blocks over the polygonal part of the wall does not display any decorative bosses.

The third and last part "Gesamtanalysen" (overall analyses, pp. 432-508) tries to draw a conclusion in several steps, thereby covering the entire spectrum of questions. Starting from the forms of fortifications, then moving to their architectural elements in relation to the warfare of Archaic times, especially the state of siege craft, and finally to the development of early fortifications. Questions of origin and distribution, their costs and finally their function and meaning are likewise considered. With this overall analysis, which is characterized by a much appreciated critical attitude towards traditional perceptions, the author establishes the current, still highly disparate state of research. Nevertheless, from his analysis it becomes entirely clear that any simplifying models or theories do not do justice to the extraordinarily complex diversity in the genesis and development of fortified Greek settlements.

The reviewer himself feels totally inept to do justice to this excellent, thought provoking work which doubtlessly will stand out as a lighthouse and point of reference for many years to come. Facing the decreasing perception of German archaeological literature in the anglophone world, he wishes to express the hope, that it might be translated into English, the *lingua franca* of the 21st century, in order to make it available to a larger audience.

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Peter van Alfen and Ute Wartenberg (eds) (with Wolfgang Fischer-Bossert, Haim Gitler, Koray Konuk, and Catharine C. Lorber), *White Gold: Studies in Early Electrum Coinage.* pp. x + 707, b/w and col ills, charts, maps and tbls. New York: The American Numismatic Society; Jerusalem: The Israel Museum, 2020. ISBN 978-0-89722-349-2, hardcover $150.

The title of this book, *White Gold*, derives from the phrase used once by Herodotus (λευκοῦ χρυσοῦ, 1.50.2) and more frequently in inscriptions to describe electrum, an alloy of gold and silver from which the first coins in the western tradition were made. The alloy was mostly referred to as electrum (ἤλεκτρον), which could also mean 'amber' – the application of the word to coins derived from their colour. The origin of the book goes back to a spectacular exhibition held in 2011 at the Israel Museum, Jerusalem, in which five hundred such coins were displayed. Two conferences, held in Jerusalem (2011) and New York (2013), were convened to address the many problems presented by these coins. The present book arises from the proceedings of those conferences, but includes also invited contributions by two scholars who were not present (Kleber, Jones) and additional contributions from some who were. One paper delivered at the conference has previously appeared elsewhere (R. W. Wallace, 'Redating Croesus: Herodotean chronologies and the dates of the earliest coinages', *JHS* 136 (2016): 168-81). The resulting book is an outstanding, systematic and informative collection of articles on electrum coinage in the Greek world, the first and most comprehensive in many years, covering not only the earliest coins struck from that metal, but also the 'continuation' coins, in particular those of Cyzicus, which were issued down to the time of Alexander III of Macedon and which potentially offer comparative material and possible insights into the rationale for coining in electrum in general. After a succinct *Introduction* surveying the main problems addressed in the book (the overall conclusion is that much is illuminated, much remains difficult to understand), the material is presented in four sections: *I: The Great Transformation*, *II: The Earliest Electrum: The Evidence*, *III: The Earliest Electrum: Interpretations – Why Coinage?*, and *IV: Electrum Continuation*. The topics addressed in the four sections quite often overlap or interlock, but overall they embrace four main questions: The *What?* (covering two broad topics, the nature of the alloy used for electrum coinage and comparisons of its composition over a number of different issues); the *When?* (the book presents a consensus on this much contested topic); the *Where?* (in general, the view that electrum coinage began in western Asia Minor is maintained, but questions concerning responsibility for it remain contested: whether the initiative was state or private; whether the Lydian king, or subject tyrants or oligarchs of the Greek poleis, or independent *dynastai* or elites, or a combination of these entities, had a hand in it); and the *Why?* (there are two distinct aspects to this question: Why coinage at all? And then, Why coinage in electrum?). To throw light on these questions the whole range of the scholarly fire power is deployed: archaeological contexts, literary and epigraphical evidence, coin circulation with reference to hoards and find spots, studies of dies and weights, metallurgical analyses, and economic

theory. In what follows I take up in turn each of the four questions outlined above.

First, then, the *What?*, beginning with some 'hard evidence': the nature of the alloy. Up to now it has been commonly supposed that the adoption of electrum for the earliest coinage was a response to the availability of the alloy in its natural state in alluvial deposits of rivers such as the Pactolus that flowed by Sardis, the capital of the Lydian kingdom. A further supposition was that at the time when coinage in electrum was introduced, the technology required to separate gold from silver was still unknown. However, a major revelation offered by the book is that both these suppositions are shown to be incorrect. This is the first of two defining conclusions of the book.

With regard to the nature of local alluvial deposits, Psoma points out (p. 68) that it is not electrum that Greek literary sources associate with the river Pactolus, but gold. Furthermore, analyses of the metal found in alluvial deposits and in coins prompt a revision of earlier theories. Cahill *et al.* analyse (using a Scanning Electron Microscope (SEM) with an EDS (Energy-Dispersive X-ray Spectroscopy) attachment, pp. 312-16) four samples of alluvial gold from four different sources near Sardis and find that it does not contain significant quantities of silver, but is essentially pure gold. Similar results were obtained from an examination of 16 flecks of gold from three of the sources by LA-ICP-MS (Laser Ablation Inductively Coupled Plasma Mass Spectrometry). The metal revealed here is not the natural alloy on which earlier theories of the origin of electrum coinage were based; the electrum used for coinage was created artificially. The same authors refer (p. 317) to earlier investigations which suggested, on the basis of proportions of lead in the alloy, that early electrum coins were minted not by modifying natural ores to achieve a consistent composition, but by debasing refined pure gold with regular additions of silver. The conclusion might be that the coins were minted from pure gold from the Pactolus, then mixed with silver in such a way that the resulting alloy was rich in both silver and lead. But new analyses presented in this volume reveal a wider range of lead in Lydian and other electrum coins than previously found, suggesting that the Lydians drew from a variety of sources of gold, including low-lead alloys (Blet-Lemarquand and Duyrat (pp. 337-78), using LA-ICP-MS). This prompts an investigation by Cahill *et al.* (p. 317ff.) into sources of gold in the Lydian empire apart from the Pactolus, in particular in north western Asia Minor (the Troad and Mysia). This has the potential to cast light on the ambitions of the Mermnad kings.

With regard to the technology of separating silver from gold, Kleber (pp. 17-34) deploys textual evidence, metal analyses and modern experimentation to show that goldsmiths in Mesopotamia had mastered the technique of parting silver from gold (by a process known as cementation with acidic salts) at the latest in the first half of the second millennium, and possibly earlier. Thus, the ability to part gold and silver did exist in the seventh century. And not only that. It is suggested (though other hypotheses could be possible) that the metal could be manipulated in sophisticated ways to achieve not only a consistent composition but also visual effects which to some extent belie that composition (Cahill *et al.* pp. 310, 320): the surface of some coins analysed contained more gold than the core, and such surface enrichment was deliberate.

The most important conclusion arising from such analyses is that the electrum from which the earliest coins were made was not a natural alloy but one manufactured by human hands. As is well known, 'following the science' is not always straightforward. Like other scientific methodologies, methods of analysing the metal content of manufactured objects have progressed by trial and error, some methods produce more accurate results than others, and new analyses may sometimes cast doubt on earlier results. It is reassuring that the results obtained by Gitler *et al.* for several series that they studied (pp. 379-422, using a portable X–ray fluorescence (XRF) analyser) largely complement those derived from other investigations of similar material (Blet-Lemarquand and Duyrat (pp. 337-78), using LA-ICP-MS). Although some basic questions seem to have been resolved (in particular the question of the origin of the alloy) other more detailed research questions remain to be addressed: What consistency in alloy might be found from one series of coins to another? Is it possible to point to a chronological evolution? What relationships can be established between coins of varying standards, mints or denominations?

Another fruitful source of insights and information is the examination of Archaic electrum coinage as a set of objects that share common characteristics, and the evidence these might offer for the reasons why such coinage was issued (Velde, pp. 497-516). The first point to note is the plethora of types: around 400 discrete series of early electrum have been recognized, on the basis of types (Wartenberg, p. 574). Sorting this mass of material into meaningful groups is no easy task. The majority cannot be assigned to any specific authority or geographical area, and much basic work remains to be done, for example to identify die-links. And

the identification of die-links involves not only obverses but also the reverse punches, which occur in different patterns on coins of different weight standards (p. 499). The coins are apportioned among three of these. The most common, with its largest unit (stater) weighing 14.0-14.5 g is the Milesian, or Lydian-Milesian, because coins ascribed to Lydia or to Miletus follow it. The Samian standard has been named on similar grounds (stater *c.* 17.0 g), and the Phocaic, named from Phocaea, has a stater of *c.* 16.0 g. The circulation of Lydian types was possibly restricted to the Lydian kingdom, whereas on the Aegean coast many types circulated. From the beginning there was a wide range of denominations, down to the smallest physically possible (stater, tritē, hektē, 1/12, 1/48, 1/96). The highest denominations (staters and tritai) are less common and halves are also rare; the overwhelming number of electrum coins are fractions smaller than 1/3 staters (p. 574). Within series that have been identified there is a variation in alloys, but high precision in weights. Weisser's study (pp. 263-8) of coins with a striated obverse (that is, they are marked with roughly executed parallel lines) revealed a fairly high degree of consistency in the gold:silver ratio across the denominations of *c.* 60-40%. This is rather high when compared with other series. The denominations were produced quite carefully with regard to weight, but when it came to the fineness of the metal, although the Lydian coinage at least maintained a stable fineness of *c.* 55%, elsewhere the fineness, and thus the intrinsic metal content, varied. Such variation can occur even within a series, as Fischer-Bossert's study of the coinage bearing the name of a certain Phanes illustrates (p. 429). (Some of the implications of the characteristics of early electrum outlined here for the interpretation of the function and purpose of the coins will be explored below.)

The first coins of Asia Minor were made of electrum, but Croesus (whose reign is traditionally dated 560-546) introduced a coinage in gold and silver. What effect did that innovation have on coinage in electrum? The conventional view is that as a result of the advance in technology involving the ability to separate silver from gold, the problems inherent in the use of electrum for monetary purposes (the value of the coins had been hard to determine) led it to become obsolete, apart from a few special cases, such as Cyzicus (see below), Lampsacus, Phocaea and Mytilene. The obverse types of a further group of electrum coins have for a long time been thought to associate them with the revolt of the Greek cities in Ionia from the Persians (500-494/493). There are nine such types, each of which has been associated with an Ionian mint. All the coins are struck on the Milesian standard (*c.* 14.2 g) and all the reverses have a reverse punch divided into four almost equal squares. Wartenberg (pp. 569-640) examines three hoards which illustrate how prolific electrum coinage was in the second half of the sixth century and how extensively it circulated, sometimes alongside the newly introduced silver coins of Asia Minor and Thrace. A die-study of the entire series of staters represented in the three hoards, together with some other coins not recorded in them, clarifies the picture, for example by determining the sequence of the series. The evidence on the dating of the hoards (all in the later sixth century) shows that most of the electrum staters that have been associated with the Ionian Revolt are likely to date around two decades earlier. They are in fact part of a considerable volume of coinage in electrum in Asia Minor in the second half of the sixth century, though not so large when compared with some contemporary silver series. Thus, there was no abrupt change or caesura from electrum to silver and gold coinage. States producing some electrum coinage included the islands of Chios and Samos, Lampsacus, Clazomenae and Miletus. On the Greek mainland Athens produced a little electrum coinage, in the period of the *Wappenmünzen* in the later sixth century, but not as many types as previously supposed – those showing an obverse owl are false, and only the facing bull type appears to be genuine (Sheedy, pp. 269-90). Some of the electrum coins found in Thrace may have been minted there (p. 595), but that is open to question. After the Persian Wars in the early fifth century, production of electrum coins in Ionia seems to have died out. Their place was taken by Mytilene, on the island of Lesbos, which maintained for many years a coinage alliance with Phocaea to produce alternating annual issues of electrum, and Cyzicus, whose coinage in electrum continued throughout the fifth century and in the fourth century down to the advent of Alexander the Great. Material presented in this volume, then, shows that electrum coinage was not just an outlier in the overall development of coinage in the Archaic period.

The electrum coinage of Cyzicus (the staters were called Cyzicenes) was important and long lasting; it is the subject of three 'stand-alone' contributions to this book (de Callataÿ, pp. 641-64; Mielczarek, pp. 665-88; Psoma, pp. 689-701). All three present material that would form part of any detailed study of the coinage of Cyzicus. Psoma summarises the history of Cyzicus and collects the literary and epigraphic evidence for the spread of Cyzicenes as an international currency. The coins were used in three main contexts: for the accumulation of wealth at Athens, for trade in the Hellespont and

the Black Sea, and for military payments in the area of the southern coast of the Black Sea and in Propontic Thrace. In a brief survey of the hoard evidence, Psoma claims that it 'corroborates' (p. 691) the information derived from literary sources. The evidence of hoards and single finds for the geographical spread of Cyzicenes is collected and analysed in much greater detail by Mielczarek. In the Black Sea area Cyzicenes have been found essentially in two regions, the first and older one in the north west, between Istrus and Olbia, the second and later zone in the Bosporan kingdom centred around the Kerch Strait. In Thrace, Cyzicenes have been found mostly outside the *poleis*. Apart from the Cyzicenes referred to in literary and epigraphic sources, a hoard from the Piraeus (*IGCH* 47) attests their continued circulation towards the end of the fourth century. However, although the collection of material in these two papers – literary, epigraphic and numismatic (coin circulation) – is exemplary, the interpretations offered are mostly based on older collections of material, and references to the third contribution on Cyzicene coinage in this volume (de Callataÿ) are minimal (Psoma p. 691, n. 11 refers to it on one matter of fact, the number of types). De Callataÿ presents here the first fruits of a die study of the coinage of Cyzicus as a whole. The benefits accruing from such an approach are already apparent. The diversity of types (de Callataÿ estimates there are nearly three hundred) is in sharp contrast with contemporary practices at other (silver) mints. Such a number calls into question the idea that each type represents an annual issue. Jenkins and Hipólito already (in a publication referred to (p. 643, n. 9) but omitted from the bibliography) identified many reverse die-links between different obverse types, and subsequent study is supporting that finding. If this insight can be sustained, it would provide further support for the idea that each obverse type did not correspond to an annual issue. The comprehensive nature of de Callataÿ's ongoing work, including as it does the smaller denominations as well as the staters, has the potential also to change ideas about the intensity of production at different times (periods of intense striking followed by periods of low or non-existent production) and to offer a more nuanced view of the development of the pattern of production (to begin with, small fractions and a few staters, later on, mainly staters and almost no fractions). Such insights will surely have an impact on interpretations of the role of the Cyzicenes in trade and exchange generally.

Turning to the second major question: When did coinage begin? The answer depends principally on archaeological evidence, above all, that derived from four excavations of varying length conducted over many years at the site of the temple of Artemis at Ephesus, where finds of the earliest coins were made. The history of the four series of excavations is summarized on pp. 86-91: the first, funded by the British Museum between 1869 and 1874 under the direction of John Turtle Wood; the second in 1895, when the Austrian Otto Benndorf was in charge; the third in 1904-1905 under the direction of David George Hogarth, again funded by the British Museum and focusing on the earlier periods of the history of the Artemisium (it was Hogarth who unearthed the coin deposits and other treasures which remain of crucial importance for the interpretation of the first coins); and finally the fourth and longest-lasting period of excavations directed by Anton Bammer with a team from the Austrian Archaeological Institute (1965-1994). The history of both the excavations and also their interpretation have been difficult and complex, and the results are discussed in detail with many clear and appropriate illustrations and plans, frequently in colour. The terminology used to define aspects of the building has been confusing, in particular the meaning of the term *B(b)asis* (Gk. βάσις, 'base'. 'pedestal'), which in various descriptions of the excavations signifies different structures, depending sometimes on whether its initial letter is capital or lower case. And there are further specialist terminologies to negotiate, such as *naos*, *sēkos*, *dipteros*, *temenos,* all Greek terms used to characterize different sorts of temple-plan. Two major contributions offer comprehensive discussions of the problems, one (Kerschner, pp. 191-262) devoted to the elucidation of the successive building phases, the other (pp. Kerschner and Konuk, 83-190) focusing principally on the electrum coins found and their specific archaeological contexts. All 108 coins discovered at different stages of the excavations are discussed for the first time as a whole. The majority are catalogued, illustrated and subject to a systematic die study (pp. 91-114), likewise for the first time. The overall conclusion from the investigation of coins and contexts is that they indicate a date of around the middle of the seventh century for the beginning of coinage. This is the second definitive conclusion of the book.

It is worthwhile at this point to summarise the history of the various phases of the Artemisium as presented by Kerschner (principally p. 195ff., but there are several references elsewhere, and by other contributors), together with a brief account of how the various coin finds relate to these phases. In its earliest phase the sanctuary was an open air *temenos* of which no structure has survived. The focus of the cult at this time was a *xoanon* (Gk. ξόανον) an

image representing Artemis carved in wood, the site of which could not be changed; the successors of the *xoanon* of Artemis were at the centre of all six successive temples, at the core of what is termed the 'Central Basis'. This is a construct of modern archaeology (pp. 191, 239): it is not itself a temple but consists of individual structures belonging to several successive cult buildings, and as preserved, it incorporates elements belonging to all five Archaic temples. The earliest stone building in the sanctuary, *Naos* 1 (p. 199), dating from 660 to 640, had a rectangular cella open to the west, and was peripteral, surrounded by 4 x 8 wooden columns resting on bases of green schist. In the eastern part of the central nave it contained a rectangular *basis* (p. 201). The second temple, *Naos* 2 (p. 244) arose from a major rebuilding around 640-620, and incorporated two *baseis*. One of these, the 'green schist *basis*' occupied a large part of the eastern half of the cella. It was where the cult image was located and it contained an inner fill carefully composed of layers of sand protected and solidified by layers of limestone slabs and containing an enormous concentration of precious objects including electrum coins Cat. nos. 1-24 (pp. 114-22). This was a closed deposit and was distinguished and kept separate from later layers during the process of excavation. This 'foundation deposit', the inner fill of the green schist *basis*, provides an important *t.a.q.* for the beginning of coinage. Furthermore, under the floor of *Naos* 2 a hoard of 17 coins (Cat. nos. 29-45) was found in a sealed jug that was buried upright (pp. 122-8). It was clearly a deposit laid down deliberately in relation to the construction of *Naos* 2. Apart from the find context, the jug itself provides an important chronological clue: it was dated by D. Williams to the third quarter of the seventh century (*BICS* 38 (1991-1993): 100).

Naos 2 did not last long and was replaced at the end of the seventh century by a third temple, *Sēkos* 1 (Gk. σηκός = 'precinct'), with an expanded floor area and introducing the concept of a large courtyard with a small shrine for the cult image (p. 244), a layout adopted by all subsequent temples. In front of this shrine was the large western *basis* containing a foundation deposit of four electrum coins. *Sēkos* 1 was in turn soon replaced by *Sēkos* 2, around 600. It adopted the ground plan of its predecessor with only a few modifications and rebuilt its walls to a higher level (pp. 128, 234, 244).13 coins can be related to *Sēkos* 1 and *Sēkos* 2 (p. 128): four (Cat. nos. 25-8) in the fill of the large western *basis*; five (Cat. Nos. 49-53) have a *t.a.q.* of 600, the date of the construction of *Sēkos* 2; a further five coins (Cat. nos. 46-8, 104-05) were found in rammed earth layers inside *Naos* 2; further coins (Cat. no. 106, nos. 107-08) were found in the filling of the eastern river bed (p. 143). For Cat. no. 107 the *t.a.q.* is 600 (p. 143); for Cat. no. 108 the context gives a date of 630-615 (p. 141).

All coins so far discussed were discovered in the central area of the early Archaic *temenos*, either in deposits related to *Naos* 2 or to its successors *Sēkos* 1 and *Sēkos* 2. Up to now (p. 144) there are only two find areas located beyond the limits of *Sēkos* 2: east of *basis* D (a feature 1,02m square built of small limestone slabs and associated with *Sēkos* 2 (pp. 145-55)), and west of *Sēkos* 1 and *Sēkos* 2 (Cat. nos. 97-103). They are associated with an ashy layer (p. 163) deposited (p. 167) around 590, giving a *t.a.q.* for Cat. nos. 97, 100, 102, 103. Cat. nos. 98 and 101 are probably similar: they were found in a 'box' containing some material from the next stratum in the sequence, the destruction debris of *Dipteros* 1 (the next temple); if they were deposited in the ashy layer, the *t.a.q.* would be *c.* 590, if in the destruction debris of *Dipteros* 1, *c.* 570/560 (p. 170).

Dipteros 1, the fifth sacred structure, represents a massive increase in the size of the temple (p. 235): its floor area is more than eleven times larger than that of *Sēkos* 1, and it was the first of the temples to use marble in its construction. This is the 'Croesus temple', so named because Croesus was one of its main sponsors, donating most of the columns. It has a large courtyard, in the centre of which was a shrine for the cult image (p. 237), just as in *Sēkos* 1 and 2. Construction of the building started in the first quarter of the sixth century (580/570; pp. 236, 244) and continued for about 120 years until the second quarter of the fifth century. Construction of the last temple in the sequence, *Dipteros* 2, which became one of the seven wonders of the ancient world, began in the mid-fourth century. One electrum coin (Cat. no. 99) was found in the construction debris, together with re-deposited Archaic material, and so was originally part of an Archaic deposit (p. 170).

To summarise the breakdown of the locations where coins were found (pp. 91-2): in the excavations conducted in 1904-1905: 24 were found in the 'green schist *basis*', and 17 in the 'pot hoard'; a further 54 came from deposits associated with *Naos* 2 etc.; in the Austrian excavations conducted between 1980 and 1994, a further 13 were found, giving a grand total of 108. Die links and type sharing between coins from different contexts show that those contexts are closely linked and should therefore be chronologically close (pp. 113-14). All in all, the coin finds and contextual data from the Artemisium and its immediate neighbourhood indicate a date around the middle of the seventh century for the beginning of coinage (pp. 174-5).

The third question: *Where did coinage begin?* has already been addressed to some extent in the foregoing. The first electrum coins were found in association with a temple connected to a Greek city, Ephesus, in western Asia Minor. In the first quarter of the sixth century a massive rebuilding of that temple was initiated with substantial contributions from king Croesus of Lydia, a powerful neighbour in the interior of Asia Minor to the west of Ephesus. It is clear that in general we are at the interface between Lydian and Greek cultures in western Asia Minor. But the details of what that means for the beginning of coinage are by no means settled. Traditionally, responsibility for the early electrum coinages in Asia Minor has been distributed among the Lydian kings and some Greek cities on the basis of types: for example, at Sardis, a lion; at Ephesus, a stag or a bee; at Phocaea, a seal; at Miletus a recumbent lion; at Chios, a seated Sphinx (K. Konuk, *The Oxford Handbook of Greek and Roman Coinage*, 2012: 45). But can these entities have been responsible on their own for issuing the large number of issues represented by the 400 types referred to above? That is another difficult question, posed by Wartenberg (p. 596) and addressed or confronted by several contributions to the book. The idea that one type derives from one minting authority is derived from later, silver, coinages, and even then, it is possible to cite cases such as the earliest (silver) coinages of Athens and Corcyra, where multiple types prevailed for a while. Weidauer in an earlier study (*Probleme der frühen Elektronprägung*, 1975) found that some electrum mints did use several types. But even if we try to reduce the number of authorities minting electrum by supposing that some of them issued coins bearing a variety of types, that would not suffice to remove the problem. The Lydian coinage is discussed by Jones (pp. 517-35), adopting a mechanism design approach: how was the institution of coinage designed to accomplish a purpose on behalf of the agent producing it? The goal of the Lydian kings may have been to make the highest possible income from their gold. But with 400 types to take account of, one soon runs out of possibilities for theorizing along those lines. Several contributors address the problem from different points of view.

Early electrum coins bear few names, and those names that are present are of individuals, not of minting authorities such as cities. Perhaps the best known of these names is Phanes, whose coins are here the subject of a die-study (Fischer-Bossert, pp. 423-76, with additional material, especially on the epigraphy of the letter-forms, by Bresson, pp. 477-85). One common suggestion to account for the multiplicity of types is that the coins bearing them were made by private individuals. An example might be Phanes, but Kroll suggests (pp. 537-8) that the changing types were designed for accountability: they identified coins for which some official was responsible. Kroll also looks at the evidence for the exercise of local power in Asia Minor at the time when early electrum coinage proliferated. Apart from Greek cities, areas such as Caria and Lycia contained many dispersed centres of personal authority, whether local rulers (*dynastai*), or exiled Greeks. These insights widen the pool of potential minters: many local authorities could have been minting with many types. van Alfen (pp. 547-67) takes this analysis much further. He questions the appropriateness of applying an anachronistic and fixed conception of 'the state' as the sole issuer of the early coins. The state's power to foster trust and its ability to enforce its policies were limited, and in any case the generation of trust does not always require state backing. He builds a picture of the fluid political conditions of the time, characterised by competition and instability and providing opportunities for private production in addition to those of 'states'. As for the Lydians, they could not be expected to have had an empire-wide policy on coinage, or a veto on what was taking place within a city such as Miletus. In Lydia itself there was bargaining between monarch and powerful elites, while within each individual polity such bargaining played out between its own elites. There were many polities, and so many variations and complexities in the outcomes of such bargaining. Thus variations of outcome in such bargaining are to be expected and were reflected in the variety of the types found in early electrum coinages.

The fourth and final question addresses the question *Why?* To this question there are two distinct aspects: first, why was there a need to introduce coinage at all? In what ways did coinage supplement or complement pre-existing methods of exchange? And secondly, why start with coinage made from an alloy such as electrum, and not in either gold or silver? On the face of it, electrum is apparently ill-adapted to monetary exchange, since its intrinsic content can be so variable. It is convenient enough for the issuer, but what about the recipient? Both these questions receive attention in the volume.

Bresson (pp. 488-93) suggests that a crucial factor in the introduction of coinage in Asia Minor was that the social system there differed from that of the 'kingdoms or principalities of the eastern Mediterranean' (p. 489). Among the latter, the bulk of monetary transactions (whether in kind or in silver) took the form of tribute to a state or of rent to a temple, whereas in the world of the Greek cities

the circulation of goods was based on exchange. In the latter during the Archaic period the volume of market transactions increased, creating a new demand for money that could not be satisfied by the traditional form of weighed precious metal. The advantage of coins was that weighing was carried out once and for all and the quality of the precious metal was also ascertained. There were clear benefits for issuers and users alike.

However, the extent to which differences existed between the economic and social systems of Asia Minor and the Middle East may be exaggerated. Asia Minor (and Greece) was part of the 'eastern Mediterranean' world. And if it is argued that the contrast is between Asia Minor and kingdoms such as those of Mesopotamia in the Middle East, or Egypt, there are still grounds for thinking that differences between systems of exchange in each area were not so clear cut. It was not just in the Greek cities that the earliest coinage developed, but the kingdom of Lydia also was a, perhaps the, major player. With regard to the role of temples, in this volume Kroll (pp. 49-63, with additional commentary by Bresson, pp. 485-8) provides a revised text and discussion of a lead tablet from the Ephesian Artemisium itself, the earliest extant monetary account in Greek, dating from the late seventh/early sixth century and recording receipts of gold and silver from several revenue sources. It is clear that revenue was fully monetized and recorded by weighing out gold and silver bullion on the balance. Before Croesus, even at a time when coined electrum was being widely produced in Asia Minor, silver and in particular gold was the primary monetary metal of the region. The question arises: were the Greek cities really so different from other places in the Middle East, in experiencing 'a new and decisive spurt'? (p. 489). These regions were not sealed off from each other, and growth that affected the Greek city-states can be found right across the Mediterranean world in the first millennium, including the Middle East. There is sufficient material from the Middle East and Egypt to suggest that during the first millennium these areas too experienced periods of growth and 'efflorescence'. Michael Jursa's *Aspects of the Economic History of Babylonia in the First Millennium BC* (2010) shows that Babylonia in the sixth century possessed characteristics typical of cities in Greece, creating sophisticated systems in commercial law and in many other areas, before such systems developed in Athens. Private market exchange accounted for a large slice of the economy in the post-Bronze Age period: one could buy a large range of goods and services for silver, the payments effected in metal that was weighed. In this volume Gitler and Tal (pp. 35-48) chart the transitions in the means of metal payment in the southern Levant: from the use of weighed metal (mostly silver), through the use of imported coins from the early fifth century, to local coin issues from the middle of the fifth century. There were high levels of (non-coin) monetization in Mesopotamia and the Levant as early as the second millennium, and it was particularly widespread by 900. In many areas the transition from weighed to coined metal took time, though: a hoard from Samaria shows that cut coins and other *Hacksilber* were circulating in the Levant well into the second half of the fourth century, even as the production and use of coins took root and flourished there. In places further east this transition did not take place. Furthermore, the southern Levant was home to such polities as the Phoenician Sidon and Tyre, both vigorous commercial centres. Yet they too did not participate in the early history of coinage, but waited until the middle of the fifth century before issuing coins of their own. The question remains: what combination of circumstances made western Asia Minor different?

Finally, why was electrum chosen as the metal of the first coinage? The minting of electrum was a deliberate decision, and Bresson draws attention (pp. 488-93) to its advantages over a system in which gold and silver were minted separately. It was difficult to maintain a sound bimetallic system since the relative value of gold and silver was not constant. Resorting to electrum was the best way to prevent speculation against one metal or the other. Bresson's interpretation relies heavily on 'assuming' (p. 489) that it was states that were responsible for the introduction of coinage, both to make payments and to receive them. That is a concept that is strongly challenged by other contributors to the book (see earlier).

In summary, this beautifully crafted book settles two fundamental problems arising from the introduction of coinage in western Asia Minor: the chronological (the introduction occurred around the middle of the seventh century) and the metallurgical (the electrum from which the coins were made was not a natural alloy but a man-made one). In addition to those achievements, it contains important insights into the metal content of early electrum coins, studies of individual series of coins, collections of literary and epigraphical material, and interpretations of inscriptions. The first three questions posed at the outset of this review have been clarified, but an answer, or answers, to the fourth question – the *Why?* – remain as elusive as ever. The new data have simply posed the question from new perspectives, as explored in several of the contributions. In particular, the position and

role of western Asia Minor as the place where a new method of exchange was introduced remains enigmatic. If it was not so different from other places in the Middle East, why was it there that the change took place, while other places with advanced social and economic systems (Middle Eastern kingdoms and Phoenician city-states) clung to traditional ways of doing things? If it was not for economic reasons, was it for cultural ones? The book hints at and in some cases makes a start at presenting solid material ('the hard evidence', p. 5) that will help to throw light on these problems. A major project in the form of an online database (PHANES) of all known electrum coins is now underway (p. 570; 574, n. 23); it is estimated that it will eventually include records of over 10,000 coins. That will be the essential foundation on which to build and to continue the task of sorting, grouping and interpreting the coins along the lines already marked out by several contributions to this book.

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Marta González González, *Funerary Epigrams of Ancient Greece: Reflections on Literature, Society and Religion.* pp. 224, 11 b/w ills. London: Bloomsbury, 2019. ISBN 978-1-350-06242-9, hardcover £90.

This book aims to review funerary epigrams from the Archaic and Classical periods, and to place them in their social and religious contexts. It consists of eight chapters, followed by 16 pages of bibliography, an index of inscriptions and table of concordances, plus five pages of indices. The main monuments are illustrated with 11 plain black and white figures, which archaeologists will not find particularly useful.

Only private metrical epitaphs are taken into consideration, mainly hexameters and elegiac distichs. Both original Greek texts and up to date translations are provided, making these sometimes complex and enigmatic epigrams – as well as other literary extracts – available to a wider audience. A list of translated inscriptions would have been welcome.

The first two chapters place the monuments in their literary, political, social, and legal contexts. Chapter 1 (The Funerary Landscape: A Reflection of the World of the Living) focuses on the latter, and follows the now slightly outdated hypothesis that funerary landscapes mirror the world of the living. It provides a survey of the types of funerary monuments produced in the Archaic and Classical periods, such as *stelai*, funerary vases, *kouroi* and *korai*. The main criticism of this chapter lies in the fact that almost all the evidence comes from Attica, while other regional practices are barely taken into consideration. Also, when discussing the legal aspects of funerary practices, the readers must be aware that the sources apply only to aristocratic and democratic Athens. Chapter 2 (The Literary Forms: Tears of Simonides... and of Pindar) offers a useful survey of the literary context in which funerary epigrams were produced.

The following chapters follow a thematic structure. Chapter 3 (Phrasikleia, *Forever a Maiden*. Kroisos, *Whom Raging Ares Destroyed*) provides a pleasant tour of the funerary landscape of Archaic Attica, focusing on two of the most well-known aristocratic monuments, those for Phrasikleia and Kroisos, completed with other epitaphs for "young nobles". Youth as a recurring theme in Classical funerary epigrams is discussed in Chapter 4 (How to Deprive the Years of its Spring). The study of the monument for Pausimache leads to two original short studies. The first deals with verses mentioning the moment when the *psyche* abandons the body, while the other focuses on mirrors for women in Attic *stelai*, which the author interprets as a clue that the deceased was unmarried at the time of her death. The "Untimely Death" subchapter offers some considerations of the use of *loutrophoroi* as tomb markers. *Philia, philotes, philemosyne, hetaireia*, and their occasional ambiguity are analysed in the fifth chapter, devoted to friendship and same-sex eroticism between women and between men. Among the epigrams presented, there features a recently discovered monument from Boeotia, the late sixth century stele for Mnasitheos of Akraiphia. The next two chapters offer a welcome glimpse into the fate of women: in Chapter 6 as wives (Wives and Their Masters), and in Chapter 7 when losing their lives in childbirth. In that same Chapter 7 (Powerful Enemies: Childbirth, the Sea), the author provides a refreshing look on another type of untimely tragic death, the disappearance at sea. The theme of religion, announced in the book's title, is explored mainly in Chapter 8, which largely focuses on looking for signs of belief about the afterlife (Rewards for Piety... Next to Persephone). A brief discussion of *lamellae aureae* and epitaphs for the initiated is also offered. The most intriguing of the subchapters, entitled "Persephone's Chamber",