Aristolaïdes, were engaged in factional conflict (*stasiizontōn*), Peisistratos raised a third faction with the aim of gaining a tyranny. He assembled his partisans (*stasiotai*), championed the cause of the people beyond the hill (*Hyperakrioi* = *Diakrioi* and *Epakrioi* [people of the hills] in *Ath. Pol.* 13.4 and *Plut. Sol.* 29.1 respectively)... (Trans. Stanton 1990, 86 – my additions in brackets).

According to this account, the chief protagonists were the Alkmeonidai (whom I will discuss shortly), and an elite grouping led by the Boutadai *genos*, with the latter identified as owning the best farming lands on the plain near Athens, as opposed to down the coast or over the hills.⁸⁰ A third faction seems to have comprised people not hitherto included in the power struggle. They were led by Peisistratos and made the decisive difference. The notion that the faction had a geographical base is supported by evidence that an inland trittys of tribe IV was later known as the *diakria* (Traill 1978, 94-6; March 2008, 139).⁸¹ *Ath. Pol.* 13.5 claimed the faction included people who had been impoverished by the *seisakhtheia* (an unlikely scenario

⁷⁹ Although Wallace 2007 did not provide a definition of the *dēmos*, speaking broadly of the ‘poor’ and ‘dependants’, he specifically included the *thetes* in those who benefited by Solon’s reforms and equated them with the *dēmos* (p.61).

⁸⁰ I reject the effort of Lavelle 2005, 78 to equate the party of the plain with Solon’s “powerful and wealthy”, in opposition to the party of the shore being “Solon’s politically active *dēmos*”, or (p.79) that Alkmeon bought the support of the *dēmos* through distribution of *chrēmata*, as his ‘ticket’ to reinstatement in Athenian politics. This is based on the assumption in his Preface (pp. vii-viii) that “Athens was functioning at least semidemocratically as early as Solon’s time”, and the support of the *dēmos* had to be courted by any successful leader. I do not believe this is demonstrable until the end of the sixth century.

⁸¹ The evidence that the term applied to that trittys dates to the fourth century. March 2008, 139 claimed that Herodotos’ *hyperakria* was a fourth separate area from the *diakria* of *Ath. Pol.* and Solon, but I suspect this is an unnecessary refinement.

– cf. Part 2.3), for whom we might instead read ‘poorer nobles’, and “persons of impure descent” fearful of disenfranchisement. It is tempting to identify the latter with the tradesmen attracted to Athens perhaps by Solon (Plut. *Sol.* 24.4), but in any event by the opportunities the large and economically growing *polis* offered. They can hardly have feared disenfranchisement before this became a live issue after the tyranny,⁸² but they could have been prepared to follow someone sympathetic to their interests. Peisistratos himself was an Athens-based noble and renowned warleader (Hdt. 1.59.5) with estates in Philaidai (Plato *Hipparchos* 228b), and “influence over several local cults” (Davies 1981, 112-3), as well as international connections, especially with Thessaly (cf. Camp 1994, 8). He claimed an illustrious ancestry,⁸³ and this is supported by the tradition that a Peisistratos was Archon in 669/8 (Develin 1989, 28). However, he seems to have been (or acted like) a ‘new’ man in Athenian politics (Lavelle 2005, 29) who obtained support from whomever he could, as the appeal to the Assembly for a bodyguard demonstrates (*Ath. Pol.* 14.1).⁸⁴ The elite (or some of them at least) became his *philoï* only when he was entrenched in power (*Ath. Pol.* 18.4), but others may have been attracted by the alternative vision he offered of strong leadership, combined with their own self interest.⁸⁵ Herodotos clearly believed there was a regional basis to the factions, presumably under some sort of clan leadership (cf. the summary of the arguments in Stanton 1990, 89). Rejection of this against the ancient evidence on the forced assumption that it was a fictional construct (Anderson 2003, 32; Lavelle 2005, 71-82) is unwarranted.⁸⁶ However, it was highly unlikely there was a split based on constitutional

⁸² This is probably a matter of reading back the claim in *Ath. Pol.* 13.5 that “after the deposition of the tyrants, the Athenians enacted a revision of the rolls, because many people shared the citizenship who had no right to it”, only to be readmitted by Kleisthenes (*Ath. Pol.* 21.4).

⁸³ The family claimed descent from Neleus, “who, though they were foreigners before, became *basileis* of the Athenians”, Hdt. 5.65.3. Cf. Lavelle 2005, 18-23 for a discussion of the ancestry of the family and association with Brauron. For a contrary view seeking to discount the link, see Anderson 2003, 31-3.

⁸⁴ Perhaps Lavelle overstates the case and Peisistratos failed to obtain much support from other community leaders because they feared his ambition (with reason).

⁸⁵ We should not underestimate the importance of personal charisma especially from a successful military leader. Supporters and friends were both important – cf. Sophokles *OT* 540-2, “Is your attempt not foolish, to seek the throne without followers or friends (ἄνευ τε πλῆθους καὶ φίλων)—a prize which followers and wealth must win?”

⁸⁶ Lavelle’s claim (2005, 72) that there could not have been three parties because Solon only described two, and because the Hyperakrioi are only mentioned once in Herodotos, is particularly unsatisfying. I take Anderson’s point (2003, 73-4) that “this was not a society that was being torn apart by endemic civil strife”, but even he admits there were no institutional channels through which the powerful could be held to account, and “the stakes in the political game were thus formidably high”.

grounds as described in *Ath. Pol.* 13.4 whereby Megakles supported a moderate form of Government, Lykourgos an oligarchy, and Peisistratos a radical democracy.⁸⁷ Rhodes (1981, 185-6) was correct in describing this as anachronistic comment, especially given the statement in *Ath. Pol.* 13.5 that “the various names [of the factions] derived from the districts in which they had their farms”.

The simplest explanation follows the “anthropological model of factional politics” described by Forsdyke (2005, 104-7). This holds that society was dominated by factions, each with a pyramid structure in which there were strong vertical ties between elites and their non-elite supporters, and territorially-based core areas of support. Each faction leader wanted pre-eminence for himself in an oligarchy or tyranny (Stanton 1990, 89), and formed shifting patterns of alliances (Forsdyke 2005, 105). It was only possible in a state with weak central institutions (Forsdyke 2005, 107). On this view, no active part was yet played by the *dēmos* as a self-consciously discrete entity representing poorer citizens. In fact, there would have been few regular opportunities for contact, let alone revolutionary cooperation between the poor in different parts of Attica, and little meaningful civic identity as Athenians.⁸⁸

Central to the story of sixth-century Athenian politics is the Alkmeonid family. Already powerful in the late seventh century (cf. the Kylonian affair), their wealth was substantially boosted according to Herodotos 6.125.2-5 by gold ‘given’ to Alkmeon by Kroisos as a reward for supporting him with the Delphic oracle. This (apocryphal?) tale more likely attests to their acquisition of wealth through trade with Lydia, and is bolstered (albeit by circular logic) by the find in the south east of Attica of a *kouros* with a dedication on its base to a certain Kroisos who had died ca. 540 (the ‘Anavyssos *kouros*’). The family was sufficiently wealthy and well connected to win the contract to rebuild the temple of Apollo in Delphi which they

⁸⁷ Ehrenberg noted and disagreed with (1968, 78-9) the other traditional view that the parties represented “groups of distinct social, professional, and political character”. On this basis, “the men of the plain would be rich landowners who politically were reactionaries; the men of the shore would be mainly traders and fishermen who kept to a moderate line in politics, adhering of the whole to Solon’s ideas; the third group were the small farmers and shepherds of the hills” (*ibid*).

⁸⁸ Frost 1976, 70-1 dated the change of mentality from rural village and local dependancy to the *polis* only when many became rowers in the fleet. Cf. Raaflaub 2007, 117-9 who put the transformation of Athens in the first half of the fifth century under the influences of the army, fleet, trade and empire. He persuasively argued (2007, 106 and *passim*) that the *thetes* only achieved “civic equality as active participants in politics and government” after the reforms of 462. Wallace 1998 put the contrary view that popular political power stemmed in large part from Solonian democratic reforms.

did in munificent fashion (Hdt. 5.62.2-3), and to race teams of four-horse chariots at Olympia including the first victory by an Athenian (Isokrates 16.25) which was very much an elite extravagance, and to erect colossal statues (cf. Anderson 2003, 27-8 for a summary).⁸⁹ However, the family's main base in the Classical period was Alopeke, a little south of Athens,⁹⁰ and they fully participated in politics in Athens itself (except when exiled) from the seventh century.

If we can accept that the factions were largely based on territories, then the claim (in Hdt. 1.59.3 above) that the Alkmeonidai led the Athenians of the *Paralia* is very significant. Thucydides 2.55.1 geographically identified the *Paralos* (Thuc. 2.56.1 – *Paralia*) as the south-east corner of Attica including Laurion “where the Athenian silver mines are”, south of the plain (*pedion*), with its western side looking towards the Peloponnesos, and its eastern side facing Euboia and Andros. The Alkmeonidai had been in exile from ca. 600 on account of their role in the Kylonian massacre (*Ath. Pol.* 1), and were allowed back ca. 560 to aid Lykourgos of the Boutadai against Peisistratos. Anderson (2003, 28-9) has convincingly demonstrated that they did not leave Attica but went to their base in the far south.⁹¹ He supposed they were again exiled from Athens following Peisistratos' victory at Pallene. If that is true (which I doubt),⁹² as opposed to making their peace with Peisistratos and then sensibly keeping a low profile, we do not know when they returned except that it must have been by 525/4, when Kleisthenes was in such favour that he was made eponymous archon (IG I³ 1031 = Meiggs and Lewis no 6, contra Hdt. 1.64.3 and 6.123.1).⁹³ However, not long after they were again in exile, and this time they were almost certainly forced to be outside Attica altogether. What was the dispute about? We can never know for sure, but I suggest the most plausible explanation revolves around the wealth derived from silver mining.

⁸⁹ Camp 1994, 9 noted the “extraordinary wealth of the sanctuaries of Poseidon and Athena at Cape Sounion, where no fewer than 13 kouroi were dedicated, several of them of colossal size. They are far more lavish than the archaic votives from the Attic sanctuaries of Brauron or Eleusis...” He attributed such benefactions to the Alkmeonidai.

⁹⁰ Davies 1981, 52 noted that “the various branches of the Alkmeonidai held between them a large belt of agricultural land in the three adjoining demes Alopeke, Agryle, and Xypete south of Athens”.

⁹¹ Based on dedications at Sounion and the *kouros* from Anavyssos – see below.

⁹² Cf. Forsdyke 2005, 121-2 – notwithstanding Herodotos' claim that the family was in exile, it is more likely that the family accepted an offer of reconciliation with Peisistratos and stayed in Athens. “The invention of a lengthy exile under the tyrant was facilitated by the family's actual (brief) exile by Peisistratos's son Hippias following the death of Hipparchus in 514, when Hippias seems to have reverted to the politics of exile”.

⁹³ If the Alkmeonids were in exile, then a reasonable guess is that their return followed the death of Peisistratos in 528/7.

I argued earlier in this thesis (end of Part 3.2) that Peisistratos went to the mining area of Thrace in order to raise *chrēmata* precisely because he appreciated the power of money, and that when he gained permanent power in Athens, he had the contacts to bring in people experienced in mining. However, the Laurion mines had little value until technological advances and the discovery of large veins of silver (albeit at deep levels) enabled them to be profitably exploited. When the income from the mines started to increase in the last quarter of the sixth century, it is likely there was a dispute about who got what. One thing must have seemed reasonably certain to the Peisistratids. If the local Alkmeonids and their supporters continued to exploit the mines for any substantial period of time, their newfound wealth would put them in a position to garner support, employ mercenaries, and become a major threat.⁹⁴ Fortunately for the Peisistratids, a combination of domineering Alkmeonid history and ambition would have made their fresh ascendancy an unpleasant prospect to many other members of the landed aristocracy.⁹⁵ Arguably that is why they received so little assistance when they attempted to fight their way back into Attica in 514 (Hdt. 5.62). If the Alkmeonids wanted to return, they had to find support from other quarters. This they did, but probably not with the results they anticipated.

⁹⁴ Camp 1994, 9 argued that the accumulated archaeological evidence “virtually ensures that the [Alkmeonid] family also controlled the silver mines of southern Attika and the wealth they provided”.

⁹⁵ Especially if the Peisistratid administration was popular (*Ath. Pol.* 16.7; Thuc. 6.54.5-6) and general prosperity was increasing (Part 3.2).

4.2 The events of 511 - 506

This brings me to the turbulent years of 511-506 in which a new order was established at Athens. For once we are reasonably well informed about the chronology and changes to the *politeia* mainly from accounts in Herodotos 5.62-78 and *Ath. Pol.* 19–22. However, the significance of what happened is keenly contested by scholars. I will begin by recounting my understanding of the sequence of events, then discuss certain matters of importance to my interpretation.

4.2.1 Summary of events

In 511/10, the tyrant Hippias and his closest family members were expelled from Athens by a small group of exiles led by the Alkmeonid family who had secured the support of the Delphic oracle and the Spartans (Hdt. 5.62-65; *Ath. Pol.* 19; Thuc. 6.59.4). According to the sources, the oracle was won over by bribes, and the Spartans, ignoring traditional ties of *xenia* with the Peisistratids (Hdt. 5.63.2, 90.1-2; *Ath. Pol.* 19.4), used the opportunity to try to expand their League.⁹⁶ As events transpired the Spartans came to regret their interference, but their ‘discovery’ that they had been duped did not convince their allies who later refused to join them in a proposed attempt to restore the tyranny (Hdt. 5.90.1). Arguably the accusation of bribery was a smear campaign against the Alkmeonidai, who were already under a curse for killing the followers of Kylon ca. one hundred and twenty years earlier (Hdt. 5.71; Thuc. 1.126; *Ath. Pol.* 1; Plut. *Sol.* 12.1-3), and presumably would not have wanted to implicate themselves in further sacrilege (Thomas 1989, 249-50).⁹⁷ More likely, Apollo’s inspiration was the Alkmeonid munificence in reconstructing the Temple at

⁹⁶ The real motivation may well have been a combination of policy and piety, as Hignett 1951, 125 so aptly put it, but *Ath. Pol.* 19.4 strangely claimed that building the Temple gave the Alkmeonidai money “for the assistance of the Spartans”. It is hard to imagine how that worked – ancient skolia suggested either borrowing or misappropriation, cf. Rhodes 1981, 236. Aristotle also claimed that the “Peisistratids were strangers to them”, and were hated for their friendship with the Argives, cf. Peisistratos’ marriage to Timonassa and Argive help at Pallene, but the Peisistratids never intervened against Sparta (as far as we know) and the reason seems insubstantial. This is one of the few instances where Aristotle’s account contradicted his main source Herodotos (5.63.2) who stated that the Peisistratids had “close ties of friendship” with the Spartans.

⁹⁷ If anything should refute Jacoby’s claim (1949, 161) frequently cited (for instance Lavelle 1992, 86) that Herodotos depended on an Alkmeonid source and flattered the Alkmeonid position against popular tradition, it is mention of this embarrassing matter – cf. Thomas 1989, 239 ff.

Delphi (Hdt. 5.62.2-3), but the accusation was an effective ploy used by Hippias to persuade the Spartans to help him (Forsdyke 2005, 133).

At Athens, the siege of the Peisistratids was joined “by those of the Athenians who wished to be free” (Hdt. 5.64.1). We can only speculate as to whom this group might have comprised, but the implication is that the numbers were small, and certainly not the *dēmos*. A reasonable conjecture is that it was predominantly other members of the exiled elite considering Andokides’ claim (1.106) that he had ancestors among the exiles who fought the tyrant. Forsdyke (2005, 131) noted that “political power was achieved primarily through expulsion of rivals” in the age-old fashion. The victors set about damning the image and memory of the tyrants on a stone pillar on the Acropolis (Thuc. 6.55.1), erecting statues to the tyrannicides, and invoking (or creating) a law against tyranny (*Ath. Pol.* 16.10 cites the alleged archaic law) to make Hippias and his family subject to *atimia*.⁹⁸ However, other members of the Peisistratid family and supporters remained in Athens and were later active in politics, as we know from the election of Hipparkhos, grandson of Hippias, to the Archonship in 496/5, and his subsequent ostracism in 488/7, followed by other relatives and supporters in the next four years (*Ath. Pol.* 22.4-7).⁹⁹

A return to power by elite families meant a return to the factional strife and lack of rule of law that had plagued Athens before the tyranny (Hdt. 5.66; *Ath. Pol.* 20.1). The main rivals were Kleisthenes the Alkmeonid, and Isagoras who was from an evidently prominent, but insecurely identified family (Hdt. 5.66.1; Lewis 1963), said by Aristotle to be a “*philos* (friend) of the tyrants” (*Ath. Pol.* 20.1). Such a ‘friendship’ would have been unexceptional, as a successful strategy of the Peisistratids had been to allow honours to members of important families in return for support (Thuc. 6.54.6).¹⁰⁰ Some commentators have felt the need to explain away the comment on the basis that an ongoing friendship was unlikely (cf. Stanton 1990, 143, n.1 with references), but we should not be too hasty to dismiss a specific claim. Sancisi-Weerdenburg (2000) demonstrated that for the Peisistratids the tyranny was a family

⁹⁸ Rhodes 1981, 220-2 cited the evidence which relies strongly on the amnesty law cited by Plutarch *Sol.* 19.4 that excluded those “seeking to establish a tyranny”, but the waters are muddied from its incorporation in the rider to Demophantos’ decree in 410/9 (And. 1.96-8), and *Ath. Pol.* 8.4 which claimed the duties of the Solonian Areopagos included “trying persons who conspired to put down the democracy”, though the latter is distinctly anachronistic. The remaining evidence is from the democracy.

⁹⁹ It is also noteworthy that the stele “commemorating the crime of the tyrants” only mentioned Peisistratos, Hippias and his children. Thucydides 6.55 conjectured that this implied Hippias was the only member of the family with legitimate children, but that seems unlikely to be true.

¹⁰⁰ Cf. Meiggs and Lewis 1969, 9-10, No. 6, column c. Kleisthenes was archon in 525/4 and Miltiades in 524/3.

business with wide social interaction, but this was misunderstood by later writers who envisaged it belonging to a single person. More importantly, Isagoras must have successfully appealed to a majority of the elite, because in 508/7 he was elected to the archonship (*Ath. Pol.* 21.1). In direct response, Kleisthenes took the extraordinary step of widening the base of his support to include “the *dēmos*” (Hdt. 5.66.2; *Ath. Pol.* 20.1).¹⁰¹ Herodotos 5.69.2 says he immediately carried out reforms in their favour, and this is quoted approvingly by many scholars who assume the radical measures were passed by the *Ekklēsia*.¹⁰² Some have objected on the grounds that Kleisthenes apparently held no official position or commission (for instance Rhodes 1981, 249), and it implies Isagoras had lost control of the body which had just elected him eponymous archon.¹⁰³ Although this is not a fatal objection given the way leadership seems to have worked (with multiple *archai*), there is a more serious problem with the version. Herodotos (5.66.2) also wrote that “later” Kleisthenes reorganised the tribes, and *Ath. Pol.* (20.1) said that Kleisthenes only “offered to hand over the *politeia* to the many (*plēthos*)” but actually carried out the reforms after the expulsion of Kleomenes (*Ath. Pol.* 21). Possibly there was confusion in the oral sources (Forsdyke 2005, 137). It seems reasonable to suppose that there could not have been time for Kleisthenes to implement the reforms before he was evicted (Hignett 1951, 331-6), and Aristotle’s version was more likely to be correct.

Be that as it may, Kleisthenes’ appeal to the *dēmos* evidently worried Isagoras sufficiently that he reacted by calling in the Spartan King Kleomenes and persuading him to throw out the Alkmeonidai on account of the ‘curse’ (Hdt. 5.70.1-2; *Ath. Pol.* 20.2).¹⁰⁴ Kleisthenes left Athens though it should not be assumed he went very far from the city as he was later able

¹⁰¹ I discuss this controversial statement later. Suffice to say I agree with Connor 1971, 90-1 that “Cleisthenes brought the *demos* over to his side by quite informal means, by promising to treat them as his *hetairoi*, to look after their interests, to give them a say in political decisions”.

¹⁰² Suggested by Hignett 1952, 126 ff and endorsed by Wade-Gery 1958, 143 ff who proposed the reforms were passed by *psephismata* in the *Ekklēsia*. Lévêque and Vidal-Naquet 1996, 160, n.71 pointedly asked “whether, prior to the reform, the *Ekklesia* effectively had the power to revolutionize the State”.

¹⁰³ Lewis 1963, 38 rhetorically asked why Isagoras as presiding officer could not simply have blocked the vote. His answer was the use of force.

¹⁰⁴ The relationship between Isagoras and Kleomenes in Herodotos is a little odd. We are told (5.70.1) that they had been guest-friends “since the siege of the Peisistratids”. It is perfectly understandable that Kleomenes discovered he had more in common with Isagoras than Kleisthenes when he got to know him. However, Herodotos also relays the gossip that Kleomenes and Isagoras’ wife “had been accused” of having an affair which either Isagoras chose to ignore because of his political imperative, or it was just plain slander (then or later).

to be rapidly recalled (Hdt. 5.73). Whatever the support of the *dēmos* might have been, he plainly could not yet count on it protecting him. Kleomenes with his “few troops” proceeded “to expel as accursed seven hundred Athenian households” (*Ath. Pol.* 20.3; copying Hdt. 5.72.1). This must say something about the backing still enjoyed by Isagoras probably on account of the reluctance of people to challenge the Archon’s legal authority (albeit backed by the intimidatory presence of the Spartan troops), though the expulsions must have created fear and resentment. However, I believe it was his attempt to unconstitutionally disband the venerable institution of the *Boulē* (which I take to be the Council of the Areopagos - see Part 4.1.1) which was a step too far and solidified opposition. It also should be remembered that by virtue of his archonship in 525/4, Kleisthenes was a senior member of that body.¹⁰⁵ On their refusal, “Kleomenes and Isagoras and his *stasiōtai* seized the Acropolis” (Hdt. 5.72.2). I suggest this was because they suddenly realised the precariousness of their position and needed a refuge,¹⁰⁶ rather than because of the place’s political significance. This sacriligious act (cf. the response of the priestess recounted in Hdt. 5.72.3) in turn led to the ‘people’ joining in and besieging the Spartans and Isagoras on the Acropolis. Unsurprisingly, the Spartans were totally unprepared for a siege and capitulated in just three days. They departed humiliated together with Isagoras (Hdt. 5.74.1; *Ath. Pol.* 20.3) and the rest of Isagoras’ followers were imprisoned and executed (Hdt. 5.72). At one fell swoop the most senior archon was gone, and the *dēmos* had seen that united they had the power to change things. To me, that is the defining moment in the transformation of Athens to a democracy.¹⁰⁷ Kleisthenes returned and enacted (or followed through with) his sweeping reforms.

4.2.2 My interpretation

¹⁰⁵ I thank Dr. Phillips for reminding me of that in private discussion.

¹⁰⁶ I imagine them retreating onto the Acropolis to escape the hostility of the crowd, perhaps by way of the Mycenaean ascent on the north-east side in front of the Archaic Agora where the confrontation with the *Boulē* would have occurred. This would explain their total lack of preparedness to face a siege. It may not have taken much to seize the Acropolis in the first instance. Kleomenes was challenged by the priestess only because he was not an Ionian. There is no evidence that people were normally barred from the Acropolis – cf. Hurwit 1999, 55.

¹⁰⁷ I am not the first to suggest this was the defining moment. Ober has been its main protagonist but for a crucially different reason – he sees it as the collective action of the people in a leaderless uprising, cf. discussion with references at p.212 and 212 n.126. Other scholars have located the ‘emergence’ of democracy in different temporal contexts mainly based on the definition of what constituted it, notably Wallace at 594, Raaflaub at 462/1, and Eder in the early fourth century – cf. the discussion by Raaflaub 2007a.

Two significant questions arise from the narrative that are crucial to my reinterpretation, but which are rarely if ever explicitly answered. Firstly, who specifically comprised the ‘*dēmos*’ that supported Kleisthenes?¹⁰⁸ Secondly, who was manipulating whom in the Kleisthenic reforms?

My starting point is the literary evidence. Herodotos 5.66.1-2 wrote:

There were at that time two powerful men in Athens: Kleisthenes an Alkmeonid who was said to have bribed the Pythia, and Isagoras son of Teisandros, a man from a distinguished house; I cannot provide details on his origins, but his family sacrifices to Karian Zeus.¹⁰⁹ These men competed for power, and when Kleisthenes found he was facing defeat, he enlisted the *dēmos* into his *hetaireia* (political club/association of supporters). (Trans. Purvis [Strassler 2007] slightly modified).¹¹⁰

Aristotle 20.2 had a slightly different, though clearly derivative version:

After the overthrow of the tyranny a factional struggle (*stasis*) broke out between Isagoras son of Teisandros, who was a supporter (*philos*) of the tyrants, and Kleisthenes, who belonged to the family of the Alkmeonidai. Losing in the political clubs (*hetaireiai*), Kleisthenes attached the people (*dēmos*) to his following... (Trans. Stanton 1990, 142).¹¹¹

According to these sources,¹¹² there were three groups: (1) Isagoras, an erstwhile *philos* of the tyrants, and his supporters; (2) the Alkmeonidai; and (3) the *dēmos*. The *philoι* of the tyrants had previously been identified as being “men who belonged by birth to families of distinction” (*Ath. Pol.* 18.4). Isagoras had three hundred of his own *philoι* (equals *stasiotai* [partisans] in Hdt. 5.72.12) who joined him in governing on the exile of Kleisthenes by

¹⁰⁸ I contend that despite enormous amounts of discussion about democracy at Athens over the years, and cf. especially the stimulating essays in Morris and Raaflaub 1998 and Raaflaub, Ober and Wallace 2007, the question of who specifically comprised the *dēmos* at any particular time is not asked. They are usually defined by exclusion in general terms, cf. Forsdyke 2005, 141: “non-elites”. Possibly Raaflaub 2007b, 144 came closest when he described the Spartan *dēmos* as “composed only of landowners serving in the hoplite army” and suggested that “those who really counted in the [Athenian] assembly were hoplite-farmers” in Solon’s time, to which were added the *thētes* by Ephialtes’ reforms.

¹⁰⁹ Cf. Lewis 1963.

¹¹⁰ The crucial last sentence reads: οὔτοι οἱ ἄνδρες ἑστασίασαν περὶ δυνάμιος, ἑσσομένου δὲ ὁ Κλεισθένης τὸν δῆμον προσεταιρίζεται.

¹¹¹ Aristotle’s version has: ἡττημένος δὲ ταῖς ἑταιρείαις ὁ Κλεισθένης προσηγάγετο τὸν δῆμον, ἀποδιδούς τῷ πλήθει τὴν πολιτείαν.

¹¹² There is no good reason to discount the general accuracy of Herodotos’ account. He was describing events which took place only twenty years or so before his birth. People would still have been living in Athens who had personal experience of them when he was researching his work in the middle fifth century, and family traditions would have been very much alive, cf. Thomas 1992, 247-51. However, I accept Lavelle’s observation (1992b, 82-3) that some aspects of Herodotos’ account were revisionist and designed to appeal to his fifth-century Athenian audience, such as the inevitability of Peisistratos’ success.

Kleomenes in 508/7 (*Ath. Pol.* 20.3). Presumably Isagoras was supported by more than just these three hundred men. I suspect that was either the number of his closest adherents, or more likely, the number of those subsequently caught with him on the Acropolis and executed. Many more would have discreetly changed their allegiance afterwards. We can assume they were members of the elite, but not that they comprised the previous *philoï* of the Peisistratids. This is an important distinction. The *Ekklēsia* voted for Isagoras. The *Boulē* of the Areopagos, comprised by this stage after decades of rule by the tyrants of their *philoï* and appointees, resisted him. The best explanation as far as I am concerned is that the latter were outnumbered or intimidated in the *Ekklēsia*. The fact they were hostile is why Isagoras wanted them disbanded. The Alkmeonid faction comprised more than just the one *genos*, because seven hundred households (*oikiai*) deemed to be supporters were exiled by Kleomenes (*Ath. Pol.* 20.3). Many modern scholars have doubted this figure (Rhodes 1981, 245-6),¹¹³ but there is no reason to assume they were all (or even predominantly) elite families. The key role of the Alkmeonidai in the expulsion of the tyrants is confirmed in the earlier sources (Hdt. 5.62.2 ff; Thuc. 6.59.4). As Hignett (1951, 125) correctly noted, the passage “indicates that Kleisthenes had not been in alliance with the demos before”. I would add that if the *dēmos* had earlier been the politically engaged and vitally important supporters of the Peisistratids that Wallace (2007) has claimed, they could not now have been ignored.¹¹⁴ Furthermore, Herodotos (5.69.2) explicitly stated that until Kleisthenes brought the *dēmos* into his faction, they “had previously been spurned by their politicians”. Therefore, until the *dēmos* were involved with Kleisthenes, politics was always a game played by elites in the *hetaireiai*, and conceptually this struggle had been little different from that preceding Peisistratos’ tyranny.

Who were the *dēmos*? Later ancient writers and orators did not usually have the need to make a close identification.¹¹⁵ As Hansen (1987, 8) commented, “when a speaker said *demos*, he meant all Athenian citizens”, and “when the philosophers used the term *demos* in a

¹¹³ It may have been exaggerated, or code for ‘a large number’, or true. Even though we may doubt the figure, clearly the supporters of Kleisthenes extended beyond the *genos* itself.

¹¹⁴ There are other indicators. Hippias could have called on their support, and Isagoras would not have been taken by surprise when besieged on the Acropolis.

¹¹⁵ The closest we get is Aristotle (*Pol.* 1291b18ff; 1319a19-30) who subdivided them into peasants, artisans, traders and *thetes* (including hired labourers and sailors). Hansen 1987, 10 noted that Aristotle (*Pol.* 1293a1-10; 1296b29-30; 1319b1ff) considered Athens to be a radical democracy (type four in his schema) “where the *demos* consists principally of *thetes* who live in the city”.

political context, the reference [was] regularly to the common people in opposition to the middle and upper classes". It probably did not occur to them that this had not always been the case, even though they would presumably have known that particular rights only evolved over time. In a literal sense they were correct, but in practice the large percentage of landless *thetes* who struggled to make ends meet on a daily basis, and who were totally without power and influence, should be excluded from consideration.¹¹⁶ Their turn would only come later in the fifth century when changes to the operation of state institutions, and reward for their participation especially as rowers in the fleet, were created for them by subsequent leaders.¹¹⁷ It is also by no means certain that the label 'citizen' can be applied without it carrying anachronistic, post-Kleisthenic reform overtones.¹¹⁸

I now need to try to discern the politically active participants among the *dēmos*. I suggest two criteria. Firstly, who had the time, money, and interest or need to participate, and secondly, who benefitted by the subsequent changes? I believe a good case can be made for the following groups:

1. Athenians belonging to phratries with property and/or investment (mostly farmers) who were not represented by the factional interests of Isagoras and Kleisthenes and their coteries. Forsdyke (2005, 141) aptly named them the "better-off non-elites – probably those of hoplite standing and above" acting on their own behalf, "not simply as dependents of particular elite leaders". Many of them would have been the farmers released from hektemorage obligations by Solon – see my discussion in Part 2.3. I agree with Hignett (1951, 125-6) that they were hitherto passive supporters of the Peisistratids who had benefited substantially from the preceding period of peace, law, and general prosperity. They would have been quite fearful of a return to the endemic *stasis* of elite aristocratic politics, and in particular of an aristocratic-based

¹¹⁶ This is a very vexed question and I do not wish to appear didactic. I am persuaded by Foxhall 1997 and more particularly van Wees 2001 that those falling into the categories of *Pentakosiomedimnoi*, *Hippeis* and *Zeugitai* combined into a wealthy and elite top strata, and that many of the *Thētes* possessed enough land to support themselves and become hoplites or 'sub-hoplites'. This still left approximately 25% who were landless *Thētes*, and it is this group that I suspect were not yet politically engaged in any meaningful way.

¹¹⁷ In this, I follow Raaflaub - cf. 2007 for a summary of his position. Further support comes from Herodotos' use of the word *dēmos* as a synonym for *Ekklēsia* in 1.59.4 (Peisistratos' request for a bodyguard) as noted by Anderson 2003, 52 (along with other post-Kleisthenic examples).

¹¹⁸ For instance, I shall shortly argue that the active participants included people whose citizenship status was not yet assured. Manville 1990, 157 noted that citizenship was not extended to the "local level" in the countryside until the reforms of Kleisthenes.

legal system – see my earlier remarks on the desire for *isonomia*. However, some of the wealthiest among them may have aspired to be part of the elite and players in the political game in their own right, as had happened earlier in the century (cf. the dedication of Diphilos on becoming a Knight - *Ath. Pol.* 7.3; Pollux 8.131). They may also have resented the Spartans being brought back in by Kleomenes, and would have formed the greater part of the armed or semi-armed *plēthos* who besieged him and Isagoras on the Acropolis (*Ath. Pol.* 20.3). Those who were resident in and around Athens could easily have been roused to action. They were clear beneficiaries of the Kleisthenic reform agenda.

2. Shopkeepers, artisans and traders, both indigenous and those who had been attracted to Athens during the sixth century (Plut. *Sol.* 24.2), were a substantial and growing group.¹¹⁹ Their prosperity and mix is indicated by their dedications on the Acropolis.¹²⁰ They may have feared being marginalised by a return to an aristocratic-based system. Their activities had been supported by the Peisistratids (cf. Part 3.2), and some would have been quite well off. The ones of impure descent (*Ath. Pol.* 13.5) were among the people specifically rewarded with enfranchisement by Kleisthenes (Arist. *Pol.* 1275b 34-9), which surely implies they were among his active supporters (Kagan 1963). Aristotle claimed these “free and unfree resident aliens” were numerous (*ibid.*).¹²¹ The inclination of traders to favour democracy was noted by Aristotle (*Pol.* 1303b 11-12), when he claimed that those living (later) in the Piraeus were more democratic (*mallon demotikoi*) than those in the *astu*.
3. The mercenaries formerly in the employ of the Peisistratids are a largely forgotten group in most histories of the period (though see Rhodes 1981, 188 and Lavelle 1992b). If I am correct, and there had been no system of institutionalised State-based

¹¹⁹ I am not claiming they were an homogenous group, but they surely included many people of non-Athenian descent. Plutarch (*Sol.* 22) claimed that Solon insisted those who moved to the city should take up a trade and required the Council of the Areopagos to enforce this. Many may have come from rural areas of Attica as Anderson 2003, 230, n.70 claimed, but Plutarch’s actual words talk of “people who were constantly streaming into Attica”, not Athens, which implies they were foreigners.

¹²⁰ Raubitschek 1949, 465 listed dedications by a fuller, a tanner, an architect, a ship-builder, a washer woman, a scribe, and many potters and painters. The significance of this was noted by Camp 1994, 11. See the fuller discussion *infra*.

¹²¹ Kleisthenes enfranchised πολλοὺς ξένους καὶ δούλους μετοίκους. Their exact identity is disputed - see Rhodes 1982, 255-6. I find it hard to agree with Anderson 2003, 41-2 that these *neopolitai* were the inhabitants of rural Attica being made part of the Athenian *polis* for the first time in the final stage of the synoikism of Attica – such people could not be described as “free and unfree resident aliens”.

military training for citizens under the Peisistratids (though the children of the hoplites and above may well have been taught the use of arms as part of their education), then the mercenaries will have been crucial in the siege of Kleomenes.¹²² Perhaps in so doing they affirmed their loyalty, and there is some evidence they were rewarded with being allowed to stay, even though they were not very popular with their compatriots.¹²³ Lavelle (1992b) convincingly argued that the *doryphoroi* were mostly Athenians, and certainly their name implies they were armed,¹²⁴ as does the description of their counter-insurgency activities in Thucydides (6.55.3 – 6.59.2).

4. Local magistrates had been increasingly involved in administering Attica during the period of the tyranny. Prominent among them were the *naukraroi* discussed in Part 2.4 who were the leaders of the local districts known as *naukrariai*, and responsible for levying and spending funds according to Aristotle (*Ath. Pol.* 8.3). Herodotos 5.71.2 ascribed to them the leadership role in handling the Kylonian affair calling them *prytaneis*,¹²⁵ and although this was probably not correct (cf. Thuc. 1.126.8), there was a clear parallel between the two incidents with regard to the seizure of the Acropolis and its siege. It is possible that Herodotos (or his source) was extrapolating from one event to the other. In any event, there was evidently no difficulty in believing that they would have been the officials in charge. In addition, there were a host of other magistrates for law and finance (circuit judges, *tamiai*, officials in charge of minting, weights, measures, customs, water supply and so forth). They would have had hands-on experience in organisation. It is not unreasonable to see their involvement in the structural reorganisation of the State, and rapid implementation of the complex and artificial new system based on demes, trittyes and tribes, which required an intimate knowledge of the countryside and local populations.

¹²² It is difficult to believe that even a small number of highly trained Spartan soldiers (presumably with their usual complement of retainers) plus 300 desperate Athenian aristocrats could not have cut their way through a leaderless mob even of “a large number of armed and semi-armed Athenian citizens”, if such was the nature of their opposition as Ober 2007, 92 supposed.

¹²³ Lavelle 1992b, 93 and 96 mentioned the slur on Kleon in Aristophanes *Knights* 448-9 that his grandfather had been one of the tyrant’s *doryphoroi*.

¹²⁴ Lavelle 1992b considered them militarily useless on the flimsy ground that they did not prevent the assassination of Hipparchos, but he also made the important point that the foreign mercenaries who originally helped Peisistratos establish his tyranny probably did not remain in his employment.

¹²⁵ He went so far as to claim that they “governed Athens at that time”, presumably thinking they predated the archons.

5. I have earlier stressed the importance of non-elite entrepreneurs and elite investors in the silver-mining industry in the transformation of the Athenian economy (cf. also the next section for names of individuals). They combined cash resources, sophisticated organisational skills, and trading contacts and links across Attica and with other *poleis*. Given their location in south-east Attica, we can assume they would have had close contact with Kleisthenes and the Alkmeonidai, and been highly perturbed by the prospect of a narrow, agriculturally-based oligarchy openly hostile to their personal interests and those of the Alkmeonidai. It is my contention that if anyone could organise behind-the-scenes resistance in Attica and a reform agenda, it would have been them. That is how business likes to operate – effectively, profitably, and out of sight.

It might be argued that this was an unlikely coalition, but opposition can bring together strange bedfellows. The current uprisings in the Arab Spring offer a splendid opportunity to observe the nature of revolts against dictators, and the subsequent jostling for power. In Egypt, members of the Muslim Brotherhood were on the streets alongside western educated professionals, shopkeepers, students, and others. We can be sure that they will not all be happy with the outcome, but we have little idea what has been going on behind the scenes - what deals have been done, and undone - and what part has been played by sectional interests including the army. More particularly, if someone were writing a history of the uprising, they could easily name Mubarek and catalogue his transgressions, but would struggle to name the leaders of the opposition even in this 'information age'. Nonetheless, it would be wrong to assume the opposition has been leaderless. And that is precisely the problem with Ober's thesis that "the point at which Athenian democracy was born, was a violent, leaderless event" (1998, 216).¹²⁶ In any case, the Spartans must have believed that

¹²⁶ Ober was forced to pressure the Greek passages into giving him what he wanted. Thus he translated Hdt. 5.66.2, Κλεισθένης τὸν δῆμον προσεταιρίζεται as "Kleisthenes embarked on the process of becoming the demos' trusted companion" (1993, 227), instead of "Kleisthenes took the *demos* into his *hetaireia*" (Stanton 1990, 139; 140, n.6). Perhaps he was right to stress the middle rather than the active force of the verb, but the sense would still be that Kleisthenes did the associating of the *dēmos* with himself (cf. LSJ), and not the other way around. Likewise, he translated *Ath. Pol.* 20.3 concerning the gathering of the mob to besiege Kleomenes and Isagoras - συναθροισθέντος τοῦ πλήθους with a reflexive sense to mean "the mob gathered itself together" (1993, 227 and n.30), rather than the passive given by Stanton (1990, 142; 144, n.6) "the common people had been assembled", or even Rackham's more neutral translation (Loeb 1935), "the multitude banded together". Notwithstanding my disagreement with Ober's interpretation, his characterisation of the events themselves is excellent, cf. Ober 1993; 2007. For additional problems with Ober's interpretation cf. the

(a) the mob besieging them was militarily effective, (b) would maintain their resolve long enough to starve them out, and (c) had leaders with whom to negotiate a truce (*Ath. Pol.* 20.3).¹²⁷

This brings me to consider the question of why Kleisthenes did what he did. Several solutions have been advanced, and none have won universal support. To some he was a genuine reformer “who desired to bring about a real democratization” (de Ste Croix 2004, 134¹²⁸), but if he had genuinely turned demagogue and really did desire to give power to the people, why was he not later considered to be the father of democracy, and why did he completely disappeared from politics after the reforms?¹²⁹ To others, his motivation was entirely selfish (Lewis 1963, 26-37; Sealey 1976, 153-5). This would be entirely consistent with elite power plays up until this point in time and his own shifting allegiances, first as a supporter of Hippias, then as his opponent. Thucydides (6.89.4-6) evidently believed this because he had Alkibiades claim that his family only played the role of “champion of the people” to advance his political influence and that of his family.¹³⁰ But if this is the case, why did Kleisthenes carry out reforms which gave no (or very little) benefit to the Alkmeonidai or him personally (de Ste Croix 2004, 133)?¹³¹ Ehrenberg (1973, 69) suggested he was a “man of

introductory comments by Curtis in his translation of Lévêque and Vidal-Naquet 1996, xiii-xvii, and Raaflaub 1998, 41-2.

¹²⁷ Ober (2007, 90-91) also made great play of Aristophanes *Lysistrata* 273-82 in which the chorus proudly boasts that “I besieged that man” (Kleomenes). Leaving aside questions of comic interpretation and the political overtones implicit in the retelling of the story toward the end of the Peloponnesian War a century after it occurred, the passage referred to “keeping constant guard, drawn up seventeen ranks deep at the gate”. This was clearly a military action and must have had effective leadership to be sustained. There was a strong democratic tradition from the beginning of not officially recording the name of leaders, for instance Miltiades (Cornelius Nepos 1.6).

¹²⁸ He does not go as far as earlier writers and suppose Kleisthenes was an idealist, or that he was above attempting “fiddles” (*ibid* p.136), but that he was doing his best for Athens rather like Solon.

¹²⁹ Anderson 2003, 82 offered a variation on this theme – Kleisthenes “and his associates” (unidentified) initially acted in self interest, but then “saw a (*sic*) historic opportunity to author a series of initiatives that would not merely reward their nonelite (*sic*) supporters but help to resolve perhaps the two most fundamental and attractive problems that faced the Athenians at this time: chronic military vulnerability and recurring political turmoil”. He answered the question of why Kleisthenes faded from memory as being part of a deliberate strategy (2003, 197 ff).

¹³⁰ Aristotle (*Politics* 1319b, 20-27 = 6.11) argued that the mixing of the Athenians promoted democracy, but the cynic might suggest that this disrupted the power bases of Kleisthenes’ opponents.

¹³¹ Lewis 1963 suggested Kleisthenes indulged in some gerrymandering to protect Alkmeonid interests. Stanton 1984 argued that the Alkmeonidai did benefit by retaining control of his family’s cult centres while weakening that of others, but even if true, this was slight recompense. March 2008 tried to demonstrate a gerrymander based on regional contiguity of demes belonging to the ancient league of Athena Pallenis. This is plausible but contains many troubling assumptions especially about its origins, membership and influence.

new and radical ideas”, and I have a great deal of sympathy for this proposition. All we know of Kleisthenes shows him to have been capable of long-term planning and risk taking as the scheme to get Delphi to involve the Spartans demonstrated, and pragmatically alert to opportunity, but also the highly ambitious scion of a born-to-rule family. Furthermore, like Solon and Peisistratos before him, he was exposed to commerce, and lived for long periods away from Athens where he surely formed a broader world view than most of his contemporaries. Finally, we must consider the realities of Kleisthenes’ position in 508/7. By dint of great expenditure and effort he had succeeded in expelling the tyrants, only to lose when it counted back in Athens. Exile or death were the consequences. We can only imagine his feelings towards Isagoras and his elite followers, but it is not a big stretch to believe that he was ready to make any deal that would put them out, and bring him back to Athens. After all, who knew what opportunities the future might hold?

Kleisthenes’ desperate search for support made possible a new paradigm of broader involvement in the *politeia*, but to whom did he pitch his offer? One obvious candidate is the *Boulē* to which he belonged, as this would explain their opposition to Isagoras and that man’s determination to disband them. In fact, a careful reading by de Ste Croix (2004, 130-2) of Herodotos indicated that he only alluded to (a) Kleisthenes’ proposal to make a “change in the number and names of the tribes” with an opinion as to the reason (Hdt. 5.66.2), and slightly later (b) the change in name and number of the tribes, the change in the number of phylarchs, and mention of the distribution of the demes in the tribes (Hdt. 5.92.2). While it is possible to argue that Herodotos had such little interest in constitutional matters that he simply glossed over the changes, I suspect that this might in fact be all that Kleisthenes originally proposed. Such changes would widen the ruling group to include people like the members of the *Boulē*, but still leave matters firmly in elite control.

However, as events transpired, this was no longer acceptable to a whole range of people whose financial position and legal security had improved markedly under the tyrants. In effect, all bets were off. The tyrants were gone. The elite followers of Isagoras were in captivity and about to be executed. The proud Spartans had been defeated. Kleisthenes was in hiding outside of Athens. And yet, out of this, with all its obvious potential for further *stasis* and tyranny came, as de Ste. Croix (2004, 135) aptly put it, “a new constitution [which] bears all the marks of having been carefully thought out and designed with quite remarkable skill and brilliance”. De Ste Croix himself suspected it was the product of long-term planning

by a group of associates of Kleisthenes to be implemented on the fall of the tyrants (*ibid*). This hypothesis falls foul of the obvious objection (which he himself noted) that Kleisthenes does not appear to have been a beneficiary of the changes, and that the new system seems to have been happily adopted without known dissent (Raaflaub 1998, 40). I find it difficult to believe that Kleisthenes brought in the changes for purely altruistic purposes, but even assuming that merely getting to return was enough recompense for him personally, we need to ask who those associates were?

My answer is that it could only have been the groups mentioned above who had the ability to plan and implement the changes on the ground right across Attica. They were the *naukraroi* and other magistrates principally drawn from the old elite, in alliance with various business interests and associates of Kleisthenes, with broad support from the mass of wealthier hoplites, traders and artisans. Quietly and discreetly they used the circumstances to mould a new political environment for themselves in which power was divided and thus limited, and subjected to checks and restraints. And what of Kleisthenes himself? Aristotle (*Ath. Pol.* 20.4) described him as “the one who stands before the people” (*tou dēμου prostatēs*), which was the role filled by later Athenian politicians. The precise usage of the term may have been anachronistic (Connor 1971, 110-14),¹³² but in a very real sense that was exactly what he did. Without the people’s support, he was forced to flee once again. I suspect that at that point, if not before, he became committed to bringing in fundamental change to the *politeia* that indeed secured a bright place for his family in the future of Athens.

¹³² The first securely attested use of the phrase “in the sense of a leader of the citizen body” (Connor 1971, 111) dates to 424 in *Ar. Knights*, though this implies it was in use earlier, cf. Thucydides’ frequent use of just the word *prostates* for the leaders of *poleis* (ie: 8.89.4 for Athenian leaders).

4.3 The aftermath

In the previous section I sought to identify the politically active subgroups within the nebulous '*dēmos*', and to suggest why and how they managed to physically effect sweeping changes to the *politeia* of Athens. As an epilogue, I will briefly consider the evidence for the influence and role of known individuals with commercial and mining interests in the fifth century. I will also suggest reasons why the promising beginnings of economic transformation did not develop along a more mercantile path.¹³³

Once again, we need to delve past the elite bias in the sources which applauded the good breeding, landed wealth, and traditional values of the *kaloī kagathoi* (beautiful and good men) who were *chrestoi* (useful and beneficial) to society,¹³⁴ and deplored the ill-educated crassness of the self-serving *neoploutoi* (newly wealthy men) who were *poneroi* (low class and bad). The oligarchic nature of the attack was clearly emphasised in Ps-Xenophon (= Old Oligarch) *Constitution of Athens* 2.19 probably written in the early to middle 420s:

Now I say that the *dēmos* at Athens knows which citizens are *chrestoi* and which are *poneroi*. And since they know, they love the ones who are well disposed and beneficial to themselves, even if they are *poneroi*. But even more they hate the *chrestoi*. For they do not consider that the competence of the *chrestoi* exists for their good, but rather for their harm. (Trans. Connor 1971, 177).

The subject was a frequent topos of Old Comedy in relation to the political battleground, for example, Aristophanes *Knights* 191-3 produced in 424:

The *demagogia* is no longer for a cultured man, nor for someone *chrestos* in his manners, but for the ignorant and obnoxious.

The word *neoploutos* first appeared in Aristophanes *Wasps* 1309 in 422. However, a few years earlier (ca. 428-425), Kratinos had used the word *neoploutoponēroi* (newly wealthy and wicked men) in his play *Seriphioi* (F208). By the beginning of the fourth century, Plato

¹³³ This is a very brief and superficial foray into the highly-contested field of fifth-century Athenian economics. My intention is only to round off the preceding discussion and to flag a possible area of future, more detailed investigation.

¹³⁴ As will be evident, I owe a great deal to the work of Professors Davies (1971; 1981) and Connor (1971) in writing this section.

Protagoras 347c-d was more blunt in his supercilious condemnation of the *agoraioi* (men of the Agora)¹³⁵:

Conversation about poetry reminds me too much of the symposia of the *agoraioi*. Such men, being too uneducated to entertain themselves as they drink by using their own voices and conversational resources, put up the price of female musicians, paying well for the hire of an extraneous voice – that of the pipe – and find their entertainment in its warblings. But when the drinkers are *kaloi kagathoi*, you will find no girls piping or dancing or harping. They are quite capable of enjoying their own company without such frivolous nonsense, using their own voices in sober discussion and each taking his turn to speak or listen – even if the drinking is really heavy. (Trans. W. Guthrie slightly adapted).

A few years later his student Aristotle *Rhetoric* 1387a (=2.9.9) wrote:

The *neoploutoi* who attain to office owing to their wealth cause more annoyance than those who have long been wealthy... (Trans. J. Freese).¹³⁶

At the heart of these bitter calumnies was a clash of values, but it was not a clash of rich versus poor. Connor (1971) has clearly shown that all of those whom he labelled ‘New Politicians’ in the second half of the fifth century were wealthy men.¹³⁷ It is just that they mostly derived “their money from manufacturing or enterprise rather from agriculture” (*ibid* p.159). They did not personally work with their hands, but were often denigrated for being “tanners or lyre-makers no matter what their wealth” (Davies 1981, 43). Known *neoploutoi* in the fifth century included (per Connor 1971, 152-3, Davies 1971 and 1981, 41-2) Kleon – a tannery owner;¹³⁸ Hyperbolos – a lampmaker,¹³⁹ metalworker¹⁴⁰ and potter;¹⁴¹ Kleophon – a lyremaker;¹⁴² Lysikles – a sheep dealer,¹⁴³ or ‘hide-stitcher’;¹⁴⁴ Eukrates – an oakum

¹³⁵ Used pejoratively of men who bought and sold in the Agora – cf. Ar. *Peace* 750 and *Frogs* 1013-17, Xen. *Memorabilia* 3.7.6. One might wonder why he cared what price was paid for female musicians.

¹³⁶ Aristotle evidently felt so strongly about this point that he repeated it in the same section. He also deplored marriage between the nobly born (with whom he identified) and the *neoploutoi* (*ibid*).

¹³⁷ At the very least they needed “abundant leisure” (Connor 1971, 153).

¹³⁸ Ar. *Knights* 44 = APF 8674. Son of Kleainetos of Kydathenaion who can probably be identified with a *choregos* for Pandionis in 460/59 (IG II² 2318, 34, cf. Davies 1971, 318). The reason for Aristophanes’ sneers at Kleon for being a Paphlagonian are unknown.

¹³⁹ Son of Antiphanes of Perithoidai. Ar. *Peace* 690; skol. Ar. *Knights* 739 = APF 13910.

¹⁴⁰ Skol. *Clouds* 1064.

¹⁴¹ Skol. *Knights* 1304.

¹⁴² Andok. 1.146; Aiskhines 2.76; *Ath. Pol.* 28.3; skol. Ar. *Thesm.* 805; skol. Ar. *Frogs* 681. Son of Kleippides of Acharnai, brother of Philinos.

¹⁴³ Ar. *Knights* 132; Plut. *Per.* 24.6.

merchant;¹⁴⁵ Isokrates – a flute-maker;¹⁴⁶ Sophilos – a bronze-smith, dagger maker and carpenter;¹⁴⁷ Anytos – a tannery owner and shoe-maker;¹⁴⁸ Lysias and his brother Polemarkhos – shield-makers;¹⁴⁹ Dietrephes – a maker of wicker jars;¹⁵⁰ and Antisthenes – a merchant trader or manufacturer and possible mining investor.¹⁵¹

These men inherited wealth from their families. In some cases the father was politically active, Kleophon's father was a *strategos* for instance,¹⁵² but usually not. Thus there was a phenomenon whereby men whose families had come from banausic and business backgrounds, started to emerge into politics. An important evidentiary point is that we know little or nothing of their families until they entered the limelight, and even that information was subject to the accident of preservation. It is therefore reasonable to suggest that the known 'business' families (for want of a better description) identified in the surviving literary and epigraphical record must only represent a small proportion of the real total, and the majority were content to go quietly go about their affairs. Furthermore, the ones in that

¹⁴⁴ Ar. *Knights* 739-40 and skolia.

¹⁴⁵ Of Melite. Ar. F696, I 562 K; *Knights* 129 and skolia *ad loc*; Kratinos F295, Γ 98 K. Oakum was hemp impregnated with pine resin used to caulk ship hulls and decks.

¹⁴⁶ Son of Theodoros of Erchia. Plut. *Lives of the ten orators - Isokrates* 4.1. = APF 7716. The family may have invested in manufacturing as Isokrates was a horseman in his youth (Plut. *Mor.* 839 c) which implies the family had land (Davies 1971, 246).

¹⁴⁷ Son of Sophokles of Kolonos. *Vit. Soph.* 1; Aristoxenos F115 Wehrli; Istros *FGrH* 334, F33. Davies 1981, 41, n.4 noted that *Vit. Soph.* 1 corrected the impression that "Sophilos was himself a bronze-smith or carpenter" on the grounds that this was a "libel of low origins". While he may well be correct, it is also likely that the family were originally bronze-smiths who became successful enough to employ more workers and slaves, and thus rise above (socially speaking) doing manual work. He was killed as a trierarch in 409 (Davies 1971, 490).

¹⁴⁸ Son of Anthemion of Euonymon = APF 1324. Tannery – Xen. *Apol.* 29; Dio Chrysost. 55.22; skol. Arethae Plato *Apol.* 18b. Shoemaker's business – Theopompos F57, I 748 K; Archippos F30, I 685 K. His family may possibly have been descended from the Diphilos who made the dedication on becoming a Knight (*Ath. Pol.* 7.4), but not certainly. Anytos evidently gained acceptance into elite circles (Davies 1971, 40-1).

¹⁴⁹ Sons of Kephalos of Syracuse. Lys. 12.8 and 12 = APF C9. Strictly speaking rich metics who probably lived in Peiraieus from before 451 (Davies 1971, 587-90).

¹⁵⁰ Skol. Ar. *Birds* 798.

¹⁵¹ Xen. *Mem.* 3.4.1ff, who unfortunately does not describe the exact nature of his business, but only says he was good at making money, = APF 1194. Davies 1971, 39 surmised he was involved in mining from his ownership of land in the mining district. This list is not exhaustive. Many others could be added from the late fifth century such as Demomeles (= APF 3597), the probable grandfather of the orator Demosthenes, who was the architect of a bridge at Eleusis in 421 (Davies 1971, 114), and Iasos (= APF 7423) who was a sculptor on the Erechtheion in 408-406 and wealthy enough to enter the liturgical class (Davies 1971, 242). The crucial difference is that they still worked in their occupations.

¹⁵² Kleophon's father Kleippides was a *strategos* in 428/7 (Thuc. 3.3.2) and mentioned on ostraka of ca. 444/3 (IG I² 911, 2). He was a *strategos* himself (Ar. *Frogs* 679) and grandson of Deinias – cf. Connor 1971, 158 and n.46 with reference to discussions.

category probably hid as much of their wealth as they could to minimise their liability for liturgies and *eisphorai* (Gabrielsen 1994, 54; Christ 2007 and 2008, 203 ff and *passim*). This practice was called *apokrupsis ousias* and was the subject of numerous legal cases (for instance Aiskhines 1.101 and Lys. 3.24). It was possible because the state had no accurate mechanism for determining a person's wealth and relied mainly on self assessment (de Ste Croix 2004, 61, n.223). Even the *timēma* used to determine the *eisphora* (war tax) was limited to visible (*phanera*) property such as land, house and slaves unless the person self-declared his other assets, or someone challenged him to an *antidosis* (swap of property, cf. Yun 2008, 4-8).

There is ample literary evidence that by the end of the fifth century, a substantial proportion of male citizens, possibly more than half (Isager 1975, 50-2), made their living in crafts and trade. Aristophanes in 414 (*Birds* 490-1) listed the ordinary workers as being "bronze-smiths, potters, tanners...cobblers, bath attendants, corn-dealers, lathe and joinery craftsmen", and later in 388 (*Ploutos* 162-8) cobblers, bronze-smiths, carpenters, gold-smiths, fullers and tanners. Xenophon (*Rep. Lac.* 7.1) stated that in cities other than Sparta, "all make as much money as they can. One is a farmer, another a ship-owner, another a merchant, and others live by different handicrafts". He listed (*Mem.* 3.7.6) the occupations of those attending the Assembly as fullers, cobblers, builders, smiths, farmers, merchants, and small traders in the Agora. Plato's list of attendees (*Prt.* 319c-d) included smiths, cobblers, merchants and shippers, and Sokrates apparently frequently stressed the importance of cobblers, builders, and metal-workers in his discussions (*Xen. Mem.* 1.2.37, 4.2.22, 4.4.5).

The ranks of those earning their living in the non-farming sectors had swelled during the fifth century on account of the opportunities offered by the empire with its wide markets, building programmes, naval activities, and increased security for investment abroad, but many must have been heirs to family businesses going back to the sixth century. In fact, the requirement for a father to teach his son a trade was allegedly enshrined in law (*Plut. Sol.* 22.1). Connor (1971, 156-7) noted the example of Dieitrephes whom Aristophanes (*Birds* 798-800) said rose from being a 'nothing', and who was described in the *skolia* (*Birds* 798) as a manufacturer of wicker jars and a *neoploutos*. However, he almost certainly belonged to a wealthy family that was politically active in the first half of the fifth century, including a grandfather named on ostraka ca. 460, and a great-uncle distinguished for bravery at Mykale

in 479. Connor (1971, 157) suggested that perhaps the family had “recently acquired a great deal of wealth from his manufacturing activities”, but I believe it is inherently more likely the family had made its money in manufacturing before venturing into politics.¹⁵³

The practice of the sons of wealthy businessmen venturing into public life was not restricted to the second half of the fifth century, though our records of it occurring are rarer for earlier in the century. The prime exhibit is Themistokles. His father Neokles “was no very conspicuous man” though of aristocratic lineage (Plut. *Them.* 1). The name he chose for his son ca. 524 indicated some political awareness (Themistokles = ‘glory of the law’).¹⁵⁴ His family hailed from the southern deme of Phrearrhioi, and he was presumably involved in some form of trading activities, hence the tradition that he married a Thracian or a Karian (Plut. *Them.* 1), and the fact that the family lived in the immigrant area of Kynosarges outside the walls of Athens (*ibid*). This would account for Themistokles’ understanding of the importance of trade, money, and sea power, in particular his support for the building of the port and defences of Peiraieus (Thuc. 1.93.3-7), and use of public revenues to create the Athenian fleet. A further clue to this understanding, and also perhaps to his real support base (rather than the *hoi polloi* as charmingly depicted in Plut. *Them.* 5) was his offer of tax breaks to merchants and artisans (Diod. 11.43). The other example was Ephialtes – Themistokles’ successor as leader of the popular faction (*Ath. Pol.* 25.1). Stadter (1989, 121) noted that his father Sophonides is unknown, and surmised that “he may not have belonged to the elite class of old and wealthy landowners, which could explain Ephialtes’ reputation for poverty (Aelian VH 2.43, 11.9. 13.39)”. However, it is exceedingly unlikely that Ephialtes was poor yet able to be elected a *strategos* in 465, and it is reasonable to suggest his wealth, though probably modest compared with the great landowners, was not in property. His political program strongly indicated support for (and by) opponents of the aristocracy.

The manufacturers and traders were not the wealthiest businessmen. That honour belonged unsurprisingly to the men involved in silver mining. They included the family of

¹⁵³ Another example is the *grammateus* Mechanion, father of the *anagrapheus* Teisamenos (cf. Andokides 1.83), who made a dedication of the Acropolis ca. 480-60 (Raubitschek 1949, 411, no. 383). Connor’s conclusion (1971, 158-9) that “the politicians of the 420’s were neither barbarians nor slaves, nor the sons of non-citizens, but good Athenians, often of well established families” is surely correct.

¹⁵⁴ It is intriguing to speculate how much this naming indicated an involvement in politics and specifically a concern with legal rights.

Hipponikos (son Kallias);¹⁵⁵ Philemonides;¹⁵⁶ and Nikias.¹⁵⁷ Other families in the area would certainly have made money from mining (either by investment or directly), including the Alkmeonidai and possibly Konon.¹⁵⁸ It was even possible to derive income from mining outside Attica, such as the family of Thucydides of Halimous who owned the rights to gold mines in Thrace (Thuc. 4.105.1).

It is striking that most of those whom we know to have been wealthy in the fifth century through their involvement in mining were usually *palaioploutoi* (wealthy from of old, cf. *Ath. Pol.* 6.2, or its synonym *archaioploutos*, cf. Lys. 19), though they also had agricultural wealth. Even these men did not escape approbrium as the probably invented tale of the dishonest dealings of the ancestors of Hipponikos and Konon under Solon indicates, which led to them being among those called *khreokopidai* (debt-cutters, Plut. *Sol.* 15.7; cf. Davies 1971, 255). Similarly the incontrovertibly *archaioploutos* Hagnon son of Nikias of Steiria (whose career indicated strong connections with Thrace) was attacked by Kratinos *Ploutoi*, F B, 32-3 for the source of his wealth (mining?). One of the *nouveaux riches* whose wealth was based on mining and who did succeed in joining the ranks of the socially-accepted elite was Nikias. However, he had to be more aristocratic than the aristocrats in terms of public largesse (Plut. *Nikias* 4), contract a favourable marriage (Connor 1971, 161-2), and invent a pseudo-historical ancestry (*ibid*).¹⁵⁹

In contrast, Davies (1981, 41) noted that “mercantile trading was practically insignificant as an avenue for social and political advancement”. To be accepted, the aspiring social climber needed land, the income from which had formed the basis of the *telē* since Solon’s reforms, but it seems there were sanctions against readily acquiring it (Davies 1981, 40). Being in the higher classes of the *telē* came to count for less and less as the fifth century wore on in terms of qualifying for office, but it remained fundamentally important

¹⁵⁵ Of Alopeke. Xenophon *Poroi* 4.15; Nepos *Kimon* 1.3; = APF 7826, nicknamed *lakkoploutos* (pit-wealthy), the owner of 600 slaves leased out or contracted to the silver mines. Cf. Shapiro 1982.

¹⁵⁶ APF p.535, the owner of 300 slaves in the mines.

¹⁵⁷ Of Kydantidai. Xenophon *Poroi* 4.14; Lysias 19.47; Plut. *Nik.* 4; = APF 10808, the owner of 1000 slaves. If Plutarch *Nikias* 4 is to be believed, the family did more than just own slaves: “He kept a large force of slaves there [Laurion] and most of his wealth consisted of the silver which they produced”.

¹⁵⁸ Of Anaphlystos = APF 13700. The source of the family’s wealth is not explained in the sources which only came to prominence in the middle of the fifth century, but the inclusion of the family in the story of the Khreokopidai (*Ath. Pol.* 6.2) and its geographic location makes me suspect involvement in mining.

¹⁵⁹ Cf. the tradition preserved in Diogenes Laertios 1.110 that Epimenides was brought to cleanse Athens by a forebear.

socially.¹⁶⁰ Strongly linked to this were aristocratic notions of proper behaviour, education, and political attitudes. Failure to adhere to aristocratic 'group-think' resulted in social ostracism and political attack, as the example of the vilification of Kleon perfectly illustrates.¹⁶¹

Davies (1981, 69) considered that the "first surviving indication that note was being taken of... the advent" of the *neoploutoi* came from the 430's. He suggested there was a change of attitude towards the means by which wealth had been acquired as indicated in the discussion "without venom" of the fortunes of Hagnon in Kratinos' *Ploutoi*, compared with the scathing attack on the *neoploutoponēroi* just a few years later in *Seriphioi*. However, the former was identified in the play as an *archaioploutos* which vitiates the argument. I believe the aristocratic writings denegrating people as *neoploutoi* were merely a development in political vocabulary which reflected longstanding animosity, and could well have been in use for quite a while for all we know. This overt hostility was exemplified by the fates of Kleisthenes, Themistokles and Ephialtes who each led the popular faction. We do not know what happened to Kleisthenes after his final return to Athens, but the fact he was effectively ignored in many later accounts might be considered *de facto damnatio memoriae*.¹⁶² As mentioned earlier, Themistokles was the quintessential new man of the age despite his father's aristocratic lineage. It is impossible to tell how much the stories of his alleged corruption and treason represented aristocratic efforts to besmirch him to the point where he could be successfully removed, but I suspect that at least there was considerable exaggeration.¹⁶³ According to Plutarch *Perikles* 10.7, when Ephialtes attacked the Areopagos, "his enemies laid plots against him and had him assassinated".

¹⁶⁰ We do not really know the extent to which the classes continued to be used, though two uses were negative: (1) the imposition of the *eisphora* and (2) the colonists to Brea in the second half of the fifth century (IG I³ 46, 39-42 = ML 49; dates of 445, 439/8 and 426/5 have all been suggested) were restricted to the two lowest classes.

¹⁶¹ Connor 1971, 152 and n.32 called to our attention the scholion on Ar. *Knights* 225 and other evidence that Kleon was originally a Knight with aristocratic friends, but broke ranks after an insult and launched his political career. The fact that his father, Kleainetos, was a *chorēgos* in 460/59 (IG II² 2318, line 34) supports this.

¹⁶² For instance, Plato *Gorgias* ignored Kleisthenes and Ephialtes but included Miltiades, Themistokles, Aristides, Kimon and Perikles. I suspect that (a) Plato himself wished to push the claim of his ancestor Solon as the founder of the ideal form of democracy in which people were led by the best, and (b) the sophists in general were hostile to the New Politicians and associated Kleisthenes with enabling their rise.

¹⁶³ Allegedly Themistokles entered politics with a fortune of three talents, which was still quite a considerable sum, but amassed eighty or hundred talents which was confiscated by the city – Plut. *Them.* 25; Kritias VS 88 B 45. This can be compared with the similar attack on Kleon who allegedly started public life in debt, but died

It should be remembered that the factional interests of Kleisthenes, Themistokles and Ephialtes held sway for approximately fifty years against their powerful aristocratic opponents without the buttress of the lower classes in the *Ekklēsia* accorded to later demagogues. I contend this could only have been possible because they had effective support from people who are unseen in the literary record, yet collectively were financially able to compete with the aristocrats, despite the latter's visible trappings of wealth. I understand the late-fifth and early-fourth century elite writings as the use of a Sokratic dialectic which resolved itself in the complete refutation of the opposing viewpoint. The writers projected on their opponents a set of false values and attributes such as lack of education, competence and good sense.¹⁶⁴ Like much elite discourse today, it probably sounded good to a sympathetic audience of their peers, but in practice a majority of citizens did not agree. We need to see past this one-sided representation to get closer to the truth.

From this summary I draw the conclusion that there were many more people with substantial wealth outside the propertied class than has been generally realised.¹⁶⁵ Their existence may have been shadowy in terms of historical record, but there is good archaeological evidence from non-elite dedications on the Acropolis that *banausoi* were accruing wealth by the late-sixth century. Those making the dedications included a fuller, a tanner, an architect, a ship-builder, a washer woman, a scribe, and many potters and painters (Raubitschek 1949, 465). These people did not sit by passively and see their interests harmed by a resurgence of oligarchy, but acted as supporters of friendly aristocratic leaders such as Kleisthenes and Themistokles. Their decision to invest the state's resources in building a new port and navy is a clear indication of priorities.¹⁶⁶ Their influence on the public political discourse at Athens was such that even a blue-blooded aristocrat like

with an estate worth fifty talents – Kritias *ibid apud* Aelian *Varia Historia* 10.17. However, we must ask how much these sums can be believed given the previously mentioned lack of knowledge of the details and extent of the wealth of individuals. Were these allegations of profiteering at the expense of the *dēmos* just another slur on these men? There is no evidence for successful charges of *klope* against them.

¹⁶⁴ Kleon was deliberately anti-intellectual in style which helped give him appeal to the *phauloi*, cf. the report of his speech in the Mytilene debate in Thuc. 3.37.3-4, though perhaps it would be more accurate to consider him hostile to the intellectual training of the sophists. This was parodied in Comedy which delighted “in presenting them [the New Politicians] as ignorant and uncultured” (Connor 1971, 163 with references).

¹⁶⁵ Ironically, the perception has been exacerbated by the thorough treatment given to the propertied classes by Davies 1971. I understand the forthcoming revision adopts a wider set of criteria for determining wealth.

¹⁶⁶ In my opinion, far too much is made of Themistokles' vision in traditional accounts. Granted he was an influential politician, but these decisions could not have been made without strong community support and commitment.

Perikles had to couch his arguments in mercantile terms (cf. Thuc. 2.13).¹⁶⁷ The rise of the New Politicians in the late fifth century is readily understandable as their influence now made manifest.¹⁶⁸ A comparable phenomenon can often be observed with migrant families in present times. The first generation works incredibly hard to provide opportunities for their children and grandchildren, who then trend into higher status occupations including law and politics. I can extend the analogy from my personal experience in dealing with the property of such families, that they also tend to be very good at hiding the extent of their accumulated wealth, while living frugally.¹⁶⁹

This brings me to finally consider why Athens did not evolve into a more modern type of market economy as its earlier development suggested it might. I suggest there were two main reasons.

1. The value system and lifestyle of the aristocrats. This offered the lure of respectability and cachet of success to up-and-coming families (as was perfectly satirised in Aristophanes *Clouds*). A crucially important negative feature was the idea that aristocratic people did not work with their hands.¹⁷⁰ It is hard to conceive of any systemic practice that would be more damaging to economic viability than that. It forced wealthy people to (a) rely on hired or purchased help to work their property, and (b) to concentrate their wealth in investments which were often either risky

¹⁶⁷ Kallet-Marx 1994 clearly demonstrated that *rhetoires* expressed the power of Athens in terms of money and resources rather than 'brave men' as Sthenelaidas did for the Spartans (Thuc. 1.86.3). However, while she envisaged the *rhetoire* using his financial expertise to teach and dazzle the members of the audience of whom only a few had financial expertise (despite the abundant evidence of financial inscriptions), I suspect it was because a good proportion of the audience did understand basic book-keeping at the level of money in, out and owing. Furthermore, this was not a 'novel' concept in the mid-to-late fifth century (p.242). Themistokles' persuasion of the Athenians to forego handouts and to invest their money in a new and untried navy when they had recently won their battles with land forces, implies an extraordinary level of understanding by a majority of voters. Even today, how many politicians could successfully suggest vastly increased defence spending over tax-cuts without being in the shadow of an existential threat?

¹⁶⁸ The increased complexity of public business under the empire could also have encouraged the entry of people with business knowledge into the political class, cf. Connor 1971, 125 on the need for such expertise.

¹⁶⁹ This makes them impervious to the tactics of naming and shaming or social shunning that might motivate men who crave 'respectability' to contribute. It is worth noting that Perikles in Thuc. 1.141.5 even described farmers as "a class of men that are always more ready to serve in person than in purse".

¹⁷⁰ Hesiod *Works and Days* railed against this. Cf. van Wees 2009, 446-8 on "[t]he work ethic and the leisure class". I find it amusing that a paradigm of management classes today is that the successful business person should spend more time working *on* their business than *in* it, which sounds delightful and reminiscent of Xenophon *The Estate Manager* 11.12-13, but is no substitute for actually getting on with the job.

(such as bottomry loans), or minimally profitable when worked in such a way (especially property).¹⁷¹

2. Shortage, misuse, and competition for capital. The insufficiency of capital, despite the substantial revenues derived from silver mining and the profits of empire, was partly caused by the system which required ever more onerous exactions from the (known) wealthy in the form of taxation (liturgies, *eisphorai*), and public display and largesse. Even Apollodoros who was one of the wealthiest Athenians of his day needed loans to meet his obligations (Davies 1981, 83), and Alkibiades could boast of having spent a fortune in 416 putting seven teams of chariots to compete at the Olympic games, all for the sake of prestige (Thuc. 6.16.2; Athen. 1.3e; cf. Plut. *Alk.* 16). This led many people to hoard wealth to avoid losing it (cf. Thompson, Mørkholm and Kraay 1973), which was completely unproductive. More significantly, the state was massively competing with the private sector for capital and investing it in less productive ways, especially in expenditure on public buildings, sanctuaries, festivals and warfare (cf. Pritchard 2011). These had social and other benefits of providing employment and security (as well as beautifying the city) and would have increased the velocity of money, but must have driven up the price of funds (= interest rates on loans).¹⁷² This made it difficult to form adequately funded capital markets.¹⁷³

Little wonder that Demosthenes (42.2) could say that “to be continuously prosperous with one’s property is not customary for the majority of the citizens”. Wealth was transient, and substantial wealth rarely transcended many generations (Davies 1981, 87). Altogether, for the economy to be market oriented, there was far too much preoccupation with visible landed wealth, because status was linked to landed wealth by Solon’s reforms. This is ironic, because the desire for wealth was a common theme in Greek history starting from the avaricious Homeric heroes with their treasure houses, through Hesiod’s ‘gift-devouring’

¹⁷¹ Davies 1981, 60 noted that opportunity for investment abroad was a reason for the upper classes to support imperialism, and that lending was probably a widespread practice in all social classes (*ibid*, p.64).

¹⁷² This is perhaps a better explanation for the 100% return on bottomry loans towards the end of the fifth century discussed earlier.

¹⁷³ Cohen 1992 noted these did not form until the fourth century. The earliest known banking was at the end of the fifth century – Pasion, cf. Davies 1971, 428, and n.1.

basileis, and even the noble Solon (cf. West *Solon* F13) who enunciated more clearly than anyone how transitory wealth could be and deplored the criminality that often accompanied its acquisition. But land as an investment worked by others was not profitable enough for most people under the demands of the democracy which in a way, was too successful in its social egalitarianism for capitalism to flourish. Towards the end of the Peloponnesian war, Athens lost most of the revenues from her mines, and many families suffered disastrous personal losses (of fortune as well as life). Her defeat dealt a significant blow to market integration and security of investment. Athens was no longer πρῶτος μετὰ πόλεων, and the state became increasingly interventionist in trade and commerce.¹⁷⁴

¹⁷⁴ See for example, *Ath. Pol.* 51, RO 25 and 26. The reasons for and results of such intervention are debatable and need not concern us here.

PART 5

CONCLUSIONS

Few scholars would argue with the proposition that Athens was transformed during the sixth century. However, the nature of the changes, and especially the forces and processes which drove them are keenly debated. The central contention of this thesis is that the *politeia* and laws evolved to meet continual and increasingly rapid economic changes. These constantly promoted sub-elite groups who then demanded a share of legal and political rights. In this final Part I summarise my arguments, and note where I intend to undertake future research.

My method has been to approach the evidence without preconception using an adaption of Edgar Schein's model of organisational culture which has helped allow me to conceptualise whether professed 'values' and history differed from reality. This is important given the paucity of evidence, and our necessarily heavy dependence on elite literary sources written considerably later than the events they described. I have synthesised information and data from literary, archaeological, numismatic and scientific sources, and then probed beneath the surface to gain a deeper and more nuanced understanding.

My initial key finding is that we cannot rely on the traditions about Solon. In particular, the evidence does not support his drafting of a comprehensive code of laws inscribed on *axones*, nor his adoption of the Euboian system of weights and measures, and especially not his use of coinage for legal penalties and rewards even in the form of weighed silver. It seems far more likely that Athens at the beginning of the sixth century had a rudimentary economy in which transactions were denominated on a barley standard. There was little international trade and it principally comprised aristocrats buying and selling semi-luxury goods and foodstuffs.

Crucially I situate legal control of power in the *polis* at the centre of relationships between social and economic 'groups' (for want of a better word). As sub-elite groups acquired sufficient wealth, they came to resent elite domination and exploitative behaviour exercised through monopoly of the law, and to agitate for a share of rights and power. It is important to note that no such group (as far as we know) ever contended that their inferiors should

also be accorded the same privileges. This is particularly important when defining the parties to the struggle at any particular time. The *kakoi* to whom Solon referred in his poems could not realistically have included the *thētes*, and the same probably still held true in the power struggle that followed Hippias' expulsion. I have endeavoured to continually redefine the *dēmos* throughout the period, and have not used the word loosely (as is so often the case in scholarly discourse) to incorrectly imply all non-elite residents of Attica or 'citizens' (another word that is troubling to define and date and needs to be used carefully). Our first clear case of social agitation between elite and non-elite groups requiring a political response came at the beginning of the sixth century.¹ Solon's solution was to make income derived from land the criterion for his *telē*. The immediate and intended result was a limited expansion in the ranks of the elite. The longer-term consequence was to set up a clash with those whose wealth would not come from land.

Despite his personal experience of trade, I find it extremely unlikely Solon could have anticipated how rapidly the world would change over the course of the sixth century. He responded to the challenges of his own time within his own value-set. Thus he made the minimum necessary concessions on behalf of his class (the pre-existing elite) to avoid *stasis* and preserve *eunomia*. One of these was to abolish the hektemorage system, which I propose was an obligation by many of the so-called 'middling' farmers to pay a *morte* of produce to local aristocrats, with the farms they worked marked by *horoi*, and the sanction of slavery for failure to pay. This system had grown out of unfettered aristocratic control of the legal system backed by thuggery. Its abolition gave security of tenure and increased prosperity to the farmers. I reject as unnecessary and inadequately supported the view that social changes were fostered by solidarity gained by the class of 'middling' farmers serving in the hoplite ranks in the sixth century. In my view, parallels with Homer and Sparta are seriously misleading. Athens was not an armed camp and was not subject to an existential threat that required a military response. In fact there is evidence that Athenians were actually disarmed during the tyranny. Sub-elite Athenians did strive to be in the front rank but as legally-empowered citizens, not soldiers. To be among the *homoioi* meant different things in different places.

¹ Presumably the problem had developed over time, but we have no evidence for it. Kylon's attempt at tyranny was an aristocratic power-play. I do not accept that Drakon wrote a code of laws, and consider instead that later writers extrapolated to give him authorship of all the pre-Solonic laws. I see his homicide laws as being designed to deal with a specific legal problem.

At the beginning of the century those challenging the status quo were seriously wealthy, non-aristocrat farmers and some merchants. Later they were moderately well-off farmers and people who had made money through commerce and manufacturing. By the end of the century, mining had come into the mix with dramatic consequences. Clearly the extraction of silver and its by-products vastly increased wealth and monetisation of the economy, and this can be approximately measured from coinage output and known expenditure by the state. It is well understood that Athens was less likely to have become a leading regional power without this source of income. Other implications are not as well appreciated. Mining was only possible with the technological innovations of the *ergasteria* and state control to provide security. It required huge capital investment, technological skills, trade links, a skilled workforce, and organisational abilities. These factors are the lead indicators of economic growth, and point to the development of an embryonic *laissez-faire* market economy. In my view, the existence of this form of market organisation has been wrongly discredited by a 'straw-man' attack within tendentious parameters.

Acceptance of how the economy had altered by the end of the century as a result of trade and mining has allowed me to reconceptualise the political struggle. In the turmoil following the expulsion of Hippias there was a return to power of the old elite accompanied by factional strife. This was unacceptable to many groups within society. They included primarily the 'middling' farmers who had prospered under the Peisistratids, and a substantial number of people whose wealth did not derive from land. There were also the former mercenaries of the Peisistratids, and crucially the many officials who had served as local magistrates. Their opportunity came with the struggle between Kleisthenes and Isagoras. They supported Kleisthenes in exchange for sweeping reforms which reduced the importance of local aristocratic power bases and control of cult. The changes were enabled by their organisational skills, contacts, and detailed local knowledge of Attica and its population. This explains both the widespread support for the new system and its level of complexity.

In the fifth century the system evolved further, and scions of families who had made money in commerce, manufacturing and mining started to emerge into the lime-light. These *neoploutoi* were often despised by the old elite whose views permeate the written record. Our need to see beyond this biased view is demonstrated by the fact that the *neoploutoi* were the successful politicians of the late-fifth century. Ultimately the trend to a more

modern type of market economy was stymied in part by Athen's loss of her *Arkhē*, but more importantly by the appeal of the unproductive aristocratic lifestyle, and the excessive demands of the democracy which thwarted adequate capital accumulation.

This has been a wide-ranging thesis which I have enormously enjoyed researching and writing. I have been driven by my need to better understand this crucial period in Athenian history which has always fascinated me. Whether my answers will prove satisfactory to others remains to be seen. My immediate plans are to continue the coin research. In particular, early Attic coinage is in chronic need of a thorough study to replace Seltman (1924). This has the potential to help tie down the chronology of the late-sixth and early-fifth centuries, and expand our understanding of economic developments, especially those linked with mining. In this respect, ongoing research into the chemical composition of the coins will assist.

PART 6

APPENDICES

This final part contains three appendices which provide important data and supplementary information to which I have referred in the thesis.

In 6.1, I present a draft research paper exploring early Athenian weights and measures. It has not yet been aired at a Conference or put in for publication.¹ I was led to consider the topic by the metrical knowledge derived from my coin research, and my suspicion that the introduction of an accurate suite of weights and measures based on weighing metal was too early for Solon (cf. Part 3.2). Although there is not enough evidence to be certain, I suggest it is likely that the Peisistratids formally adopted the international Euboian standard to replace the existing barley standard – the alternative was the more local Aiginetan standard. I endeavour to show that the Athenians developed a sophisticated and accurate system based on the *kotulē*. Firstly, there was a mathematical relationship between commodities derived from their specific gravities. Secondly, quantities were weighed or measured before being placed in containers. In other words, the containers themselves were not used as units of capacity and therefore did not need to be (and indeed could not be) made to exactly standard sizes. These findings support my contention in Part 4 that by the end of the sixth century, trade operated at a far more advanced level than hitherto believed in mainstream scholarship. I also suggest a requantification of the *kotulē*, *medimnos* and *metrētēs*.

In 6.2, I include the abstract and introduction of a draft paper reporting the analytical work conducted jointly by Associate Professor Damian Gore and myself into the chemical composition of archaic silver coins.² In it, we assess the suitability of using non-destructive XRF combined with mathematical correction to allow for changes in the surface composition. We find that the technique works provided that the coins are adequate in size

¹ I wrote a draft of the article in June 2011 but decided to hold off sending it in for publication until I could obtain some feedback and additional data.

² I am grateful to Damian for giving me the opportunity to work with him and learn something of the intriguing art of XRF analysis. My interest relates to archaic Athenian material but we hope and expect there will be general applicability for the method described. The paper has been written but not yet submitted for publication.

for the equipment, made of relatively pure silver, and in reasonable condition. This exciting technique permits accurate but inexpensive bulk testing of coins for the first time, and we expect it to have important ramifications for our understanding of the material and its ore sources. I presented a version of the paper at the Australian X-ray Analytical Association Conference held at Star City Sydney in February 2011 and was awarded the prize for Best XRF Student Oral Presentation.

In 6.3, I provide a detailed analysis of the evidence for *axones* and *kurbeis* which more fully informs the conclusions reached in the *Historia* article (Part 3.1). It is divided into three sections. The first section is a summary of the evidence cross referencing the Citations and Catalogue.³ The second section contains the Citations extracted into chronological order and discussed. The third section is the Catalogue of the inscriptions and testimonia in alphabetical order.⁴

³ The Table has already been provided in Part 3.1, but here it also has a cross-reference to the Catalogue.

⁴ Designations of dates as BCE or CE are given throughout this appendix to avoid confusion.

6.1 Sixth century B.C.E. Athenian weights and measures

ABSTRACT: There is little good evidence about the official weights and measures used in sixth-century Athens and it is difficult to come to any firm conclusions about them. Scholars have tended to rely upon ambiguous literary evidence, and then sought to accommodate physical evidence, most of it not from the same period. This has resulted in a communis opinio that the Athenians used the long-established Euboian weight standard at least from Solon's archonship, but did not measure accurately. This paper puts a different proposition. Giving primacy to the physical evidence, it seeks to demonstrate that a loose 'barley standard' was replaced by the Peisistratids with an accurate suite of Euboian weights and measures which was chosen because it was the dominant standard for international trade. The weight standard and its probable relationship to systems of 'wet' and 'dry' measures are described and quantified¹. The intentional striking of early Wappenmünzen coinage below standard is identified.

1. Introduction

The definitive unit of mass used all around the world in modern times is a metal block known as the International Prototype Kilogram. There are a number of copies and for reasons unknown they are diverging in mass, with the Paris version having lost approximately 50-millionths of a gram since it was first registered with the International Bureau of Weights and Measures half a century ago (Girard 1994, 323, Table 3). This is enough to cause consternation among metrologists as so many things rely upon extremely accurate measurements. By contrast, Mabel Lang (Lang & Crosby 1964, 17) in her thorough and influential contribution to the study of ancient Athenian weights and measures, proposed that the Athenians used an official weight system where even a 20% range is not sufficient to

¹ I thank Professor Jack Kroll for reading and commenting on an earlier draft of this article, and sending me splendid images of some of the weights, though we have quite different interpretations of the history of the period. I am delighted to learn that he is in the process of comprehensively republishing the known Archaic weights as this will undoubtedly assist study in the field enormously. I thank Associate Professor Damian Gore for discussing with me how to estimate weight loss from corrosion, and my brother Jonathan Davis, a food-flavour chemist, for testing the accuracy of modern methods of estimating capacities and the specific gravities of various produce.

account for most of the data.² Is this likely? I believe it is improbable that an Athenian farmer, trader, or State official would have accepted such inaccurate measurements, and when literary and epigraphical evidence later becomes available, it indicates the State devoted considerable resources to ensuring accuracy in weighing.³ Furthermore, Kroll (2008, 46) has clearly demonstrated that Euboian traders already by the ninth century kept multiple weights for their trade with the East based on only slightly different systems (ca. 8.4 g and 8.64 g = >3% difference), and this “cannot be dismissed as the putative result of ancient imprecision in weighing or ignorance of the exact Mesopotamian norm”. It is therefore worth re-examining the sparse sixth-century evidence to see if better sense can be made of it.

Much of the problem has derived from giving primacy to literary sources whose authors were far removed in time from the period about which they were writing, and then trying to ‘fit’ the physical evidence to their accounts. This has been compounded by using material gleaned across several centuries and amalgamated, in the misguided hope that the resulting statistics could reveal something useful.⁴ My approach in this paper is to base the analysis principally on the physical evidence of official sixth century Attic weights, coins, and measures, and supplement it with the literary sources. This allows me to propose a new quantification and chronology of what I argue was the earliest *official* Athenian system of weights and measures adopted under the Peisistratids.

2. Weights

² In this she followed Shear 1938, 362 who commented in regard to the weights found by him (see Table 1 below) that the weights are “so divergent as to indicate a lack of any close adherence to a fixed standard on behalf of the Athenian officials”. Grayson 1975 argued emphatically that the Greeks were not at all precise with their standards.

³ *Ath. Pol.* 51.1 noted the existence of 10 *metronomoi* (inspectors of weights and measures) in addition to other inspectors (*agoranomoi* and *sitophylakes*). *Arist. Pol.* 1321b12-14 noted that “first among the offices of the polis is that dealing with the Agora”. See also *Ar. Ach.* 723, 824, 968, and *Vesp.* 1407 for anecdotal evidence. In later evidence (2nd century), *IG II²* 1011 spelt out the process of control, and *I.G. II²*, 1013, 39 required that the standard weights and measures be deposited in the Tholos under the guard of a public slave. This seems to have reflected long standing practice given the discovery of weights and measures in the Tholos (Camp 1992, 126-8) and corresponding inscriptional evidence (*IG II²*, 1013, lines 37-43)..

⁴ The material spans the sixth century to the Roman period with a heavy reliance on Hellenistic finds. It is also used largely uncritically in relation to whether the measures were official, and how much they may have changed from their original weight through chemical or other damage, especially for lead weights.

A number of official bronze weights are extant. They are datable to around the end of the sixth century and have secure provenance to Athens (cf. 2.1). All are generally described as being in “good condition” (Shear 1938, 362), but there is uncertainty in the literature as to their original weights. For instance, the largest of the early weights is inscribed with the word ‘stater’ and weighed 810 g according to the excavator (Shear 1938, 362).⁵ However Lang chose to use the cleaned weight of only 795 g (a 1.9% difference) as the basis for her calculations (Lang & Crosby 1964, 25). Clearly this issue needs some resolution before we can progress.

The problem is that the weights in question were made from an alloy of copper, lead and tin, which would have suffered a number of chemical changes over time.⁶ We might expect that initially such an artefact would have tarnished a little and picked up grime, thus gaining a small amount of weight, but as it was handled, it would have lost metal.⁷ In this phase it would probably have declined in weight, albeit at a slow rate. When stored or buried, it would have developed a patina which would have ‘passivated’ the metal underneath, inhibiting further corrosion, though in a sufficiently damp environment it could conceivably have stored moisture, enhancing corrosion. The weight of the patina is the sum of the metal used to form it, plus oxygen and other elements from the environment such as iron and bromine. This has the effect of slightly increasing the artefact’s mass, less any metal that has leached away. Removal of the patina takes away the extra weight of elements, but also the metal used to form it, which is its primary component. Therefore, while it is impossible to be certain about the original weight of an artefact without knowing its full chemical history, we can say that the cleaned weight is very much a metal weight minimum.⁸ Furthermore, my experience with coins has shown that the removal of the patina inevitably leads to more

⁵ The Athenians used the stater through the Archaic and Classical periods as their definitive unit of mass, rather than the mina as was more usual in other *poleis*. It was equivalent to 2 minas.

⁶ Lead is not essential for the making of bronze. Lang & Crosby 1964, 25-6 noted that her weights BW 1, 2 and 3 were “Bronze with high lead content”. These are the three official weights found in a well deposit and reported by Shear 1938, 362. Unfortunately Lang did not state the analytical basis for her claim, which was not included in Shear.

⁷ That is why fingers can smell metallic after handling metal. The amount of weight loss would depend on the degree of handling, which is unknowable.

⁸ It is theoretically possible to calculate the weight of metal in the patina by measuring the patina volume, density and composition. This figure could be added back to the cleaned weight. A difficulty is that the patina is rarely a sharp layer, rather it is a zone of decreasing zero valent (unoxidised) metal with depth. In practical terms, the extant artefacts have long since been cleaned. Testing and measuring the patina should be considered for future finds.

significant corrosion as another patina develops. This will be exacerbated by inadequate storage conditions and more cleaning. Thus any subsequent re-weighing will probably show a further loss of mass.

A test can be found in Kroll (1971, 88-90). He examined a fourth-century official bronze weight which carried an inscription stating it weighed 13 drachmas, $\frac{3}{4}$ obol (a sixteenth of a stater).⁹ The theoretical weight of an Attic drachma was 4.32 g.¹⁰ Therefore the weight should weigh 56.7 g. Before cleaning it weighed 55.63 g (1.9% less). After cleaning it weighed 54.8 g (a further reduction of 1.5%). This provides support for my contention that the uncleaned weight offers a more accurate indicator of the original weight (in the absence of scientific testing), and even this is underweight by approximately 2%. Accordingly, I have chosen to use the uncleaned weights for my data and been prepared to allow a further 2% variation.

It is also vital to understand the nature of ancient Greek weighing. From earliest times (cf. Homer *Il.* 7.68) this was conducted using a balance beam which did not measure the actual weight in terms of a measurement number, but rather gave a comparative weight. In other words, a standard approved weight on one side of the balance beam could be used to measure an exactly equal weight of product on the other side. The real question then was the accuracy of the standards being used. Denominations of silver coinage at the end of the sixth century went down to the hemi-obol (ca. 0.3 g). We can infer that silver coinage was measured to an accuracy of one decimal place. This fact alone should make us reluctant to presume large variations in official weights. It is well accepted that bulkier goods such as wine, olive oil, barley and wheat were usually measured not weighed in commercial transactions. As I shall demonstrate later in this paper, the volume of these goods could readily be gauged by weight.

2.1 Evidence

Table 1 summarises the information about the official late archaic bronze weights. The first three were found in a well deposit just outside the Agora which was filled in following the Persian destruction of 480/79 (Shear 1993, 408, 434-5). The fourth was probably on the

⁹ The weight is in the Numismatic Museum, Athens (Inv. no. P 321; Weight B, Pl. 28, c-d).

¹⁰ Kroll 2008, 45, n.8 (drawing on Crawford 1974, 590-2 and 753 and Mørkholm 1991, 8) demonstrated conclusively using calculations from three sources with the same result that the ideal weight of a stater was 864 g (=432g mina). All drachmas in this article are Attic.

Acropolis,¹¹ and the fifth in the *Perserschutt*. Lang (Lang and Crosby 1964, 6) dated them by context to ca. 500 but they could have been earlier.¹²

Table 1

No.	TYPE	LEGEND	DENOMINATION	ACTUAL WEIGHT (grams)	STATER WEIGHT (grams)
1	Sea turtle ¹³	HEMITPITO ΔΕΜΟΣΙΟΝ ΑΘΕΝΑΙΟΝ	1/6th stater	127.5	765
2	Astragalos ¹⁴	ΣΤΑΤΕΡ ΔΕΜΟΣΙΟΝ ΑΘΕΝΑΙΟΝ	Stater	810	810
3	Boiotian shield ¹⁵	ΤΕΤΑΡΤΕ ΔΕΜΟΣΙΟΝ ΑΘΕΝΑΙΟΝ	¼ stater	199.5	798
4	Dolphin ¹⁶	ΗΜΙΣΤΑΤΕΡΟΝ ΔΕΜΟΣΙΟΝ ΑΘΕΝΑΙΟΝ	½ stater	426.63	853.3
5	Owl ¹⁷		1/12 th stater	71.42	856.8

2.2 Proposed weight standards

This is a very small amount of information from which to be drawing significant conclusions. Nonetheless the weights were official and found in secure contexts datable to around 500 - 480 BCE, which means they must have been in use prior to that time. The main issue revolves around whether they do in fact all belong to one standard. This is the orthodox position and it is strongly boosted by the fact that weights 1-3 were found together in a well and were all similarly inscribed. They must have been abandoned together, and the

¹¹ Pernice 1894, 81 did not provide a find spot, merely stating it was in the Acropolis Museum. The likelihood is that it came from the Acropolis.

¹² The Persian destruction is a *terminus ante quem* for them all.

¹³ Shear 1938, 363 = Lang & Crosby 1964, 26, BW 3 = Grayson 1975, 88 = IG I³, 1414. Sea turtle in relief. Incised legend. Dated by Shear to the late sixth or early fifth century BCE.

¹⁴ Shear 1938, 363 = Lang & Crosby 1964, 25, BW 1 = Grayson 1975, 74 = IG I³, 1411. Astragalos in relief. Incised legend.

¹⁵ Shear 1938, 363 = Lang & Crosby 1964, 25, BW 2 = Grayson 1975, 92 = IG I³, 1413. Shield in relief. Incised legend abbreviated – ΤΕΤΑΡΤΕ(ΜΟΡΙΟΝ).

¹⁶ Pernice 1894, 81, A.1 = IG I³ 1412 = Grayson 1975, 77. Dolphin in relief. Pernice misread the inscription as ἡμισυ ἱερόν.

¹⁷ Pernice 1894, 82, A.4 = Grayson 1975, 99. Symbol incised.

implication is that they were used together. My concerns with this seemingly obvious proposition are:

1. The spread of weights is almost 12% which I maintain is too great to be commercially useful for a single standard.¹⁸ The standard explanation is that the Athenians did not weigh accurately at all (cf. n.2), but a new explanation by Kroll (in private correspondence and a forthcoming article¹⁹) suggests that the objects suffered radically different amounts of corrosion. I contend that the condition of the weights is sufficiently good to rule this out. Shear (1938, 362) described them being in 'good condition' when excavated. He specifically noted that "[t]he metal of these objects is still sound and little loss has been suffered by corrosion so that the present weights must be regarded as about equivalent to the original values". The small amount of pitting visible on the cleaned artefacts appears to support this statement, making it highly improbable that one artefact had lost an eighth of its mass. We must remember that these are objects of the same chemical composition, buried together in the same conditions, for the same period of time.
2. The artefacts were discarded. We do not know why or exactly when. The traditional explanation is to link the discarding with the Persian invasion, but I suggest it is reasonable to speculate that it was because the system(s) they reflected was changed around that time or a little earlier. I note (a) the astragal is not subsequently attested; (b) the Boiotian shield was never used again as a weight symbol (possibly because the Athenians fought the Boiotians in 506); and (c) the turtle was given a different weight (representing a quarter-stater rather than a sixth as previously).²⁰
3. There was a 'barley' standard (cf. Solon's *telē*; Part 3.2) in use during the sixth century which must have had a different (and almost certainly lighter) weight from that used for coinage, plus the Pheidonian/Aginetan and Euboian systems, so we know there were at least three standards which overlapped in use. Nothing actually compels us to believe that the well weights had to be used for the one standard.

¹⁸ The total difference attributable to corrosion for the turtle would need to be ca. 13% to bring it up to the full theoretical weight.

¹⁹ In reviewing a draft of this article, Kroll kindly shared with me his forthcoming article provisionally entitled 'Ten Athenian bronze weights and the "Solonian" mass standard'.

²⁰ It is only attested as a sixteenth 'half-turtle'.

Accordingly, we should at least consider the proposition that the weights did not constitute a single metrological unit. For the purposes of discussion, I propose subdividing the weights into three hypothetical ‘Standards’ with a range based on the lower figure being the *uncleaned* weight, and the higher figure adding an allowance of 2% for corrosion since deposition:

- **Standard 1 – 765 – 780 g:** represented by Number 1 (the sea turtle - $127.5 \text{ g} \times 6 = 765$).
- **Standard 2 – 810 – 826 g:** represented by Number 2 (the astragalos – 810 g), and Number 3 (the Boiotian shield - $199.5 \text{ g} \times 4 = 798 = 1.25\%$ lighter – possibly underweight²¹).
- **Standard 3 – 857 – 874 g:** represented by Number 4 (the dolphin - $426.6 \text{ g} \times 2 = 853.2$ – possibly underweight²²), and Number 5 (the owl - $71.42 \text{ g} \times 12 = 857$).

The owl symbol on one of the Standard 3 weights makes it likely it was used for coin weights as on the Athenian ‘owl’ coinage. It ties in well with the coin weights as I shall shortly demonstrate, and therefore its theoretical weight should be 864 g. A similar weight and image was found in the Tholos (albeit from a later period).²³ In the remainder of the paper I shall discuss these three hypothetical standards (adopting 864 g for Standard 3), along with the reasons for their use and inter-relationship with one another.

2.3 Legends and symbols

There are three sorts of legends and symbols on the weights.²⁴ The first is an official guarantee indicated by the words *demosion Athenaion* or an abridged version of same. The second is a written indication of the weight – *stater*, *tetarte* and so forth. The third is a symbol, such as the *astragalos*. The legends and weights are unequivocal statements. The

²¹ This artefact suffered the greatest loss in mass from cleaning of the three found in the well - 199.5 to 190 g (almost 5% loss). This is a sure indication it was corroding faster than the other objects and therefore would probably have weighed more originally.

²² I suspect it may have been weighed *after* cleaning.

²³ Shear 1938, 347-8 = Lang & Crosby 1964, 26, BW 5 = Grayson 1975, 99. The incised symbol of an owl standing left, head reverted, wings and tail horizontal, is very similar to that found on the electrum owl coinage images, and earliest tetradrachms (cf. Seltman 1924, Pl. XIV, A 200, and Pl. XIII, P 245 respectively). The weight was found with two other lead weights and an official dry measure securely dated to the first quarter of the fourth century (from a coin impression in the clay).

²⁴ Noted by Shear 1938, 362, and amplified in Lang & Crosby 1964, 6. Not all weights have all three – see Table 1 for details.

symbols were presumably part of a system to distinguish between weights, but how they operated is unclear as they do not correspond with the system used in Classical times. Possibly they also reflect a difference in standards. Athenian coinage did not distinguish weight by symbol, though curiously some types were restricted to certain denominations.²⁵ Lang attempted to identify all the symbols with *Wappenmünzen* coinage types, postulating a system including a wheel and amphora which are not extant, but whose existence “may be presumed”.²⁶ This should be rejected as the symbols include a sea turtle, a Boiotian shield and a dolphin, none of which ever occur as Athenian coin types.

It is necessary to look elsewhere for inspiration of the types. The sea turtle has a parallel in Aigina where the type was used for its coinage, then discontinued in favour of a land tortoise probably in 456 BCE.²⁷ Lang (Lang and Crosby 1964, 8-11) suggested that it may have symbolised a trading relationship between Athens and Aigina, but this was based on the false premise that coinage reform was undertaken by Solon. The other types were used in the region by various States. The dolphin was widely used by Cycladic mints.²⁸ In particular, Delos issued archaic didrachms and used the Attic/Euboic standard. Kagan (1988) reported on an unusual archaic didrachm weighing 8.43 g (like the *Wappenmünzen* didrachms) with an ox and dolphin on the obverse which he suggested might be part of an early Euboian coinage. The *astragalos* was used as a bronze weight in a dedication (probably) at Branchidai-Didyma ca.550-525,²⁹ and found its way onto Cypriot coinage (Idalion and Paphos). The shield symbol was closely identified with many *poleis* in Boiotia.³⁰

None of this explains why the Athenian authorities used these specific types. Perhaps it was because the symbols were easily recognised ‘plastic’ art forms which were simple to mould. On this basis, it is possible to salvage something from the *Wappenmünzen* idea by

²⁵ For instance, the only types on *Wappenmünzen* drachmas were the hindquarters of a horse and wheels.

²⁶ Lang & Crosby 1964, 6-7 plus notes 11-13.

²⁷ Presuming a linkage with the enforced change to the Aiginetan coin type. This is a ‘tortuous’ question – see the summary with references in Figueira 1993, 288-92

²⁸ Notably Paros and Ceos, but they were not on the Attic standard. The type was used elsewhere, for instance Macedonia and Olbia.

²⁹ Parke 1985, 31 suggested the so-called ‘Susa astragalos’ was taken to Susa from the temple following the defeat of the Ionian Revolt. See Jeffery 1990, 334 for the dating.

³⁰ Before the war in 506 there may have been closer links with Boiotia than we currently understand. For instance, many of the sixth-century inscriptions on bronze fragments found on the Acropolis were in the Boiotian dialect (cf. Bather 1892-3).

suggesting that the symbols began as magistrate's marks, before settling down into a more regular system in the Classical Period.³¹

3. Coinage

Archaic Attic silver coinage presents tangible evidence of the weight system in practical operation. It must have been based on a particular standard. There is some difficulty with the evidence because silver coins are also subject to chemical changes from wear and corrosion over time. The wear from handling would usually be greater than for the bronze weights, but the corrosion would be less, because silver is a more noble metal than copper, tin and lead, and corrodes less readily. I have shown the actual average weight,³² and the weight plus 1% to more accurately reflect the minted weight and provide a range.

3.1 Evidence

In Table 2, I present a summary of the weights of the various types of *Wappenmünzen* didrachms, together with the *Wappenmünzen* and earliest 'owl' tetradrachms.³³

Table 2

TYPE	NUMBER OF COINS	AVERAGE WEIGHT	DRACHMA EQUIVALENT	WITH ALLOWANCE FOR CORROSION (1%)
Early WM didrachm (various types)	51	8.36	4.18	4.22
Wheel didrachm	22	8.38	4.19	4.23
<i>Gorgoneia</i> didrachm	28	8.34	4.17	4.21
<i>Total didrachms</i>	101	8.36	4.18	4.22
<i>Gorgoneia</i>	19	16.94	4.24	4.28

³¹ Kroll noted in private correspondence that we should reject direct borrowing of types from the Near East. The turtle is found as a shape of Near Eastern and Egyptian bronze weights but not the astragalos, dolphin or shield. The duck, bull and bull-head of Near Eastern weights do not appear on Athenian weights.

³² The alternative to an average would be to use a histogram. However, this method tends to be inaccurate for small sample numbers. It is extremely unlikely weights were measured beyond the first decimal place.

³³ Data from Seltman 1924. I analysed the wheel didrachms separately because of my contention that they may form a chronologically late group (see Part 3.3), and to see whether there were differences in weight by type. I did the same with the *Gorgoneia* didrachms as they are usually accepted as being the latest in the *Wappenmünzen* series. I follow Kraay 1956 with respect to Seltman's Group H being the earliest owl type. Coins described as pierced, deep cut, or oxidised have been excluded.

TYPE	NUMBER OF COINS	AVERAGE WEIGHT	DRACHMA EQUIVALENT	WITH ALLOWANCE FOR CORROSION (1%)
tetradrachm (Group K)				
Earliest owl tetradrachm (Group H)	29	17.19	4.30	4.34

3.2 The coin standard

It can be seen immediately that the tetradrachm weights (especially the owls) closely match my Standard 3 which has a mina equivalent (half the 864 g stater) of ca. 432 g. Divided by the 100 drachmas in a mina, this yields a drachma of ca. 4.32 g.

The average drachma weight of the *gorgoneia* tetradrachms was higher than that of the didrachms by 1.4%. The consistency of the various didrachm weights suggests the change was deliberately adopted with the minting of the first tetradrachms. There may be a garbled memory of this in the account of Hippias' recall and reissue of coinage:

He made the coinage of the Athenians *adokimon* (not legal tender). Assessing a price, he ordered it be brought to him. After there had been a meeting to consider striking a new *charakter* (type), he reissued the same silver. (Ps-Aristotle, *Econom.* 2.1347^a.8).³⁴

The logistics of such an operation render it scarcely credible if taken literally. The author was using it to demonstrate the 'trickiness' of the tyrant, but it makes more sense that his source was recalling the actual change from didrachms to tetradrachms which probably occurred during his tyranny.³⁵ Thus the 'same silver' was reissued albeit in a different denomination, and Hippias profited from the reminting. This would go a long way to explaining the scarcity of extant didrachms. *Wappenmünzen* fractions remained legal tender, and accordingly have been found in relatively greater quantities (cf. Part 3.3).

³⁴ τὸ τε νόμισμα τὸ ὄν' Ἀθηναίος ἀδόκιμον ἐποίησεν· τάξας δὲ τιμὴν ἐκέλευσε πρὸς αὐτὸν ἀνακομίζειν· συνελθόντων δὲ ἐπὶ τῷ κόψαι ἕτερον χαρακτῆρα, ἐξέδωκε τὸ αὐτὸ ἀργύριον. The third sentence (beginning with *sunelthontōn de*) is often translated "But after..." (cf. Seltman 1924, 77) giving Hippias' actions a sinister motivation. However, the second and third sentences have the same particle and both should be translated as connectives.

³⁵ Kroll 1981 remains the standard reference to dating. There can be little doubt the change occurred before the democracy. Compare the wording of *Ath. Pol.* 10.2: ἦν δ' ὁ ἀρχαῖος χαρακτῆρ διδραχμῶν. "The previous *charakter* was the didrachm". Therefore the 'new' or 'other *charakter*' should be the tetradrachm.

The owl tetradrachms weighed 3% more than the *Wappenmünzen* didrachms, and 1.6% more than the *gorgoneia* tetradrachms. The data are sufficiently robust to make this unlikely to be a statistical error.³⁶ I suggest there are two possible explanations:³⁷

- a) Kroll (2008, 46) demonstrated from the find of “well-preserved and carefully-adjusted” weights at Lefkandi, that the Euboians were using both the Mesopotamian standard ca. 8.4 g shekel and the Euboian standard ca. 8.64 g stater. Given the close coincidence of these weights with the Attic weights above, perhaps Athenian coinage was first minted on the lighter standard for internal use, then changed to the heavier standard when the tetradrachms were minted for export. This is an intriguing possibility, but it is compromised by the two-step change in drachma weight from early *Wappenmünzen* didrachms to *gorgoneia* tetradrachms and then to owl tetradrachms.
- b) The early *Wappenmünzen* were intentionally struck below standard to yield a profit to the state.³⁸ This would indicate a motivation to introduce coinage (cf. Le Rider 2001), and the power of the state to make under-par currency *dokimon*. It is arguable that the minting authorities could initially get away with ‘under-striking’ because the Athenians were not used to weighing accurately under their older ‘barley’ system, and the practice would not have mattered greatly while the coins were restricted to internal use. However, it would not have survived scrutiny outside of Attica. Thus when Athens sought to export silver, her coinage had to be raised to the theoretical norm. The extra profit was no longer justifiable given the quantities involved, and

³⁶ Within the samples of each type, the variation in weights falls within the range of only ca. 5%. This reduces to >3% if the approximately 10% of lowest weight coins (= those severely damaged by corrosion or cutting) are eliminated.

³⁷ I thank Professor Kroll for discussing this with me and his observations (in private correspondence). He proposed and favoured the second alternative, and noted the “rough parallel here with royal Macedonian coinage of Alexander 1, Perdiccas II, and later (till Philip II). These 5th c. kings minted two coinages, one to full Chalkidian/Thracian weight for external use and another of underweight coins (which were also debased) for internal use within their kingdom where their value could be artificially controlled by the state”.

³⁸ As noted, the *Wappenmünzen* were struck 3% under the owls. If this was the state’s profit margin, it supports restoring 3% to IGI³ 1453 = Melville Jones 2009, 50-1, no. 78, section 5, rather than 5% as is usual. I thank Prof. Melville Jones for the suggestion made at the Australasian Numismatic Association Conference held at Macquarie University, Sydney, in response to my paper given 26 Nov 2011.

reliability of reputation would have become a more important trading consideration.³⁹ This alternative is probably to be preferred.

4. Measures

The Athenians employed a system of ‘wet’ and ‘dry’ measures. The former was principally used for wine and olive oil, while the latter was for barley and wheat. Basic to both was the *kotulē* (κοτύλη).⁴⁰ In the system of wet measures, 12 *kotulai* equalled 1 *chous* (χοῦς), and 144 *kotulai* (12 *choes*) equalled 1 *metrētēs* (μετρητής). For dry measures, 4 *kotulai* equalled 1 *choinix* (χοῖνιξ), 32 *kotulai* equalled 1 *hekteus* (ἐκτεύς), and 192 *kotulai* equalled 1 *medimnos* (μέδιμνος).

4.1 Evidence

A number of values for the capacity of a *kotulē* have been proposed over the years. Hultsch calculated 273.6 cm³ based on volume units obtained from Roman equivalents.⁴¹ He is still frequently quoted despite having written over a century ago without the benefit of later archaeological material, and more importantly, notwithstanding the fact that his determination of the mass of a drachma on which he based his calculations has been shown to be too high.⁴² However, his basic deduction that a *kotulē* weighed 60 drachmas is likely to be correct. Therefore, a *kotulē* should equal 259 g (60 x 4.32 g) on the assumption that the Roman period literary evidence was correct. A check of sorts can be provided from archaeological evidence.

³⁹ However, I note that the practice may well have survived for fractional coinage which continued to be minted for internal use. Thus obols should have weighed 0.72 g but routinely weighed ca. 0.60 g. I will be analysing this statistically in my forthcoming study of early Attic coinage.

⁴⁰ *Ath. Pol.* 60.2 – the official State measure of olive oil is the *kotulē*. The word is used three times in Homer – *Il.* 22.494, *Od.* 15.312 and 17.12. In each case it simply means ‘cup’. It is translated as “cup of water” by Murray in the Loeb edition of the *Odyssey*, but could imply wine as the use in the *Iliad* refers to a feast. The implication is of a very simple vessel as the context is begging.

⁴¹ Hultsch 1882, 703, Table X, based on calculations derived from a close reading of literary evidence given in Sections 15-16 such as the first-century CE Roman writer Dioscorides *De materia medica* 5.102, cf. the table in Hultsch 1864-6, 239. However, because physicians used Greek drachmas as their basic weight, the Romans converted it based on its approximate equivalence between the weight of the silver denarius. Interestingly, Hultsch noted but dismissed an alternative weight formula given by Galen *De compositione medicamentorum per genera* which gave a lighter weight as being only applicable to medicine.

⁴² Hultsch calculated the mass of the Roman pound at 327.45 g, when we now know it to have been ca. 324 g (Crawford 1974, 590-2 and 753). This led to him supposing the Attic drachma weighed 4.366 g rather than 4.32 g. Hultsch’s figure was used by Kendrick Pritchett 1956, 182, which in turn is widely referred to in the literature.

Shear (1935, 346-7) reported on a vessel found in the Tholos marked *DĒMOSION* dated (by a coin imprint) to the first quarter of the fourth century. He calculated its capacity mathematically at 1933.80 cm³. As a two-*choinix* measure it equates to a *kotulē* of 242 cm³, but I have doubts about the accuracy of calculating capacity mathematically. Videbantt (1938, 135 ff) used the same method in 1938 and came up with 208 cm³ as the capacity of a *kotulē*. By contrast, Broneer (1938, 223) was able to physically measure the capacity of an intact official three-*choinikes* vessel labelled *DE[M]OSION*, found in the course of the 1937 excavations on the north slope of the Acropolis.⁴³ This measure contained 3.175 L which equates to 265 cm³. Young (1939, 279, n.30) physically measured the capacity of an official *klepsudra* (κλεψύδρα) marked with XX for two *choes* at 6.44 litres.⁴⁴ This equates to 268 cm³ for a *kotulē*. Further evidence comes from the one intact bronze *hemikotulē* which was found near the Mint and marked *DEMOSIO[N] ATHENAION*.⁴⁵ Sadly, its capacity is quite uncertain as the bronze was corroded. The excavator Homer Thompson (1955, 70) suggested it “must approximate very closely the figure of 273 c.c. which was long ago calculated by Hultsch”. However, allowing for the effects of corrosion, Lang (Lang and Crosby 1964, 47) put it at 126 cm³, equating to 252 cm³ for a *kotulē*. She supposed that the measure must have been a workman’s “error” which was discarded.⁴⁶ To my mind this is unacceptable as the object is indisputably official, though I suspect she underestimated the effect of cleaning on corrosion as she did for the weights. For the sake of completeness, I

⁴³ The measurements were taken using rice. Broneer noted that this is liable to considerable discrepancy as grain does not pack down evenly, and different grains would pack differently. He compared it by mathematical calculation, but noted this also was unreliable because the dimensions of the object varied and had bars set inside it. Jonathan Davis tested rice bulk density for me. He used white rice and a 1 L Erlenmeyer flask and repeated the experiment 10 times to see the amount of variation. The average weight was 826.69 mLs, but it varied between 818.92 and 841.08, meaning the error was around 1.3%. If the people measuring containers used rice and standardised on an average, their measurement of a litre could have been anywhere between 987 and 1013. The error could have been much greater if they used some ‘standard’ figure for the bulk density of rice, or measured the standard volume and/or vessel just once. Lang & Crosby 1964, 47 used rice measured in “a glass graduate holding a litre and marked off at 5 cc. intervals” – a ca. 2% variation in a *kotulē*.

⁴⁴ Young also used rice for the measurement.

⁴⁵ Thompson 1955, 70 = Lang & Crosby 1964 DM 43. I follow Lang for the inscription – Thompson gives δημοσίᾳ Ἀθηναίων. As Lang noted, the gender of δεμόσιον agrees with ἡμικοτύλιον.

⁴⁶ Lang & Crosby 1964, 48 surmised it was a ‘failure’ discarded in a well. “[W]e may be permitted to imagine a careless worker eager to get rid of the evidence of his error”. She had no such concern about the bronze weights which were also found in a well, which she said “can not be false weights since they are quite the most insistently official of all” (p.18).

mention a restored *olpe* dating to the early fifth century which Lang calculated had a capacity of 270 cm³, though I do not agree with her that it was an official measure.⁴⁷

Lang (Lang and Crosby 1964, 44) also made a detailed study of all the containers found in the Agora and argued for 273 cm³, but her physical evidence was inconclusive and primarily based on “metrological writers”.⁴⁸ She (Lang and Crosby 1964, 41-7) endeavoured to prove her figure (unsuccessfully in my opinion) by using a complicated formula of ‘finger’ widths, based on her understanding of the application of Hero Mechanikos’ formula for calculating the volume of a cylinder.⁴⁹

To sum up, the meagre physical evidence for the capacity of a *kotulē* provides figures of 265 and 268 cm³ for the *klepsudra* and 3-*choinikes* vessel respectively, and 252+ cm³ for the *hemikotulē*. The last of these is a very rough approximation and possibly under-estimated. The measurements were taken to the rim, but I believe this over-estimates their capacity as the vessels could not have been used in a practical way when filled to overflowing (cf. 4.1 below). At the risk of being seen to “cook the books”,⁵⁰ I suggest the physical evidence tends to support the theoretical capacity of a *kotulē* being ca. 259 cm³. The application of this for the standard containers is presented in Tables 2 and 3. The net result is that the *metrētēs* and *medimnos* are lighter than generally accepted.⁵¹

Table 3: Wet measures

1 <i>kotulē</i>			.259 L
12 <i>kotulai</i>	1 <i>chous</i>		3.108 L

⁴⁷ Lang & Crosby 1964, 61, LM 1 = Agora Inventory No. P 13,429. Vanderpool 1946, 276, n.17 and Pl. 27 stated the object was found in a well dating to the early fifth century, not the late sixth century as per Lang. The *olpe* has a ΔΕ ligature which merely indicates it was owned by the State. This does not make it an official measure. The other *olpai* given by Lang are so fragmentary as to make their restored capacities a guess. The amphora in the Munich Antikensammlungen 9406 will be discussed later.

⁴⁸ Lang (Lang & Crosby 1964, 44, n. 9) only mentioned “metrological writers”, but it is clear the information is from Hultsch 1882, 111, n.1.

⁴⁹ There are two major problems with her logic. Firstly, Hero’s formula applies to a cylinder, not an object of irregular dimensions such as an amphora. Secondly, Lang relied upon the “only meaningful dimension preserved [which] is enough of the circumference [of the aperture] to give the inside diameter” (p.44). She claimed “the potter could most conveniently work with the diameter alone” (p.43), allowing her to conjecture the height and ignore the width of the vessels, despite the fact that these are clearly quite variable.

⁵⁰ As Kroll put it in private correspondence.

⁵¹ The generally accepted figures were summarised in Moreno 2007, Appendix 1, 325-6 and were directly based on Hultsch 1882: 1 *kotulē* – 0.2735 L; 1 *metrētēs* – 39.38 L; 1 *medimnos* – 52.512 L. The difference of over 5% would be significant when applied to larger calculations, for instance the productivity capacity of Attica.

144 <i>kotulai</i>	12 <i>choes</i>	1 <i>metrētēs</i>	37.296 L
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Table 4: Dry measures

1 <i>kotulē</i>				.259 L
4 <i>kotulai</i>	1 <i>choinix</i>			1.036 L
32 <i>kotulai</i>	8 <i>choinikes</i>	1 <i>hekteus</i>		8.288 L
192 <i>kotulai</i>	48 <i>choinikes</i>	6 <i>hekteis</i>	1 <i>medimnos</i>	49.728 L

4.1 Use of the measures

How were these measures used? Lang (Lang and Crosby 1964, 56-61) supposed that containers for transport of goods were made to standard and accurate sizes (including *olpai*, *oinochoai* and amphoras), and this view pervades the literature.⁵² However, I contend that it is extremely unlikely potters could have thrown huge numbers of vessels to a sufficient degree of accuracy to satisfy both buyers and sellers as to their exact capacity. There are simply too many variables in each vessel's dimensions (height, width, shape, thickness). In addition there would always be questions about how fully the containers were filled and whether they were lined internally,⁵³ and in the case of grain, the density of packing and settling. Although it would have been less imperative to measure produce (with its relatively small value per gram) as precisely as silver, weighing large vessels filled with contents would have been subject to practical limitations. Critical factors would have included the fineness of the edge of the fulcrum, the placement of the goods on the balance, and environmental conditions, especially wind.⁵⁴

⁵² For instance, Niels 1992, 40-41 in her work on Panathenaic vases.

⁵³ It makes quite a difference whether a vessel was filled to the neck or rim. Lang and Crosby 1964, 58 worked off the rim which must be incorrect as the vessel needed to be stoppered and transported. This has been generally followed to the present day – cf. Neils 1992, 39, and Foxhall 2007, 117. Pulak *et al.* 1987, 54 estimated for Hellenistic transport amphoras that “if the top 5 cm. of the jar were not filled with wine, that would reduce the volume of liquid in a small jar about 0.33 l. and that of a large jar about 0.57 l.” Furthermore, a “lining 0.001-0.002 m. in average thickness would reduce the capacity of a small jar about 3% or roughly a third of a litre and the capacity of a large jar less than 2% or roughly two-thirds of a litre”.

⁵⁴ Fulcrum – the sharper the edge, the greater the accuracy. Placement – any child on a see-saw soon realises the effect of moving closer to or further from the centre. Wind – can upset the equilibrium. This may have been a factor in the Agora where goods were measured. Temperature is another factor because increasing the temperature of a fluid such as wine or oil slightly decreases the density, but it is doubtful this would have been measurable except in extreme cases. Arist. *Mech.* 848b, 1–3 suggested large balances were more accurate which could be correct if the objects weighed were further from the centre.

Lang (Lang and Crosby 1964, 59) used the example of Panathenaic amphoras to justify her claim (and the *communis opinio*) that all containers were made to standard sizes. She stated that:

[r]ecorded capacities for six amphoras ranging in date from 566 to 403 C.C. range from 39.983 l. to 38.100 l. (to brim). Their general outside dimensions and shape are also fairly close, most of the gradual increase in height going into base and neck, which are comparatively unimportant for capacity.

This can now be shown to be incorrect for three reasons. Firstly, the shape of the vases changed considerably during the sixth century and into the fifth, and they were not exactly standard in dimensions at any discernable point of time (Brandt 1978, 2-3).⁵⁵ Secondly, transport containers could not have been measured to the brim when they were stoppered below the rim. Thirdly and most importantly, Bentz (1998, 31-2) measured the capacity of some sixteen amphoras which he dated to 500-480 at 34.0 to 38.6 litres, appropriately measured to the middle of the neck. His results showed a 13.5% difference in capacity from smallest to largest. This provides an unequivocal indication that the vessels themselves were only made to an approximate capacity. My calculation of the theoretical capacity of a *metrētēs* (37.3 L) falls neatly within this range.⁵⁶

A good example is the well preserved black-figure amphora in the Munich Staatliche Antikensammlung 9406 (published by Käser 1987). It is dated ca. 520 – 500 (Shapiro 1993 summarised the arguments), and bears an owl together with the word ΔΕΜΟΣΙΟΣ strongly suggesting official use (though not as a standard).⁵⁷ Its volume was calculated to be ca. 35.5 L which led Käser (1987, 228) to theorise that it had too little capacity to be a measure and was therefore sent abroad (in disgrace?). If capacity was only approximately accurate as per my hypothesis, then there is no problem with it.

Julia Shear (2003, 102-3) suggested what I consider to be the only reasonable explanation. The required quantity of olive oil must have been measured into the amphoras using official measures, making variations in the size and volume of the individual vessels immaterial. In support of this, I note *Ath. Pol.* 60.3 recorded that the *Tamiai* (Treasurers) kept the entire

⁵⁵ Even in the developed form they varied from ca. 60-70 cms tall.

⁵⁶ Given Bentz' measurements, Shear 2003, 102 contended that the prize amphoras could not have held a *metrētēs* of oil, but this was based on her belief that a *metrētēs* held 39.395 L.

⁵⁷ The owl stands right with head reverted and wings and tail horizontal perched on an olive branch. It is very similar to the owl on the electrum *Wappenmünzen*, cf. Seltman 1924, A200, and commonly depicted in art, cf. Shapiro 1993, 216-8. Its provenance is unknown.

stock of sacred olive oil on the Acropolis, and measured it out (ἀπομετροῦσι) to the *Athlothetai* (Directors of the Games), who in turn measured it out to the victorious athletes. The same deduction can be applied to how the contents of other transport containers were calculated.

4.2 Relationship of measures to weights.

We know from *Ath. Pol.* 60.2 that the Athenian State levied olive oil from the owners of sacred olive trees at a rate of three *hemikotulē* per tree. If a *kotulē* contained 259 cm³, then a *hemikotulē* (half a *kotulē*) contained 129.5 cm³. It is important to understand that the specific gravity (SG) of water is 1.00,⁵⁸ because this means that a litre of water weighs a kilogram. Therefore, a *hemikotulē* filled with water weighs 129.5 g and nicely fits my Standard 1 (129.5 x 6 = 777 g). This is unlikely to be a coincidence. It implies the Standard could be very easily used to check the capacity of the most common liquid measures by weight with a fair degree of precision. Literary support for this practice in the fourth century comes from *Ath. Pol.* 51.2-3. The *Sitophulakes* (Corn-wardens) were charged with ensuring that sale of barley (grain and meal), wheat, and loaves of bread corresponded with the *weights* set by law. It is not unreasonable to accept that this followed earlier practice.

4.3 Specific gravity and the Standards

I suggest the practical understanding of Specific Gravity (SG) was used to measure dry and wet produce.

(a) Dry produce

The Athenian grain-tax law of 374/3 (Agora I 7557 published by Stroud 1998) stated that grain was to be measured by the *hekteus*, but weighed by the 'buyers of the tax' overseen by magistrates. Stroud (1998, 55-6) plausibly suggested the reason might have been to check for dampness which would affect the weight as well as the quality of the grain. The law provided (lines 21-5):

⁵⁸ The very slight potential variations for changes of temperature and atmospheric pressure would not have been measurable unless the water was heated.

The buyer of the tax will weigh out the wheat at a weight of a talent for five-sixths and the barley at a weight of a talent per measure (*medimnos*) dry and free from darnel.⁵⁹

This was unequivocally using the weight of each product to provide a weight ratio of wheat to barley of 6:5. It related them both to the dry *medimnos* measure, and equated a *medimnos* with a talent. My earlier calculations established that one *medimnos* contained 49.728 L of dry produce, and that this weighed 25.82 kg.⁶⁰ Therefore, 1 kg equalled 1.916 L of barley, or 1 L of barley weighed 519 g (SG = 0.519). Using the weight ratio in the text, 1 kg equalled 1.6 L of wheat, or 1 L of wheat weighed 620 g (SG = 0.620). Knowing that the SG of barley was approximately half that of water must have been very useful in a practical sense.

Interestingly, the passage also allows us to roughly calculate how much these grains have changed in weight from ancient to modern times. The SG of modern wheat is 0.772 and of barley is 0.618.⁶¹ The relationship is still approximately 6/5, but the *medimnos* of modern wheat weighs 37.94 kg (a 23.1% increase), and the *medimnos* of barley weighs 30.37 kg (a 17.6% increase).⁶²

(b) Wet produce

I now wish to consider the possible relationship between Standard 1 and Standard 3 based on the differences in the SGs of oil and water.⁶³ Nowadays, the SG of most olive oil is ca. 0.91. However, extra-virgin olive oil extracted from the subspecies *Olea europaea* and produced by straight pressing without chemicals as the ancient Athenians would have done, has a slightly lower SG of 0.896 (at 22° C).⁶⁴ In 4.2 (above) I fixed the theoretical weight

⁵⁹ τοὺς πυροὺς ἃ[πο]-/στήσει ὁ πριάμενος ἔλκοντας πέντε ἔ[κ]-/τε<α>ς τὸ τάλαντον, τὰς δὲ κρι<θ>ὰς ἔλκο[ύς]-/α>ς τὸν μέδιμνον τάλαντον ξηρὰς ἄπος[τ]/-ήσει καθαρὰς αἶρω. Translation Stroud 1998, 54. Darnel was a weed that needed to be sieved out (p.56).

⁶⁰ Stroud 1998, 55 used Lang's figures for this calculation based upon "a stater of ca. 105 drachmai, or 882-924 gr.". As I have demonstrated, her drachma weight is too high and there is no reason to use a multiplier of 105 for a produce measure.

⁶¹ Figures from the American National Standards Institute, ANSI/ASAE D241.4 Nov98.

⁶² There are a number of variables including the strain of wheat or barley being weighed, and Stroud 1998, 55 was right to caution against using modern evidence to reconstruct ancient agricultural practices.

⁶³ I thank Jonathan Davis for testing the specific gravity of various olive oils for me. He noted the considerable variation in the fatty acid composition of different cultivars of olives, meaning that each constituent part (oleic, palmitic, stearic, linoleic, palmitoleic etc) has a different density.

⁶⁴ This represents about 80% of Greek production, unlike the rest of the world. The *europaea* subspecies is still the most common in the Mediterranean. Though it is hard to match modern cultivars with ancient species, some olive trees have actually survived from ancient times including the 'Peisistratos tree' at Athens. The Athenians were extremely proud of their association with the olive tree. They had a foundation myth that it

of Standard 1 at 777 g. This is 89.9% of Standard 3 (864 g).⁶⁵ Again I do not believe this is a coincidence. The Athenians would have known that it takes more olive oil to weigh the same as water. It is lighter than water (as Aristotle *Pr.* 935b, 21-22 expressly noted),⁶⁶ which is why it floats. Wine was the other major ‘wet’ commodity and stabilises at a density of 1.00, thus it would have been weighed using Standard 3.⁶⁷ It makes sense that there was a simple mechanism in place to check the volumes sold.

5. *Ath. Pol.* 10 and Standard 2

Ath. Pol. 10.1-2 contains a much discussed passage regarding Solon’s alleged reforms of measures, weights and coinage as follows:

(1) Ἐν μὲν οὖν τοῖς νόμοις ταῦτα δοκεῖ θεῖναι δημοτικά, πρὸ δὲ τῆς νομοθεσίας ποιήσας (or ποιῆσαι) τὴν τῶν χρεῶν ἀποκοπὴν καὶ μετὰ ταῦτα τὴν τε τῶν μέτρων καὶ σταθμῶν καὶ τὴν τοῦ νομίσματος αὐξήσιν. (2) ἐπ’ ἐκείνου γὰρ ἐγένετο καὶ τὰ μέτρα μείζω τῶν Φειδωνείων, καὶ ἡ μνᾶ πρότερον ἔχουσα σταθμὸν ἐβδομήκοντα δραχμὰς ἀνεπληρώθη ταῖς ἑκατόν. ἦν δ’ ὁ ἀρχαῖος χαρακτήρ δίδραχμον. ἐποίησε δὲ καὶ σταθμὰ πρὸς τὸ νόμισμα, τρεῖς καὶ ἐξήκοντα μνᾶς τὸ τάλαντον ἀγούσας, καὶ ἐπιδιενεμήθησαν αἱ τρεῖς μναὶ τῷ στατήρι καὶ τοῖς ἄλλοις σταθμοῖς.

(1) Solon therefore seems to have laid down these enactments of a popular nature in his laws; while before his legislation his democratic reform was his cancellation of debts, and afterwards his raising the standard of the measures and weights and of the coinage. (2) For it was in his time that the measures were made larger than those of Pheidon, and that the mina, which previously had a weight of seventy drachmas, was increased to a hundred. The previous coin-type was the didrachm. Solon also instituted weights corresponding to the currency, the talent weighing sixty-three

was a gift from the goddess Athena, and represented it on their coinage. Herodotos 5.82.2 even claimed that in early times “no olive trees grew in any territory other than Athens”.

⁶⁵ The weight of a *Keramion* (= amphora) can be calculated from Dioscorides *De Materia Medica* was 36.36 kg for water and wine, but 32.73 kg for oil giving the same ratio.

⁶⁶ αὐτο γὰρ τὸ ἔλαιον ἐλαφρότερον τοῦ ὕδατος.

⁶⁷ Jonathan noted in private correspondence that wine density tends to stabilise at 1.00 provided it is allowed to ferment out completely (ie. all the sugars were fermented into alcohol). Amphoras were lined with pitch which would have made them impermeable to gas. Assuming tight stoppering and possibly sealing with a little wax, the little amount of oxygen either in the head space or seeping through would be adequately taken up by the iron and other components in the wine, actually making it better, as happens with modern corks. Burning a little sulphur in the container would generate free sulphites which would act as a preservative and contribute to flavour. Presumably most wine was drunk within a year which would have limited the risk of longer term storage.

minas, and a fraction proportionate to the additional three minas was added to the stater and the other weights. (Text and translation Rackham 1952, 32-5, slightly adapted).

Two points are generally accepted. Firstly, Solon did not make the changes to coinage which postdated his period of office.⁶⁸ Secondly, 'Pheidonian' measures refers to the Aeginetan system which had 70 drachmas, and was lighter than the Attic system in the proportion stated.⁶⁹ What then can be made of this evidence? One approach is to dismiss it as a "worthless aetiological invention" of the fourth century "intended to explain the difference between the Aeginetan and Attic minae" (Crawford 1972, 8). However, this seems to be throwing the proverbial baby out with the bathwater. I believe there is real evidence in the account. It allows a clue to the dating of the official adoption of the system, and a possible (though speculative) explanation for the existence of Standard 2.

The writer of *Ath. Pol.* 10.1 stated that Solon first cancelled debts and then enacted laws. Afterwards (*meta tauta*) the various standards were raised.⁷⁰ In 10.2 he separated the changes out sequentially. He started by stating that the measures were raised when the use of the 100 drachma mina was mandated in lieu of the old Pheidonian system. He can only have been referring to a change in coin system, not its metrical base, as 100 Athenian drachmas and 70 Aeginetan drachmas both equalled a mina of 432 g (= my Standard 3). Before describing the next change he noted that "the *previous* coin standard was the didrachm" (trans. Chambers 1973, 3, my emphasis). This provides a chronological marker as the change from the didrachm to the tetradrachm occurred in the last quarter of the sixth century. Crucially he then stated that "weights were made to correspond with the currency" (not the other way round) by an increase (*auxēsis*) of three minas on sixty (5%) added to "the stater and the other weights". The astragalos weight is actually labelled 'stater' and weighs 810 g. If 5% is added, it equals 850.5 g which is only a little less than the theoretical

⁶⁸ Hignett 1952, Appendix 3 proposed that Solon's legislation dated to "late in the third decade of the sixth century" (p.321) and the idea has won some acceptance. Kraay, 1956, 65 suggested ca. 575 for the first Attic coinage but few, if any scholars now concur with that and Kroll's date (1981, 23) of 546-ca.535 is widely accepted.

⁶⁹ Androton (*FGrH* 324, F34 = Plutarch *Solon* 15.2) has 73 drachmas in his version. This was amended to 70 by Reinach 1928, 238-40 to accord with the version in *Ath. Pol.*, but the extra three drachmas could reflect a money changer's fee as Melville Jones 2007, 61 suggested.

⁷⁰ This seems to be the natural interpretation and is followed by Kraft 1959/60, 22 and Kraay 1968, 2.

weight of my Standard 3. To be exact, the original weight of the stater would have been 823 g - a 1.6% difference which is plausibly accounted for by corrosion.

It is therefore unnecessary (at least at this point in time and for the purposes of this passage) to propose the “institution of special weights (below the talent) for the coinage which were 5 per cent. lighter than the normal weight” (Kraay 1968, 9, cf. Chambers 1973, 7-8), or that the coin standard had 105 drachmas (Lang and Crosby 1964, 2-4).⁷¹ I suggest that when silver (in the form of either bullion or foreign coinage) was brought to the Mint to be converted into Attic currency, the Mint officials simply took their fee, probably 5%, from the coins produced. The same process is well attested for money changing, though money changers seem to have charged the slightly higher fee of 7% for the convenience.⁷²

6. Historical reconstruction

I accept that the evidence can be interpreted in varying ways and certainty is unlikely to be obtained unless archaeology comes to the rescue. However, I propose that the Athenian state adopted an official and centrally controlled system of weights and measures under Peisistratos and his sons in the second half of the sixth century.⁷³ This derived from an ancient Near Eastern system which had won wide acceptance among traders in the Mediterranean and at Athens, and it was identified with the Euboians who were among the first Greeks to use it centuries earlier. I base my reconstruction on a number of understandings. Firstly, I have demonstrated that the introduction of official measures was linked to coinage, which was instituted around 540 (+/- 5 years) by Peisistratos.⁷⁴ Secondly, although the Panathenaic Games began before Peisistratos' tyranny,⁷⁵ the Panathenaic vases containing the prize of olive oil awarded to certain victors at the Panathenaic games

⁷¹ Lang proposed that the 'Solonian' coin weight standard was 915.6 g, which she derived from taking a drachma assumed to weigh 4.36 g x 105 (being 100 drachmas in the mina augmented by 5%), x 2 = a stater. She used an average of later fifth century lead weights to prove her calculation notwithstanding that none of the bronze weight in Table 1 come within 7% of her figure. However, her figure is widely accepted in modern scholarship.

⁷² Cf. CID II, 62 (FD III, 5, 25) = Melville Jones 2009 no. 21 with discussion Melville Jones 2007, 120.

⁷³ Hitzl 1996, 108 and 110 and 115 assumed this too though for different reasons.

⁷⁴ Kroll 1981, 23 persuasively argued that *Wappenmünzen* must have been introduced 546-ca.535 based on counting back types from the introduction of the 'owls' in ca. 517-515.

⁷⁵ According to tradition, in the archonship of Hippokleides (566/5) the festival was expanded to include athletic games every four years. Cf. Marcellinus *Vit. Thuc.* 2-4, and Eusebius *Chronicon Ol.* 53.3-4.

were only given their canonical form and capacity ca. 530.⁷⁶ Brandt (1978, 19-20) has persuasively argued that this change should be attributed to Hippias and Hipparchos. Thirdly, the weights were made to correspond to the currency later than the measures, therefore probably under Hippias and Hipparchos. Finally, the extant official weights and measures all date to the last decade of the sixth century or early fifth.⁷⁷

I have shown (Part 3.2) that barley was the principal denominator for the mostly agricultural transactions needed in the first half of the sixth century. It was represented by the stater and quarter-stater of Standard 2. Undoubtedly other weights and measures came increasingly into use especially for metals by traders and merchants, and this would have encouraged the official adoption of an internationally recognised system. One possible alternative would have been the 'Pheidonian' or 'Aiginetan' standard which was prevalent especially in the Peloponnese, and its early use in Athens was recalled by a source tradition (*Ath. Pol.* 10; *Plut. Sol.* 15). Peisistratos decided to adopt the Euboian system instead, and this change, along with many other developments in the distant past was inaccurately attributed to Solon by later writers. The reason for adopting the Euboian standard may have been hostility between Athens and Aegina, and/or that the Euboian standard was felt to have wider trading benefits. The immediate benefit to Peisistratos was the profit to be made from minting silver into coinage, with a super-profit from minting under-weight.

It is likely that the new system took a number of years to fully develop. The first official change was to adopt coinage on the Euboian standard, then the system of measures was introduced based on the *kotulē*. This would have happened around 530 from the evidence of the Panathenaic amphoras. Finally the weights were moved to the same system, possibly as late as the change to tetradrachms under Hippias and Hipparchos.

The key to understanding what was happening is that for the first time since the end of the Bronze Age, the central state authority was powerful enough to instigate changes that would apply across all Attica. This in turn must have driven important economic and social developments.

Irrespective of whether one agrees with my reconstruction, I suggest that the link between the wet and dry measures based on the *kotulē* of 259 g and the coin standard

⁷⁶ Brandt 1978, 19. Whatever the origins of the story reported in Plutarch *Sol.* 24.1 that exports were restricted by law to olive oil, this seems to have been the only non-perishable prize able to be exported (ie: could be taken home or sold by non- Athenian athletes).

⁷⁷ I accept that this is an argument *ex silentio* but the fact remains there are no earlier weights or measures.

should be considered reasonably likely. According to my calculations, the theoretical capacities of the measures were:

- *Metretēs* – 37.296 L
- *Medimnos* – 49.728 L

The theoretical weights of the archaic staters on their various standards were:

- Standard 1 – 777 g.
- Standard 2 – 823 g.
- Standard 3 – 864 g.

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6.2 Suitability of transportable EDXRF for the on-site assessment of ancient silver coins and other silver artefacts.

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Abstract

Transportable energy dispersive X-ray fluorescence spectrometers allow the elemental compositions of coins to be measured at collections, enhancing security while maximising access to historically important material. We assessed 10 silver coins, using five XRF spectrometers. We found no systematic differences between analyses using Mo-and Rh-anode tubes, and no substantial advantage using He flush over air for elements heavier than Ti. Higher voltage X-ray tubes enhance analytical precision. Understanding the patinas allowed a numerical correction to be made, allowing an approximation of the underlying coin metal with good results for metals including Ag, Sn, Au, Pb and Bi.

Keywords: X-ray Fluorescence spectrometry, elemental analysis, numismatics, patina, ancient history

1. Introduction

The elemental composition of ancient silver coins and other silver artifacts provides useful information about provenance, ancient history, trade and economics. Elemental analyses can also help to authenticate coins and other artifacts. Ancient artifacts are often too rare and valuable for destructive analyses, and X-ray fluorescence spectrometry (XRF) represents a powerful, non-invasive analytical tool for determining elemental composition. Recent developments in energy dispersive XRF (EDXRF) means that powerful benchtop spectrometers can be readily taken to collections in museums, rather than vice versa, paving the way for new research questions to be addressed where access to artifacts might otherwise be restricted. In this research, we focus on ancient Greek silver coins, in order to

guide the choice of spectrometers for the in situ analysis of silver coins in public and private collections.

It is often asserted that XRF spectrometry is a surface analysis technique. The analytical depth matters because most silver coins have a patina, albeit often thin and invisible to the naked eye, but chemically present nonetheless, and the compositional analysis comes from different parts of the coin. The analytical depth depends on spectrometer (tube and detector) geometry, incident X-ray energy (which is inversely proportional to wavelength), average composition of the sample ("matrix") and energy of the X-rays from the stimulated elements (Figure 1). The 2.6 keV $K\alpha$ X-rays from chlorine, for example, come from the surface 6 μm of a silver coin, whereas the 68.8 keV $K\alpha$ X-rays from gold in the same coin may come from deeper than 1100 μm . Thus energetic X-rays might be fairly representative of the bulk composition of the coin whereas lesser energy X-rays might be wholly derived from the patina, and not represent the bulk composition at all. Understanding the composition of the patina, and the energy of the X-rays from the coin, then become crucial for analytical accuracy.

The accuracy of XRF spectrometry for bulk metal analysis can be compromised where the surface has a different composition to the artifact interior, as a result of coating, pickling or alteration in the natural environment over millenia. Surface enrichment or depletion of some elements can result in the patina of a silver coin having a different composition than the core (Condamin & Picon 1972). Causes include the formation of a cluster of silver-rich grains at the surface of the coin during the manufacturing process (cf. Beck 2004), corrosion products over the millenia either accumulating in the patina or being preferentially leached from it, contaminants from the place of deposition or modern storage, and blanching and cleaning (especially the practice of using strong oxidising acids (Linke & Schreiner 2000; Sándor *et al.* 2002)). The problems are most evident, at least for coins, when their Cu content exceeds 5% due to Ag-Cu phase separation when cooling (Beck *et al.* 2004), and ready oxidation subsequently (Carter 1998). Concentration of Cu in the patina may also occur at coin metal concentrations <0.25% (Kallithrakas-Kontos *et al.* 2000). However, most archaic and classical Greek silver coins typically comprise >95% silver, and Cu typically <0.5% (Kraay & Emeleus 1962; Gale *et al.* 1980; Flament 2007), minimising problems with Cu in the patina. Other relatively mobile elements - particularly Pb - may be also present in silver coins and thus the patina may continue to represent a formidable analytical barrier. *In extremis*,

patinas in silver coins may attain thicknesses of up to 200 μm or more (e.g. Rehren *et al.* 1996; Linke & Schreiner 2000), which means that the $K\alpha$ X-rays from all of Rows 3 and 4, and most of Row 5 of the periodic table, for example, would be generated within the patina. If possible, a check of the Ag content calculated from the Ag $K\alpha$ and $L\alpha$ lines (cf. Linke & Schreiner 2000) should help the analyst understand whether or not a significant patina, and thus analytical problem, exists. However not all transportable spectrometers are able to collect data for the Ag $K\alpha$ line and so for many analysts, a significant problem remains.

In this research we analyse a range of ancient Greek (ca. 5th – 4th century BCE) silver coins using benchtop EDXRF, before and after removal of the surface metal through abrasion. We also use handheld EDXRF, full size polarising EDXRF and full size wavelength dispersive XRF (WDXRF) on the abraded coins, for comparison with the benchtop spectrometers. We discuss the appropriateness of benchtop EDXRF spectrometry for the non-invasive analysis of ancient Greek silver coins, and methods for collecting accurate elemental data through chemically altered layers in silver metal. The questions we address in detail are: **(i)** Mo and Rh are common X-ray tube anodes. Are either of these superior as a tube anode for the measurement of elements in a silver matrix? **(ii)** "He flush" is commonly used in benchtop spectrometers to displace air, reduce absorption of weak X-rays, and remove Ar from the beam path which creates overlaps with some X-ray lines, and in particular the Ag L lines. The disadvantage of He for a transportable analytical capability is the cost and necessity to transport He cylinders. Should He be used or can analyses be made in air?, **(iii)** what differences exist between the analyses made using small transportable versus full-size laboratory spectrometers? **(iv)** what quantitative differences exist between the surface and interior of a collection of ten exemplar ancient Greek silver coins, and **(v)** can numerical corrections be made to compositional data collected from undisturbed coin surfaces, so as to reflect accurately the composition of the interior?

6.3 Detailed analysis of *axones* and *kurbeis*

6.3.1 Summary of inscriptions and literary Citations (Cit.) cross-referenced to the Catalogue number (Cat. N°).

Cit.	OBJECT	SOURCE	DATE	QUOTED BY/DATE	Cat. N°	INFORMATION PROVIDED
1	<i>Kurbē</i>	Hekataios <i>Asia</i>	ca.560 – ca.485 BCE	Stephanos <i>Ethnica</i> s.v. <i>Kurbē</i> , 6 th c. CE	31	<i>Kurbē</i> was a <i>polis</i> in Pamphilia
2	<i>Kurbis</i>	Aiskhylos fragment of unknown play, <i>P.Oxy</i> 2246	Early – mid 5 th c BCE		7	An authoritative text; carried a prophecy
3	<i>Kurbeis</i>	Kratinos unnamed play	ca.2 nd half 5 th c. BCE	Plutarch <i>Solon</i> 25.1, ca.50-120 CE	42	Wooden objects pertaining to Drakon & Solon
4	<i>Kurbis</i>	Akhaaios <i>Iris</i>	ca.mid 5 th c. BCE	Athenaios 10.74, 3 rd c. CE	18	Synonym (probably metaphorical) for a Spartan <i>skytale</i> bearing an encrypted message
5	<i>Kurbis</i>	Aristophanes <i>Clouds</i> 447-8	423 BCE		14	A metaphor characterising a person who could work the law to his advantage
6	<i>Kurbeis</i>	Aristophanes <i>Birds</i> 1353-7	414 BCE		13	Physical objects with archaic laws
7	<i>Axon</i>	IG I ³ 104 - stele erected by the <i>polis</i>	409/8 BCE		1	Stele bears a reinscription of Drakon's homicide law(s) under the heading 'First <i>axon</i> '. Possible trace 'Second <i>axon</i> '
8	<i>Kurbis</i>	P.Oxy 35 (1968) no.2743, F26, 7-8	ca.late 5 th c. BCE		45	Either a metaphor for a pettifogger (cf. Cit.5) or literally 'worn smooth by rubbing' implying a physical and perishable object. (Note: a very small fragment)
9	<i>Kurbeis</i>	Lysias 30.17; 18, 20	399/8 BCE		35	Multiple references to them being physical objects with the ancestral

Cit.	OBJECT	SOURCE	DATE	QUOTED BY/DATE	Cat. N°	INFORMATION PROVIDED
						State sacrifices
10	<i>Kurbeis</i>	<i>Hesp.</i> 7 (1938) 5, 87. Stele erected by the Salaminioi <i>genos</i>	363/2 BCE		2	<i>Polis</i> -sanctioned sacrifices on <i>kurbeis</i>
11	<i>Kurbeis</i>	Plato <i>Politikos</i> 289d-e	ca.360 BCE		40	Documents with laws. Virtually a synonym to stelai
12	<i>Axon</i>	Demosthenes 23.28, 23.31	352 BCE		21	Referred to a homicide law (possibly Drakon's, cf. Cit. 7)
13	<i>Kurbeis</i>	Lykourgos <i>Concerning the priestess</i>	ca.390-325/4 BCE	Harpokration <i>Lexicon</i> s.v. <i>kurbeis</i> , late 2 nd c. CE	30b	Implication that <i>kurbeis</i> were concerned with sacred law
14	<i>Kurbeis</i> & <i>axones</i>	Anaximenes of Lampsakos <i>Philippika</i>	ca.380-320 BCE	Harpokration <i>Lexicon</i> s.v. <i>Ho katōthen nomos</i> (<i>The law below, or from below</i>) quoting Didymos ca.80-10 BCE (possibly also quoting Euphorion ca.220 BCE)	30c	Ephialtes transferred the <i>axones</i> and the <i>kurbeis</i> from the Acropolis to the Bouleuterion and the Agora
15	<i>Kurbeis</i>	Aristotle (?), <i>Ath.Pol.</i> 7.1	ca.329/8 BCE		15	Physical objects inscribed with the laws set up in the Stoa Basileios
16	<i>Axones</i>	Aristotle (?) completed by Theophrastos (?), <i>Concerning Solon's axones</i>	Some time after ca.330 BCE	Hesychios of Miletos (?) <i>Vita Menagiana</i> 140, 6 th c. CE	16	At least 5 books containing or commenting on Solon's <i>axones</i>
17	<i>Kurbeis</i>	Theophrastos <i>On Piety</i>	ca.370-288/5 BCE	Porphyrios <i>On abstinence</i> 2.20-1; 232/3-ca.305 CE; Photios <i>Lexicon</i> s.v.	44 39a 46b 46d	Contained sacrificial law; copied from Korybantic rites of the Cretans

Cit.	OBJECT	SOURCE	DATE	QUOTED BY/DATE	Cat. N°	INFORMATION PROVIDED
				<i>kurbeis</i> , 9 th c CE; skolia to Aristophanes <i>Birds</i> 1354 and Demosthenes (unknown work) <i>Patmos Lexicon</i> s.v. <i>kurbeis</i>		
18	<i>Kurbeis</i>	Phanias of Erephos unnamed work	2 nd half of 4th c. BCE	Seleukos <i>Commentary on Solon's axones</i> , ca.1 st c. BCE-1 st c CE	47	Name <i>kurbeis</i> derived from “these matters being sanctioned in writing” (cf. Cit. 31 for the subject)
19	<i>Kurbia</i>	SIG ³ , 1198 - a mortgage <i>horos</i> stone	3 rd c. BCE		3	Mentions “pledges on <i>kurbia</i> ”
20	<i>Kurbe</i>	Delian temple inventories, IG XI ² 161, B76 + 3 subsequent mentions ¹	280/79 BCE		4	A dedication in the shape of a <i>pilos</i> (a pointed felt cap or helmet) nailed on a <i>sanis</i>
21	<i>Kurbis</i>	Kallimakhos <i>Aetia</i> F103	270-245 BCE		19	Implied a physical object with ancient writing probably from Phaleron (the old port of Athens)
22	<i>Axones</i>	Philokhoros <i>Atthis</i> (?)	ca.261/0 BCE	<i>Anecdota Graeca</i> 1.86	10b	Contained authority for the <i>polis</i> festival of the <i>Genesia</i>
23	<i>Kurbia</i>	Apollonios Rhodios <i>Argonautika</i> 4.257-8; 4.277-81	ca.260 BCE?		11	Preserved ancestral writings from a prophesy with geographical information (cf. Cit. 65 for the skoliast's comment)
24	<i>Axones</i>	Khrysisippos <i>Fragmenta logica et physica</i> 24	ca.280-207 BCE	Galen <i>De differentia pulsuum libri</i> 4, 8.631, 2 nd c. CE	20	Solon set customs (<i>nomismata</i>) for the Athenians
25	<i>Kurbeis</i>	Eratosthenes	275-194	Skolia to	46a	<i>Kurbeis</i> were also called

¹ The subsequent mentions are: IG XI² 1996, 10 – 274/3 BCE; IG XI² 287B, 36 – 250/49 BCE; BCH (1882) 33, 36 – 185-80 BCE.

Cit.	OBJECT	SOURCE	DATE	QUOTED BY/DATE	Cat. N°	INFORMATION PROVIDED
	& <i>axones</i>	unnamed work, <i>On old comedy</i> (?)	BCE	Apollonios Rhodios 4.280 and Aristophanes <i>Clouds</i> 448	46c	<i>axones</i> at Athens and contained laws
26	<i>Kurbeis</i>	Eratosthenes unnamed work (as above)	275-194 BCE	Seleukos <i>Commentary on Solon's axones</i>	47	<i>Kurbeis</i> were 3-sided, not 4-sided
27	<i>Axones</i>	Polemon <i>Against Eratosthenes</i>	End 3 rd - early 2 nd c. BCE	Harpokration <i>Lexicon</i> s.v. <i>axoni</i>	30a	<i>Axones</i> were 4-sided; preserved in the Prytaneion; inscribed on all sides ; sometimes gave the illusion of being 3-sided when viewed on an angle
28	<i>Kurbeis</i>	Polemon <i>Concerning the spurious naming of inscriptions</i>	End 3 rd - 270/269 BCE	Athenaios <i>Deipnosophistai</i> 6.234e	18	Quotation from a <i>kurbeis</i> concerning the heralds of the <i>genos</i> Kerukes, their mission to Delos, and serving as <i>parasites</i> in the <i>Dēlion</i>
29	<i>Kurbeis</i> & <i>axones</i>	Euphorion <i>Apollodoros</i>	ca.275 (or later) – ca.187 BCE	Harpokration <i>Lexicon</i> s.v. <i>Ho katōthen nomos</i> (<i>The law below, or from below</i>) quoting Didymos	30c	Written boustrophedon
30	<i>Kurbeis</i> & <i>axones</i>	Aristophanes of Byzantion unnamed work	ca.257- ca.180 BCE	Seleukos <i>Commentary on Solon's axones</i>	47	<i>Kurbeis</i> were similar to <i>axones</i> except <i>kurbeis</i> contained sacrifices while <i>axones</i> contained laws
31	<i>Kurbeis</i>	Asklepiades of Nikaia (?) <i>Exegesis of the axones</i>	ca.200 BCE (?)	Seleukos <i>Commentary on Solon's axones</i>	47	<i>Kurbis</i> , either the inventor of sacrifices -an otherwise unknown deity, or a document setting out boundaries (<i>horoi</i>) on properties
32	<i>Axones</i>	Krates unnamed work	1 st half of 2 nd c. BCE (?)	Skholion to <i>Iliad</i> 21.282	46f	Cited the <i>dikē exoulēs</i> on an <i>axon</i> – probably the 5 th (cf. Cit. 70)

Cit.	OBJECT	SOURCE	DATE	QUOTED BY/DATE	Cat. N°	INFORMATION PROVIDED
33	<i>Kurbeis</i>	Apollodoros <i>Concerning the gods</i>	2 nd half 2 nd c. BCE	Harpokration s.v <i>kurbeis</i> and <i>Souda</i> s.v. <i>kurbeis</i>	30b 48b	Had laws; stood upright; made of stone like stelai; called <i>kurbeis</i> because they stretched up to the top like a peaked cap on the head (<i>kurbasia</i>)
34	<i>Kurbeis</i> & <i>axones</i>	Apollodoros unnamed work (<i>Concerning the gods?</i>)	2 nd half 2 nd c. BCE	Skholion to Aristophanes <i>Birds</i> 1354	46b	<i>Kurbeis</i> were 3-sided <i>axones</i> with laws of the states (plural) and public regulations for festivals (Note: skoliast also erroneously cited <i>Ath.Pol.</i> for the same information)
35	<i>Kurbeis</i>	Apollodoros unnamed work (<i>Concerning the gods?</i>)	2 nd half 2 nd c. BCE	Skholion to Demosthenes unknown work s.v <i>kurbeis</i>	46d	Were 3-sided wooden constructions with state laws; named on account of stretching up to a peak or because they became hard covered with plaster
36	<i>Kurbeis</i>	Apollodoros unnamed work (<i>Concerning the gods?</i>)	2 nd half 2 nd c. BCE	Skholion to Apollonios Rhodios 4.280	46a	All public writings & laws were called <i>kurbis</i> (sic) because ancients used to set up stones & publish decisions on them; called them stelai because they stood up; name derived from <i>kurpheis</i> (with phi changed to beta); later, writing on whitened boards they also called them <i>kurbeis</i>
37	<i>Kurbeis</i>	Apollodoros unnamed work (<i>Concerning the gods?</i>)	2 nd half 2 nd c. BCE	Photios <i>Lexicon</i> s.v. <i>kurbeis</i> , 9th c. CE	39a	<i>Kurbeis</i> named from stretching up to the top or from becoming hard
38	<i>Kurbeis</i>	Apollodoros unnamed work (<i>Concerning the gods?</i>)	2 nd half 2 nd c. BCE	<i>Souda</i> s.v. <i>kurbeis</i>	48d	Called <i>kurbeis</i> from their peaked shape; named by the Korybantes who invented them
39	<i>Kurbia</i> &	Diodoros of	90–21		23	<i>Kurbia</i> was the

Cit.	OBJECT	SOURCE	DATE	QUOTED BY/DATE	Cat. N°	INFORMATION PROVIDED
	<i>Kurbē</i>	Sicily 5.57	BCE			eponymous queen of <i>Kurbē</i> – a lost town in Rhodes
40	<i>Axones</i>	Didymos <i>Concerning Solon's axones – a reply to Asklepiades</i>	ca. 80-10 BCE	Plutarch <i>Solon</i> 1.1	42	Wrote a work about the <i>axones</i> of Solon
41	<i>Kurbeis</i> & <i>axones</i>	Seleukos <i>Commentary on Solon's axones</i>	1 st c. CE	Also Photios <i>Lexicon</i> s.v. <i>orgeones</i> .	47 39a	<i>Kurbeis</i> dealt with festivals; their structure like peaked caps; 2 etymologies – tiara like (<i>kurbasia</i>) or concealing (<i>krubeis</i>) the god's business; construction of both <i>axones</i> & <i>kurbeis</i> was a large frame, the height of a man, supporting fitted 4-sided inscribed pieces of wood covered with writing with pivots at either end for turning. Implication that <i>axones</i> included information on <i>orgeones</i>
42	<i>Axones</i>	Erotianos <i>Glossary of Hippokrates</i> s.v. <i>phliai</i>	1 st c. CE		26	<i>Axones</i> were framed/held in timber posts
43	<i>Axones</i>	Plutarch <i>Solon</i> 19.4; 23.4; 24.2	ca.50-120 CE		42	Cited a number of specific laws enacted by Solon recorded on numbered <i>axones</i> , both secular and sacred. 19.4: the 13 th <i>axon</i> contained amnesty provisions; 23.4: the 16 th <i>axon</i> contained prices for sacrificial victims; 24.2: the 1 st <i>axon</i> prohibited exports except olive oil
44	<i>Kurbeis</i> &	Plutarch <i>Solon</i> i- 25.1	ca.50-120 CE		42	i- Solon wrote laws on <i>axones</i> to have force for

Cit.	OBJECT	SOURCE	DATE	QUOTED BY/DATE	Cat. N°	INFORMATION PROVIDED
	<i>axones</i>	ii- 25.2				a hundred years; <i>axones</i> in revolving, oblong, wooden frames; Plutarch saw “slight remnants” preserved in the Prytaneion and says they were called <i>kurbeis</i> according to Aristotle. ii- alternative tradition that <i>kurbeis</i> had sacred rites and sacrifices and the rest of the laws were on <i>axones</i>
45	<i>Kurbeis</i>	Plutarch <i>Numa</i> 22.2	ca.50-120 CE		41	Numa wrote sacred books which were like “the <i>kurbeis</i> written by the <i>nomothetai</i> of the Greeks”
46	<i>Axones</i>	Dion Khrusostom <i>Orations</i> 80.5	1 st c. - early 2 nd c. CE		22	<i>Axones</i> were cherished – implication they were still preserved
47	<i>Kurbis</i>	Inscribed gravestone for Apollonides at Kyzikos	1 st or 2 nd c. CE	Mordtmann 1881, 123, no. 5	5	10 line acrostic epitaph describing the stone as a <i>kurbis</i>
48	<i>Kurbeis</i> & <i>axones</i>	Ammonios <i>Concerning similar and different words</i> 57	1 st – 2 nd c. CE		9	<i>Axones</i> and <i>kurbeis</i> were different: <i>axones</i> 4-sided with private laws; <i>kurbeis</i> 3-sided with sacred state laws
49	<i>Kurbeis</i>	Ps. Aristotle <i>On the cosmos</i> 400b	2 nd c. CE?		17	Definitive laws were on <i>kurbeis</i>
50	<i>Axon</i>	Loukianos <i>Eunoukhos</i> 10	2 nd c. CE		34	An <i>axon</i> dealt with adultery
51	<i>Axones</i>	Aulus Gellius <i>Attic nights</i> 2.12.1	2 nd c. CE		29	Contained the ancient laws of Solon on wooden boards
52	<i>Kurbeis</i>	Diogenianos <i>On proverbs</i> 5.72 s.v. <i>kurbeis kakon</i>	2 nd c. CE		25	Physically a sort of <i>pinax</i> with the laws. Metaphorically, <i>kurbeis kakon</i> referred to a multitude of evils

Cit.	OBJECT	SOURCE	DATE	QUOTED BY/DATE	Cat. N°	INFORMATION PROVIDED
53	<i>Kurbeis</i> & <i>axones</i>	Polydeukes <i>Onomastikon</i> 8.128	2 nd half 2 nd c. CE		43	<i>Kurbeis</i> 3-sided, pyramid shaped <i>sanides</i> with laws; <i>axones</i> 4-sided & bronze with laws; <i>deltoi</i> were bronze with sacred and ancestral matters; originally both <i>axones</i> & <i>kurbeis</i> were on the Acropolis and were relocated to the Prytaneion and Agora
54	<i>Kurbeis</i>	Zenobios 4.77	2 nd c. CE		52	3-sided <i>sanides</i> with laws. <i>Kurbeis kakon</i> – a proverb for exceeding villainy
55	<i>Kurbeis</i>	Demostratos unknown work	2 nd c. CE	Ailianos <i>On the nature of animals</i> 15.9, 2 nd – 3 rd c. CE	6	Innards of a certain bird (a <i>geranos</i> – crane) had spines which were triangular and pointed like <i>kurbeis</i>
56	<i>Axones</i>	Galen <i>Interpretation of the words of Hippokrates</i> 19.66	2 nd c. CE		28	Solon's <i>axones</i> used obsolete words and language
57	<i>Axones</i>	Harpokration <i>Lexicon</i> s.v. <i>axoni</i> and <i>sitos</i>	2 nd c. CE		30	Solon's laws were written on wooden <i>axones</i> ; <i>sitos</i> was on Solon's first <i>axon</i>
58	<i>Axones</i>	Diogenes Laertios <i>Solon</i> 1.45, 1.63	1 st half 3 rd c. CE		24	Solon's laws were on wooden <i>axones</i>
59	<i>Axones</i> <i>Kurbeis</i>	Ps. Zonaras <i>Lexicon</i> s.v. <i>axones</i>	3 rd c. CE		53	i- <i>Axones</i> 4-sided <i>pinakes</i> with private laws; metaphor for virtuous deeds ii- <i>Kurbeis</i> 3-sided <i>pinakes</i> with sacred and state laws
60	<i>Kurbeis</i>	Eusebios <i>On the life of Constantine</i> 1.3.2	4 th c. CE		27	Honorific inscriptions were on <i>kurbeis</i> and stelai

Cit.	OBJECT	SOURCE	DATE	QUOTED BY/DATE	Cat. N°	INFORMATION PROVIDED
61	<i>Kurbis</i>	Timaios <i>Lexicon Platonikon</i> 993b s.v. <i>kurbis</i>	4 th c. CE (?)		51	3-sided pyramid-shaped stele with laws concerning gods
62	<i>Axones & kurbis</i>	Themistios <i>Orations</i> 2.32b; 23.287d; 26.315a; 26.327c	4 th c. CE		50	Expanded on Plato <i>Politikos</i> 298d with metaphorical use of <i>kurbeis</i> bearing authoritative writings including letters and philosophical proofs. A precept of the sophists was inscribed on an <i>axon</i> and readily accessible
63	<i>Kyrbis</i>	Nonnos <i>Dionysiaka</i> 12.29-34; 12.37; 12.42-4, 12.55; 12.64-9	4 th or 5 th c. CE?		36	Upright standing panels with ancient oracular writings and drawings. The word <i>pinax</i> was used as a synonym for <i>kurbis</i>
64	<i>Kurbis</i>	Aristainetos <i>Letters</i> 1.17	5 th c. CE		12	Metaphor for an amoral person
65	<i>Kurbeis & axones</i>	Skolia to Apollonios Rhodios 4.280 s.v. <i>kurbias</i>	?		46a	i- <i>Kurbeis</i> = stelai; meant <i>axones</i> on which laws were written citing Aristophanes the comic poet. ii- <i>Axones</i> were 4-sided of stone and <i>kurbeis</i> 3-sided both with laws; <i>kurbeis</i> were some sort of <i>pinakes</i> with a map of the earth
66	<i>Kurbeis</i>	Skholion to Aristophanes <i>Birds</i> 1354	?		46b	Bronze <i>sanides</i> with laws
67	<i>Kurbis/ kurbeis</i>	Skolia to Aristophanes <i>Clouds</i> 447-8	?		46c	i– a <i>sanis</i> with laws ii– a stele with laws iii– a metaphor for a person clever at the law
68	<i>Kurbeis</i>	Skholion to Demosthenes	?	Lexicon Patmense s.v.	46d	3-sided wooden constructions with laws

Cit.	OBJECT	SOURCE	DATE	QUOTED BY/DATE	Cat. N°	INFORMATION PROVIDED
		unknown work		<i>kurbeis</i>		
69	<i>Axones</i>	Skholion to Homer <i>Iliad</i> 21.260	?		46e	The word <i>psephides</i> was on the <i>axones</i>
70	<i>Axon</i>	Skholion to Homer, <i>Iliad</i> 21.282	?		46f	The <i>dikē exoulēs</i> was on an <i>axon</i> , probably the fifth
71	<i>Kurbeis</i> & <i>axones</i>	Skholion to Plato <i>Politikos</i> 289e s.v. <i>kurbesi</i>	?	Pausanias Attikos <i>Collection of Attic names</i> , s.v. <i>kurbesi</i>	46g	<i>Kurbeis</i> were 3-sided <i>pinakes</i> ; <i>axones</i> were 4-sided with private matters; some said they were no different
72	<i>Axones</i> , <i>kurbis</i>	Hesychios <i>Lexicon</i> s.v. a- <i>korumbon</i> b- <i>kurbis</i> c- <i>proptorthia</i> d- <i>treis theoi</i>	5 th – 6 th c. CE		32a 32b 32c 32d	a- <i>kurbis</i> shaped like a peak b- <i>kurbis</i> shaped like a triangular stele or wooden <i>axon</i> with laws c- the <i>axones</i> mentioned the word <i>proptorthia</i> d- an oath prescribed by Solon or Homer was on the <i>axones</i> .
73	<i>Axones</i> & <i>Kurba</i>	Stephanos s.v. a- <i>agnous</i> b- <i>Hieraputna</i>	6 th c. CE		49a 49b	a- on the <i>axones</i> was a sacrifice to Leos at Agnous b- <i>Kurba</i> was a <i>polis</i> in Crete
74	<i>Kurbias</i> , <i>kurbies</i> & <i>kurbis</i>	Agathias i- <i>Greek anthology</i> 4.3.83; 4.3.134-5 ii- <i>Historiae</i> p.54	6 th c. CE		8a 8b	i- metaphorical use for Pillars of Herakles; a type of object with writing like stelai ii- a kind of stone <i>kurbis</i> which contained an elegy
75	<i>Axones</i>	Paulos of Aigina <i>Medical Compendium in seven books</i> 6.117	7 th c. CE		38	<i>Axones</i> were in upright wooden frames turned by leather straps
76	<i>Axones</i> & <i>kurbeis</i>	Photios <i>Lexicon</i> s.v. i- <i>andraphonon</i> ii- <i>kurbeis</i>	9 th c. CE		39a 39b	i- a variant spelling on one of Solon's <i>axones</i> ii- <i>kurbeis</i> 3-sided <i>axones</i> or <i>pinakes</i>

Cit.	OBJECT	SOURCE	DATE	QUOTED BY/DATE	Cat. N°	INFORMATION PROVIDED
		iii- <i>orgeones</i> iv- <i>bibliotheka</i>				iii– see Cit. 41 iv- <i>kurbeis</i> was masculine in Attic and neuter in Kallimakhos
77	<i>Axones</i>	Skolia to Plutarch <i>Solon</i> 19.4 s.v. <i>axon</i>	10 th or 11 th c. CE		46h	i– some said <i>axones</i> were 3-sided objects with laws which turn but this was wrong; <i>kurbeis</i> were 3-sided stelai with military catalogues as per Aristophanes <i>Peace</i> ii– <i>axones</i> were 4-sided & wooden pre-dating hides and skins for writing civic laws; <i>kurbeis</i> were 3-sided & wooden with lists of soldiers
78	<i>Axones</i> & <i>kurbeis</i>	<i>Souda</i> s.v. <i>axones</i> <i>kurbeis</i> ; <i>nomos</i> ; <i>Solon</i>	Late 10 th c. CE		48 a-f	<i>Axones</i> were wooden & square-shaped but triangular according to some with Solonian laws; different from <i>kurbeis</i> ; <i>kurbeis</i> were 4-sided <i>sanides</i>
79	<i>Kurbeis</i> & <i>axones</i>	Italicus <i>Letters</i> 35.218	12 th c. CE			<i>Axones</i> were stone, 4-sided; <i>kurbeis</i> were 3-sided with Solon's laws which were transcribed onto <i>axones</i>
80	<i>Axones</i>	Greek proverbs s.v. <i>bolitou dikēn</i>	12 th c. CE?			A specific Solonian law on the <i>axones</i> concerned stealing cow dung
81	<i>Kurbeis</i> & <i>axones</i>	Anecdota Graeca s.v. i- <i>axones</i> ii- <i>kurbeis</i>	Date not known; after 6 th century CE			i- <i>axones</i> were wooden, 4-sided, & rotating on a pin with Solonian laws ii- <i>kurbeis</i> were wooden triangular pyramids with laws

6.3.2 Citations in chronological order

Here I have sought to do something that I could not do within the confines of the article (Part 3.1) – analyse each piece of ancient testimony and indicate to what extent it should be trusted or doubted.

Archaic period (594 - 480 BCE)²

CITATION 1 (Cat. N° 31), ca. 560–c.485 BCE

The only mention of either *axones* or *kurbeis* in the archaic period comes from Hekataios. He was an Ionian geographer and historian from Miletos and a precursor to Herodotos who partly drew on his work (cf. Hdt. 2.143). In the volume of his *World Survey* entitled *Asia*, Hekataios described *Kurbē* as the name of a *polis* in Pamphilia. This region on the south-west coast of modern Turkey traded with the Greeks from the seventh century BCE and had a language that is believed to be closely related to Greek, though *Kurbē* itself may not be of this (or Greek) origin. Jeffery (1989, 53) pointed out that “other words in Greek with the root $\kappa\upsilon\rho\beta\text{-}$ are apparently foreign”. These include: *kurbasia* - the tiara of the Persian king (Aristophanes *Birds* 487) and the pointed hat of the Skythian Sakai (Hdt. 5.49; 7.64),³ and *kurbantes/korubantes* - “the name of priestly worshippers in an orgaistic cult attested in Crete, Phrygia and Samothrace” who danced naked except for a crested helmet (Jeffery *ibid*). The geographically widespread use of the word *kurbeis* is attested by it being found outside of Attica at Amorgos (Cat. N° 3) and Delos (Cat. N° 4) in the Cycladic islands, and Kyzikos (Cat. N° 5) in north-west Turkey. Jeffery (*ibid*) suggested an origin for the word in Anatolia or more likely Crete because of “Crete’s well-established pre-eminence in the framing of laws during the archaic period”. However, it seems more likely to me that the name related to the shape of a *kurbis* rather than its legal content, since the latter was not common to all *kurbeis*. Other words with the root *kurb-* support this proposition: *kurbasia* as a rooster’s crest (Photios s.v. *kurbasian* and elsewhere); and the same word describing the

² Counting statistics are by Catalogue number. Therefore there are 20 catalogue references for the Hellenistic period, but only 16 discrete citations. The ‘Other Citations’ listed at the end of the Catalogue (54 forward) are not discussed, but are included in the statistics given in Table 5 of Part 3.1. By ‘Archaic Period’, I am referring to the later part of the period relevant to this study.

³ Both the Persian turban and the Skythian cap appear frequently in Greek art, especially Athenian red figure pottery at the end of the sixth century (cf. examples in Vos 1963). The Athenians would have been quite familiar with Skythians in late archaic and classical times through trade and later their use as a public police force.

shape of the cover for a dressing over a woman's breast (Hippokrates 2.186 γυναικεῖα). Therefore I suspect the town names derived from some local topographical feature such as a *kurbis*-shaped hill or promontory.

This reference to *Kurbē* as a *polis* in Pamphilia was quoted by Herodian (Lentz 1867, 3.1, page 307, line 23), and later also by Stephanos *Ethnika* s.v. *kurbe*. Towns with a similar name were in Rhodes, Crete and Karia (see Cat. N° 23; 49b and c). It seems reasonable to suppose that their mentions in the literature also derived from Hekataios because he is constantly given as Herodian's source. For instance, Stephanos (Cat. N° 49c) wrote that "Kurbasa, like *Pēdasa* Medmasa is a *polis* of Karia", which can be compared with Herodian (see note to same passage) - "Medmasa is a *polis* of Karia according to Hekataios in Asia...Kurbasa is a *polis* in Karia". Stephanos probably used Hekataios directly because he included some details (Cat. N° 49b) not found in Herodian.

Classical period (480 – 400 BCE)

CITATION 2 (Cat. N° 7), early 5th century BCE

The word *kurbis* first appears in an Athenian context in a frustratingly small fragment of a lost play probably by Aiskhylos.⁴ It dates to the first half of the fifth century, and is therefore at least 100 years after Solon. The speaker was referring to a prophesy inscribed on an 'ancient *kurbis*'. The important implication is that *kurbeis* were objects on which ancient texts used to be inscribed, not just laws. It is known that oracles were being recorded in Athens late in the sixth century from the Onomakritos incident (Hdt.7.6.3) amongst others.⁵

⁴ I am grateful to Professor Alan Sommerstein for his assistance. He advised in a personal communication: "These are the last three lines of a papyrus fragment (POxy 2246) which is in the same hand as numerous other fragments some of which are certainly, and all of which may well be, Aeschylean. This one man is responsible for the great majority of surviving papyri of lost Aeschylean plays". He added that he was fairly certain it was Aiskhylean but there was no indication as to which play it belonged to or the person mentioned. He mentioned it as part of his commentary to the fragment in the Loeb edition 2008, vol iii, 334: "Fr. 451c comprises 37 lines, most if not all of them lyric, whose content appears to have to do largely with warfare; at the end (33-37) it seems to be predicted that someone who may or may not be described as 'courageous' [*eusplankhnos*] will 'flee on horseback [*ephipp-* 34] from an attack' and (but?) that a 'for[eign] soil will receive him' ". Lobel, one of the original editors, proposed the reading of κύ[ρ]βις and this was adopted by Mette. Radt (*TrG* F3) only put the suggestion in his footnotes. Given the uncertainty of the restoration, the value of the fragment is contested, though no alternative has been proposed - see Hardy 1975, 41, n.14 and Stroud 1979, 5-6.

⁵ Onomakritos was the *chresmologue* (compiler of oracles) at the Peisistratean court exiled by Hipparkhos for inserting words into an oracle of Mousaios. Herodotos has many examples of oracular collections, including 8.96 – the oracles of Lysistratos; Bakis (whether a person or a collection) – 8.20, 8.77, 8.96.2, 9.43; and

CITATION 3 (Cat. N^o 42), ca. 2nd half 5th century BCE

A lost play by Kratinos quoted in Plutarch *Solon* 25.1 provides the next piece of evidence. He was probably the comic poet in the latter half of the 5th century BCE or a namesake from the early 4th century.⁶ Kratinos was making a metaphorical joke (or lament) about the *kurbeis* saying they were being used to roast barley. This seems to mean they were being used as firewood or maybe, as Prentice first suggested, they were some sort of roasting pan which would imply bronze.⁷ In support of the firewood interpretation is a quote in Herodotos 8.96 of a prophesy that the “Kolian women shall roast their barley with oars (*eretmoisi phruxousi*)”. This used the same form of words (verb plus dative of instrument), and found fulfilment in the wreckage of the Persian fleet after Salamis. The bronze interpretation seems unlikely given the fact that barley was usually roasted in shallow clay pans, and any proposed shape for a *kurbis* would make it ill-suited for such a purpose. A further ingenious solution was provided by Robertson (1986, 148-53) that the use of the dative in the phrase ‘*hoisi...tois kurbesin*’ did not mean “the material by which this or that is done” but “by virtue of which” it is performed, similar to the ‘*ek-rubrics*’ used to cite the source of a law in the republication of the Athenian State calendar.⁸ In his view, Kratinos was referring to the humble barley cakes eaten by officiants and guests in the Prytaneion pursuant to Solon’s laws on display in that place. Irrespective of which interpretation is correct, both Solon’s and

Mousaios himself, the quasi-mythical founder of priestly poetry and oracular predictions at Athens – 9.43. These examples demonstrate that writing was being regularly employed for oracles by the Persian Wars.

⁶ Holland 1941, 347 pointed out there were two comic playwrights named Kratinos. The earlier, famous one was an older contemporary of Aristophanes and it is to him the lines are generally attributed. However, the later one was well known in Plutarch’s time and wrote early in the fourth century. The elder Kratinos’ date of death is not known. Andrewes 1974, 23 noted that his last known play was *Pytinē* (*The Flask*) performed in spring 423 BCE and that according to Loukian *Makrobioi* 25 he died soon after.

⁷ Prentice, as quoted by Linforth 1919, 281, n.1 thought it might refer to the practice of roasting bread on metal plates “common in Syria”. Linforth noted some confirmation in Pollux 8.128ff and that the word *phrugousi* would appropriately describe the process. The idea was claimed (without attribution) by Holland 1941, 358-9 who noted that in Pollux 7.181 a vessel called a *phrugeus* was used to roast barley, which was somewhat akin to a *season* or shaker of some kind. This Holland thought must have been made of bronze. Hence he saw “a metathesis to κύβις from something like κύπρις” (which makes me think he had been reading too much ancient etymology). Stroud 1979, 3 used this evidence to support his hypothesis that *kurbeis* were bronze.

⁸ *Ek-rubrics* were used in the Athenian State Calendar republished at the end of the 5th century BCE. See *Hesperia* 4, 1935, 21 and 23; *Hesperia* 10, 1941, 34.

Drakon's words were clearly on *kurbeis*, and the objects must have been known to the audience for the metaphor to work.

CITATION 4 (Cat. N° 18), ca. mid 5th century BCE

This evidence comes from a non-Athenian source and therefore care must be taken because words can have different meanings in different contexts. Indeed, Akhaïos was using *kurbis* (according to Atheneios some 700 years later) as a synonym, possibly metaphorically, for the Spartan '*skytale*' (an encrypted message baton). Nevertheless there is a clear implication that a *kurbis* was a physical object that bore writing, and this writing did not have to be of a legal nature.

CITATION 5 (Cat. N° 14), 423 BCE

The comic playwright Aristophanes used the word *kurbis* metaphorically in his play *Clouds* together with a number of other words to characterise a person who could find and abuse legal loop holes. The literary trope was repeatedly explained in the skolia (Cit. 67, Cat. N° 46c), with a similar example in Cit. 8 below. Presumably its meaning was clear to the audience, and therefore *kurbeis* were still around in the late fifth century and/or the metaphor with a legal connotation had passed into common speech.

CITATION 6 (Cat. N° 13), 414 BCE

Aristophanes *Birds* 1353-7 parodied an 'old law' which he specifically stated was on the *kurbeis* requiring adult children to take care of their parents in old age. Negligence in the care of parents (*kakosis goneon*) was considered a serious crime at Athens and punishable by loss of citizen rights (*atimia*).⁹ It was a consistent concern of Aristophanes.¹⁰ Some lines later Aristophanes *Birds* 1660 wrote concerning the law of inheritance: "I'll quote the very words of Solon's law". It is tempting to attribute this law which was undoubtedly on a *kurbis* to Solon himself. However, this need not be the case. Aiskhines 1.28, following a digression into the moral rectitude of Perikles, Themistokles, Aristeides and Solon, said the lawgiver

⁹ Aiskhines 1.28, Demosthenes 24.60, Andokides 1.74 and Xenophon, *Memorabilia* 2.2.13 directly refer to the seriousness of the crime and the penalty for it. Others allude to it such as Dinarkhos 2.17. See MacDowell 1978, 92 and Thomas 1989, 106.

¹⁰ References to sons using violence against fathers in Aristophanes: *Birds* 1347-59, *Frogs* 149-50, *Clouds* 1321-436 and *The Assembly Women* 638-40.

(*nomothetēs*) forbade a man “to speak before the people who beats his father or mother, or fails to support them or provide a home for them”. It is unclear who the lawgiver was, but a possible interpretation is that the term was generic as Aiskhines could have named Solon if he meant him specifically. More likely it evolved from ancient customary practice, because Plutarch *Solon* 22 claimed that Solon only refined the existing law by providing “that no son who had not been taught a trade should be compelled to support his father”. However the laws on this subject came about, it is clear they derived from the Late Archaic Period and were written on *kurbeis*. It is vital to note that Aristophanes did not associate Solon or archaic laws with *axones*. This seems extraordinary if that is where all the archaic laws were supposedly recorded. The logical conclusion is that only *kurbeis* existed when he was writing in the fifth century.

CITATION 7 (Cat. N° 1), 409/8 BCE

This is the first recorded use of the word *axon*, and it is very important because it is on a preserved inscription. The word is contained in the homicide law of Drakon reinscribed by the Athenian *polis* in 409/8 BCE. The prescript calls for the republication of “the law (singular) of Drakon”, but the heading *prōtos axon* (First *axon*) suggests there was more than one. If it is not a second law, then presumably it refers to a document written on two or more physical *axones*. The wording commences ‘*kai eam me*’, meaning ‘And if not’. This is an odd way to start and carries the implication that it is following some other general provision. The law is about **unintentional** homicide, so it is reasonable to assume that the previous provision was about **intentional** homicide. This is generally accepted by most scholars with the notable exception of Gagarin 1981 who endeavoured to prove it was possible Drakon had started his law in this fashion, with *kai* being taken as an adverb rather than a connective.¹¹ He needed to do that because the inscription presents a major dilemma in the context of this discussion. If it is a literal copy of one of Drakon’s original, numbered,

¹¹ Even he noted p.110 “The ellipsis in the opening sentence is extreme, and, as far as I know, unparalleled”. The suggestion that the document originally began with ‘*kai*’ was earlier put by Stroud 1968, 37-40. The general view is well stated by Meiggs and Lewis 1969, 266 - the text “seems to begin in the middle and has no reference to premeditated murder. Presumably, Draco’s legislation on this had been repealed before 409, although in the fourth century all homicide laws, even those on premeditated murder, could still, probably loosely, be ascribed to Draco”. Proof of this can be found in Demosthenes 23. 28. Robb 1994, 127 and 150-1 n.5 suggested Drakon only wrote down new matters and left others to “oral custom procedures, which of course had long dealt with them”.

wooden *axones*, how could it be the first? The language of the text is archaic, and the instruction in the preamble was quite clear: “Let the scribes inscribe Drakon’s law on homicide on a marble stele, taking it from the *basileus* with the help of the secretary of the *boule*, and let them set it in front of the Stoa Basileios”. There also appear to be very slight traces of a further heading read by Stroud 1968 as ‘Second *axon*’.¹² Stroud 1979, 6 inferred from this that the “Dracontian homicide law was once inscribed on a series of numbered *axones*” and the *anagrapheis* or ‘recorders of the laws’ were citing their source. Support for this might come from the Teisamenos decree passed only a few years later in 403/2 BCE which used the word ‘*thesmoi*’ (in the plural) to refer to the ordinances of Drakon to be observed along with the laws (*nomoi*) and measures and weights of Solon, but it still does not explain the use of the singular in the enabling preamble to the homicide decree.¹³ My suggestion is that the *anagrapheis* did indeed copy the required extract of Drakon’s law on homicide, but they did it twice – firstly on a file copy (the *axones*) to be physically kept by the secretary of the *boule* in the Metroon, and secondly on public display. As the earlier section(s) of Drakon’s homicide laws was no longer in force, they numbered the *axones* from where the law now began. Homicide laws came under the auspices of the *basileus* who had hitherto kept them, which is why he had to be consulted, with the help of the secretary of the *boule* as to what was required. This represented the earliest activity of the *anagrapheis* and started the process of making a copy of the valid laws. A possible solution to the reason for starting the inscription as they did is that the purpose of the original seventh-century law was to distinguish unintentional homicide from premeditated murder (which must always have been a criminal offence). Following this distinction in the preamble (which did not need

¹² Stroud read the second heading at line 56 and this has been generally accepted based on letter sizes, spacing, and the uninscribed space to the right of the alleged heading. Nevertheless, it should be noted that that out of [*deutēros* [*axson*]] only one letter (the omicron) can be read clearly and no letters of *axson*. No whole word can be securely read from the preceding fifteen lines or from what follows. Professor Stroud advised me verbally that he is undertaking further study of the stone using the latest imaging techniques and it is to be hoped this will reveal more traces of letters.

¹³ This was the text quoted by Andokides 1.83. However, I note the argument by Carawan 2002, 1-23 that the ancient editor inserted the wrong text. (This was first suggested by Droysen as quoted by Schreiner 1913, 96). The suggestion seems plausible but problematic. On the use of the words *thesmos* and *nomos* see Ostwald 1969 in which he demonstrated that the latter was probably used only after 511/10 BCE. Clearly *thesmos* was the archaic word, but as Ostwald pointed out (*ibid* p.15), it had a range of uses, and even when seemingly describing a statute, “may or may not take a written form”. Also, while *nomos* may have been the ‘democratic’ word, it seem to have become interchangeable with *thesmos* as the preamble to IG 1³ 104 used *nomos* to describe Drakon’s *thesmos*.

to be reinscribed as it was well understood by the late fifth century), they began the new law – “And if” someone commits this crime... (cf. Part 2.4)

CITATION 8 (Cat. N° 45), ca. late 5th century BCE

This is a fragment of old comedy on papyrus possibly from a non-Athenian context, which, if the restorations are correct combines mention of two of the same words - *peritrimma* and *kurbeis* used by Aristophanes in *Clouds* 447-8 (see Cit. 5 above). *Peritrimma* may have had the metaphorical meaning of ‘pettifogger’ or ‘practised knave’ of law-suits, but in a literal sense meant ‘anything worn smooth by rubbing’ (LSJ).

Late classical period (400 – 323 BCE)

CITATION 9 (Cat. N° 35), 399/8 BCE

Another crucial piece of information comes from Lysias 30 in a speech prosecuting Nikomakhos for his activities as one of the *anagrapheis*. He says the Commission of *anagrapheis* were specifically instructed to “write up the laws of Solon”.¹⁴ This task took a total of ten years by a ten man commission - an enormous expenditure of man hours and money that set the stage for a fundamentally new process of law making in the fourth century. Lysias spoke repeatedly of the laws coming from the *kurbeis* with no mention whatsoever of *axones*.¹⁵ In my opinion, this cannot be dismissed as an omission given the subject being litigated. It reinforces the evidence from Aristophanes that at the end of the fifth century, the documents on which ‘Solon’s laws’ were written were not known to contemporary Athenians as *axones*, but rather as *kurbeis*.

CITATION 10 (Cat. N° 2), 363/2 BCE

¹⁴ Lysias accused Nikomakhos of usurping the place of Solon as lawgiver (30.2), inserting some laws and erasing others under the influence of bribery (30.25). He mentioned *kurbeis* four times as the source of the laws being transcribed (see Cat. N° 35), though he was more specifically concerned with the quantum of sacrifices.

¹⁵ Lysias 30.17 is conventionally translated as ‘from the *kurbeis* and the stelai’. The stelai here come from an alteration to the received text made by Taylor in 1739 (see Cat. N° 35) which has received wide support and influenced the restoration of the State Calendar of sacrifices (F A, line 77). However Nelson 2006 challenged this based on all other references in the text only mentioning *kurbeis*. Noting Lysias’ use of the word ‘*pleiō*’ in the phrase “you transcribed in excess of the things transcribed” (30.19) and the use of the word again at 30.19 and 30.20, he suggested the restoration should be ‘*ou pleiō*’. This required another ‘*tōn*’ to be added and the words emended to ‘*euplōn*’ or ‘*oplōn*’ by later scribes. The suggestion is plausible but the reasoning behind the emendations into something meaningless seems a little suspect.

The cited source for the state contribution to the ancient Salaminioi sacrifice was the *kurbeis*. This demonstrates that in the fourth century BCE the *kurbeis* were still considered authoritative and were physically able to be consulted. An earlier passage in the same document (lines 20-21) referring to funding reads, “as much as the *polis* provides from the public funds (*ek to dēmosio*)”. Ferguson 1938 who undertook the *editio princeps*, translation and commentary of this Salaminioi decree (IG I³ 1) noted there is no proof of the existence of the *genos* before ca. 510 BCE. If true, this would have implications regarding the dating of *kurbeis* by demonstrating they continued to be used at least until the end of the sixth century. However, it is an argument *ex silentio*, and very little is known about how and when the *genos* was formed and even the nature of its relationship to the island of Salamis.¹⁶

CITATION 11 (Cat. N° 40), ca. 360 BCE

Plato, when drafting an imaginary set of new laws for physicians and sea captains, stated they should be inscribed on some sort of *kurbeis* and stelai. This implies the two sorts of documents were functionally synonymous and authoritative, as well as confirming their physical presence in Plato’s day.

CITATION 12 (Cat. N° 21), 352 BCE

The first literary reference to the word *axon* comes from Demosthenes *Against Aristokrates* referring to Drakon’s homicide law which had been reinscribed and set up in the Agora half a century prior – see Cit. 7. Demosthenes 23.51 explicitly claimed that this quote was extracted from Drakon’s *axon*, however the quoted text does not fit neatly on IG I³ 104, and reference to the Heliaia makes it unlikely to be Drakon’s as Stroud (1968, 54-7) pointed out. The text is standardly amended to insert <α’> (= ‘first’), but for the reasons noted in the Catalogue should be dismissed. See also the discussion under Cit. 29.

CITATION 13 (Cat. N° 30b), ca. 390-325/4 BCE.

Lykourgos, the prominent fourth century Athenian statesman, wrote an otherwise unknown work *Concerning the priestess*. Presumably it in some way dealt with sacred law. It was placed under the key word *kurbeis* in a mention by Harpokration in his *Lexicon*.

¹⁶ See Parker 1996, 306-16 for a lengthy discussion, and Lambert 1997 for an excellent summary and his hypothesis, though I disagree with his unsupported statement that *kurbeis* equate to ‘Solon’s sacred calendar’.

CITATION 14 (Cat. N^o 30c), ca. 380-320 BCE

One of the most intriguing pieces of information was also provided by Harpokration when he cited the fourth-century BCE writer Anaximenes of Lampsakos, who wrote that “Ephialtes transferred the *axones* and the *kurbeis* from the Acropolis to the Bouleuterion and the Agora”. This indicates the writer thought there were two distinct types of documents held on the Acropolis, and the implication of the word order is that the *axones* went to the Bouleuterion while the *kurbeis* went to the Agora. This presents a logical conundrum as the Bouleuterion is in the Agora. Furthermore, it cannot be simply assumed the transmission of information was correct. Harpokration was using Didymos who was quoting Anaximenes. Didymos was Plutarch’s source for an alternate tradition on the identity of Solon’s father “contrary to the opinion of all others who have written about Solon” (*Sol.* 1). Wilamowitz 1893, i.45,7 dismissed it as a “false conclusion of Didymos from a rhetorical phrase of Anaximenes” (my translation), and argued it represented a metaphorical transfer of authority to the democratic institutions. Anaximenes’ own source on the transfer which occurred over one hundred years earlier is unknown, though Diogenes Laertios 6.57 implies that early in his career he was based at Athens teaching rhetoric.¹⁷ He started to write a universal history of Greece, but for some reason this fragment is in his later work on King Philip of Macedon. Elsewhere, his attribution of the funeral oration to Solon is considered unlikely.¹⁸ Furthermore, it is curious that he put the word *kurbeis* in the masculine. Fifth and early fourth-century Athenian writers used the feminine and this should be expected here (cf. discussion under Cit. 76b).

A variation on the information comes from Polydeukes (= Pollux, cf. Cit. 53) whose source is also unknown but who had the documents going to the Prytaneion and the Agora respectively. This is understandable given other testimony of the *axones* being in the Prytaneion in the second century CE (see Cit. 27 and 44). A plausible explanation is that they were in the Bouleuterion before being moved to the Prytaneion. I suspect it is an example of a source emending the facts to resolve an apparent contradiction.¹⁹ It does seem reasonable

¹⁷ A proposition strongly supported by Jacoby 1923-58, *Commentary* 105.

¹⁸ Anaximenes *FGrH* 72, F13 = Plut. *Pub.* 9.11. See Jacoby 1944, 39 and n.8.

¹⁹ The logic might have been that he knew *axones* contained laws which fourth century historiography firmly ascribed to Solon and were in the Bouleuterion, yet *kurbeis* also had venerable laws and were on display in the

that the *kurbeis* were moved from the Acropolis to the Agora by Ephialtes, but we can only guess at the motivation.²⁰

CITATION 15 (Cat. N° 15), 329/8 BCE

Anaximenes did not state where precisely in the Agora the *kurbeis* went presumably because everyone knew, but a good guess would be the Stoa Basileios given Aristotle's contemporary statement, "Inscribing the laws (just drafted by Solon) on the *kurbeis* they set them up in the Stoa Basileios and all swore to observe them". However, there is an obvious difficulty with this statement in that the Stoa's likely date of construction was the early fifth century and therefore well after Solon.²¹ It is far more likely that Aristotle saw the antique building with the *kurbeis* and assumed that both had been there all along. It is worth noting Aristotle knew the *Basileus* had not always occupied the Stoa. He wrote (*Ath. Pol.* 3.5) that in the time prior to Solon "the *Basileus* had what is now called the Boukolion" which Shear identified as being in the old, pre-classical Agora located to the east of the Acropolis.²²

Aristotle's use of two different words conventionally translated as 'laws' is also interesting. He says Solon "made other *nomoi* but the *thesmoi* of Drakon they ceased using except those on homicide. Inscribing the *nomoi* on the *kurbeis* they set them up in the Stoa Basileios". Aristotle knew that Solon himself called his laws *thesmoi* because he quoted him doing so in one of his poems in the same work (*Ath. Pol.* 12.4), and he must have known that *thesmoi* was the archaic word for ordinances which was not used by the democracy in the fifth century.²³ Arguably he inadvertently revealed that it was "other *nomoi*" which were written on late sixth to early fifth-century *kurbeis* and not early sixth-century Solonian *thesmoi*. This would neatly resolve the contradiction over the dates. Furthermore, when everyone swore to observe all the laws, this included the homicide laws of Drakon which

Agora. He also had a tradition that the laws were transferred from the Acropolis to the Agora by Ephialtes. Solution – both *axones* and *kurbeis* were transferred to where they then were.

²⁰ It seems likely the *kurbeis* were kept on the Acropolis in the Archaic period prior to the development of the classical Agora in the fifth century.

²¹ See Camp 1992, 54. It is possible the classical Stoa Basileios was first constructed as early as the middle of the sixth century BCE, with dating based on stylistic grounds from the architectural elements used in the foundations of the subsequent fifth century rebuilding after the Persian destruction of 480. However, pottery under the floor, presumably thrown in during the original construction, dates to ca.500 making this the more likely date.

²² For a detailed discussion of this and related issues see Shear 1994.

²³ Ostwald 1969 demonstrated this.

Solon had ratified. It is certain they were held in the Stoa Basileios at the end of the fifth century because that is where the *anagrapheis* were instructed to go to get them (see discussion under Cit. 7). It should be noted that Aristotle in the *Ath. Pol.* did not use the word *axon* to describe Drakon's laws or inscription of same.

It is important to remember that the *kurbeis* mentioned in the *Ath. Pol.* were physically not the laws and sacred calendar inscribed in stone by the *anagrapheis* at the end of the fifth century and set up in the Stoa.

CITATION 16 (Cat. N° 16), after c.330 BCE

An entry in the *Onomatologon (Vita Menagiana)* attributed to Aristotle a work entitled 'Concerning Solon's *axones*' and the alphabetic numeral '5' which was presumably the book number. There are no citations from it.²⁴ The *Vita Menagiana* was probably written in the sixth century CE by Hesychios of Miletos whose main sources were Herennios Philon and Ailius Dionysos. These were both second century CE Second Sophistic writers whose works are mostly lost. The latter in particular is considered one of the founders of Attic lexicography and their sources were Alexandrian scholarship including Aristophanes of Byzantium (Dickey 2007, 99). There are other possible candidates for authorship of this entry. Aristotle's student Theophrastos wrote a twenty-four book collection of the laws of the Greek states. Demetrios of Phaleron wrote a major work solely on Athenian laws which happened to have five books, and which was quoted by Plutarch *Solon* 23.3.²⁵ Given Aristotle's previous explicit statement that Solon's original laws were on *kurbeis*, I suggest this work described the new corpus of edited laws collectively known as 'Solon's laws' inscribed on *axones*.

Hellenistic period (323 – 146 BCE)

CITATION 17 (Cat. N°s 44, 39a, 46b, 46d), c.370-288/5 BCE

²⁴ Notwithstanding this, Ruschenbusch 1966 in his introduction proposed that Aristotle had access to a complete and unaltered text of Solon's laws relying on a somewhat tenuous hypothesis about the purported loss and discovery of Aristotle's library.

²⁵ See Jacoby 1973, 385, n.51 and Hignett 1952, 25. Stroud 1979, 14 tried to refute any connection with the other known works of Theophrastos or Demetrios on the basis that "[a]lthough the date and nature of Aristotle's book are not known, a work on the laws of Solon would fit naturally into the massive project of research into the laws of the Greek states which was begun by Aristotle, while he was producing his *Politeiai*, and later completed by Theophrastus".

Finally for the fourth century BCE comes Theophrastos' description of types of ancestral sacrifices provided on the *kurbeis*. Theophrastos stated that the ancient ancestral practices had been copied from the Cretan Korybantic rites. It is hard to know whether he meant the rites or the objects, though the skoliasts clearly thought he meant the latter (Cat. N^os 46b and 46d). As noted under Cit. 1, *korubantes* equated to *kurbantes* so it may be that this was an etymological guess about the derivation of the word (from the same root *kurb*). Crete was commonly believed to have been the early font of laws and lawmaking, evidenced by the stories of Epimenides, Minos, and Rhadymanthys, with the early laws from Dreros providing some verification, though this reputation was undoubtedly bolstered by fourth century BCE writers.²⁶ The extract testifies to the perceived antiquity of the *kurbeis*.

CITATION 18 (Cat. N^o 47), 2nd half 4th century BCE

Phanias of Eresos provides the next extract.²⁷ He went to Athens ca. 332 BCE and joined the Peripatetic school as a younger contemporary of Theophrastos becoming a leading pupil of Aristotle. Plutarch *Themistokles* 13 cited him as a source describing him as "a philosopher well read in history". He made an etymological guess about *kurbeis* stating that the name derived from matters being ratified in writing. He saw a similarity with the passive meaning of the verb (*kurōthēnai* – to ratify or sanction from *kuro-ō*). This rather lame suggestion was not taken up by any subsequent writers, but again it points to the authority of the *kurbeis*.

CITATION 19 (Cat. N^o 3), 3rd century BCE

A useful piece of hard evidence comes in the form of an inscription on a stone mortgage *horos* from Amorgos. The word was used in an adjectival compound to describe pledges 'on *kurbia*'. It demonstrates *kurbia* were physical objects and that the word was used outside of

²⁶ Epimenides of Phaistios came from Crete to purify Athens and "paved the way for his legislation" of Solon (Plut. *Sol.* 12.4). He also wrote a poem on the Cretan constitution (Diogenes 1.112). Minos and Rhadamanthus were mythological kings and judges of the dead in Hades frequently depicted in classical art. Herodotos 1.65 thought Spartan law derived from Crete. Fourth century BCE authors devoted much attention to Cretan law. Plato *Laws* 631b stated, "[t]he laws of Crete are held in extremely high repute by all the Hellenes". Aristotle *Politics* 1274a, 25-31 had the lawgivers Lykourgos, Zaleukos and Kharondas all dependent upon Thaletas of Gortyn and wrote a lost work entitled *Constitution of the Cretans*. Ephoros covered Cretan laws in his *Histories* (partly preserved by Strabo 10.5 and 16.22). The earliest preserved written laws come from Dreros in Crete ca. 600 BCE.

²⁷ In the text, Phanias is of 'Epheros'. Holland 1949, 360 noted this was "doubtless a mistake" for Eresos which is in Lesbos.

Athens. Significantly, it is another example of this type of object bearing writing that was not a law.

CITATION 20 (Cat. N° 4), 280/79 BCE

In the Delian temple inventories a dedicated object was described in successive lists as a 'silver *kurbe*' then as a '*pilos*'. A *pilos* (in this use) was a felt cap or helmet with a rounded or triangular peak. Aristophanes *Lysistrata* 562 mentions a bronze helmet in the shape of a *pilos*. It is interesting to see the adjective 'silver' being applied to the '*kurbe*'. It implies that the objects were well enough known in Delphi in the third century BCE in some other material and context, though later the word '*pilos*' provided a simpler description. The name of the dedicator –Koskalos son of Kleandros – is known solely from this dedication, but Kleandros is well attested as an Attic name. By this date Delos was independent. Direct Athenian administration had only ceased some thirty five years earlier in 314 BCE, and residual Athenian cultural and linguistic influence would be expected.

CITATION 21 (Cat. N° 19), 3rd century BCE

A fragment of Kallimachos referred to an ancient and obscure local hero on a *kurbis* at Phaleron.²⁸ The hero honoured there was probably Androgeos, son of Minos who in myth was killed in Athens.²⁹ To avenge him, his father besieged Athens and was only appeased by the tribute of human sacrifice to the Minotaur.³⁰ He was a god of sailors who often carried his statue on the stern of their ships (*kata prumnān* in the fragment), and for that reason was connected to Phaleron.³¹ The evidence that the hero was Androgeos comes from Pausanias 1.1.4a who noted that at Phaleron "there is an altar to Androgeos, son of Minos,

²⁸ Phaleron was the major port of Athens about eight km SW of Athens before Themistokles commenced redevelopment of the harbour of Piraeus in 491 BCE (cf. 1.1.2 and a scholion to the fragment – *Diegeseis in Aetia* 103, col 5). See also the discussion of the Phaleron group of heroes in Kearns 1989, 38-41 (though with mistaken citation to Clement) and 122, n.58.

²⁹ Apollod. 3.15.7 copied by the skoliast on Plat. *Minos* 321a. Compare Diod. 4.60.4 ff; schol. on Hom. *Il.* 18.590; Zen. *Cent.* 4.6; Paus. 1.27.10.

³⁰ Apollod. 3.15.7; Plut. *Thes.* 15; Paus. 1.27.10. An alternate tradition trying to make history out of myth deriving from Philokhoros *FGrH* 328 F17a (cited by Plut. *Thes.* 16) turned the Labyrinth into a prison and the Minotaur into a general named Tauros. There are a range of variant traditions including Kleidemos *FGrH* 323 F17 (in Plut. *Thes.* 18) and others.

³¹ Another tradition saw an Androgeos honoured with annual games at Kerameikos as Eurygyes, a solar deity (Hesychios s.v. *Androgeos*).

called the Hero, but being known as Androgeos” by local experts.³² This is supported by Pausanias’s younger contemporary Clement of Alexandria (Titus Flavius Clemens born ca. 150 CE in Athens, cf. *Protreptikos* 2.40.2) who, like Kallimakhos, only identified a “hero on the prow at Phaleron” named by a skoliast as Androgenos son of Minos with a cross reference to Kallimakhos (Stählin and Treu 1972, 30.20). It is possible as Stroud (1979, 19) suggested, that the hero’s name “may have appeared in the State calendar of sacrifices which once stood on the old *kyrbeis*”, but that is pure conjecture. The fragment is reminiscent of the Aiskhylos fragment (Cit. 2), and may also be part of a prophesy. In both cases the singular ‘*kurbis*’ is employed referring to a specific object, rather than the more usual plural used henceforth (until the fourth century CE).

CITATION 22 (Cat. N° 10b), ca. 261/0 BCE

An item in the Antiattikistes preserved the information that a festival called the Genesia was held at Athens and publically funded, “according to Philokhoros and Solon on the *axones*”. There is little extant information about the Genesia. Lambert (2002, 80) described it as “a rite celebrated at the individual family level and at the state level”. It was a “common Hellenic festival” according to Herodotos 4.26. Jacoby (1944, 73) noted the power of the archaic *genos* strongly depended upon its control of cult and festival. At some stage it may have been deliberately appropriated by the Athenian State and given a fixed place on the State calendar of 5 Boedromion with a small sacrifice (EM 8001 = Oliver 1935, 23), if Dow’s linkage of the festival with the fragment is correct (quoted by Mikalson 1975, 49 and generally accepted). The date at which this occurred is unknown but the usage of the word *dēmoteles* (public funding), as Parker (1996, 5 n.17, 49 n.27) noted, is unlikely to be Solon’s.³³ It also seems improbable that the Eupatrid families had surrendered their control of cult and festival so early in the sixth century which means it is unlikely to have been on a genuinely Solonian *axon*. It is impossible to tell whether the quote refers to separate consultation of the *axones* by the writer or a reference to the Atthidographer Philokhoros’ work (of the third century BCE). Jacoby pointed out (*ibid*) it is also unknown which work of Philokhoros was being referred to. It could be his *Peri heortōn* with its calendar dates of

³² It is important to remember Frost’s cautionary note about the importance of history “expressed by tourist guides and local pageantry” at sites of historical interest from the 1st centry CE onwards (Frost 2005e, 244).

³³ However, see *Il.* 12, 310-321 with its implication that Sarpedon and Glaukos dine at public expense, and *Il.* 17.250 – the chiefs of the Argives δημία πίνουσιν “drink from the common wine” or “at public cost”.

Athenian festivals (cf. Harpokration s.v. *Halōia* and *Khutroi*) or his *Atthis*. If the latter, Solon's legislation seems to be in Book 3 but he discusses Solon's law about phratries in Book 4 (cf. Photios, Souda s.v. *orgeōnes*) which evidently started ca. 461/0 BCE.

CITATION 23 (Cat. No 11), 3rd century BCE

Apollonios the Rhodian wrote his *Argonautika* some time in the second century BCE probably in a first version as a very young man (ca. 260 BCE?) and refined in old age, (or maybe written in old age according to varying traditions in the Souda s.v. *Apollonios*). He was Head Librarian at Alexandria from 260-247 BCE preceding Eratosthenes.³⁴ In his retelling of the age-old myth, the men from Aia preserved the writings and geographical knowledge of their ancestors on *kurbiai* implying, as Stroud (1979, 19) pointed out, that they were "regarded as venerable and authoritative objects".³⁵ However, other parts of the passage make it clear that the *kurbeis* were far more than that. *Argonautika* 4.257-8 recounts that the information came from prophesy. The prophet, earlier identified as Phineus had advised the exact route (4.254-5), and the antiquity of the information traced back to the Egyptian priests of Thebes (4.259-78). Clare (2002, 124-131) discussed the implications. He noted "the pillars (*kurbeis*) represent a link not just with the past, but with the distant, indeed the *ultimate* past...this prehistoric time frame is analogous to that sung of by Orpheus". By comparison, Herodotos 5.49.1 reported that Aristagoras, tyrant of Miletos visited King Kleomenes of Sparta bearing a "map of the entire world, including all rivers and every sea". This similar, but entirely practical document was engraved on a bronze *pinax*.³⁶ Apollonios' passage was commented upon by a skoliast (see last sentence Cat. N° 46a) who considered the *kurbeis* to be like *pinakes*.

CITATION 24 (Cat. N° 20), ca. 280-207 BCE

³⁴ According to a list of the Heads of the Library given in a second century CE papyrus P. Oxy 1241.

³⁵ The city of Aia was Kolchis on the east coast of the Black Sea and was situated on the river Phasis (modern Rhion). It had the fabled golden fleece which Jason sought. The city has not been securely identified and may never have existed outside of myth. Aia is epic dialect for Gaia and means earth. The myth was possibly of Hittite origins, with writers as early as Homer, Eumelos (ca. 700 BCE) and Mimnermos (2nd half of 6th century BCE) mentioning Aia. The story was told and retold but Apollonios' account was the most famous. It is difficult to know where he obtained details such as the *kurbeis*, because so many of the works on which he relied have been lost.

³⁶ Both maps provided a route to Asia. Aristagoras used his to point out to the King where he wanted him to lead a military expedition. There was also a map of Tartaros in Hesiod *Theogony* 736-9.

Khrysippos, the philosopher and co-founder of Stoicism, made the observation that Solon first ‘confused’ laws and customs. By this he presumably was referring to his theory of the superiority of natural law over human law (which he considered mistaken), including that of the great lawgivers such as Solon.³⁷ The quotation comes from the second century CE in Galen *De differentia pulsuum libri 4*, 8.631.

CITATION 25-27 (Cat. N^os 46a & c, 47, and 30a), 3rd century BCE

There was controversy between Eratosthenes and Polemon and one of the issues vexing the polymaths was the physical shape and nature of the *kurbeis* and *axones*.³⁸ Eratosthenes has often been taken as saying that the objects were one and the same, and had three sides. Some scholars have considered this evidence decisive.³⁹ Polemon seemed to be contradicting him stating the *axones* were four sided but “they sometimes give the illusion of being three sided when they are inclined toward the narrow part of the corner angle”. Given that Eratosthenes managed to brilliantly calculate the circumference of the earth, it is unlikely he could not tell whether an object had three or four sides. Also he actually lived at Athens for a period. It seems to me the debate has been contrived.⁴⁰ Eratosthenes said according to the skoliast that a *kurbis* is an *axon* on which the laws are preserved. While it is possible to interpret this as meaning they were one object with two names, a more straight forward interpretation is that there were two types of objects.⁴¹ This was surely the opinion of the skoliast because he added that *axones* were four-sided of stone and *kurbeis* were three-sided.⁴² Other less attractive alternatives are that Eratosthenes never saw the *axones* and merely assumed they were the same as the *kurbeis*, or he was wrongly reported (as

³⁷ See Plutarch *De stoicorum repugnantia* 1033 f and neatly summed up by Seneca *Controv.* 2.13.7 “Sui juris rerum natura est nec ad leges humanas componitur”. However, in a pragmatic sense, Plutarch described individual laws of Solon as ‘peculiar’ (20.1) and ‘absurd’ (23.1), and gave the general carping by the Athenians about their ambiguity as a reason for Solon’s travels (25.4).

³⁸ Evidence for a controversy comes from the very heading of Polemon’s work *Against Eratosthenes*. Also Strabo 1.2.2: “Eratosthenes is much too creditable an historian for us to believe what Polemon endeavours to charge against him, that he had not even seen Athens”. Polemon is clearly being facetious given that Eratosthenes is known to have spent several years in Athens prior to becoming head of the library at Alexandria.

³⁹ The view was propounded by Ruschenbusch 1996, 16-18, Andrewes 1974, 22-3, Rhodes 1981, 132.

⁴⁰ See Stroud 1979, 20-25 for a discussion of the debate.

⁴¹ Either way, an explanation has to be sought as to why there were two names or two types of objects.

⁴² Presumably he was thinking of the stele bearing the reinscription of Drakon’s homicide law.

indeed Polemon could have been), or that the reason they appeared to be three-sided was because they were.⁴³

CITATION 28 (Cat. N° 18), late 3rd or early 2nd century BCE

When Polemon directly quoted a law concerning the *Dēliastai*, it was from the *kurbeis*. This adds to the probability that *kurbeis* continued to be accessible for physical inspection well into the second century BCE, and were distinct from the *axones* which he described separately (Cat. N° 30a). The *Dēliastai* were members of the Delian sacred mission called *parasitos* who were honoured with free board and lodging in the *Dēlion* (the precinct of Apollo). Athenaios, who recorded Polemon's quotation, explained that the term *parasitos* did not then have the derogatory connotations which it later acquired. The mission of the *Dēliastai* seems to have dated back into the sixth century. According to Herodotos 1.64.4, Peisistratos purified Delos "in accordance with some prophecies". Later Athenian tradition claimed a mythical association of great antiquity.⁴⁴

CITATION 29 (Cat. N° 30c), ca. 275 or later – c.187 BCE

Euphorion provided the detail often cited by modern commentators that *axones* and *kurbeis* were written boustrophedon. At face value this would imply an archaic date for both objects as boustrophedon writing generally phased out by the end of the sixth century in Athens.⁴⁵ However, as I demonstrated earlier (cf. discussion of Cit. 16) there are strong reasons to doubt that *axones* were ever on the Acropolis, and I contend we should not place too great a reliance on that aspect of this evidence.

The most serious problem is the context. The extract comes from Harpokration's lexicon which appears to be a condensed copy of a commentary by Didymos. It is even possible there was an intermediate step because Harpokration and the writer of the similar but not identical P. Berol. Inv. 5008 appear to have drawn on a lost lexicon or commentary (Gibson

⁴³ The scholion says "They say at Athens...". Holland 1941, 353, noting that the writings of neither scholar have survived, suggested that Eratosthenes might have said 'both' types of objects, and Polemon corrected him to the one that was visible to him, but I find this unconvincing.

⁴⁴ In the 4th century BCE see especially Phanodemos *FGrH* 325, F2 = Athenaios 10.392. For discussion see Kowalzig 2007, 84 and notes 67-8, and Parker 1996, 300-1.

⁴⁵ Jeffery 1989, 75-6 noted the use of boustrophedon writing into the early fifth century surmising 'religious conservatism' for its persistence. However, proof in a non-religious context that the direction of writing was not fixed as late as ca. 500 BCE may be found in the Agora *horoi*, one of which has the inscription inscribed forward and the other has the same inscription retrograde.

1997). Didymos was attempting to explain Demosthenes' use of the unusual expression ὁ κάτωθεν νόμος - 'the law (from) below' – used in speech 23.28 (*Against Aristokrates*) in a homicide case.⁴⁶ Demosthenes wrote:

When they have got (the culprit), it is lawful to torture him, make him suffer and take his money. Yet *The law below* (*Ho katōthen nomos*) directly and clearly forbids us to carry out all these punishments even against men caught and proven to be murderers. Read to them the law that follows: It is lawful to kill murderers in our own land and to arrest them, as it says on the *axon*, but not to inflict personal injury or exact recompense, else it is lawful to fine that person for twice the damage done. It is lawful that the archons, in the areas where each of them are dikasts, introduce cases for whoever wants them, and that the *Heliaia* give judgment. (Translation Gibson 1997, 376, n.6 & 7, slightly modified).

Now consider Didymos' explanation as paraphrased by Harpokration:

Ho katōthen nomos. [Used by] Demosthenes in *Against Aristokrates*. Didymos says "Either the orator is speaking of the *Heliaia* because some of the courts are called 'above' and some 'below'. Or because the format of the writing on the *axones* was written boustrophedon, from which Demosthenes gives the name of 'below' to the laws beginning on the left. For that way", he says, "boustrophedon the *axones* and the *kurbeis* were written, as was made clear by Euphorion in the *Apollodoros*. Or", he says "because Ephialtes transferred the *axones* and the *kurbeis* from above from the Acropolis to the Bouleuterion and the Agora as Anaximenes says in the *Philippikos*".⁴⁷

There is little reason to doubt that at least some of the archaic *kurbeis* would have been written boustrophedon and originally held on the Acropolis. It also seems certain that Drakon's homicide law was of archaic origin and therefore its source document would have been written boustrophedon. However, it was held by the *Basileus* (see Cit. 7) presumably originally in the Boukolion (*Ath. Pol.* 3.5) at the foot of the Acropolis in the archaic Agora, and never, as far as we know, on the Acropolis. In fact, "below" might be considered a reasonable description for its location in contrast to the rest of the *kurbeis* 'above', but this

⁴⁶ Gibson 1997, 376 noted that the phrase "is never used elsewhere in Demosthenes with reference to a law, and there is not a single instance of the word κάτωθεν in the other Attic orators".

⁴⁷ Gibson 2002, 160 provided the following translation of the entry in P.Berol.Inv. 5008: "The law (from) below: Didymus the grammarian explains this phrase in two ways. For he says that the orator says this either because the *Heliaia* gives judgment concerning those who inflict personal injury and those who receive recompense – for they used to speak of upper and lower courts – or because the writing of the *axones* was boustrophedon, a metaphor from plowing,...for from the lower left...to turn back (--- 8 lines unrestored)".

knowledge could easily have been lost to later commentators following the move of the *Basileus* to his stoa in the new Agora. This particular law was publicly reinscribed on a stone under the heading of ‘First axon’. It was only reasonable for the commentators to deduce that both *axones* and *kurbeis* were on the Acropolis, but they could not provide a convincing explanation. They had anachronistic views about the *Heliaia*, and were unsure of its relationship to the Areopagos which was described by Plutarch *Solon* 19.2 as the ‘upper Council’ entrusted with general oversight and guardianship of the laws (τὴν δ’ ἄνω βουλήν ἐπίσκοπον πάντων καὶ φύλακα τῶν νόμων ἐκάθισεν) though only on a deduction that the body even existed in Solon’s time. It should be noted there is nothing extant in Demosthenes making a distinction between upper and lower courts.

Another issue is that Euphorion, the ultimate source of the information, mainly wrote mythological poetry in notoriously obscure language. We do not know where he obtained his information. He was resident in Athens (actually being granted citizenship), but in the third century was heir to the rationalising traditions of Aristotle and the Attidographers. Van Groningen (1977, F9; cf. Hollis 1992, 8, n.38) made the interesting point that the word ‘boustrophedon’ could not be used in dactylic verse, and pondered what word or phrase Euphorion actually used.

Finally, it is a strange coincidence that Didymos was quoting Euphorion that *axones* were written boustrophedon, when he named Solon’s father as Euphorion “contrary to the opinion of all others who have written about Solon” as Plutarch *Solon* 1.1 remarked. Didymos quoted a certain Philokles naming a different father for Solon than that in the general tradition. Is it possible he made a mistake and also meant to write Exekestides?⁴⁸

CITATION 30 (Cat. N^o 47), c.257-180 BCE

Aristophanes of Byzantion picked up on the differentiation by content, and made the deduction that *kurbeis* were similar to *axones* except the former contained sacrifices and the

⁴⁸ Presumably the reference was to Philokles the fifth century Athenian tragedian and son of Aiskhylos’ sister. The other famous Philokles was *strategos* in 325/4 BCE and prosecuted for his role in the Harpalus affair. The main tradition had Exekestides as Solon’s father, cf. Plutarch *Solon* 1.1, Diodoros Siculus 9.1.1 (1st c. BCE), and Diogenes Laertios 1.45 (3rd c. CE). There was also debate about whether Solon was a native Athenian, descended from Kodros, the last of the quasi-mythical Athenian kings, and/or born on Salamis for which cf. Diodoros Siculus 9.1.1. Support for this is gleaned from the tradition that he was buried on Salamis, cf. Kratinos *Khiron* F246 (5th c. BCE), Aiskhines 1.25 (4th c. BCE referring to a statue of Solon in Salamis), Plutarch *Solon* 27.4 (claiming Aristotle as his authority), and Diogenes Laertios 1.45.

latter laws. It is possible that he deduced this (falsely) from Lysias 30 (Cit.9) who only spoke of state sacrifices on *kurbeis*. He was followed by others through to present times.⁴⁹ In saying the objects were ‘similar’ to one another, he seems to be stating they were not one and the same.⁵⁰ However, it should be noted that Aristophanes was the first of the scholars to be discussing the objects apparently without the benefit of personal inspection. This may explain his apparent error about the differing content of the objects.⁵¹ A plausible explanation is that he knew the laws were on the *axones*, and knew of sacred law on *kurbeis* (the Athenian state calendar in the Stoa Basileios).⁵² His statement was recorded by Seleukos Homerikos, who then went on to provide a description of *kurbeis* and *axones* as being “something square and big of a man’s height, having four flat, joined, wooden sides each with writing. And at each side they have two projections so they can be set in motion and turned about by the people studying them”. It should not be assumed that this unattributed description came from Aristophanes, though it may well have.⁵³ This description can really only apply to the *axones* since Seleukos previously quoted Eratosthenes that *kurbeis* were three-sided (and all other evidence agrees), whereas these objects were specifically four-sided.

CITATION 31 (Cat. N° 47), 3rd century BCE

This fragment of Asklepiades presents considerable challenges. Firstly there is a question of identity. Ruschenbusch (1966, 50, n.135) suggested authorship belonged to the first century BCE Asklepiades of Myrlea mentioned in the Souda s.v. *Asklepiadēs*, but a work by him on *axones* is not elsewhere attested. Another earlier Asklepiades of Nikaia was a student of Apollonios Rhodios, and active in the late third to second century BCE. He lived in Alexandria

⁴⁹ Especially Dow 1959, 27-35.

⁵⁰ ‘Alike’ or ‘resembling’ is the usual meaning of *homoios*, especially here where there is clearly a comparison between named objects, though *LSJ* does give as a secondary possibility an Homeric usage where it was equivalent to *ho autos*.

⁵¹ Ruschenbusch 1966, 18 first pointed out this cannot be right given the direct evidence of Kratinos, Aristophanes and Aristotle (see Cits. 3, 6 and 15) to laws on *kurbeis*. Notwithstanding this, the passage was the key point for Andrewes’ 1974 interpretation. Ruschenbusch 1966, 18 suggested the words: “resembling *axones* except that”, were an interpolation by Seleukos on the dubious basis that they contradicted his theory that the objects were identical.

⁵² Though this would still require him to have disregarded *Ath. Pol.* 7.1 and other evidence of laws on *kurbeis*.

⁵³ See the comprehensive discussion by Stroud 1979, 25-7. It is frequently difficult to know when a quotation from a fragment ends.

before moving to Pergamon.⁵⁴ Given the known interest in *axones* in Alexandria in that period and especially of Apollonios, this man seems more likely.

Secondly, interpretation of the meaning depends on the reading of the text. There are two versions found in various Byzantine lexica and the *Souda*. At issue is the word *ousias* found in most manuscripts being conventionally changed to *thusias* with the ‘mistake’ attributed to scribal error. Stroud (1979, 26) followed Jacoby (*FGrH* 339, F1 Asklepiades) in reading Ἀσκληπιάδης δὲ ἐν τοῖς τῶν ἀξόνων ἐξηγητικοῖς ἀπὸ κύρβεως τοῦ τὰς θυσίας ὀρίσαντος and translated the passage as: “Asklepiades in his *Explications of the Axones* [derives the name] from Kyrbis the inventor of sacrifices”, thus providing an unlikely derivation of the word *kurbeis* from *Kurbis*, an otherwise unknown god of sacrifices.⁵⁵ However, if *ousias* were retained, the passage would imply a relationship between *kurbeis* and *horoi* and the sentence could be translated: “...from the *kurbis* which sets out the bounds of properties” or even: “set *horoi* on the properties”. This has implications for Solon’s debt relief measure by providing some additional evidence for the archaic Athenian use of *horoi*. Given Solon’s well known claim that he “drew up the *horoi*” enslaving the earth (West *Solon* F36), this is a tempting interpretation.

Asklepiades’ name was also mentioned in an attack on him by Didymos as quoted by Plutarch *Solon* 1.1 (Cit. 44). The implication is that he also wrote about Solon’s *axones*, but nothing is known of the content.

CITATION 32 (Cat. N^o 46f), 1st half of 2nd c BCE (?)

This is another important citation because it is the first instance where a Solonian *axon* was referred to by a number. There are two texts and unfortunately there are variant readings at a critical point. The generally accepted reading (Erbse 1969, Φ282e) gives the *axon* as the ‘fifth’, but the ‘ninth’, ‘last’ and ‘new’ *axon* have all been suggested (cf. the *ap. crit.*). The texts each employ a different compound of the main verb (*paratithēmi* and *epitithēmi*), one with the preposition *en* and the other with *ek*. While the meaning is similar, *ek* has interesting connotations because so-called *ek*-rubrics were used by the *anagrapheis* to cite a source in the state calendar of sacrifices.

⁵⁴ See discussion on the *Souda*’s entry by Polito 1999, 54 who describes it as a “pastiche of material concerning different Asclepiadeses”. There certainly appears to be a conflation of Asklepiades of Nikaia and Asklepiades of Myrlea whose floruit was a century later. See *FGrH* 339.

⁵⁵ As Stroud 1979, 29 noted. Maybe “determined the form (*horisantos*) of sacrifices” might be better.

The identity of Krates is subject to debate. Stroud (1979, 29) suggested Krates of Pergamon (= Mallos, without any stated justification) and Ruschenbusch (1966, 52, n.138) suggested Krates of Athens. The former is more likely because the citation is from a discussion of the Iliad, about whom Krates is known to have written (even being known as ‘Homerikos’), whereas the third century BCE Athenian Krates was a Cynic philosopher who wrote poems and possibly tragedies. This is relevant in terms of dating the work to the second century BCE.⁵⁶

Roman period (146 BCE – 60 CE)

CITATIONS 33-38 (Cat. N^os 30b, 39a, 46a, 46b, 46d, 48b, 48d) 2nd half 2nd c BCE

The scholar for whom there are the largest number of citations is Apollodoros, who lived in Athens for the latter part of his career. He made the statements according to Harpokration (33, Cat. N^o 30b and 48b) that *kurbeis* were a type of stone stelai with laws, but in the shape of a peaked cap (*kurbasia*). This was the first mention of stone as a material for *kurbeis*, and there are reasons for treating it with scepticism. Firstly, a scholiast to Demosthenes (35, Cat. N^o 46d) stated that Apollodoros said the *kurbeis* were three-sided, of wooden construction, and stretching up to a peak, and added they were covered with hardened plaster. Repetition of these details from Apollodoros was given by Photios (37, Cat. N^o 39a). Secondly, the information about stone was repeated but with an important amplification in 36 (Cat. No 46a) in a skholion to Apollonios Rhodios. It starts off: “Apollodoros says all public writings are called *kurbis* because the ancients used to set up stones and publish their decisions on them, which they called stelai from their standing up and *kurbeis* from the way they stretched to a peak”. Therefore he was providing a secondary meaning for *kurbis* being a generalisation used when the word was applied to all public writing. It is interesting to note that this generalising word is in the singular, in contrast to his normal use of the plural.⁵⁷ He then provided a fanciful etymological derivation “through syncope and transposition” of letters before relating that later whitened boards with writing were also called *kurbeis*. Thirdly, Apollodoros was quoted in a skholion to Aristophanes (34, Cat. N^o. 46b) as saying

⁵⁶ For a contrary view on attribution of fragments generally to Krates of Mallos, see Broggiato 2000.

⁵⁷ As Jeffery 1989, 53-4 pointed out, there is no satisfactory etymology of the word or even a consensus by the ancient Greeks as to whether it was masculine or feminine. However, it seems to me the older use is feminine, viz Aeschylus, Kratinos, Aristophanes and Lysias, whereas Aristotle, Apollonios Rhodios and Atheneios use the masculine.

that *kurbeis* were three-sided *axones* with State and festival laws. The value of this information is compromised by the fact the skoliast claimed Aristotle said the same thing in the *Ath.Pol.* which patently he did not. Finally, an entry in the *Souda* says Apollodoros claimed the word *kurbeis* came from the Korybantes who invented them (38, Cat. N° 48d), but he was presumably copying Theophrastos (see 17 above).⁵⁸ Sense can be made of all this that Apollodoros thought *kurbeis* were three-sided wooden objects with a whitened surface, standing upright, and coming to a peak. However, by his time, anything which carried public writing such as a stele and even a whitened board could generically be called a *kurbis*.

CITATION 39 (Cat. N° 23), 90 – 21 BCE

Diodoros described the mythological past of Rhodes in Book 5 of his Universal History (*Bibliotheca historica*). A city called Kurbe was named after a queen but destroyed in a flood and abandoned. We do not know his source. It may have been Hekataios whom he used elsewhere (cf. discussion under Cit. 1). He also mentioned at the end of the previous book that a certain Zenon had written a history of the Rhodians.

CITATION 40 (Cat. N° 23), ca. 80 – 10 BCE

According to Plutarch *Solon* 1.1, Didymos wrote a work about the *axones* of Solon in reply to Asklepiades. The passage makes clear he was relying upon Euphorion who wrote some time after 275 BCE (cf. discussions under Cits. 29 and 31). Nothing else is known of the work. Didymos is a known source for Zenobios (cf. Cit. 54).

Second Sophistic period (60 – 300 CE)

CITATION 41 (Cat. N° 47, 39a), 1st c CE

Seleukos picked up on the remarks of Aristophanes of Byzantion (Cit.30) that *kurbeis* contained festivals, and Apollodoros (Cit.33) that they were like *kurbasia*. However, he added the fanciful etymological detail that this was derived from the word *krubeis* meaning ‘concealing capacity’ as the gods’ business had to be hidden away. He then quoted Asklepiades (Cit.31), Phanias (Cit.18), Eratosthenes (Cit.26) and Aristophanes (Cit.30) before adding new, but unattributed details, on the construction of both *axones* and *kurbeis* which

⁵⁸ The *Souda*’s source may be the Patmos skolia to Demosthenes - see Cit. 68.

he evidently considered to be the same (cf. Cit. 30, and separate discussion of the form of *axones*).

CITATION 42 (Cat. N° 26), 1st c CE

Around the same time as Seleukos, Erotianus defined the word *phliai* – doorposts, as the timber frames for the *axones*.⁵⁹ This provides a good indication of the size of the *axones* and accords with Seleukos' information that they were 'man-size' (cf. Cit. 30).

CITATIONS 43-4 (Cat. N° 42), ca. 50 - 120 CE

Plutarch's *Life of Solon* contained by far the greatest amount of information on this topic that we possess. This has led him to be the most quoted source by modern commentators, though there is a strong danger of accepting his evidence at face value, as many of the laws he attributed to Solon could not have belonged to him.⁶⁰ Plutarch specified three actual *axon* numbers. At *Solon* 19.4 he noted that Solon's thirteenth *axon* contained the eighth of his laws. This law concerned the restoration to full civil rights (*epitimia*) of those previously disenfranchised (suffering *atimia*) except those justifiably condemned by the Areopagos, *ephetai* or *basileus* on capital charges. The subject matter requires temporal proximity to Solon, and accords with his central mission of solving the civil crisis. It may well have been his eighth law, but there are issues concerning when and where it was written down. Plutarch himself was perplexed – if the Areopagos was established by Solon, how could people have been convicted by it before Solon's time (*Sol.* 19.4)? He surmised "some obscurity in the document or omission". These difficulties are readily explained by my explanation that the law was re-recorded by the *anagrapheis* at the end of the fifth century. In support of this I note that if the eighth law was on the thirteenth *axon*, the previous seven

⁵⁹ This important citation appears to have been overlooked in discussions of *axones*.

⁶⁰ It has already been indicated that it was a common rhetorical device to call any law which predating the general revision of laws in 410 BCE 'Solonian' to indicate it was valid (Schreiner 1913, 30). Even Plutarch himself realised that some of the information on early laws was untrustworthy, for example *Solon* 24.2: "But the law concerning naturalised citizens is of doubtful character". Bosworth 1992 strongly warned of the dangers of accepting Plutarch's work as history. Using the case study of Eumenes for whom there are other historical accounts, he demonstrated that Plutarch's Eumenes "is a far cry from any picture of Eumenes he can have found in the historical literature he used" (p.79). He selectively used anecdote to illustrate his biographies, and the fact they are parallel lives increases the distortion. Affortunati and Scardigli 1992, 110 suggested that the inspiration to pair Solon with Publicola possibly came from Cicero's writings in which references to Publicola preceded references to Solon (*De republica* 2.53-5, 2.59, and *De legibus* 2.58).

laws must have been extremely long, or the *axones* very small. The pricing issues for sacrificial victims on the sixteenth *axon* also present great difficulties (cf. Part 3.2). Likewise I argue that the law on the first *axon* requiring payment of 100 drachmas into the public treasury (*dēmosion*) is anachronistic and therefore Solon could not have drafted it. *Ipsa facto* this first *axon* must post-date Solon by at least half a century. Furthermore, see Cit. 57 plus note for another measure supposedly contained on the 1st *axon*. Clearly this 1st *axon* could not be the same as Drakon's, as Stroud (1968, 33-4) pointed out.

Plutarch provided a description of *axones* as being made of wood and “encompassed in revolving oblong frames (ἐν πλακίσιοις περιέχουσι στρεφόμενους)”.⁶¹ The wording makes it quite clear that each *axon* had a frame which discredits most of the fanciful reconstructions (cf. Part 3.1). Plutarch claimed that ‘slight remnants’ (*leipsana mikra*) were still preserved in the Prytaneion in his time (*eti kath' hēmas*). He did live for a year at Athens when a young man in 66/7 CE, and the passage implies he had seen the remnants. The location of the *axones* in the Prytaneion was earlier noted by Polemon (cf. Cit.27). Further confirmation may be adduced from Pausanias 1.18.3 who wrote: “Hard by is the Prytaneion in which the laws (*nomoi*) of Solon are inscribed”. Plutarch was aware that Aristotle called the laws *kurbeis* and cited the fifth century BCE Kratinos (Cit. 3) who only referred to *kurbeis*. He noted that ‘some’ had attempted to explain the contradiction by dividing *kurbeis* and *axones* by content.

CITATION 45 (Cat. N° 41), ca. 50 - 120 CE

Plutarch made passing comment in his *Life of Numa* that Numa Pompilius, the legendary second king of Rome, wrote sacred books which were like the *kurbeis* written by the *nomothetai* of the Greeks. As far as I am aware, the significance of this passage has been previously overlooked. Plutarch evidently believed that *kurbeis* were written by Greek *nomothetai* generally, and not just Athenians. Furthermore, although Numa was paired with Lykourgos (largely because of his descent from the Sabines, a supposed colony of the Lakedaimonians), his *Life* bears striking parallels to Solon's. He was universally celebrated for his moderate virtues and sagacity before his call to office on account of civil strife, (initially) declined the kingship, established justice, and even wrote laws including about boundaries and funeral customs. In his case the loss of his written laws was explained by the sacred

⁶¹ The use of the passive form of *strephō* implies each frame turned or twisted.

books being buried with him. He represents another example of the *heuretes* figure to whom great works of the dimly remembered past could be conveniently attributed. It must make us suspicious about Plutarch's similar attributions to Solon.

CITATION 46 (Cat. N° 22), 1st – early 2nd c CE

According to Dio Khrysostom, *axones* were 'cherished' along with other forms of writing, which ties in neatly with earlier information about their preservation.

CITATION 47 (Cat. N° 5), 1st or 2nd c CE

It is worth noting the epigraphic evidence from Kyzikos of a *kurbis* as a grave stele bearing an epitaph. Though of course this is a long way from archaic Athens both temporally and physically, it is the only object describing itself as a *kurbis* which is known to have survived to the present. It is proof that the word continued to be actively used half a millenium after *kurbeis* ceased to be used as the medium for laws at Athens.

CITATION 48 (Cat. N° 9), 1st - 2nd c CE?

A certain Ammonius (not the famous Neoplatonist) said that *axones* and *kurbeis* were different in that the former were four-sided with private law, while the latter were three-sided with sacred and state law. This seems to neatly summarise Hellenistic thoughts on the subject to that point. It is possible that this work should be attributed to Heronnius Philo, ca. 100 CE.⁶²

CITATION 49 (Cat. N° 17), 2nd c CE?

The Pseudo Aristotelian *De Mundo* implied that the most authentic of written laws was one on a *kurbis*. This piece on Greek cosmology (*On the Universe*) was one of a number of works falsely ascribed to Aristotle. We have a *terminus post quem* in that it was probably translated into Latin by Apuleius of Madauros who died ca. 170 CE.⁶³

CITATION 50 (Cat. N° 34), 2nd c CE

⁶² The treatise was called *On the differences of synonymous expressions*. Ammonius may have been a nom-de-plume, or even the name of the late Byzantine editor who epitomised it.

⁶³ A second century CE Platonic philosopher, orator and popular writer in North Africa famous for *The golden ass*.

Loukian cited an *axon* dealing with treatment of an adulterer caught in the act. This was traditionally a law of Drakon, not Solon as Stroud (1979, 36 noted), despite Plut. *Sol.* 23: “He (Solon) permitted an adulterer caught in the act to be killed”. See also Paus. 9.36.8, Ulpian in Just., *Digest* 48.5.24, Ath. 13.569d (quoting Xenarkhos, F4 [Edmonds]), and Dem. 23.53. If this attribution is correct, it directly contradicts *Ath. Pol* 7.1 “[the Athenians] ceased to observe the ordinances (*thesmoi*) of Drakon, except those relating to homicide”, and Plutarch, *Solon* 17.1 “[Solon] repealed the laws (*nomoi*) of Drakon, all except those concerning homicide”.

CITATION 51 (Cat. N° 29), 2nd c CE

Aulus Gellius in his *Attic Nights* dutifully trotted out the tradition that *axones* contained the laws of Solon, but added the useful detail that they were “carved on wooden boards”. The importance of this statement has been overlooked in many earlier reconstructions of *axones* (see discussion of the shape of the *axones* in Part 3.1).

CITATION 52 (Cat. N° 25), 2nd c CE

Diogenianos stated that a *kurbis* was a kind of timber *pinax* with the laws. He claimed that on account of this, the expression had arisen – *kurbeis* of evils. An association of *kurbeis* and legal sharp practice goes back to Aristophanes (Cit. 5), but this metaphor goes much further. We do not know how common the expression was, but it is intriguing that *kurbeis* were considered archetypal laws (cf. Cit. 44).

CITATION 53 (Cat. N° 43), 2nd half 2nd c CE

Polydeukes (Pollux) claimed that *kurbeis* were three-sided, pyramid shaped writing boards (*sanides*) with laws whilst *axones* were four-sided and bronze also with laws. He also mentioned objects called *deltoi*, possibly implying a triangular shape, as being made of bronze and inscribed with sacred matters. It is possible he had a particular surviving example in mind given he was writing in the second half of the second century CE, and bronze is far more durable than timber. Finally, he stated that originally both *axones* and *kurbeis* were on the Acropolis but were relocated to the Prytaneion and Agora. This would accord with where Plutarch or his informant (Cit. 44) and Pausanias 1.18.3 physically saw wooden remnants of the laws (*axones?*), and Polemon’s statement (Cit. 27) of their location in the late-third

century BCE, but does not mean this is where they went in the sixth century BCE.⁶⁴ The claim needs to be compared with Anaximenos' similar one made some 500 years before (see discussion Cit. 14) with the important difference that he said the *axones* went to the Bouleuterion while agreeing the *kurbeis* went to the Agora. The competing evidence does not require one to be false. It is quite possible the *axones* were held in the Bouleuterion in the fourth century BCE and were moved to the Prytaneion by the third century BCE. However, it does raise the question of why both authors specified buildings as the location for the *axones*, but simply noted the Agora for the *kurbeis*, when both the buildings mentioned were in the Agora. One possible explanation is that the *kurbeis* as freestanding monuments were placed according to where they were relevant as happened with stelai later, but at some time they had to end up in the Stoa Basileios to accommodate Aristotle's evidence. The location of the original Prytaneion is unknown, though it may have been discovered in an alley off Tripodos Street based on an announcement by Drs Matthaiou and Kavvadias at the 2010 Epigraphical Conference in honour of Harold Mattingly (held at the British School at Athens and the Epigraphical Museum). This would accord with Pausanias 1.20.1.⁶⁵ A proclivity to alter facts to suit his understanding may explain Polydeukes' unique claim that *axones* were bronze.

CITATION 54 (Cat. N° 52), 2nd c CE

Zenobios, in explaining the proverbial use of the phrase "*kurbeis* of evil", explicitly stated that *kurbeis* were three-sided *sanides* with laws. The laws they contained dealt with "retribution for wrongdoings", and were proverbial for their "exceeding villainy" or perhaps "trickery" (cf. Diogenianos Cit. 52). Again, it is interesting to consider whether this simply refers to the word's use in Aristophanes (Cit. 5) or whether there was some genuine base for believing that the laws on *kurbeis* were unfair or unduly harsh. It brings to mind the reason given in Plutarch *Solon* 17.1 for repealing Drakon's even earlier laws, that they "were too severe and their penalties too heavy". According to the Souda s.v. *Zenobius*, Zenobios used Didymos as a source (together with Loukillos of Tarra in Crete).

⁶⁴ Pausanias 1.18.3 wrote '[h]ard by is the Prytaneion in which the laws of Solon are inscribed'. I note, contra Stroud 1979, 35 that Pausanias wrote the word *nomoi*, not *axones* or *kurbeis*.

⁶⁵ See also Schmalz 2006 for a review of the evidence. The interesting suggestion by Rosivach 2008 that it was on the Acropolis is less plausible if Polydeukes had replaced the Bouleuterion with the (classical era) Prytaneion merely because that was where the remnants of the *axones* were kept at that time - cf. Cit.44 and note.

CITATION 55 (Cat. N° 6), 2nd c CE

Aelianus quoted Demostratos, an expert on fish and divination, who was directly comparing the triangular shape of the spines of a certain type of bird (*geranos* = crane?) with *kurbeis*. This implies they were free-standing, and also that they were so well known that they could be used to describe the shape of another object.

CITATION 56 (Cat. N° 28), 2nd c CE

Galen derived the meaning of an obsolete legal phrase from Solon's *axones* when introducing a quotation from Aristophanes' lost first play *Daitales* (*Banqueters*). This play was written in 427 BCE and had a reference to Homer *Od.* 10.521 describing Odysseus' descent amongst the helpless ghosts in Hades. Stroud (1979, 6, n.13) suggested that Aristophanes may conceivably have used the word *axon* but there is no evidence for this, nor is it necessary in the context.⁶⁶ It is possible he included it because it dealt with justice for the powerless. F222 Kock preserved four versions of the first sentence commencing '*ti kalousin* (what are they calling)..?' These were: *amenēna karēna*, *korumba*, *iduiou*, and *apoinan* meaning strengthless heads, peaks (also Paus. *Gr.* F151), witnesses, and ransom. For *korumba* see Hesychios s.v. *korumbon* (Cit. 72) in which the word is used as a synonym for *korus* (a helmet), *kurbis* and *kurbasia*.

CITATION 57 (Cat. N° 30a and d), 2nd c CE

Harpokration in his *Lexicon* s.v. *axoni* stated that the "laws of Solon were written up on wooden *axones*" but without providing a source as he did for his other remarks on the subject. In the entry for *sitos* he explained that it was money provided by the *polis* for food for women and orphans. He made the claim that this could be learnt from Solon's first *axon* and Aristotle's *Ath. Pol.* If correct, this would demonstrate that Solon's *axones* were numbered separately from Dracon's, because the latter's first *axon* dealt with homicide law. *Sitos* did come under the purview of the archon according to *Ath. Pol.* 56.7, but it was not directly attributed to Solon, and seems unlikely to have been his measure. This provides

⁶⁶ At the risk of including an argument from silence, it seems almost inconceivable that if a playwright as well known as Aristophanes had used the word *axon*, it would not have been picked up in the subsequent discussions.

support to my view that the measures physically recorded on ‘Solon’s *axones*’ as known to later writers could not have dated to Solon’s time. Another item on Solon’s first *axon* was given by Plutarch *Sol.* 24.1 (Cit. 43) forbidding the export of produce except oil, though this did not fall under the jurisdiction of the archon according to the list given at *Ath. Pol.* 56.

CITATION 58 (Cat. N° 24), 1st half 3rd c CE

Diogenes Laertios wrote a somewhat fanciful life of Solon in the third century CE. He made two references to *axones* describing them as being wooden and the repository of Solon’s laws.

CITATION 59 (Cat. N° 53), 3rd c CE

The *Lexicon* of the writer known as Pseudo-Zonaras defined *axones* as four-sided *pinakes* with private laws, but additionally gave them a new metaphorical meaning of a virtuous public life. This can be compared with the relatively common identification of *kurbeis* with wrongdoing (*kurbeis kakōn*) mentioned previously. Ps-Zonaras also defined *kurbeis* as three-sided *pinakes* with sacred and state laws. A very similar version can be found in a skholion to Plato *Politikos* 289e (Cit. 71) which was ascribed by Erbse (1949, 191) to the 2nd century CE lexicon of Pausanias Attikos *Collection of Attic names*. This is indeed possible, but in the absence of proof I have chosen to leave the citation where it is. The citation was copied in Photios *Lexicon* s.v. *kurbeis* 2 and *Souda* s.v. *kurbeis* 1.

Third Sophistic/Byzantine rhetoric period (300 – 500 CE)

CITATION 60 (Cat. N° 27), 4th c CE

Eusebios stated that there were few *kurbeis* and lots of stelai both with writing ‘engraved deeply’ implying they were of the same nature. His reference to seeking to “transmit the virtues of those they honoured” suggests honorific inscriptions such as were frequently used in the fourth century and later. It would be interesting to know if he was aware of such inscriptions on *kurbeis*, or simply lumping the two types of documents together on physical grounds.

CITATION 61 (Cat. N° 51), 4th c CE (?)

Timaos in his *Lexicon Platonicum* said that a *kurbis* was a three-sided, pyramid-shaped stele with sacred laws. He was presumably glossing Plato *Politikos* 298d-e (cf. Cit. 11 and 62).

CITATION 62 (Cat. N° 50), 4th c CE

Themistios in his *Orations* made reference to a number of ancient lawgivers and philosophers. He described the writings of Plato and Aristotle as being on *kurbeis*, presumably because this alluded to the antiquity and veracity of their pronouncements (compare Plato's own allegorical use at Cit. 11). Themistios also quoted a sophistic precept of Plato claiming it was on an *axon*, and that therefore he could be easily exposed if he tampered with it. Given there is no other evidence of *axones* containing such material, it is likely this use was also metaphorical. However, the fact that he (and presumably his audience) considered *axones* could contain early fourth-century BCE material indicates they were not thought of as belonging only in the early sixth century.

CITATION 63 (Cat. N° 36), late 4th to 5th c CE (?)

Nonnos Epikos wrote the last and longest of the great epic poems in antiquity. It is accepted that he cannot be relied upon as a source of early mythology, however he often preserved useful details. In Book 12, he provided an extended description of panels with vermillion lettering, standing against the walls of a room and containing ancient prophecies, which he called *kurbeis*. Furthermore he used *pinax* as an exact synonym for *kurbis*. His usage is reminiscent of Apollonios Rhodios (Cit. 23) whom he also followed semantically with *kurbias* as the accusative plural. Curiously he used *kurbidi* for the dative singular.

CITATION 64 (Cat. N° 12), 5th c CE

Aristainetos used *kurbis* metaphorically to describe the evil behaviour of a whore. This is an extension of the use of the phrase *kurbis kakōn* attested in the second-century writers Diogenianos (Cit. 52) and Zenobios (Cit. 54) which continued right through to late antiquity (see Souda s.v. *kurbeis* 2, Cit. 78).

Late antiquity/Early mediaeval/Byzantine period (500 – 800 CE)

NB: Citations 65 – 71 collect the skolia. These contain much useful information and some which is dubious. Unfortunately it is usually difficult to know when they were written and by

whom, though potentially some could be copying much earlier hypomnemata, or be considerably later. Recognising these intractable problems, I have chosen to place them chronologically in the fifth to sixth century CE for convenience, with the exception of Cit. 77 which is demonstrably later.⁶⁷

CITATION 65 (Cat. N° 46a), unknown date

This skholion to Apollonios Rhodios contains a mishmash of information much of which is untrustworthy. The skoliast equated *kyrbiai* with *stelai*, and claimed they were *axones* containing laws according to the comic poet Aristophanes, though there is no reference to *axones* in any of Aristophanes' known plays.⁶⁸ He specified that *axones* were 4-sided and made of stone, *kurbeis* were 3-sided, and both objects bore Athenian laws. In reference to Apollonios' mention of *kurbeis* with geographical information, he stated that they were like *pinakes* bearing a map of the earth. This is the same person who quoted Eratosthenes as saying that *kurbeis* were also called *axones* at Athens (Cit. 25), and recorded the more dubious etymological guesses of Apollodoros (Cit. 36). It should be noted that Apollonios did not mention *axones* as far as is known (see Cit. 23). It is astonishing that his quoting of Eratosthenes should have been relied upon so heavily in modern scholarship.

CITATION 66 (Cat. N° 46b), unknown date

A skholion to Aristophanes *Birds* 1354 claimed that *kurbeis* were bronze *sanides* with laws. This was the only direct reference to *kurbeis* being made from bronze (!) and no source was given.⁶⁹ Perhaps the skoliast was referring to the bronze *deltoi* mentioned by Polydeukes (Cit. 53). It was not uncommon to inscribe in bronze even in the Late Archaic period, but there is no evidence such objects were called *kurbeis*.⁷⁰ A bronze stele was mentioned by the Atthidographer Melanthios in his work *On the Eleusinian mysteries* reporting the

⁶⁷ See a summary of the problems and references in Dickey 2007, 13 and n.31.

⁶⁸ This may be an accident of survival. Aristophanes produced plays from 427 – 386 BCE. Only 11 out of approximately 40 survive. However, given the antiquarian interest in the word, it is likely that a mention by Aristophanes would have been noted.

⁶⁹ Maximus Planudes (ca. 1260 – 1330 CE) described bronze and iron *kurbeis* but as a simile for strength (Cat. N° 66).

⁷⁰ There are plenty of other examples of bronze as a medium for writing, viz the bronze plaque dated by Jeffery 1989, plate 3 to c.550?, and Sophokles *The women of Trachis* 683 (mid-fifth century?) when Deianeira speaks of precepts held “in my mind like words indelibly inscribed in bronze”.

prescription of Diagoras (*FGrH* 326 F3). There were ‘bronze stelai’ recording the list of *ephebes* mentioned in *Ath.Pol* 53, (cf. Cit. 77).

CITATION 67 (Cat. N° 46c), unknown date

There are a large number of skolia to Aristophanes *Clouds* 447-8 probably made over a considerable period of time. The skolia *vetera* seek to explain Aristophanes’ metaphor relating to knowing the laws personally or in the abstract. One notes that *kurbeis* were made to provide a record. Others date to very late antiquity, notably the skolia *recentiora* of Thomas Magister (1282 – 1328 CE) which describe a *kurbis* either as a *sanis* or stele with laws.

CITATION 68 (Cat. N° 46d), unknown date

The Patmos skolia to Demosthenes were transmitted from a relatively early date, with their primary source dating back through Didymos to earlier scholarly works in the second century BCE (Dickey 2007, 51-2). This entry cites Theophrastos (Cit. 17), and Apollodoros (Cit. 35 and 37). *Kurbeis* are described as “3-sided wooden constructions” on which the ancient laws were written. The word *kurbeis* does not appear in any extant work of Demosthenes, but this entry suggests he used it.

CITATION 69 (Cat. No. 46e), uncertain date

Tellingly, another skholion specifically stated that the word *psephis* (voting pebble, diminutive of *psephos*) was on the *axones*. The skoliast says the word does not mean ‘pebble’ (in a creek bed) as used in Homer *Il.* 21.260, but has the Attic meaning. Presumably this refers to the use of the *psephides* (voting pebbles) in secret ballots in the lawcourts which was very much a feature of democratic Athens. Although it is not impossible that pebbles were used in this way at the beginning of the sixth century, I am not aware of any evidence for the practice so early.⁷¹ It seems very likely to be anachronistic, and casts further doubt on the *axones* dating back to Solon’s time.

CITATION 70

See discussion under Cit. 32.

⁷¹ Diogenes Laertios 1.59 does mention pebbles in connection with Solon, but for calculations.

CITATION 71 (Cat. N^o 46g), unknown date

See discussion under Cit. 59. The skoliast added that some say *kurbeis* and *axones* “are no different” which is reminiscent of Eratosthenes (Cit. 25).

CITATION 72 (Cat. N^o. 32a-d), 5th – 6th century CE

Hesychios’ *Lexicon* included four references to *axones* and *kurbeis*.

- a) The general meaning of the word *korumbon* was given as a peak, and the antecedent of the words *korus*, *kurbis* and *kurbasia*. A *korus* was a helmet in Homer, and a *kurbasia* a tiara or rooster’s crest (cf. Cit. 1). Irrespective of the validity of the etymology, it follows that a *kurbis* should have a similar shape to the other objects.
- b) A *kurbis* was defined as “a triangular stele or wooden *axon* on which the ancients wrote laws”. I take this in the simple sense of describing the object, not saying that a *kurbis* was identical with a wooden *axon* by another name.
- c) The word *proptorthia* was carried on the *axones*. The *LSJ* supplement (p.261) deleted its previous translation (citing this fragment) of a “projecting branch” and replaced it with “προπτόρθιος, ον, adj. applied to a sacred animal, probably an indication of its age, ἔριφος προπτόρθι[ος] Sokolowski 3.18.46”. The derivation is presumably from *ptorthios* which means sprouting or budding (as in a young branch), so *proptorthios* aptly describes a very young goat before (*pro*) its horns have budded. A similar type of description was applied to a sheep on the main fragment of the Athenian state calendar said to be *leipognōmona* (lacking its first teeth; cf. Sokolowski 1962, 28, no. 10, line 38). This further proves that *axones* carried sacrificial as well as secular law.
- d) Hesychios defined *treis theoi* as an oath in Solon’s *axones*, though “some say Homer”. Ruschenbusch 1966 collected the evidence in a section headed *Beweisrecht* (Proof at law).⁷² In his F44b (=Pollux 8.142), “Solon tells (him?) to swear by three gods – of supplication, purification, curing”, which are possibly names of Zeus (Gagarin 2006, 269). In F43, Hesychius (α 907) states that Solon required the oaths to be sworn by members of the *anchisteia* (close relatives). This is likely to be genuinely archaic because the word for witnesses is *iduoι* instead of *martyres*, though one

⁷² Gagarin 2006, 268-9 provides a discussion (and translations) based on Ruschenbusch 1966.

source mentions both Drakon and Solon.⁷³ Interestingly, F42 (Bekker *Anecdota Graeca* I 242 = Antiphon 5.94) states: “*doxastai* – they are judges who decide which of the litigants swears correctly. For Solon told the accused to swear an oath when he did not have contracts (*symbolaia*) or witnesses, and similarly the accused”. Gagarin (2006, 269) noted that “[a]s far as we know, contracts did not exist in Solon’s day, at least not in a written form in which they could be introduced as evidence in court”. Therefore this too must be considered anachronistic, and the reference of ‘some’ to Homer suggests uncertainty.

CITATION 73 - Cat. No 49a and b, 6th century CE

- a) Stephanos provided the information that on the *axones* there is prescribed “a sacrifice at Agnous for Leos”. It seems likely this Leos was Pallas’ herald in Philokhoros *FGrH* 328, F108 (= skholion to Euripides *Hippolytos* 35) identified as Leos in Plutarch *Theseus* 13.4. He is possibly not the same Leos “who gave up his daughters to save the people at the command of an oracle” from a plague (Pausanias 1.5.2).⁷⁴ It is uncertain which one was the eponymous hero of the fourth Kleisthenic Tribe – Leontis. Even less certain is the association with the Leokoreion which dated to the sixth century.⁷⁵ Presumably Agnous equals Hagnous, the Attic deme in the *mesogaia*. Whitehead (1986, 12) suggested that the “unaspirated version is the original one – existed in Solon’s time and could be used to specify a geographical location”. Hagnous was one of the many small, independent localities in Attica before the *synoikismos* but when its name changed is unknown, and it seems unwise to draw firm conclusions from the vagaries of spelling especially as early as the sixth century BCE.⁷⁶

⁷³ *Iduous* – Phot. 102 I, mentions only Solon; Eustathios 1158, 19 (re Hom. *Il.* 18.501) mentions Drakon and Solon. Galen (gloss. Hippocrat. prooem.) 19, 66 (Kühn) has *iduioi*.

⁷⁴ The sacrifice is also mentioned at Demosthenes 60.29 and Diodoros 17.15. This Leos was worshipped elsewhere including in the deme Skambonidai, IG I³244. C4-5. See Kearns 1989, 181.

⁷⁵ The Leokoreion was a shrine insecurely identified as being just north-west of the Agora in Athens, also known as the ‘Crossroads Enclosure’ where Hipparkhos was assassinated (Thucydides 6.57.1-3; *Ath. Pol.* 18.3; Souda s.v. *Leos/Leokoreion*; Aristides *Panathenian oration*). It seems to have been a shrine to Leos’ daughters but there is no evidence of worship of Leos himself in Athens before Kleisthenes. For discussion see especially Rotroff 1978, 206-7, also Kearns 1989, 80, n.2, 181, and Harding 2008, 54-5.

⁷⁶ In Australia today the ‘h’ sound is regularly dropped from words especially in rural areas. The ongoing quarrel between Hagnous and Pallene in the classical period recorded by Plutarch *Theseus* 13.4 indicates, as Hignett

- b) Stephanos noted that Kurba was the name of a *polis* in Crete since changed twice to Hieraputna in his time. This information probably goes back to Hekataios, possibly through Herodian. Stephanos s.v. *Kurbasa* also mentioned a town called Kurbasa with the same root (*Kurb-*) which was the name of a *polis* in Karia (with the same source).

CITATION 74 - Cat. No 8a and b, 6th century CE

- a) Agathias used *kurbeis* metaphorically to describe the Pillars of Hercules. He classed *kurbies* (dialect for *kurbeis*) together with stelai and writings.
- b) He also stated that a stone *kurbis* had been placed beside the banks of a river inscribed with an elegy. This again confirms that *kurbeis* could contain any sort of writing, and implies stone was not the usual material (or the adjective would be unnecessary). A rural connection is also attested in Cat. N^os 2, 11, and 19.

CITATION 75 - Cat. No 38, 7th century CE

The medical writer Paulos provided a detailed description of the mechanism used to move the *axones*.⁷⁷ It would be useful to know the source and reliability of his information, for whereas Seleukos claimed *axones* had “pivots at each end so they could be moved and turned by the reader”, Paulos said they were turned by means of leather straps. This implies either a different source or that Paulos was making a deduction. Both writers agreed, as did Plutarch and Erotianos, that they were in wooden frames.

Byzantine revival/Middle mediaeval period (800 – 1100 CE)

CITATION 76 - Cat. No 39a and b, 9th century CE

- a) Photios’ *Lexicon* noted a spelling variation said to be on the Solonian *axones*, though given it concerned homicide, it was more likely to have been Drakon’s *axon* (see Cit. 7). The word *andro~~ph~~onon* is tentatively restored in line 27 of IG I³ 104. Presumably there is a case to restore the alpha instead (*andrap~~h~~onon*). The word does not appear elsewhere in the surviving document. The *Lexicon* contained two entries for

1952, 36 suggested, “that the time was not far distant when Attica had been divided into a number of little states, each quarrelling with its neighbours”.

⁷⁷ As far as I can determine it has been completely overlooked in discussion of the *axones*.

kurbeis with useful citations of Apollodoros (cf. Cit. 37) and Theophrastos (cf. Cit. 17), as well as copying or paraphrasing other earlier texts (as noted under the translations). Photios made clear the distinction between 3-sided *kurbeis* like *pinakes* and 4-sided *axones*. The *lexicon* s.v. *orgeones* provided an otherwise unknown fragment of Seleukos *Notes on Solon's axones* commenting that *orgeones* had meetings about certain gods or heroes. This implies that there was 'Solonian' legislation regulating such religious associations and their cult activity, which is unlikely in Solon's time but entirely appropriate at the end of the fifth century.

- b) In the *Bibliotheka*, Photios claimed that *kurbeis* was usually given as a masculine word at Athens but as a neuter in Kallimakhos. In fact, Athenian writers in the fifth and early-fourth centuries used the feminine.⁷⁸ Thus *kurbis* was feminine in Kratinos (Cit. 3), Aristophanes (Cit. 6), Lysias (Cit. 9) and Plato (Cit. 11), but *Ath. Pol.* (Cit. 15) composed later in the fourth century used the masculine. Interestingly, the fragment of Anaximenes used the masculine leading me to suspect it was not an original fifth-century statement (cf. Cit. 14). The non-Athenian Akhaïos of Eretria (Cit. 4) writing in the fifth century used the masculine, and later in the third century Apollonios Rhodios (Cit. 23) did the same. However, the contemporary fragment of Kallimakhos used a neuter (Cit. 21). The gender confusion may well stem from the root word *kurb-* being of foreign origin as Jeffery (1951, 53) proposed.

CITATION 77 - Cat. No 46h, 10th or 11th century CE

Commenting on the word *axon*, the skoliast to Plutarch *Solon* 19.4 was trying to correct a mistaken view that *axones* were 3-sided objects with Athenian laws that turned.⁷⁹ He thought that a *kurbis* was a kind of 3-sided stele inscribed with military catalogues. Interestingly, he derived the information from Aristophanes' *Peace*. The text of that play does not mention *kurbeis* though it does have the military catalogue at lines 1180-4. Stroud argued there was a second non-extant version which might have mentioned *kurbeis*.⁸⁰ He used this skholion to support his view that *kurbeis* were made out of bronze notwithstanding the skoliast went on to state emphatically that the *kurbeis* were 3-sided pieces of wood. The

⁷⁸ The point was made by Jeffery 1961, 53.

⁷⁹ It is possible this derived from a reading of Seleukos (Cit. 41).

⁸⁰ See Stroud 1979, 52-55 for a detailed discussion of this scholion. He argued that it was written by Arethas of Caesarea ca. 917-20 CE.

skoliast suggested *axones* were 4-sided pieces of wood with civic laws used before hides and skins. The idea of writing being originally on hides and skins may have derived from Herodotos 5.58.3.

CITATION 78 - Cat. No 48, late 10th century CE

The Souda assembled a number of references to *axones* and *kurbeis* copying or paraphrasing earlier works. This included a clear understanding that they were physically different objects. However, one entry noted *axones* were square but “according to some” were triangular. This picks up on the similar doubt expressed in Cit. 77 which presumably had gained some currency at this late date.

Great schism to the fall of Byzantium (1100 – 1453 CE)

CITATION 79 - Cat. No 33, 12th century CE

An intriguing snippet comes from Michael Italicus. He claimed that the Solonian laws on 4-sided stone *axones* were transcribed from 3-sided *kurbeis*. He is only the second source to describe *axones* as being stone (the other being Apollodoros – Cit. 33). As has been demonstrated earlier in these notes, Drakon’s law was a well known *axon* on stone copied from an earlier document, so it is a logical but false deduction.

CITATION 80 - Cat. No 37, 12th century CE ?

The *Paroemiographi Graeci* (collection of Greek proverbs) preserved mention of a Solonian law on the *axones* relating to stealing cow dung. It was said to punish the wealthy even for the trivial offence of stealing cow dung. Given its source in a proverb it may be apocryphal as it seems unlikely for the early sixth-century, though it fits the Solonian legend. Some such law may well have been passed under the democracy, but it could not then have been on a Solonian *axon*. It may even have been sacred law – see IG I³ 4, line 11 (the Hekatompedon Inscription).

CITATION 81 - Cat. No 10, unknown date

The *Anecdota Graeca* provides one final piece of information about the nature of physical nature of the *axones* claiming that they turned around some sort of pin. The entry was also concerned with rotating balls and cylinders and wagon wheels, so it may just be an

etymological inference. There is also a clear statement that *kurbeis* were 3-sided wooden objects with laws shaped like a pyramid, different from the 4-sided *axones*.

NB: There are twenty additional entries listed under 'Other citations' at the end of the Annexure. These are listed for the sake of completeness, but are not discussed as they do not add anything of significant value to an understanding of the nature of axones and kurbeis.

6.3.3 Catalogue of inscriptions and testimonia

Following is a list of inscriptions and testimonia citing the words *kurbis* and/or *axon*. Not included are references to *axones* where the word is being used to describe a vehicle's axle, or in mathematics or astronomy. References in Greek which do not add to an understanding of the words are listed separately at the end under the sub-heading 'Other citations' for the sake of completeness. References in Latin which do not add to an understanding are not included. An *apparatus criticus* is not included but there are notes where textual variations might affect interpretation. There are some arbitrary decisions as to where to list certain fragments containing the same information (especially from Photios, the *Souda* and various other lexic), but the principle is to select the earliest source and in all instances there is cross referencing. In the notes, the first reference is to the text used. A secondary reference may be to part only of the text or variation(s). The major collections of Ruschenbusch 1966 (= Rusch.), Stroud 1979 (= Stroud), Jacoby 1923-58 (= *FGrH*) and Martina 1968 (= Martina) are noted whenever they provide a text. Despite the fact that in this thesis Greek names and works are transliterated or translated, the headings in this Catalogue are given in the *OCD* format for ease of reference (see Notes on Transliteration). The intention of this section is to provide a full list of testimonia with sufficient context to enable independent analysis.

INSCRIPTIONS

1. IG I³ 104

409/8 BCE

Line 10 πρῶτος ἄχσον
First *axon*

Line 56 [δεύτ]ερος [ἄχσον]
[Sec]ῶνδ [axon]

Notes: Stroud p.6; Rusch. F5a. Reinscription of Drakon's homicide laws with Stroud's reconstruction of line 56. IG I³ 104 = IG I² 115.

2. *Hesperia* 7.1

363/2 BCE

ξύλα ἐφ' ἱεροῖς καὶ οἷς ἡ πόλις δίδωσιν ἐκ κύρβεω[ν] Δ

Wood for the sacrifices and for those (sacrifices) which the *polis* gives according to the *kurbeis*, 10 drachmas

Notes: Ferguson 1938 line 87; Stroud p.11; Martina 570; *FGrH* 328, F14-16; SEG xxi 527; Lambert 1997. This is a decree of the Salaminioi *genos*. Lambert 1997, 92 noted: “It seems that the final nu (of κύρβεω[ν] was never inscribed. There is no room for it after the omega, which goes right to the edge of the stone”.

3. **SIG³**, 1198, line 5 = IG XII 7, no.58 (Amorgos) **3rd century BCE**

τὰ ἐπικύρβια ἐνέχυρα
the pledges on *kurbia*

Notes: Hansen 1975, 43, n.24. The adjective comes from an inscription on a mortgage *horos* stone from Arkesina, Amorgos. Stroud p.18 noted this is the only passage where the compound is found.

4. **Delian temple inventories** **3rd – 2nd centuries BCE**

a. IG XI² 161 B, 76 (280/79 BCE)

κύρβη ἀργυρᾶ ἐν σανιδίῳ προσηλωμένη ἀνάθημα Κοσκάλου
A silver *kurbe* nailed on a *sanis*, a dedication of Koskalos

b. IG XI² 199 B, 10 (274/3 BCE)

κύρβη ἀνάθημα Κοσκάλου
Kurbe, a dedication of Koskalos

c. IG XI² 287 B, 36 (250/49 BCE)

Κόσκαλος Κλεάνδρου πῖλον
Koskalos son of Kleandros, [dedicated] a *pilos*

d. *BCH* 6 (1882) 33, 36 (185 – 180 BCE)

πῖλος ἀργυροῦς
A silver *pilos*

Notes: Hansen 1975, 42-3; Stroud p.18.

5. **Grave stele** **1st or 2nd century CE**

Ἄ κύρβις ποτὶ σῆ[μ]α χρόνου μνημήιο[ν] ἐστὶν
πᾶσι καὶ εἰς ἡ[μᾶς] αἶνος ὀφειλόμενος
The *kurbis* as a gravestone hereafter is a monument

For everyone and for us a dread accounting

Notes: Mordtmann 1881, 123, no 5; Stroud p.36 restored ἔστ[αι]. The small stele stood over the grave of a certain Apollonides at Kyzikos with a 10-line acrostic epitaph.

TESTIMONIA

6. **Aelianus** *De Natura Animalium* 15.9 2nd to 3rd centuries CE

ἐπεσκόπουν τὰ σπλάγχνα αὐτος. ἀκάνθας τε εἶδον ἐξ ἑκατέρας τῆς πλευρᾶς
συνιούσας τε καὶ ἐγκλινούσας τὰ πέτατα ἐς ἀλλήλας, τρίγωνοι δὲ φησιν ἦσαν
ὥσπερ οὖν καὶ αἱ κύρβεις

“With my own eyes I inspected its internal organs. I saw spines on both sides which
met and turned their points towards one another, and they were” he says
“triangular, just like the *kurbeis*”.

Notes: Hercher 1864; Scholfield 1959; Stroud p.35. The passage is quoting a second century CE
authority on divination named Demonstratos. The bird was ὁ γέρανος translated by Scholfield as a
‘cranefish’. I translate the force of οὖν as emphatic.

7. **Aeschylus** Fragment of unknown play, part POxy 2246 5th century to 456/5 BCE

φεύξεται
προσβολάς, κύ[ρ]βις ὥς γέ[ρων] λέγει.
δέξεται δὲ γὰρ νιν ἄλλα

He will flee

from an attack, as an an[cient] *ku[r]bis* [says].

And another land will receive him.

Notes: Radt 1985 ‘fragmenta dubia’, 451c, 35-7 = last three lines from POxy 2246; Mette 1959
tetralogy 44, play A, F494 ‘Fragmente unbekannten Ortes’. See also de Dios 2008 for a Spanish
translation. Lobel, one of the original editors of the Oxyrhynchus papyri, restored κύρβις believing he
could read the beta in *kurbis*. Restoration of the fragment was based on analogy to Aiskhylos F331
Nauck 1889 = F651 Mette 1959: ὥς λέγει γέρον γράμμα. Stroud p.6 was sceptical. Translation kindly
provided by Prof. A. Sommerstein.

8. **Agathias** 6th century CE

a. *Anthologia Palatina*

4.3, 83 κύρβιας Ἀλκείδαο

Pillars of Herakles

4.3, 134-5 στήλαι καὶ γραφίδες καὶ κύρβεις εὐφροσύνης μὲν
αἴτια τοῖς ταῦτα κτησαμένοις μεγάλης,
ἀλλ' ἐς ὅσον ζώουσι.

Stelai and writings and *kurbeis* are a cause of great joy to those
who acquire these things, but (only) as long as they live.

Notes: Beckby 1965, 1968; Viansino 1967. Mentioned by Stroud p.39 (but not 4.4.1 for 2nd
citation). Both citations are in epigrams. κύρβεις = κύρβεις in Attic dialect. 4.3,83 = Epigram
2, line 37; 4.3, 134-5 = Epigram 3, lines 1-3.

b. *Historiae* p.54

ἐμοὶ δέ τις τῶν ἐπιχωρίων καὶ ἐλεγεῖόν τι ἔφη ἐς κύρβιν τινὰ λιθίνην
ὑπὸ τοῦ γεγράφθαι ἀμφὶ τὰς ὄχθας τοῦ ποταμοῦ ἰδρυμένην, ὧδέ πως
ἔχον.

One of the locals said to me also some elegy had been written on a certain
stone *kurbis* placed near the banks of the river, thus somehow I understood
it.

Notes: Keydell 1967.

9. **Ammonius** *De adfinium vocabulorum differentia*, 57

1st to 2nd century CE ?

ἄξονες καὶ κύρβεις διαφέρουσιν. οἱ μὲν γὰρ ἄξονες ἦσαν τετράγωνοι, οἱ δὲ
κύρβεις τρίγωνοι. καὶ οἱ μὲν ἄξονες εἶχον τοὺς ἰδιωτικούς νόμους
ἐγγεγραμμένους, οἱ δὲ κύρβεις τὰς δημοσίας ἱεροποιίας καὶ εἴ τι ἕτερον
τοιούτον.

Axones and *kurbeis* are different. For while the *axones* were four sided, the *kurbeis*
were three sided. And whilst the *axones* had the private laws written up, the *kurbeis*
had the public sacred festivals and whatever else of this kind.

Notes: Nickau 1966; Martina 553 = Lexika Synonymika s.v. *axones and kurbeis*. Possibly work of
Herennius Philo, ca.100 CE.

10. **Anecdota Graeca**

Date unknown, post 6th century CE?

a. s.v. *axones*.

ἄξονες. ξύλα τετράγωνα ἦν, ἀπὸ τοῦ ἐδάφους μέχρι τοῦ ὀρόφου
διήκοντα, καὶ διὰ τινος περόνης στρεφόμενα, ἐφ' ὧν οἱ Σόλωνος νόμοι

ἀνεγράφοντο. μέμνηται δὲ τῆς λέξεως Δημοσθένης ἐν τῷ κατὰ Ἀριστοκράτους. λέγονται δὲ καὶ ἐν τοῖς μαθήμασιν ἄξονες, περὶ οὓς σφαῖραι καὶ κύλινδροι καὶ τὰ τοιαῦτα καὶ στρέφονται καὶ συνίστανται. καὶ τῶν ἀμαξῶν δὲ οἷς οἱ τροχοὶ συνεχόμενοι περιστρέφονται.

Axones. Were wooden, four sided, stretching from the base as far as the top and turning by means of some sort of pin, on which the Solonian laws were written up. And Demosthenes in his *Against Aristokrates* mentions the word. And *axones* are spoken of in mathematical theories about balls and cylinders and other such things which are rotated and intersected. But also of wagon wheels which are held (in place) surrounding them.

Notes: Martina 562 = Bachmann 1828-9, 1.108, 15. First sentence only - Martina 561; Rusch. T12; Bekker 1814-21, 1.413, 15; Photios s.v. *axones*; *Et. Mag.* 115, 45 - ἀπεγράφοντο.

b. s.v. *Genesia*.

ca. 261 BCE

Γενέσια. οὔσης τε ἑορτῆς δημοτελοῦς <ἐν> Ἀθήναις Βοηδρομιῶνος πέμπτη Γενέσια καλουμένης καθότι φησὶ Φιλόχορος καὶ Σόλων ἐν τοῖς ἄξοσιν

Genesia. Since there was a festival at public expense at Athens on the fifth of Boedromion called *Genesia*, according to Philokhoros and Solon on the *axones*

Notes: Martina 560 = Bekker 1814-21, I.86. 20 = Philokhoros F168 = Harding 2008, F295; Rusch. T32 and F84; Stroud p.18; *FGrH* 329 fr.168 excluding last 5 words. Excerpted from the *Antiatticista* – an anonymous lexicon of the 2nd century CE.

c. s.v. *kurbeis*

Date unknown, post 6th century CE?

κύρβεις. κατασκευάσματα ξύλινα, ἐν οἷς ἐγγεγραμμένοι τὸ παλαιὸν ἦσαν οἱ νόμοι. εἰσὶ δὲ τρίγωνοι τὸ σχῆμα. διαφέρουσι δὲ τῶν ἄξόνων, ὅτι ἐκεῖνοι μὲν τετράγωνοί εἰσι, οὗτοι δὲ τρίγωνοι, πυραμίδι ὅμοιοι.

Kurbeis. Made of wood, on which the ancients had inscribed the laws. Their shape is triangular. They differ from *axones* in that those were four sided while these were three sided, same as a pyramid.

Notes: Bekker 1814-21, 1.274. 24; Stroud p.40.

11. **Apollonius Rhodius** *Argonautica*

ca. 260 BCE

4.257-8 “νισσόμεθ’ Ὀρχομενόν, τὴν ἔχραεν ὕμμι περῆσαι νημερτῆς ὅδε
μάντις ὅτω ξυνέβητε πάροιθεν”.

“We were heading for Orchomenos which is where that unerring prophet whom you earlier met foretold you should make landfall”.

4.277-81 Αἶά γε μὴν ἔτι νῦν μένει ἔμπεδον, υἱωνοί τε τῶνδ’
ἀνδρῶν οὓς ὅγε καθίσσατο ναιέμεν Αἶαν. οἱ δὴ τοι γραπτῶς
πατέρων ἔθεν εἰρύονται, κύρβιας οἷς ἐνὶ πᾶσαι ὁδοὶ καὶ πείρατ’
ἔασιν ὑγρῆς τε τραφερῆς τε πέριξ ἐπινισσομένοισιν.

Aia indeed stands fast still, along with the descendants of the men whom he settled there to dwell in Aia. These indeed keep their ancestors’ written records, *kurbeis* on which are marked all routes and boundaries of water and dry land, for circumnavigators .

Notes: Fraenkel 1961; translation Seaton 1912 (slightly adapted); mentioned in Stroud p.19. The prophet was Phineus, and the prophesy was made at 4.254-5.

12. **Aristaenetus** *Epistulae*, 1.17

5th century CE

κύρβις γὰρ ἑταιρικῶν ἐστὶ κακῶν.

For she is a *kurbis* of whorish evils.

Notes: Stroud p.39 including translation; Hercher 1873, 149.

13. **Aristophanes** *Aves*, 1353 – 1357

414 BCE

ἀλλ’ ἔστιν ἡμῖν τοῖσιν ὄρνισιν νόμος
παλαιὸς ἐν ταῖς τῶν πελαργῶν κύρβεσιν.

But we birds have an old law
on the *kurbeis* of the storks.

Notes: Coulon and van Daele 1967; Rusch. F55a; Stroud p.5. The passage goes on to quote a law parodying an Athenian law requiring adult children to take care of their parents.

14. **Aristophanes** *Nubes*, 447-8

423 BCE

εὐρησιεπής, περίτριμμα δικῶν,
κύρβις, κρόταλον, κίναδος, τρύμη.

An inventor of words, a wearer down of laws,
a *kurbis*, a rattle, a fox, a drill bit.

Notes: Dover 1968; mentioned by Stroud p.4. Part of a scene where the character Strepsiades uses a series of insulting epithets describing how he would like men to think of him and his experience in the jury courts, so they would be reluctant to prosecute him for his debts.

15. **Aristotle** *Athenaion Politeia* 7.1

ca. 329/8 BCE

πολιτείαν δὲ κατέστησε καὶ νόμους ἔθηκεν ἄλλους, τοῖς δὲ Δράκοντος θεσμοῖς ἐπαύσαντο χρώμενοι πλὴν τῶν φονικῶν. ἀναγράψαντες δὲ τοὺς νόμους εἰς τοὺς κύρβεις ἔστησαν ἐν τῇ στοᾷ τῇ βασιλείῳ καὶ ὥμοσαν χρήσεσθαι πάντες. οἱ δ' ἑννέα ἄρχοντες ὁμνύντες πρὸς τῷ λίθῳ κατεφάτιζον ἀναθήσειν ἀνδριάντα χρυσοῦν, ἐάν τινα παραβῶσι τῶν νόμων. ὅθεν ἔτι καὶ νῦν οὕτως ὁμνύουσι.

And he (Solon) established a constitution and made other laws (*nomos*), but the ordinances (*thesmos*) of Drakon they ceased using except those on homicide. Inscribing the laws on the *kurbeis* they set them up in the Stoa Basileios and all swore to observe them. And the nine archons used to take an oath at the stone (*lithos*) to dedicate a gold statue of a man if they transgressed any of the laws. From this still to this day they thus swear.

Notes: Opperman 1968; Rusch. T19 and T28; Stroud p.13.

16. **Aristotle** *Vita Menagiana* No 140

Date unknown ca. 330 BCE?

Περὶ τῶν Σόλωνος ἀξόνων ε'

Concerning Solon's *axones* Book 5

Notes: Martina 534; Rusch. T1; Stroud p.14. From a list of works of Hesychios of Miletos (= *Onomatologon*) ascribed to Aristotle but now completely lost.

17. **Aristotle** et **Corpus Aristotelicum** *De mundo* 400 B

2nd century CE?

νόμος γὰρ ἡμῖν ἰσοκλινὴς ὁ θεός, οὐδεμίαν ἐποδεχόμενος διόρθωσιν ἢ μετάθεσιν, κρείττων δέ, οἶμαι, καὶ βεβαιότερος τῶν ἐν ταῖς κύρβεσιν ἀναγεγραμμένων.

For god is a law to us, impartial and admitting no correction or change, but better, I think, and more secure than those inscribed on *kurbeis*.

Notes: Furley 1965. A work on Greek cosmology possibly translated into Latin by Apuleius of Madauros in the 2nd century CE. Stroud p.35 dated it to the 1st century CE (?) without nominating an author, and also mentions it p.17.

18. **Athenaeus *Deipnosophistae***

ca. 200 CE

6.234 Ε ἐν δὲ τοῖς κύρβεσι τοῖς περὶ τῶν Δηλιαστῶν οὕτως γέγραπται. καὶ τὸ κήρυκε ἐκ τοῦ γένους τῶν κηρύκων τοῦ τῆς μυστηριώτιδος. τούτους δὲ παρασιτεῖν ἐν τῷ Δηλίῳ ἐνιαυτόν.

On the *kurbeis* concerning the *Dēliastai* it is written as follows: “And the two heralds from the *genos* of heralds connected with the Mysteries. These shall serve as *parasites* in the *Dēlion* for a year”.

Notes: Kaibel 1887; Athenaeus 1929; Rusch. F88 = Polemon F78 Preller; part quoted by Stroud pp.24-5 and 36. From Polemon’s collection of examples of the word παράσιτος on early documents in his work *Concerning the spurious naming of inscriptions* (late 2nd century BCE).

10.451 D

λέγει γάρ·

λιθάργυρος δ’

ὄλπη παρηωρεῖτο χρίματος πλέα

τὸν Σπαρτιάτην γραπτὸν κύρβιν ἐν διπλῷ ξύλῳ.

τὸν γὰρ λευκὸν ἱμάντα βουληθεῖς εἰπεῖν, ἐξ οὗ ἡ ἀργυρᾶ λήκυθος ἐξήρητο, Σπαρτιάτην γραπτὸν ἔφη κύρβιν ἀντὶ τοῦ Σπαρτιάτιν σκυτάλην.

For he said:

“An *olpe* made of litharge was hanging full of perfume from the inscribed Spartan *kurbis* on a double peg”.

For though he wished to speak of the white strap on which the silver *lekythos* hung, he called it an inscribed Spartan *kurbis* instead of a Spartan *skytale*.

Notes: Kaibel 1965-6; Athenaeus 1929; also given in the *Epitome* – Peppink 1939: 2,2.45; Stroud p.4. An *olpe* and a *lekythos* are types of oil flasks. A *skytale* bore a message encoded by being written across a piece of strap which was only able to be read when the strap was rewound around a baton. Athenaios was quoting from the *Iris* of Achaïos of Eretria in a discussion about riddles and that poet’s use of enigmatic diction.

19. **Callimachus** *Aetia* Fr. 103

ca. 270-245 BCE

ἥρως ὧ κατὰ πρύμναν, ἔπει τόδε κύρβις αἰείδει

“O hero on the prow, since this is what the *kurbis* sings”.

Notes: Pfeiffer 1949; Stroud p.19 plus translation. See also Photius, *Bibliotheca* 532b. The hero on the prow is identified as Androgeos son of Minos in Pausanias 1.1.4, and Clement of Alexandria, *Protreptikos* 2.40.2 (Mondésert 1949) plus skholion 30.20 (Stählin and Treu 1972).

20. **Chrysippus** *Fragmenta logica et physica* Fr.24

ca. 280 – 207 BCE

νομοθετεῖ μὲν γὰρ ὀνόματα πλείον ἢ Σόλων Ἀθηναίοις ἴστα τοῖς ἄξοσι νομίσματα, συγχεῖ δ' αὐτὸς πρῶτος αὐτά.

For reputation establishes laws more than Solon set customs for the Athenians with the *axones*. And he first confused them.

Notes: von Arnim 1903 = Galen *De differentia pulsuum libri* 10. Ed. Bas. III 30. K VIII.631.

21. **Demosthenes** *Against Aristocrates*

352 BCE

23.28 ὥς ἐν τῷ <α'> ἄξονι ἀγορεύει

as directed on the <first> *axon*

23.31 ὥς ἐν τῷ <α'> ἄξονι εἴρηται

as stated on the <first> *axon*

Notes: Butcher 1966; Rusch. F16 = 23.28 only. Stroud p.11. Demosthenes was referring to Drakon's homicide law IG I³ 104 which was by then physically reinscribed on a stele and erected in front of the Stoa Basileios. The text is standardly amended (as given above) to insert <α'> following Cobet 1858, but in my opinion the arguments advanced for it are weak especially as the quote is cited in Harpokration *s.v axones* without the emendation.

22. **Dio Chrysostomus** *Orationes*, 80.5

1st – early 2nd century CE

ὧ κακοδαίμονες· ἄξοντας δε καὶ γραμματεῖα καὶ στήλας φυλάττετε καὶ ἀνωφελῆ στίγματα.

O unfortunate men. For you cherish *axones* and statute books and stelai and useless marks.

Notes: Von Arnim 1896; Stroud p.35. Passage goes on to contrast that they ignore the laws of nature.

23. Diodorus Siculus 5.57

90-21 BCE

ὦν ὁ πρεσβύτερος Ὀχιμος βασιλεύων ἔγημε μίαν τῶν ἐγχωρίων Νυμφῶν Ἑγητορίαν, ἐξ ἧς ἐγέννησε θυγατέρα Κυδίππην τὴν μετὰ ταῦτα Κυρβίαν μετονομασθεῖσαν. ἦν γήμας Κέρκαφος ἀδελφὸς διεδέξατο τὴν βασιλείαν. μετὰ δὲ τὴν τούτου τελευτὴν διεδέξαντο τὴν ἀρχὴν υἱοὶ τρεῖς, Λίνδος, Ἰάλυσος, Κάμειρος. ἐπὶ δὲ τούτων γενομένης μεγάλης πλημυρίδος, ἐπικλυσθεῖσα ἡ Κύρβη ἔρημος ἐγένετο, αὐτοὶ δὲ διείλοντο τὴν χώραν, καὶ ἕκαστος ἑαυτοῦ πόλιν ὁμώνυμον ἔκτισε.

Okhimos who was the oldest of them and their king, married one of the region's nymphs (named) Hegetoria and bore by her a daughter Kudippe, whose name was afterwards changed to Kurbia. She was married to a brother Kerkaphos who succeeded to the kingship. And after his death his three sons Lindos, Ialusos and Kameiros became the rulers. During their lifetime there was a great flood. Kurbe was buried and left desolate. They divided the land and each founded a city named after himself.

NB: Fischer and Vogel 1888-1906; copied in Zeno F2, Muller 1841-70. Refers to the mythical past of Rhodes.

24. Diogenes Laertios *Vitae philosophorum (Solon)*

1st half 3rd century CE

1.45 Ἐπειτα τοὺς λοιποὺς νόμους ἔθηκεν οὓς μακρὸν ἂν εἴη
ιεξιέναι, καὶ ἐς τοὺς ἄξονας κατέθετο.

Then he (Solon) laid down the remaining laws, which it would take a long time to enumerate, and put them on the *axones*.

Notes: Mercovich 2008; Long 1964; Martina 544.

1.63 Σῶμα μὲν ἦρε Σόλωνος ἐν ἀλλοδαπῇ Κύπριον πῦρ.
ὅστ' ἔχει Σαλαμῖς, ὧν κόνις ἀστάχυν.
ψυχὴν δ' ἄξονες εὐθὺς ἐς οὐρανὸν ἤγαγον. εὖ γὰρ
θῆκε νόμους αὐτοῖς ἄχθεα κουφότατα.

The Cyprian flame devoured great Solon's corpse,

Far in a foreign land; but Salamis

retains his bones, whose dust is turned to corn.

The tablets of his laws (*axones*) do bear aloft

His mind to heaven. Such a burden light

Are these immortal rules (*nomoi*) to th' happy wood.

Notes: Mercovich 2008; Long 1964; Epigram translated with poetic licence by Yonge 1853 – words in brackets are mine.

25. **Diogenianus** *Paroemiae* 5.72

2nd century CE

κύρβεις κακῶν. ἐπὶ πλήθους κακῶν. κύρβεις γὰρ ξύλα τινὰ πινακοειδῆ, ὅπου τοὺς νόμους ἔγραφον.

Kurbeis of evils. Refers to a multitude of evils. For *kurbeis* are some sort of *pinakes* on which the laws were written.

Notes: Schneidewin and von Leutsch 1839; Stroud p.35.

26. **Erotianus** *Vocum Hippocraticarum collectio*

1st century CE

φλιαί. τὰ ἐκατέρωθεν τοῦ βάθρου ὀρθία ξύλα, ἐν οἷς οἱ ἄξονες περιέχονται.

Door posts. [Means] the standing timber on each side of the base on which the *axones* are held.

Notes: Nachmanson 1918. From the glossary to the *Collection of Hippocratic words* s.v. *phliai*.

27. **Eusebius** *Vita Constantini* 1.3.2

4th century CE

οἱ δὲ κύρβεσι καὶ στήλαις βαθείας γραμμὰς ἐγχαράξαντες, μνήμας ὑπελαβὼν αἰωνίαις τὰς τῶν τιμωμένων ἀρετὰς παραδιδόναι.

but others, by engraving inscriptions deeply on their *kurbeis* and stelai, were thinking to transmit the virtues of those they honoured to eternal remembrance.

Notes: Winkelmann 1975. (Not 1.1 as per Stroud p.39).

28. **Galen** *Linguarum seu dictionum exoletarum Hippocratis explicatio* 19,66

2nd c. CE

τί καλοῦσιν ἀμενηνὰ κάρηνα; κακείνος μέντοι ἀντιπροβάλλει τὴν ἐν τοῖς Σόλωνος ἄξοσι γλῶτταν, εἰς δίκας διαφέρουσας ὡδί πως.

What are they calling 'strengthless heads'? And that one however proposes instead from the language used on Solon's *axones* that they are somehow thus suffering justice.

Notes: Kühn 1830; Kock 1880, F222; Rusch. F41a and F52c; Stroud p.6, n.13. The context is Galen's discussion of the use of obsolete words in bombastic legal argument. He is referring to Aristophanes'

lost first play *Daitales* (*Banqueters*) of 427 BCE in turn referring to *Od.*10.521 and Odysseus' descent amongst the helpless ghosts in Hades.

29. **Gellius, Aulus** *Noctes Atticae* 2, 12.1

2nd century CE

In legibus Solonis illis antiquissimis, quae Athenis axibus ligneis incisae sunt...

Among those very ancient laws of Solon, which were carved on wooden boards at Athens...

Notes: Rusch. T17, F38b and F 93b; Stroud p.35; Martina 543.

30. **Harpocration** *Lexicon in decem oratores Atticos*

2nd century CE

a. s.v. *axoni*

ἄξονι. οἱ Σόλωνος νόμοι ἐν ξυλίνοις ἦσαν ἄξοσι γεγραμμένοι. Δημοσθένης ἐν τῷ κατ' Ἀριστοκράτους “ὡς ἐν τῷ ἄξονι εἴρηται”. ἦσαν δέ, ὥς φησι Πολέμων ἐν τοῖς πρὸς Ἐρατοσθένην, τετράγωνοι τὸ σχῆμα, διασωζονται δὲ ἐν τῷ πρυτανείῳ, γεγραμμένοι κατὰ πάντα τὰ μέρη. ποιοῦσι δ' ἐνίοτε φαντασίαν τρίγωνον, ὅταν ἐπὶ τὸ στενὸν κλιθῶσι τῆς γωνίας.

Axoni. The laws of Solon were written on wooden *axones*. Demosthenes in his *Against Aristokrates* says “as is stated on the *axon*”. And they were, as Polemon said in his work *Against Eratosthenes* four sided in form. And they are preserved in the Prytaneion inscribed on all sides. And sometimes they give the appearance of being three sided when leant on the narrow part of the corner.

Notes: Dindorf 1853; Rusch. T14, T20 and T24; Stroud pp.22 inserts <ἀ> (see earlier notation under Demosthenes, *Against Aristokrates*) and p.36, but I follow Dindorf in leaving it out; Martina 546.

b. s.v. *kurbeis*

κύρβεις. Λυκοῦργος ἐν τῷ περὶ τῆς ἱερείας. κύρβεις φησὶν Ἀπολλόδωρος ἐν τοῖς περὶ θεῶν ἔχειν ἐγγεγραμμένους τοὺς νόμους, εἶναι δ' αὐτοὺς λίθους ὀρθοὺς ἐστῶτας, οὓς ἀπὸ μὲν τῆς στάσεως στήλας, ἀπὸ δὲ τῆς εἰς ὕψος ἀνατάσεως διὰ τὸ κεκορυφῶσθαι κύρβεις ἐκάλουν, ὥσπερ καὶ κυρβασίαν τὴν ἐπὶ τῆς κεφαλῆς τιθεμένην.

Ἀριστοτέλης δ' ἐν τῇ Ἀθηναίων πολιτείᾳ φησὶν “ἀναγράψαντες δὲ τοὺς νόμους εἰς τοὺς κύρβεις ἔστησαν ἐν τῇ στοᾷ τῇ βασιλείᾳ”.

Kurbeis. Lykourgos (uses this word) in his *Concerning the Priestess*. *Kurbeis*, says Apollodoros in his books *Concerning the Gods* have the laws engraved, and they are themselves upright standing stones which are *stelai* from the fact they stand up and which are called *kurbeis* from the way they stretch up to the top, and like a *kurbasia* (peaked cap) placed on the head. And Aristotle in the *Ath.Pol.* says “writing up the laws on the *kurbeis* they placed them in the Stoa Basileios”.

Notes: Dindorf 1853; Martina 547; *Souda* gl.1 = (with slight variations) *FGrH* 244 F 107; Stroud pp.29-30 (except first sentence).

c. s.v. *Ho katōthen nomos*

ὁ κάτωθεν νόμος. Δημοσθένης ἐν τῷ κατ' Ἀριστοκράτους. Δίδυμος ἦτοι φησὶ τὴν ἡλιαίαν λέγει ὁ ῥήτωρ διὰ τὸ τῶν δικαστηρίων τὰ μὲν ἄνω, τὰ δὲ κάτω ὀνομάζεσθαι, ἢ διὰ τὸ σχῆμα τῆς ἐν τοῖς ἄξοσι γραφῆς βουστροφηδὸν γεγραμμένης τὸν ἀπὸ τῶν εὐωνύμων ἀρχόμενον νόμον κάτωθεν ὀνομάζει Δημοσθένης. ὅτι γὰρ φησι βουστροφηδὸν ἦσαν οἱ ἄξονες καὶ οἱ κύρβεις γεγραμμένοι δεδήλωκεν Εὐφορίων ἐν τῷ Ἀπολλοδώρῳ. ἢ ἐπεὶ φησι τοὺς ἄξονας καὶ τοὺς κύρβεις ἄνωθεν ἐκ τῆς ἀκροπόλεως εἰς τὸ βουλευτήριον καὶ τὴν ἀγορὰν μετέστησεν Ἐφιάλτης, ὥς φησιν Ἀναξιμένης ἐν Φιλιππικοῖς.

The law (from) below. [Used by] Demosthenes in his *Against Aristokrates*. Didymos says “Either the orator is speaking of the Heliiaia because some of the lawcourts are called ‘above’ and some ‘below’. Or because the format of the writing on the *axones* was written boustrophedon, from which Demosthenes gives the name of ‘below’ to the laws beginning on the left. For that way”, he says, “boustrophedon the *axones* and the *kurbeis* were written, as was made clear by Euphorion in the *Apollodoros*. Or”, he says “because Ephialtes transferred the *axones* and the *kurbeis* from above from the Acropolis to the Bouleuterion and the Agora as Anaximenes says in the *Philippikos*”.

Notes: Dindorf 1853; Martina 548; *FGrH* 72, F13; Rusch. T15, T18a; Stroud p.32 has third sentence and mentions it on p.12; *Souda* o 104; Phot. 324. ἦ in all versions after γεγραμμένης (L.4) except Dindorf. The 5th c. CE Lex. Demosth. Pap. Berol. 5008 B.7ff is very

similar. It provides a gloss on boustrophedon as “a metaphor for ploughing, for they normally started from the lower left, so that (a law) would turn back from the top from right to left”, and a book number for the *Philippikos*, unfortunately illegible – see discussion. ὁ κάτωθεν νόμος could alternatively be translated ‘the law from below’ - its meaning was unclear even in antiquity.

d. s.v. *sitos*

σίτος καλεῖται ἡ διδομένη πρόσδοδος εἰς τροφήν ταῖς γυναῖξιν ἢ τοῖς ὀρφανοῖς, ὥς ἐξ ἄλλων τε μαθεῖν ἔστι καὶ ἐκ τῶν τοῦ Σόλωνος πρώτου ἄξονος καὶ ἐκ τῆς Ἀριστοτέλους Ἀθηναίων πολιτείας.

One also calls *sitos* the money provided for food for women or orphans, as is also learnt from Solon’s first *axon* and from Aristotle’s *Athenaion Politeia*.

Notes: Dindorf 1853; Martina 550 = Photius 514,6; Rusch. T10 and F54; Souda s.v. *sitos* s, 502. The archon’s role in protecting the rights of women and orphans is found in *Ath.Pol* . 56.7 - not 56.6 as per Rusch. – and in the following entry in Harpokration s.v. *sitophulakes*.

31. **Hecataeus**

ca. 560 – c.485 BCE

κύρβη. πόλις Παμφυλίας. Ἑκαταῖος Ἀσία. ὁ πολίτης Κυρβαῖος.

Kurbē. A Pamphilian *polis*. Hekataios (mentioned it in his work) *Asia*. The citizen (from there is called) Kurbaios.

NB: Meineke 1849 (Stephanos s.v. *kurbē*); Lentz 1867, vol. 3.1, p.307 (Herodianos) – excepting last sentence = *FGrH* 1a, 1, F, F264 (Hekataios). See entries under Stephanus for the towns of Kurba in Crete and Kurbasa in Karia which almost certainly also derived from Hekataios.

32. **Hesychius Lexicon**

5th or 6th century CE

a. s.v. *korumbon*

κόρυμβον. τὴν ἀκρόπολιν, ἐπειδὴ ἐφ’ ὕψους ἐστι. τὴν ἐπὶ τῆς κεφαλῆς τοῦ ὄρους ὕλην. καὶ καθόλου πάντα τὰ μετέωρα, καὶ εἰς ὕψος ἀνατείνοντα κορύμβους λέγουσιν, ὅθεν κόρυς, κύρβις, κυρβασία.

[Means] the Acropolis, since it is on a height. [Or it means] the forest on the top of the mountain. And in general all the high places, and they say “to a peak stretching up *korumboi*”, from whence *korus*, *kurbis*, *kurbasia*.

NB: Latte 1953, 1966 (κ3701). A *korus* is a helmet and a *kurbasia* is a tiara or rooster’s crest.

b. s.v. *kurbis*

κύρβις. στήλη τρίγωνος, ἢ ξύλινος ἄχων, ἐν ᾧ τὸ παλαιὸν οἱ νόμοι ἐγράφοντο.

Kurbis. [Means a] triangular stele or wooden *axon*, on which the ancients wrote the laws.

Notes: Latte 1953, 1966 (κ4664); Martina 552; Stroud p.39.

c. s.v. *proptorthia*

προπτόρθια. ἐν τοῖς ἄξοσιν ἡ λέξις φέρεται

proptorthia. The word is mentioned on the *axones*

Notes: Schmidt 1861-2 (π3643); Rusch. F61. *Proptorthia* probably describes a very young sacrificial goat.

d. s.v. *treis theoi*

τρεῖς θεοί. παρὰ Σόλωνι ἐν τοῖς ἄξοσιν ὄρκω τέτακται. ἔνιοι κατὰ τὸ Ὅμηρικόν

Three gods. In Solon's *axones* it refers to an oath. According to some by Homer.

Notes: Schmidt 1861-2 (τ1298); Rusch. F44a. Refers to II.15, 36.

33. **Italicus**, Michael *Epistulae* 35.218

12th century CE

ἀλλὰ καὶ Σόλων ὁ νομοθέτης ἐν τοῖς ἄξοσιν. ἔστι δὲ ὁ ἄξων λίθος τετράγωνος, ὥσπερ αἱ κύρβεις τριγωνικῶς σχηματίζονται, ἐν ᾧ ἐγγεγράφονται οἱ νόμοι τοῦ Σόλωνος. ἀπὸ τοίνυν τούτων οἱ μεταγεγραμμένοι λόγοι ἄξονες λέγονται.

But also Solon the lawgiver in the *axones*, for the *axon* is stone and four sided, just as the *kurbeis* appear to be three sided, on which were written up the laws of Solon. Then from these they say were the transcribed words of the *axones*.

Notes: Gautier 1972; Martina 563.

34. **Lucianus** *Eunuchus* 10

2nd century CE

εἰ δὲ μὴ ψεύδονται οἱ περὶ αὐτοῦ λέγοντες, καὶ μοιχὸς ἐάλω ποτέ, ὥς ὁ ἄξων φησὶν, ἄρθρα ἐν ἄρθροις ἔχων.

Unless those who talk about him are lying, he was once taken in adultery, as the *axón* says, in the act.

Notes: Harmon 1936; Rusch. F28c; Stroud p.36.

35. **Lysias** *Against Nicomachus*

399/8 BCE

30.17 θύειν τὰς θυσιάς τὰς ἐκ τῶν κύρβεων καὶ τῶν στηλῶν κατὰ τὰς συγγραφάς.

To perform the sacrifices named in the *kurbeis* and the *stelai* according to the regulations.

30.18 οἱ τὰ ἐκ τῶν κύρβεων μόνον ἔθουν...οἱ τοίνυν πρόγονοι τὰ ἐκ τῶν κύρβεων θύοντες μεγίστην καὶ εὐδαιμονεστάτην τῶν Ἑλληνίδων τὴν πόλιν παρέδωσαν

Those [citizens] used to sacrifice solely in accordance with the *kurbeis*...Now our forebears, by sacrificing in accordance with the *kurbeis* delivered [us] a greater and more prosperous *polis* than any other in Greece

30.20 τῶν ἐν ταῖς κύρβεσι γεγραμμένων.

the ones written on the *kurbeis*.

Notes: Albin 1955; Rusch. T29 and F86 for 30.17; Stroud pp. 8-9 for 30.18 and 30.20. Amendment in 30.17 to *στηλῶν* by Taylor 1739 has been widely accepted. Manuscripts have either *εὐπλῶν* or *ὄπλων* which make no sense. Nelson 2006 suggested *οὐ πλείω* – see discussion.

36. **Nonnus** *Dionysiaca*

Late 4th – early 5th century CE

12.29-34 καὶ ἀντιπόρῳ παρὰ τοίχῳ δάκτυλον ὀρθώσας ἔπεδείκνυε κυκλάδι κούρη κύρβιας Ἀρμονίης ἑτερόζυγας, αἷς ἐνὶ κειται εἶν ἐνὶ θέσφατα πάντα, τὰ περ πεπρωμένα κόσμῳ πρωτογόνοιο Φάνητος ἐπέγραφε μαντιπόλος χεῖρ

And with a raised finger he pointed out to his circling daughter close to a wall opposite the separated *kurbeis* of Harmonia. In these are

recorded in one group all the oracles which the prophetic hand of Phanes first-born engraved as ordained for the world

- 12.37 “Κύρβιδι μὲν τριτάτῃ
“In the third *kurbis*
- 12.42-44 καὶ ὁμφαίῳ παρὰ τοίχῳ πρώτην κύρβιν ὅπωπεν ἀτέρμονος
ἥλικα κόσμου εἰν ἐνὶ πάντα φέρουσιν
Beside the oracular wall she saw the first *kurbis*, old as the infinite
past, containing all things in one
- 12.55 γείτονα δέρκετο κύρβιν ἀμοιβαδῖς.
She looked at the next *kurbis* in its turn
- 12.64-69 καὶ τριτάτην ὅτε κύρβιν ἐπέδραμεν εὐποδι ταρσῶ μυστιπόλος
Λυκάβαντος, ἔλιξ στηρίζετο κούρη, μόρσιμα παπταίνουσα
πολύτροπα θέσφατα κόσμου, γράμματα φοινίσσοντα, σοφῇ
κεχαραγμένα μίλτῳ, ὅπποσα ποικιλόμυθος ἐπέγραφεν
ἀρχέγονος φρήν, τοῖα προθεσπίζοντα, καὶ ἐν πινάκεσσιν ἀνέγνω.
When the priestess of *lichtgang* (lit: the hours making up the year)
passed with nimble foot to the third *kurbis*, the circling maiden stood
gazing at the manifold oracles of the world’s fate, in letters of glowing
colour engraved with the artist’s vermillion, all that elaborate story
which the primaeval mind had inscribed; and this was the prophecy
that she read in the *pinakes*
Notes: Rouse 1940 plus translation (slightly amended). Mentioned in Stroud p.39.
The objects are set up in a private mansion and are a cosmic astrological calendar
telling the history of the world from its beginning to a new beginning with the
ascension of Dionysos. Phanes was an Orphic divinity ‘first-born’ of the primaeval
world egg.

βολίτου δίκην. πρὸς τοὺς ἀξίους καὶ ἐπὶ μικροῖς τιμωρίαν ὑπέχειν. Ἐν γὰρ τοῖς Σόλωνος ἄξοσιν ὁ νόμος καὶ τοὺς βόλιτον ὑφελομένους κολάζει.

Judgement on cow dung. To extract judgement from the worthy ones even for small matters. For the law on Solon's *axones* even punishes the cow dung stealers.

Notes: Gaisford 1836 B.253.S (the Bodleian codex); Schneidewin & von Leutsch 1839, I 388, App. I 58; Rusch. F64a. Also see similar in a skholion to Aristophanes without mention of the *axones*, Rusch. F64b.

38. Paulus *Corpus medicorum Graecorum*, 6.117.4

ca. 625 – c.690 CE

ἄξονες δὲ εἰσιν οὗτοι ἐπὶ ὀρθῶν στρεφόμενοι ξύλων ἑκατέρωθεν τούτου τοῦ μεγάλου ξύλου ἢ βάρου κατὰ τὰ πρὸς τοῖς ποσὶν καὶ τῇ κεφαλῇ πέρατα τεταγμένοι, πρὸς οὓς στρεφομένους ἐλκόμενοι οἱ ἱμάντες ἐνειλοῦνται.

These turning things on wooden uprights are *axones*. On both ends is this large piece of wood or scaffold fixing their ends by the feet and the head, being turned by pulling the leather straps in which they are wrapped.

Notes: Heiberg 1921, 1924.

39. Photius

9th century CE

a. Lexicon

s.v. *andraphonon*

ἀνδραφόνων. οὗτος Σόλων ἐν τοῖς ἄξοσιν <ἀντι> τῶν ἀνδροφόνων ἀεὶ φησιν.

Homocide. As Solon in the *axones* always said instead of homicide.

Notes: Theodoridis 1982; Rusch. F3. The skoliast is pointing out the variant spelling with an alpha instead of an omicron.

s.v. *kurbeis* - 1

κύρβεις. τρίγωνοι ἄξονες ἢ πίνακες ἔχοντες τοὺς πολιτικούς νόμους καὶ τὰς δημοσίας ἀναγραφάς. εἴρηται δὲ ἀπὸ τοῦ κεκορυφῶσθαι εἰς ὕψος. ἢ κατεσκεيرῶσθαι, ὡς Ἀπολλόδωρος. Θεόφραστος δὲ ἀπὸ τῶν Κρητικῶν Κορυβάντων. τῶν γὰρ Κορυβαντικῶν ἱερῶν οἶον ἀντίγραφα αὐτοὺς εἶναι.

Kurbeis. Three sided *axones* or *pinakes* having the civic law and the state law written up. And it is said from the stretching up to the top or becoming dry

according to Apollodoros. And Theophrastos says they are from the Cretan Korybantes. For they are some sort of copy of the Korybantic sacred rites.

Notes: Porson 1822; Martina 556; Rusch. T30b and F85b from third sentence; *FGrH* 244, F107 from third sentence, same as part skolia to Aristophanes *Birds* 1354 and Demosthenes. κατεσκειρώσθαι pf. pass. inf. from κατασκιρόομαι – to become dry or hard through age (per *LSJ*). Could mean ‘painted’ in accordance with 46a – ‘whitened boards’ or ‘plastered’ as in the *leukōmata* which were tablets covered in gypsum used as public notice boards, or they could be identical.

s.v. *kurbeis* - 2

κύρβεις. τρίγωνοι πίνακες ἐν οἷς οἱ περὶ τῶν ἱερῶν νόμοι ἐγγεγραμμένοι ἦσαν καὶ οἱ πολιτικοί. καὶ ἄξονες δὲ ἐκαλοῦντο οἱ περὶ τῶν ἰδιωτικῶν ἔχοντες τοὺς νόμους καὶ τετράγωνοι

Kurbeis. Three sided *pinakes* on which the sacred laws were written and the civic law. And they called *axones* those having the private laws and they were four sided.

Notes: Porson 1822. First sentence also in skholion to Plato *Politikos* 289d and *Souda* s.v. *kurbeis* 1. A third *kurbeis* entry = Harpokration s.v. *kurbeis* with slight variation.

s.v. *orgeones*

ὀργεῶνες...Σέλευκος δὲ ἐν τῷ ὑπομνήματι τῶν Σόλωνος ἀξόνων. ὀργεῶνας φησὶ καλεῖσθαι τοὺς συνόδους ἔχοντας περὶ τινὰς ἥρωας ἢ θεούς.

Orgeones...Seleukos in his *Notes on Solon's axones* says those having meetings about certain heroes or gods are called *orgeones*.

Notes: Porson 1822; Martina 555 = 342b; *FGrH* 341 F1 = 328 F35a; Philokhoros F35a = Harding 2008 F287a; Rusch. T4 and F76b and *Souda* s.v. *orgeones* have συλλόγους (for ‘meetings’). Also note Photios *Lexicon* contains almost full copies of the entries given here under *Anecdota Graeca* s.v. *axones*, and Harpokration s.v. *The law below*, and *Souda* s.v. *sitos*.

b. Bibliotheca

ὅτι τὸ κύρβεις οἱ μὲν Ἀττικοὶ ἀρρενικῶς ἐκφωνοῦσι, Καλλίμαχος δὲ οὐδετέρως. καὶ τὸ φοιτᾶζειν δὲ Καλλίμαχος παραλόγως εἶπε φοιτίζειν, φάμενος ἀγαθοὶ πολλάκις ἦῖθαι.

That *kurbeis* is given as a masculine word by the Athenians and as a neuter by Kallimakhos. Kallimakhos gives an example 'to visit' (*phoitazein*) instead of '*phoitizein*' in saying that 'the good young men come often'.

Notes: Henry 1959 = Bekker 1824, Codex 279, page 532b. Part of a lengthy discussion of unusual and archaic words. φοιτᾶζειν has a number of meanings in addition to the one given above.

40. Plato *Politicus* 298d-e

ca. 360 BCE

γράφαντος ἐν κύρβεσί τισι καὶ στήλαις, τὰ δὲ καὶ ἄγραφα πάτρια
θεμένους ἔθῃ

should be inscribed on some kind of *kurbeis* and stelai, or even adopted as
unwritten ancestral customs.

Notes: Burnet 1900; Stroud p.10. The context is writing some imaginary laws.

41. Plutarch *Numa* 22.2

ca.50-120 CE

τὰς ἱεράς βίβλους ἃς ἐγράψατο μὲν αὐτός ὥσπερ οἱ τῶν Ἑλλήνων νομοθέται
τοὺς κύρβεις

the sacred books which he [Numa] had written out with his own hand like the
nomothetai of the Greeks [wrote] the *kurbeis*

Notes: Perrin 1914; Stroud p.34.

42. Plutarch *Solon*

ca. 50-120 CE

1.1 Δίδυμος ὁ γραμματικὸς ἐν τῇ περὶ ἀξόνων τῶν Σόλωνος ἀντιγραφῇ
πρὸς Ἀσκληπιάδην

Didymos the grammarian, in his work *Concerning Solon's axones – a reply to*
Asklepiades

Notes: Ziegler 1969; *FGH* 340 F1; Rusch. T3; Stroud p.29.

19.4 ὁ δὲ τρισκαιδέκατος ἄξων τοῦ Σόλωνος τὸν ὀγδοὺν ἔχει τῶν νόμων
οὕτως αὐτοῖς ὀνόμασι γεγραμμένον

Yet Solon's thirteenth *axon* contains the eighth of his laws recorded in these
very words

Notes: Ziegler 1969; Rusch. T7 and F70; Stroud p.33.

23.4 ὅς γὰρ ἐν τῷ ἑκκαίδεκάτῳ τῶν ἀξόνων ὀρίζει τιμὰς τῶν ἐκκρίτων ἱερείων, εἰκὸς μὲν εἶναι πολλαπλασίας, ἄλλως δὲ κἀκεῖναι πρὸς τὰς νῦν εὐτελεῖς εἶσιν.

For although the prices which he fixes on his sixteenth *axōn* are for choice victims, and naturally many times as great as those for ordinary ones, still, even these are low in comparison with present prices.

Notes: Ziegler 1969; Rusch. T8 and T33 and F81; Stroud p.33.

24.2 καὶ πρῶτος ἄξων ἐστὶν ὁ τοῦτον περιέχων τὸν νόμον

His first *axōn* is the one which contains this law.

Notes: Ziegler 1969; Rusch. T5 and F65; Stroud p.33.

25.1-3 ἰσχὺν δὲ τοῖς νόμοις πᾶσιν εἰς ἑκατὸν ἐνιαυτοὺς ἔδωκε, καὶ κατεγράφησαν εἰς ξυλίνους ἄξονας ἐν πλαίσιοις περιέχουσι στρεφομένους, ὧν ἔτι καθ' ἡμᾶς ἐν Πρυτανείῳ λείψανα μικρὰ διεσώζετο, καὶ προσηγορεύθησαν, ὡς Ἀριστοτέλης φησί, κύρβεις. καὶ Κρατῖνος ὁ κωμικὸς εἴρηκε πού.

πρὸς τοῦ Σόλωνος καὶ Δράκοντος οἷσι νῦν φρύγουσιν ἤδη τὰς κάχρυσ τοῖς κύρβεσιν.

ἐνιοὶ δὲ φασιν ἰδίως, ἐν οἷς ἱερὰ καὶ θυσίαι περιέχονται, κύρβεις, ἄξονας δὲ τοὺς ἄλλους ὠνομάσθαι

All his laws were to have force for a hundred years, and they were written on wooden *axōnes* encompassed in revolving oblong frames. Slight remnants of these were preserved in the Prytaneion still in my time, and they were called, according to Aristotle, *kurbeis*. Also Kratinos, the comic poet, somewhere says:

“By Solon and by Drakon, whose

kurbeis now are used to parch our barley-corns”.

But some say that only those which relate to sacred rites and sacrifices are properly called *kurbeis* and the rest are called *axōnes*.

Notes: Ziegler 1969; Rusch. T13, T22, T23 and T26; Stroud pp.3 and 33. Cratinus unknown; Kock *Com. Att.* Fi, 94.

43. **Pollux Onomasticon 8.128**

2nd half 2nd century CE

δέλτοι χαλκαῖ, αἷς ἦσαν πάλαι ἐντετυπωμένοι οἱ νόμοι οἱ περὶ τῶν ἱερῶν καὶ τῶν πατρίων. κύρβεις δὲ τρίγωνοι σανίδες πυραμοειδεῖς, οἷς ἦσαν ἐγγεγραμμένοι οἱ νόμοι. ἄξονες δὲ τετράγωνοι χαλκοῖ ἦσαν, ἔχοντες τοὺς νόμους. ἀπέκειντο δὲ οἱ τε κύρβεις καὶ οἱ ἄξονες ἐν ἀκροπόλει πάλαι. αὐθις δ' ἵνα πᾶσιν ἐξῇ ἐντυγχάνειν, εἰς τὸ πρυτανεῖον καὶ τὴν ἀγορὰν μετεκομίσθησαν. διὰ τοῦτο ἔλεγον τὸν κάτωθεν νόμον ἀντιτιθέντες πρὸς τὴν ἀκρόπολιν.

Bronze *deltoi* on which of old the laws concerning sacred matters and ancestral matters were engraved. *Kurbeis* were three sided pyramid-shaped *sanides* on which the laws were engraved. *Axones* were four sided of bronze having the laws. Both the *kurbeis* and the *axones* were on the Acropolis long ago. But later, in order that all might consult them, they were relocated to the Prytaneion and the Agora. On account of this they used to say 'the law (from) below' in making a contrast to the Acropolis.

Notes: Bethe 1900; Martina 551; Stroud pp.37-8; Rusch. T18b from the fourth sentence.

44. **Porphyrius De abstinence 2.20-21**

252/3 – ca. 305 CE

διὰ πολλῶν δὲ ὁ Θεόφραστος <ἐκ> τῶν παρὰ ἐκάστοις πατρίων ἐπιδείξας, ὅτι τὸ παλαιὸν τῶν θυσιῶν διὰ τῶν καρπῶν ἦν...μαρτυρεῖται δὲ ταῦτα οὐ μόνον ὑπὸ τῶν κύρβεων, αἱ τῶν Κρήτηθέν εἰσι Κορυβαντικῶν ἱεπῶν οἷον ἀντίγραφα ἅττα πρὸς ἀλήθειαν...

And Theophrastos, having shown through many ancestral traditions of different people, that the ancient form of sacrifices was from fruits...and these things are testified to not only by the *kurbeis*, which are, as it were, copies in truth of the sacred rites of the Cretan Korybantes...

Notes: Nauck 1886; Martina 536; Rusch. T30a and F85a; Fortenbaugh *et al* 1992: 416-7 this translation (slightly modified).

45. **P.Oxy 35 (1968) no.2743, fr.26, lines 7 - 8**

ca. late 5th century BCE

]ρίτριμμακακ[

]ο Κύρβι [

an evil (?) pettifogger

kurbi[s]

Notes: Lobel 1968; Stroud p.5 noted the “date, identity, and authorship of the play are not known”. Suggestions have been advanced for Strattis *Lemnomeda*, Eupolis *Demoi* and Kratinos *Drapetides*. Lobel 1968, 92 restored περίτριμμα and noted the metaphorical use of this word with *kurbis* in Aristophanes *Clouds* 447-8 (Cat. N° 14), but literally “anything worn smooth by rubbing” (LSJ).

46. Skolia

a. Apollonius Rhodius *Argonautica* 4.280

Κύρβιας. στήλας. λέγει δὲ τοὺς ἄξονας, ἐν οἷς οἱ νόμοι γράφονται, ὡς Ἀριστοφάνης ὁ κωμικός. Ἀπολλόδωρος δὲ φησι πᾶσαν δημοσίαν γραφὴν καὶ νόμους κύρβιν καλεῖσθαι, ὅτι οἱ ἀρχαῖοι λίθους ἱστάντες εἰώθεσαν τὰ δόξαντα ἐν αὐτοῖς ἀναγράφειν, οὓς μὲν ἀπὸ τῆς στάσεως στήλας <ἐκάλουν>, κύρβεις δὲ ἀπὸ τῆς εἰς ὕψος ἀνατάσεως [διὰ τὸ ἀπο], οἷον ἐκ κορύφους ἢ κύρφους κατὰ συγκοπὴν, καὶ μεταθέσει καὶ τροπῇ τοῦ φ εἰς β κύρβεις. ὕστερον δὲ <εἰς> ξύλα λελευκωμένα γράφοντες κύρβεις ὁμοίως ἐκάλεσαν καὶ αὐτά.

Κύρβιας. κύρβεις λέγουσιν, ὡς Ἐρατοσθένης, τοὺς ἄξονας καλουμένους Ἀθήνησιν, ἐν οἷς οἱ νόμοι περιέχονται. οἱ δὲ ἀκριβέστεροι ἄξονας μὲν τετραγώνους λίθους. κύρβεις δὲ τριγώνους. ἐν ἀμφοτέροις δὲ νόμοι ἦσαν γεγραμμένοι Ἀθήνησι. ἐνταῦθα δὲ κυρβιάς φησι πινακάς τινας γῆς περίοδον περιέχοντας.

Kurbiai: stelai. He speaks of the *axones* on which the laws are written, as per the comic poet Aristophanes. Apollodoros says all public writings and laws are called *kurbis* because the ancients used to set up stones and publish their decisions on them, which (they called) stelai from their standing up, and *kurbeis* from the way they stretched to a peak through rising up, just like *korupheis* or *kypheis*, through syncope and by a transposition and turning of phi into beta, *kurbeis*. Later, writing on whitened boards, they called them similarly *kurbeis*.

Kurbiai: they say *kurbeis*, according to Eratosthenes, are also called *axones* at Athens, on which the laws are preserved. And more accurately, *axones* are four-sided of stone. And *kurbeis* are three-sided. And on both were written the laws at Athens. And they say there the *kurbiai* were some sort of *pinakes* bearing a map of the earth.

Notes: For the 1st paragraph I have used *FGrH* F107b = Stroud p.30 deferring to Jacoby's expertise and because it is the most complete version. There are variations preserved in the *Souda* – see Martina 566a. For the second paragraph I have followed Wendel 1935 = Martina 566b. *FGrH* 241 F37a is identical but lacks the last sentence. Stroud p.20 gave the 1st sentence only.

b. Aristophanes *Birds* 1354.

“ἐν ταῖς πελαργῶν κύρβεισιν”. Κύρβεις χαλκαῖ σανίδες ἔνθα τοὺς νόμους γράφουσι. κατὰ δὲ ἐνίους, ἄξονες τρίγωνοι ἐν οἷς ἦσαν οἱ τῶν πόλεων νόμοι γεγραμμένοι καὶ αἱ δημοσίαι ἱεροποιαί. καθάπερ καὶ Ἀριστοτέλης ἐν τῇ Ἀθηναίων πολιτείᾳ φησὶ καὶ Ἀπολλόδωρος. κύρβεις δὲ ἦτοί παρὰ τὸ κεκορυφῶσθαι εἰς ὕψος ἀνατεταμένον, ἢ ἀπὸ τῶν Κορυβάντων. ἐκείνων γὰρ εὖρημα, ὥς φησι Θεόφραστος ἐν τῷ περὶ εὐσεβείας.

“On the kurbeis of the storks”. *Kurbeis* are bronze *sanides* on which they write up the laws. According to some, they were three-sided *axones* on which were written the laws of the city-states and the public regulations for festivals. Exactly as both Aristotle says in the *Ath.Pol.* and Apollodoros. And they were *kurbeis* either by their stretching up rising to a peak, or after the Korybantes. For it was their invention as Theophrastos says in his *On Piety*.

Notes: Dübner 1877; *FGrH* 244 F107d; Stroud p.30; Martina 531; Rusch. T30c and F85c for part last sentence. Paraphrased in skholion to John Tzetses – Koster 1962.

c. Aristophanes *Clouds*

i. 447c- περίεργος, ὃν οὐκ ἔστι λαθεῖν.

448a beta- κύρβις σανὶς ἔνθα οἱ νόμοι γεγραμμένοι ἦσαν. ἢ οὗτος. ἡδέως ἂν ὀτιοῦν ὑπομείναιμι, ἵνα δόξω τοῖς πολλοῖς λόγων ἔμπειρος εἶναι καὶ νόμους εἰδέναι.

448b alpha- μνήμων. καὶ γὰρ αἱ κύρβεις πρὸς μνήμην εἰργάζοντο.

448b beta- ἔνεκεν γὰρ μνήμης ἀνέγραφον εἰς τὰς κύρβιας.

448c- κύρβις. ἐπιστήμων τῶν νόμων.

447c- The busybody (pettifogging lawyer) who is not to be evaded.

448a beta- A *kurbis* was a *sanis* on which the laws were written. Or

thus. "Gladly would I submit to anything in order that I would seem to everyone to be skilled with words and to know the law".

448b alpha- Recording. And also for a record the *kurbeis* were made.

448b beta- For the sake of a record they were writing up on the *kurbeis*.

448c- *Kurbis*. Skill with the laws.

Notes: Holwerda 1977; Martina 532 = Souda s.v. *kurbeis* k, 2746 with slight variations and different order, excludes 448c. *Skolia vetera*.

- ii. 448a alpha- Ἀπολλόδωρος δέ φησι...τὸ δόξαν ἀναγραφόντες, οὓς...κύρβις δὲ...εἰς ὕψος ἀναστάσεως. ὕστερον δὲ τὰ ξύλα...τὰς ἱερὰς γραφὰς στήλῃ. ἥ, ὡς Ἐρατοσθένης φησὶν, ἄξων Ἀθήνησιν οὕτω καλούμενος, ἐν ᾧ οἱ νόμοι περιέχονται.

But Apollodoros says... the (?) publishing a decision, which...and *kurbeis*...to a peak through stretching up. Later the boards... a stele [] the sacred writings. Or, according to Eratosthenes, an *axon* as it is called at Athens, on which the laws are preserved.

Note: Koster 1977. This is a paraphrase or use of the same common source as the skholion to Apollonios (Cat. N° 46a). Last sentence without first word = Stroud p.20.

- iii. 448a- κύρβις: Νόμων πλήρης

448b- κύρβις ἡ στήλῃ, ἐν ᾗ γεγραμμένοι ἦσαν οἱ νόμοι

448a- *Kurbis*. Satiated with laws.

448b- A *kurbis* is a stele, on which the laws were written

NB: Koster 1974. *Skolia recentiora* of Thomas Magister. 448a = part Martina 532.

- iv. 448a- κύρβεις. ἀρσενικῶς στήλαί τινες, ἐν αἷς ἦσαν οἱ νόμοι γεγραμμένοι.

448b- κύρβις. γνώστης νόμων.

448a- *Kurbeis*. Some sort of manly stelai on which the laws were written.

448b- *Kurbis*. Knowing laws.

Notes: Koster 1974. *Skolia anonyma recentiora*.

d. **Demosthenes**

κύρβεις. κατασκευάσματά τινα ξύλινα τρίγωνα, ἐν οἷς τὸ παλαιὸν ἀναγεγραμμένοι ἦσαν οἱ πολιτικοὶ νόμοι. ὠνομάσθησαν δὲ οὕτως, ἥτοι ἀπὸ τοῦ κεκορυφῶσθαι ἢ κατεσκιρρῶσθαι, ὃ ἔστι λελευκάνθαι, ὡς Ἀπολλόδωρος. Θεόφραστος δὲ, ἀπὸ τῶν Κρητικῶν Κορυβάντων καὶ Κορυβαντικῶν ἱερῶν, οἷον ἀντίγραφα αὐτοῖς εἶναι.

Kurbeis. Certain three-sided wooden constructions on which in olden times were written up the laws of the city-state. They were so called, from their rising up or because they became dry, being whitened, as per Apollodoros. And Theophrastos [said it was] from the Cretan Korybantes and the Korybantic rites, as they seemed to be copies of them.

Notes: Sakkelion 1877 from Lexicon Patmense (Patmos skolia to Demosthenes) s.v. *kurbeis*; FGrH 244 F107c; Stroud p.30; Martina 565.

e. **Homer Iliad 21, 260**

οὐχ ὑφ' Ὀμήρου αἱ ψηφίδες πεποιήνται, ἀλλὰ ἔστιν ἡ λέξις Ἀττική. οὕτως γὰρ καὶ ἐν τοῖς ἄξοσιν.

The *psephides* are not from Homer's work, but the Attic word. For even so they are on the *axones*.

Note: Nicole 1891; Rusch. F45. Slight variation = Erbse 1969.

f. **Homer Iliad 21, 282.**

[ἐρχθέντ' ἐν μεγάλῳ] Κράτης “εἰλθέντ' ἐν μεγάλῳ”. εἴλλειν γάρ φησιν εἶναι τὸ εἶργειν, ὥστε τὴν τῆς κωλύσεως δίκην ἐξούλης καλεῖσθαι. καὶ παρατίθεται Σόλωνος ἐν ᾧ ἄξονι “ἐξούλης. ἐὰν τις ἐξείλλη, ὧν ἂν τις δίκην νικήσῃ, ὅποσου ἂν ἄξιου ᾖ, εἰς δημόσιον ὀφείλειν καὶ τῷ ἰδιώτῃ, ἑκατέρῳ ἴσον”

[excluded by force] Krates [spoke about] “taken away by force”. For to seize he says is exclusion, just as the judgement for preventing (someone collecting a court awarded settlement) is called ejectment. And it is cited on the fifth *axon* of Solon: “ejectment. If a man ejects (another) from property won in a lawsuit, he owes to the State (*Dēmosion*) and to the individual (litigant) as much as it is worth, for each the same (amount)”.

Notes: Rusch. T6a; Erbse 1977; Martina 569a. Variations:- Rusch. T6b and F36b = P.Oxy 2, 221; Martina 569b ἐκ ἑ ἄξονος. Nicole 1891 ἐν νεάτῳ ἄξονι (on the last *axon*). Wachsmuth (*non iudem* – Erbse app. crit.) ἐν ἐνάτῳ ἄξονι (on the ninth *axon*). Ge (*non iudem* – Erbse app. crit.) ἐννεάξονι (on the new *axon*?). Stroud mentioned p.29. ‘Krates’ could refer to Krates of Athens or Krates of Mallos, but probably the latter. The passage quotes the *dikē exoulēs*.

g. **Plato *Politicus* 289e**

κύρβεσι. τρίγωνοι πίνακες ἐν οἷς οἱ περὶ τῶν ἱερῶν νόμοι ἐγγεγραμμένοι ἦσαν καὶ πολιτικοί. ἄξονες δὲ τετράγωνοι ἐν οἷς οἱ περὶ τῶν ἰδιωτικῶν. τινὲς δὲ ἀδιάφορα ταῦτά φασιν.

Kurbesi. [Refers to the] three-sided *pinakes* on which were inscribed the sacred and state laws. And *axones* are four-sided on which are those (laws) concerning private matters. And some say they are no different.

Notes: Greene 1938; Martina 564; Stroud p.37 who cites Erbse 1949.2, 191 that this entry derives from the 2nd century CE lexicon of Pausanias Attikos *Collection of Attic names*. Skolia *vetera*. Closely paraphrases the third century CE lexicon of Ps. Zonaras s.v. *axones* and s.v. *kurbeis*. See also Photios *Lexicon* s.v. *kurbeis* 2 and *Souda* s.v. *kurbeis* 1.

h. **Plutarch *Solon* 19.4**

ἄξων.

i) τινὲς ἄξονας τριγώνους φασὶν εἰς οὓς οἱ νόμοι τῶν Ἀθηναίων ἐγράφησαν, οἱ στρεφόμενοι παρῆχον ἀναγινώσκειν τοῖς ἐντυγχάνουσιν. οὐκ εὔ δέ. τρίγωνος γὰρ ὁ κύρβις ἦν στήλη τις εἰς ὃν οἱ στρατιωτικοὶ ἐνεγράφοντο καταλόγοι, ὥς ὁ κωμικός φησι Ἀριστοφάνης ἐν Εἰρήνῃ.

ii) τίς ὁ ἄξων; ὁ νῦν <κατὰ> κεφάλαιον λέγει. ἄξονες δὲ ξύλα τετράγωνα ἦσαν, εἰς οὓς οἱ νόμοι ἐγράφησαν πρὸ τῆς τῶν διφθερῶν ἢ τοι δέρρεων εὐρέσεως, καὶ ἐν τούτοις μὲν τοῖς ἄξοσι οἱ πολιτικοὶ νόμοι ἐγράφοντο, οἱ δὲ τῶν στρατιωτῶν καταλόγοι ἐν τοῖς κύρβεσιν, ὃ τρίγωνον ἦν ξύλον.

Axon.

i) Some say that *axones* were three-sided objects on which the laws of the Athenians were written, objects which by being turned enabled the users to read them. But this is not right, for the *kurbis* was a kind of three-sided

stele on which were inscribed the military catalogues, as the comic poet Aristophanes in fact says in the *Peace*.

ii) What is an *axon*? Something which he mentions here briefly. *Axones* were four sided pieces of wood on which the laws were written before the discovery of hides or skins. On these *axones* were written the civic laws, whereas the lists of the soldiers were written on the *kurbeis*, which was a three-sided piece of wood.

Note: Manfredini and Piccirilli 1977, 100; Stroud p.53-4 with translation. *Kurbeis* are not in the surviving text of *Peace*, but it seems certain there was a 2nd version.

47. **Seleucus Homericus** Ὑπόμνημα τῶν Σόλωνος ἀξόνων **1st century CE**

Σελεύκου. κύρβεις. αἱ τὰς τῶν θεῶν ἑορτὰς ἔχουσαι. ἦτοι ἀπὸ τῆς κατασκευῆς (εἰσὶ γὰρ κυρβασίαι), ἢ κρύβεις, ἐπεὶ τὰ τῶν θεῶν ἀποκρυπτόμενα δεῖ εἶναι. Ἀσκληπιάδης δὲ ἐν τοῖς τῶν ἀξόνων ἐξηγητικοῖς ἀπὸ κύρβεως τοῦ τὰς θυσίας ὀρίσαντος. <ἦ>, ὥς φησι Φανίης ὁ Ἐρέσιος ἀπὸ τοῦ ταῦτα κυρωθῆναι τοῖς γράμμασιν. Ἐρατοσθένης δὲ τριγώνους αὐτάς φησιν εἶναι, οὐ τετραγώνους. Ἀριστοφάνης δὲ φήσιν ὁμοίας εἶναι τοῖς ἄξοσιν, πλὴν ὅτι οἱ μὲν ἄξονες νόμους, αἱ δὲ κύρβεις θυσίας ἔχουσιν. ἀμφοτέρων δὲ [τετραγώνων] τὸ κατασκευάσμα τοιοῦτον. πλινθίον τι μέγα ἀνδρομήκες ἡρμοσμένα ἔχον τετράγωνα ξύλα τὰς πλευρὰς πλατείας ἔχοντα καὶ γραμμάτων πλήρεις, ἑκατέρωθεν δὲ κνώδακας ὥστε κινεῖσθαι καὶ ματαστρέφεσθαι ὑπὸ τῶν ἀναγινωσκόντων.

From Seleukos. *Kurbeis*. Those which contain the festivals of the gods, either for their structure, for they are like *kyrbasia*, or their concealing capacity (*krubeis*?), since it is necessary that the gods' business be hidden away. Asklepiades in his *Exergesis of the axones* (gets the name) from *Kurbis* who determined the form (*horisantos*) of sacrifices [*or if ousias is read: from the kurbis which sets out the bounds of properties*] <or> as Phantias of Eresos says, the name comes from these matters being ratified in writing. Eratosthenes says they are three-sided not four-sided. Aristophanes says they resemble the *axones* except the *axones* have laws whereas the *kurbeis* have sacrifices. And for both the construction is as follows. Some sort of large man sized plinth with four sided pieces of wood having broad sides covered with writing; and having pivots at either end so they can be moved and turned by those reading them.

Notes: From *Commentary on Solon's axones*. There are several versions of part or all of this text with slight variations. This version is a compilation by Rusch. T2 and T11 = Martina 558 = Stroud p.26 which Ruschenbusch based on *Et. Gud.* 164, 11 Reitzenstein 1897 with some modification in accordance with *FGrH* 339 F1 Asklepiades (see also 241 F37b Eratosthenes), which in turn derived from the collection of Byzantine glosses known as the *Epimerismoi Homerou* (Cramer 1835-7, 1.221.II.455 = *Et. Mag.* 547, 50 Nauck 1848). The most contentious variation is οὐσίας for θυσίας. The former is found in the manuscripts of the Byzantine lexica (Cramer 1835-7, 2, 415.15 in the *Eklogai diaphoron lexeon*; *Et. Gud.* s.v. *kurbes* Sturz 1818; *Et. Mag.* s.v. *kurbeis*) and the *Souda* (Adler 1928-35 s.v. *kurbeis* k2745). See discussion. Phanius of Ephesus has been changed to Eresos per Holland 1941, 348, n.14. The name of the work is gleaned from Photios *Lexicon* s.v. *orgeones* (Cat. N° 39a).

48. *Souda*

Late 10th century CE

a. *Axones*

ἄξονες. οὕτως ἐκάλεσαν Ἀθηναῖοι τοὺς Σόλωνος νόμους, διὰ τὸ ἐγγραφῆναι αὐτοὺς ἐν ξυλίνοις ἄξοσιν. ἦσαν δὲ τετράγωνοι τὸ σχῆμα. μέμνηται τῆς λέξεως Δημοσθένης ἐν τῷ κατὰ Ἀριστοκράτους. ἄξονες δὲ καὶ κύρβεις διαφέρει. ἄξονα δὲ λέγει Ὅμηρος τὸν τῆς ἀμάξης.

This is what Athenians call the Solonian laws, because they had been inscribed on wooden *axones*. They were square in shape. Demosthenes mentioned the word in his *Against Aristokrates*. *Axones* and *kurbeis* are different. Homer tells of the *axon* of a wagon.

Notes: Adler 1928-35, α 2833. The *axon* of a wagon is an axle.

b. *Kurbeis* 1

ἄξονες καὶ κύρβεις διαφέρουσι. τοὺς κύρβεις φησὶν Ἀπολλόδωρος...

Kurbeis. *Axones* and *kurbeis* are different. Apollodoros says *kurbeis*...

Notes: thereafter as per entry under Harpocration s.v. *kurbeis*; Adler 1928-35; Martina 557; k 2744. Prior two sentences (until τετράγωνοι) in Photios s.v. *kurbeis* 2, with the first of them (until πολιτικοί) also in scholion to Plato *Politikos* 289d.

c. *Kurbeis* 2

καὶ παροιμία: κύρβεις κακῶν. σανίδες εἰσὶ παρ' Ἀθηναίοις τετράγωνοι, ἐν αἷς τοὺς νόμους ἔγραφον, καὶ τὰς κατὰ τῶν ἀδικούντων τιμωρίας ἐποιοῦν. ἐπὶ τοίνυν τῶν σφόδρα πονηρῶν ἡ παροιμία.

Also a proverb: *kurbeis* of evils. At Athens they are four sided *sanides* on which they used to write up the laws as well as prescribe the punishments of the wrongdoers. The proverb even now is applied to the very evil.

Notes: Adler 1928-35. Part κ 2745 follows last word in Seleukos entry (Cat. N^o 47) ἀναγινωσκόντων.

d. *Kurbeis* 3

κύρβεις οὖν παρὰ τὸ κεκορυφῶσθαι εἰς ὕψος ἀνατεταμέναις. ἢ ἀπὸ τῶν Κορυβάντων. ἐκείνων γὰρ εὖρημά φησι καὶ Ἀπολλόδωρος.

So they were *kurbeis* from the way they came to a peak stretched up to the top. Or from the Korybantes. For Apollodoros also says they invented it.

Notes: Adler 1928-35; *FGrH* 244 F107e; Stroud p.30. Part κ 2745 follows previous entry.

e. *Nomos*

...ὅτι τοὺς τοῦ Σόλωνος νόμους ἄξονας Ἀθηναῖοι ἐκάλεσαν διὰ τὸ ἐγγραφῆναι αὐτοὺς ἐν ξυλίνοις ἄξοσιν. ἦσαν δὲ τετράγωνοι τὸ σχῆμα, κατὰ δέ τινας μᾶλλον τρίγωνοι.

... that the Athenians called the Solonian laws *axones* because they wrote them on wooden *axones*. They were square in shape, but according to some triangular.

Notes: Adler 1928-35, v, 485.

f. Solon

ἔγραψε νόμους Ἀθηναίοις, οἳ τινες ἄξονες ὠνομάσθησαν διὰ τὸ γραφῆναι αὐτοὺς ἐν ξυλίνοις ἄξοσιν Ἀθήνησι.

He wrote laws for the Athenians, which some named *axones* on account of them being written on wooden *axones* by the Athenians.

Notes: Adler 1928-35, σ 776. This is preserved in amongst a grab bag of miscellaneous information about Solon.

49. **Stephanus Byzantius** *Ethnica*

6th century CE

a. *Agnous*

τὸ τοπικὸν Ἀγνουινόθεν, καὶ ἐν τόπῳ Ἀγνοῦντι ἐν τοῖς ἄξοσιν “ἐπειδὴ Ἀγνοῦντι θυσία ἐστὶ τῷ Λεῶ”

In respect to the place from Agnous, and in the place for Agnous on the *axones* “Since at Agnous there is a sacrifice to Leos”

Notes: Meineke 1849; Rusch. T31 and F83; Martina 554 (ἀναγνούντι).

b. *Hieraputna*

Ἱεράπτυνα, πόλις Κρήτης, ἥ πρότερον Κύρβα, εἶτα Πύτνα, εἶτα Κάμιρος, εἶθ' οὕτως Ἱεράπτυνα. τὸ ἐθνικὸν Ἱεραπύτνιος.

Hieraputna, a *polis* of Crete, which was first (called) Kurba, then Putna, then Kamiros, then in this way Hieraputna. The ethnos is Hieraputnios.

Notes: Meineke 1849 derived this from Herodian ca. 180-250 CE (cf. Aelius Herodianus *De prosodia catholica* 3.1, page 252 – Κύρβα πόλις Κρήτης ἢ ὕστερον Ἱεράπτυνα - Lentz 1867). It therefore probably derived from Hekataios who was Herodian's primary source for such information. It could have come to Stephanos directly from Hekataios.

c. *Kurbasa*

Κύρβασα, ὡς Πήδασα Μέδμασα, πόλις Καρίας. ὁ πολίτης Κυρβασεύς.

Kurbasa, like Pēdasa Medmasa, a *polis* of Karia. The citizen (from there is called) Kurbaseus.

Notes: Meineke 1849. Also derived from Herodian ca. 180-250 CE (Aelius Herodianus *De prosodia catholica* 3.1, page 389 – Μέδμασα πόλις Καρίας. Ἑκαταῖος Ἀσία...Κύρβασα πόλις Καρίας – Lentz 1867) from Hekataios.

50. *Themistius Orationes*

4th century CE

2.32b ὁπόταν δε νόμον ὑπαναγνώσι Δράκοντος ἢ Σόλωνος ἢ Κλεισθένους, τὴν ψῆφον ἤδη ὁ καθήμενος εὐτρεπίζεται. ἔχω οὖν καὶ ἐγὼ ἐφ' οἷς λέγω πάνυ πολλοὺς νόμους, οὓς συνεγράψαντο οἱ σεμνοὶ νομοθέται φιλοσοφίας καὶ ἀμείνους πολλῶ Ζαλεύκου τοῦ Λοκροῦ καὶ τοῦ Θουρίου Χαρώνδα, ὁ μέγας Πλάτων καὶ Ἀριστοτέλης ὁ Νικομάχου. καὶ αὐτὰ ὑμῖν τῶν ἀνδρῶν τὰ γράμματα ἀναγνώσομαι, λαβὼν ἀπὸ τῶν κύρβεων καὶ ἀπολέξας.

but when they read a law of Drakon or Solon or Kleisthenes, the Court prepared a *psephos*. So I have, and about which I speak, very many laws which the august lawgivers wrote down on philosophy, and

better by far than Zaleukos of Lokri and of Kharondas of Thouria, the great Plato and Aristotle the son of Nikomakhos. And I shall read to you the letters themselves from the men, taken from the *kurbeis* and picked out.

NB: Downey and Schenkl 1965. From *Letter to Constantine*. *Kurbis* was used metaphorically by Plato, cf. Cat. N^o.40.

23.287d ἔστι τοίνυν Πλάτωνι τῷ θεσπεσίῳ κύρβις ἀνάπλεως τούτων τῶν νόμων καὶ τεκμήρια

It is Plato then who has a *kurbis* full of the laws and proofs (of his philosophy)

Notes: Downey, Norman and Schenkl 1971. Mentioned by Stroud p.38. From *The sophist*.

26.315a ὁ σοφιστὴς δὲ αὐτῷ βραχυρρήμων τε ὥς τὸ πολὺ καὶ πρὸς ἓνα ἀντίπαλον ἑσκευασμένος, καὶ τοῦτο ἐστὶν ἔσχατον τῶν ἐν τῷ ἄξονι συγγεγραμμένων. ὥστε ῥαδίως ἂν με ἐξαγορεύοιεν εἰ σκευωοῦμαι καὶ τεχνάζω περὶ τὸν νόμον.

(For Plato) the sophist is one who generally speaks briefly and is prepared to take on only one opponent at a time. Also this is the last of the writings on the *axón*. Thus easily would I be exposed if I cheat and tamper with the law.

Notes: Downey, Norman and Schenkl 1971; Stroud p.38 and n.124 included <ά> to indicate that it was the first *axón* following “H. Kesters’ plausible emendation” based on Demosthenes 23.28 and 31. This was not followed in the Teubner 1971 edition used above. From *On speaking*. See also Penella 2000.

26.327c ἀνάκειταί σοι κύρβεις αἱ μὲν ἐν τῇ Ποικίλῃ, αἱ δὲ ἐπὶ τῆς Ἀκαδημίας, αἱ δὲ ἐν Λυκείῳ;

and the *kurbeis* which are set up for you in the [Stoa] Poikile, and in the Academy, and in the Lykeion?

NB: Downey, Norman and Schenkl 1971; Stroud p.38 (incorrectly cited as 36.327bc). From *On speaking*.

51. **Timaeus Sophista** *Lexicon Platonicum* 993b 4th century CE?

κύρβις. στήλη τρίγωνος πυραμοειδής, νόμους ἔχουσα περὶ θεῶν.

Kurbis. A three sided, pyramidal stele, having laws concerning gods.

Notes: Dubner 1839; Stroud p.39. Timaios' dates are uncertain.

52. **Zenobius** 4.77 2nd century CE

κύρβεις κακῶν. κύρβεις καλοῦνται παρὰ τοῖς Ἀθηναίους σανίδες τρίγωνοι ἐν αἷς τοὺς νόμους ἀνέγραφον καὶ τὰς κατὰ τῶν ἀδικούντων τιμωρίας. ἐτι τοίνυν τῶν σφόδρα πονηρομένων ἡ παροιμία εἴρηται

Kurbeis of evils. Three sided sanides called *kurbeis* by the Athenians on which were written the laws and retribution for wrongdoings. Still to this day it is said to be a proverb for exceeding villainy.

Notes: Gaisford 1836. First sentence Stroud p.35. In a collection of proverbs including works by Didymos.

53. **Pseudo-Zonaras** *Lexicon* 3rd century CE

ἄξονες. ἐν οἷς οἱ ἰδιωτικοὶ ἐνεγράφοντο νόμοι, οἱ καὶ τετράγωνοι ὑπῆρχον πίνακες. ἄξονες καὶ αἱ πράξεις τῶν ἀρετῶν.

κύρβεις. τρίγωνοι πίνακες ἐν οἷς οἱ περὶ τῶν ἱερῶν καὶ πολιτικῶν νόμων ἐγγεγραμμένοι ἦσαν

Axones. In which the private laws were written up, which also were four sided *pinakes*. And *axones* are the acts of virtue.

Kurbeis. [Refers to the] three-sided *pinakes* on which were inscribed the sacred and State laws.

Note: Tittmann 1808.

OTHER CITATIONS

54. **Anthologia Graeca** Bk 15, epigram 36 ca. 1100 – 1453 CE

Kurbeis are described as γηραλέας θῆκεν ἀειθαλέας – placed on evergreen, old *sanides*.

55. **Apostolius, Michael** *Collectio paroemiarum* 10.27 15th century CE

Paraphrase of Diogenianos *Centuria* 5.72

56. **Choniates, Michael** *Orationes* 1140 – 1220 CE
Metaphorical use of *kurbeis* and *axones*.
57. **Gabalas, Manuel** *Epistulae* B9 and B34 1271/2 – ca. 1335/60 CE
Philosophical discussions mention the word *kurbeis* in passing – similar vein to ‘*kurbeis* of evils’.
58. **Gennadius, Scholarius** *Grammatica* 52.2 15th c CE
Variation on text of skholion to Plato *Politicus* 289d-e.
59. **Gregorius II Patriarcha** *Paroemiae* 2.53 13th century CE
Kurbeis described as wooden *pinakes* with laws.
60. **Joannes Chrysostromus** *In acta apostolorum* 154,60 ca. 347 – 407 CE
References *axones*, *kurbeis* and bronze stelai.
61. **Lexica Segueriana** s.v. *kurbeis* Early 14th century CE
Similar to *Anecdota Graeca* s.v. *kurbeis*.
62. **Lexica Synonymica** *De differentia vocabulorum* Date unknown
S.v. *axones* and *kurbeis* = Ammonius, *De differentia vocabulorum*, 57.
63. **Lexicon Patmense** s.v. *kurbeis* Date unknown
Similar to entries in both *Anecdota Graeca* and Photios s.v. *kurbeis*.
64. **Lexicon Vindobonense** s.v. *kurbeis* Early 14th century CE
Paraphrases Harpokration s.v. *kurbeis*.
65. **Photius** *Bibliotheca* ca. 810 – c.893 CE
Mentions *kurbeis* in the context of discussing Kallimakhos’ archaising but does not define it here. See Photios *Lexicon* and Kallimakhos *Aetia*.

66. **Planudes, Maximus** *Publii Ovidii* 15 ca. 1260 – 1330 CE
 Simile for strength – *kurbeis* made of bronze and iron.
67. **Psellus, Michael** *Poemata* 6 ca. 1017/8 – c.1078 CE
Kurbeis and *axones* have laws.
68. **Stilbes, Constantinus** ca. 1200 CE
 a. *Oratorio in honorem Georgii Xiphilini* 14.7.
 Mentions the equality of *kurbeis* to rich and poor.
 b. *Praelocutio* 10
 Metaphorical use.
69. **Synesius** *Catastases* oration 2, 5 ca. 373 – 414 CE
Kurbeis used as a literary allusion.
70. **Thomas Magister** *Ecloga nominum et verborum Atticorum* 1282 – 1328 CE
 S.v. *axones*. Paraphrases Ammonios *De differentia vocabulorum* 57.
71. **Tzetzes, Joannes** *Chiliades* 12.406 1110 – 1180 CE
 Uncritically cobbled together many bits of information especially from the skholion to Aristophanes *Aves* 1354, including a quotation from Theophrastus *On Piety* whom he calls Theopompos.

PART 7

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