Asia Minor: Archaic to Hellenistic (2014-2020)

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SNG and Collections

Several important collections of coins from Asia Minor in European museums have been published as SNG volumes. The two most significant are *SNG Great Britain 12: Hunterian* (Cimmerian Bosporus to Cappadocia) (31), which replaces MACDONALD'S ancient and sparsely illustrated publication of 1901, and *SNG France 7: Paris* (Paphlagonia, Pontus, Armenia Minor) (91). In addition, smaller bodies of material in Polish museums are published in *SNG Poland 1: Łódź* (Bosporus to Cilicia) (258) and *SNG Poland 3: Cracow* (Thrace and Pontus) (48). A handful of relevant coins are included in *SNG Italy: Verona* (all of Asia Minor) (23), but this is principally a collection of Roman provincial coinage. Beyond the SNG series, GÖKYILDIRIM (148) has published the Lydian coins in Istanbul Archaeological Museum which include early electrum, a significant collection of cistophori, and a large number of Hellenistic civic bronzes. ÖNDER (290) has catalogued the Lydian coins in Manisa Museum including 122 late Hellenistic civic bronzes. MÜSELER (264) has published a catalogue of Lycian coins from various private European collections which primarily focuses on silver coinage of the Classical period, but also includes some silver and bronze coinage from the Hellenistic period. Volume 1 of GANSCHOW's (144) publication of the HENSELER collection begins with coins of Hellenistic Cappadocia. KURTH (204) has attempted a type corpus of all ancient coins of Lydia based on her popular website wildwinds.com. However, it should only be consulted after reading the review of BURNETT, *NC* (2021), pp. 536–544.

The publication of private collections registered to museum directorates in Turkey has continued apace. In the SNG series these include the second part of the MUHARREM KAYHAN collection (*SNG Turkey 1*) (191), all three parts of the ÖZKAN ARIKANTÜRK collection (*SNG Turkey 9*; Troas, Aeolis, Mysia) (346, 349, 350), the first part of the YAVUZ TATIŞ collection (*SNG Turkey 10*; Ionia and Lydia) (337), and the ÇETIN ERDEM collection (*SNG Turkey 11*; Lydia and Phrygia) (351). In addition, the smaller collections of KAYA SAYAR (Mysia and Troas) (20, 21) and TUNAY DEMRAN (mostly western Asia Minor) (364) have been published in other venues.

By and large, these collections consist of coins bought locally rather than on the international market and as a result they have the potential both to provide insight into regional circulation patterns and to narrow down the place of origin for unattributed issues. Unfortunately, however, these collections tend to have been formed with a pre-determined view to collecting coins from every city in a particular region, and so coins from outside the chosen region appear to have been systematically overlooked irrespective of whether they were available locally. As a result, these collections do not give us the snapshot of local circulation which they might and which numismatists of a previous generation attempted to gain from trawling the coin markets of provincial Turkish towns. At least for the moment, therefore, the numismatic importance of these registered private collections remains only partly realised. See NILSSON (279) for the value of publishing more provenance information in SNG volumes on collections in Turkish museums and ASHTON (32) and TEK, KÖKER, and TARAKAN (335) for examples of doing just this.

One of the most significant developments in recent years has been the proliferation of high-quality online museum databases which have made both published and unpublished

[1] Material from 2021 has been included where it substantially modifies the argument of items from within the period of review, but otherwise has been left to the next survey. All dates are BC unless otherwise stated.

material increasingly accessible. Of particular importance in the years under review are four new portals hosted by the American Numismatic Society which include significant bodies of evidence from Asia Minor: *PELLA* (for Alexander-type coinage) (3), *Seleucid Coinage Online* (5), *Ptolemaic Coinage Online* (4, to be used in conjunction with LORBER (228)), and *Coin Hoards* (6). *PELLA*, *SCO*, and *PCO* can also be simultaneously searched from the *Hellenistic Royal Coinage* (7) portal which will host related projects in the future. Similarly important is *Historia Numorum Online: Caria* (1), hosted by the Institut Ausonius, which provides a fully searchable database of Carian coinage *c.* 650-30 BC based on coins from both museum collections and commerce. Finally, the German-based *Corpus Nummorum Online* (2), which initially focused on typologies of Thracian coinage, has now been expanded to cover Mysia and the Troad.

Edited Volumes and General Accounts

The proceedings of the first and second international congresses held at Antalya in 2013 (109) and 2017 (340) are two of the more important edited volumes published on numismatics in Asia Minor in the period under review. Also of note are the proceedings of the Anatolian numismatic studies workshop edited by ÇIZMELI ÖĞÜN (88) which brings together work by a number of Turkish scholars, above all on coins found in excavations.

In terms of other edited volumes which have the coinage of Asia Minor as their primary focus, the long-awaited *White Gold* volume (373) is of fundamental importance and is discussed in detail below in the section on electrum. For Alexander-type coinage, the papers edited by GLENN, DUYRAT, and MEADOWS (146) cover an array of topics which are of general importance for understanding this coinage both during and after Alexander the Great's lifetime. KREMYDI and MARCELLESI (199) have likewise edited an important series of papers on posthumous Alexanders. Both volumes include papers dealing specifically with Alexander-type coinage in Asia Minor which are summarized below. Finally, the Festschrift for RICHARD ASHTON (252) falls just outside our period of review and so has not been systematically covered in this survey, but contains many contributions on the numismatics of Asia Minor, as befits the honorand's own interests.

Several general books on Greek numismatics make extensive use of case studies drawn from the coinage of Asia Minor. These include MITTAG'S (261) general introduction to Greek numismatics, the multi-author volume on Greek and Roman coinage edited by AMANDRY (11), KALLET and KROLL'S (169) account of what coinage can tell us about the Athenian Empire in the 5th century, and THONEMANN'S (352) short book on the role of coinage in writing the history of the Hellenistic period.

Asia Minor in General

KILLEN'S (179) monograph on parasema discusses the evidence for the official symbols of Greek cities down to the end of the Hellenistic period. The catalogue in the second half of the book collects all the evidence including that provided by coins. As MACK observes in his review (*BMCR* 2019.01.45), the line between official symbol and the broader category of civic iconography is especially difficult to draw in the case of the numismatic evidence, and in attempting to do so KILLEN has often erred on the side of omitting examples which one might have expected to be included.

MEADOWS (247) examines the paradigm shift in Greek coin iconography which took place in the 2nd century. Instead of singling out individual aspects of this iconography (e.g. wreathed reverse types), he argues that we need to account for the entire package of iconographic changes which characterise these coin types (e.g. elaborate individualized obverse portraits of gods, full-figure reverse depictions of deities with distinguishing cult attributes, and so on). Viewed from this perspective, what really drives these iconographic

changes are shifts in the attitudes of poleis to their communal identity which can also be observed in the contemporary epigraphic evidence. His dating of this phenomenon *c.* 175-140 is to some extent the result of only considering the evidence of silver coinage. Civic bronzes may instead suggest that the phenomenon had its origins at the very end of the 3rd century (see e.g. the Apollo statue bronzes of Miletos from the 200s: KINNS, *NC* (2003), pp. 12–13).

NOLLÉ (280) discusses the phenomenon of coins minted in the name of a god rather than a city, league, or ruler. PSOMA has argued (*MHR* (2007), pp. 237–255, *AJN* (2008), pp. 227–255) that such emissions are 'panegyris coinages' which were minted to be used exclusively at festival markets. NOLLÉ argues that what these coins have in common is not that they were minted for use in festival markets, but rather that they were minted from the bullion of the god, and that this is why they bear the god's name in the genitive. In particular, he emphasizes that the numismatic characteristics of these coins make them unsuited to the purpose of being festival coinages: they are either too big, too small, or too limited in their denominational offering to effectively serve the needs of a marketplace. Instead, NOLLÉ argues that these coinages have a range of very different purposes: some are high value, large denomination 'trade' coinages (e.g. Artemis Pergaia), others are low value, low denomination 'token' coinages (e.g. Eleusis), others again are one-off 'memorial' coinages (e.g. Zeus Soter at Klazomenai, Athena Nikephoros at Pergamon). For further brief comments on problems with the concept of panegyris coinages see THONEMANN (352), pp. 82–4.

CARBONE (71) studies the disappearance of autonomous silver issues in western Asia Minor between the creation of the province of Asia and the reign of Augustus. She argues that this was a gradual process which began with the creation of the province and was then accelerated at moments of crisis for the Greek cities such as the First Mithridatic War and the Civil Wars. This chronological scheme now needs modification, not least because of CARBONE'S own subsequent scholarship on the late cistophori (72), but also because of recent work on the coinages of the koinon of Athena Ilias (118), Lampsakos and Parion (122), and Antioch on the Maeander (355). Cumulatively, these studies point to the mid-60s as the moment when the Roman authorities shifted from a model in which they worked side by side with civic mints to produce the high-value coinage they needed (as previous rulers of Asia Minor had always done) to a model in which they increasingly took exclusive responsibility for this and asserted a monopoly on the right to mint. Another important aspect of the problem is the arguments of MEADOWS on the penetration of the *denarius* and *quinarius* standards in Asia Minor in the 1st century (see already MEADOWS (243) on Pamphylia and on Asia Minor as a whole his forthcoming paper in ASHTON, R., BADOUD, N. (eds), *Graecia Capta? Rome et les monnayages du monde égéen (IIe-Ier s. av. J.-C.)* (2022)).

ÇIZMELI ÖĞÜN (89) provides a comprehensive bibliography on recent publications of coin finds from Asia Minor. Of particular value are the many items in less well-known Turkish publications and the listing of unpublished Turkish theses which might otherwise be overlooked.

Overstrikes

DE CALLATAŸ (65) presents preliminary results from the Greek Overstrikes Database (GOD) which at the time of publication recorded 1,646 overstrikes (4 gold, 913 silver, 729 bronze). He emphasizes that overstriking in general is a rare phenomenon: even if there are (as he suspects) 5,000-10,000 examples out there to be found, this is still just a fraction of the millions of coins which survive. For silver, he distinguishes between sporadic overstriking and mass overstriking (i.e. >30%). Sporadic silver overstriking is disproportionately concentrated in a small number of obverse dies and these overstrikes often weigh substantially more than the target weight. This confirms LE RIDER'S view that in these cases the purpose was not financial gain. Rather, the mint master had realised he had not produced

enough coins for the silver he started with and so used coins which were to hand to make up the difference. If correct, this suggests, firstly, that undertypes are a good indication of locally circulating currency and, secondly, that we should not posit massive largely undetectable episodes of overstriking: imperfect overstrikes were much more common than perfect overstrikes, and so mass overstriking should always be apparent. DE CALLATAŸ argues that mass overstriking of silver is rare, late, and geographically peripheral to the 'core' Greek world (six of his nine cases come from the Hellenistic East). By contrast, mass overstriking of bronze is more common and much more often motivated by the prospect of raising funds. Our examples have an intriguing pattern: a rash of mass overstrikings take place in the 4th and 3rd centuries from Magna Graecia to Crimea, then the practice largely goes away in the 2nd century, then it returns once again in the 1st century, but now geographically concentrated in Asia Minor and the Levant. At least in the case of Asia Minor, this appears to be an emergency measure to raise funds in the wake of the financial crisis precipitated by the fallout from the First Mithridatic War.

A type of overstrike DE CALLATAŸ does not discuss in detail are overstrikes of folded flans. In these cases the flan is prepared not by casting molten silver but instead by flattening a pre-existing coin or piece of silver bullion and then folding it over several times before striking the coin. This process obliterates the original coin type, but can be detected through a combination of irregularly shaped edges (especially straight or triangular edges left over from the folding process) and 'sandwiching' visible on the edges. FISCHER-BOSSERT (134) shows that this technique was used extensively in the production of Kyzikene electrum staters in the late 5th and 4th centuries, while KROLL (201) discusses further cases from Arabia, Athens, Sinope, Elis, and Aegina where it was used in the production of high-value silver coinage (the technique does not appear to have been used on lower value coins). KROLL distinguishes between cases where no financial motive is apparent and the use of this technique was probably motivated by the fact it was a quicker way to prepare a flan (e.g. Athens in the second half of the 5th century) and cases where it was used to facilitate a mass restriking of coinage to raise funds (e.g. Athens in 353: see KROLL, *RBN* (2011), pp. 3–26). As he notes, the use of this technique may be much more common that we appreciate because the tell-tale signs have typically been overlooked.

Electrum

Early electrum coinage has received a great deal of attention in the last decade. The new key questions are the dating of the earliest coins, their metallic composition, and whether electrum was a natural alloy or artificially produced. Electrum coinage is now discussed in a much wider geographic context which extends beyond just Ionia and Lydia to include mainland Greece, Thrace, the Black Sea, and the littoral of western Turkey. Much of the resurgence in this field has been driven by die studies, which were almost unknown before, but are now much easier to accomplish thanks to the increased availability of digital images and online databases. Significant, too, has been the unlawful looting of the landscape of Turkey and other Mediterranean countries which has increased massively in the last decade and is reflected in the thousands of new electrum coins in commerce. By contrast, few electrum coins have been recovered in excavations. New evidence and a better understanding of that evidence has led economic historians to rethink early monetary history. Here the conferences held in Jerusalem (2012) and New York (2013) and published by VAN ALFEN and WARTENBERG in 2020 (373) are crucial (for an important review article of this volume see MEADOWS (251)).

Introductions and Articles Addressing Monetary and Economic Issues

The rapid progress in this field is reflected in recent numismatic handbooks to differing extents. MITTAG'S (261) handbook appeared before some of the new publications, but was able to reflect the changing landscape of early electrum coinage and the beginning of coinage. In the handbook edited by AMANDRY (11), VAN ALFEN gives an overview of the Archaic period including electrum coinage. PAYNE and WINTJES' (301) history of Lydia includes a chapter on early electrum coinage which provides a good overview of the basic facts of early Lydian money. By contrast, relatively little is said on these numismatic issues in HÖGEMANN and OETTINGER'S (163) history of Lydia and MAREK'S (239) major account of Asia Minor. In an article about a great variety of ecomonic and monetary issues, SCHAPS (319) describes his well-known view that coinage is effectively the first kind of money in the Greek world, which has long been his sole focus in this long-standing debate. WARTENBERG (383) gives a short overview of early electrum coinage in which she highlights some of the new research.

For now, the most comprehensive introduction to the various issues in the field is VAN ALFEN and WARTENBERG'S introduction to the *White Gold* volume (372) which emphasizes the complexity of the current picture and the future areas for research. FISCHER-BOSSERT (137) provides a short overview of early electrum coinage in which he points out the challenges of using weight standard reductions as a way to date coinage. As the electrum coinage of Phokaia clearly shows, there are three different phases in this coinage. Over its 275 years, the gold content reduced from 55% to *c*. 40% and in the weight likewise reduced. Looking at the Milesian weight standard, represented first in coins excavated in the Artemision deposit, there appears to be a similar association of a heavier standard and earlier date. However, FISCHER-BOSSERT'S study (139) of the Phanes coins shows that across different denominations different weight levels of the Milesian stater are in place. VAN ALFEN (369) discusses the relationship between money and coinage in the Archaic period in a useful overview of the various theories. When numismatists and historians discuss the earliest coinages and their development, they rarely deal with the question of what money actually is, and so VAN ALFEN proposes that we should compare modern attempts to define money, unit of accounts, and coinage when thinking about Archaic coinage.

Now that we consider the choice of electrum to be a deliberate one and not necessitated by the use of 'natural' electrum, it is perhaps even more important to discuss why this particular alloy was chosen. BRESSON (54) argues that electrum was deliberately created in an attempt to build a monometallic system in which electrum would avoid the kinds of speculations to which pure gold or silver coinages are often subject. The invention of coinage began within a closed currency system, as is confirmed by the 7th century finds in Lydia, Ionia, and surrounding regions. VELDE (377) provides an economist's approach to the question of early electrum by assembling a large dataset of electrum coins to analyse weights, wear, denominations, and countermarks. The statistical analysis provides some interesting insights, and VELDE'S discussion of prices establishes some useful parameters within which the buying power of early electrum coins can be measured. PSOMA (307) lists references to electrum in the written sources, demonstrating that Greeks primarily referred to electrum as *chrysion leukon*. In the second part of her chapter she analyses the sources for exchange rates of electrum coinage to other currencies which have to be interpreted as part of a bimetallic system and are thus ultimately dependent on the value of gold.

JONES (168) applies Mechanism Design Theory, which looks at particular mechanisms that will lead to a desirable outcome for individuals, to the question of early electrum coinage. He speculates that an increased amount of gold led to price inflation in the period of the early Lydian empire, although he is unable to demonstrate this in any written sources. On this view, the primary interest of the Lydian kings would have been to make the highest possible profit, and electrum coinage, not pure gold, best served this purpose. Other

users, who would have previously used bullion, accepted this new medium and began to mint their own issues. When the economic environment changed, the Lydians switched to pure gold and silver coinage. Much of this chapter needs to be analysed by economists to be fully appreciated, but it should be noted that quite a few of the underlying historical assumptions are hard to verify from our current knowledge of the Archaic economy.

The interest from economists in early coinage is further illustrated by an article by MELITZ (252). His analysis of early electrum takes a rather different take on the question of whether coinage was minted because it was profitable, which stands in direct contrast to the view that coinage was part of a sophisticated monetary system with hacksilber and other bullion. In his view, the Lydians and others minted early coins at a minimal profit but for political reasons. This provides, according to him, a possible explanation for why early coinage, even in smaller denominations, is of such high value.

By comparison with later coinage, electrum stands out for the multitude of obverse types, probably on the order of 400 or more (excluding Kyzikene, Phokaian, and Mytilenaean types). Although die studies are beginning to show that some obverse types are connected to each other through die-links and are thus part of the same series, the authorities behind all these types remain puzzling. KROLL (203) points to the role of so-called dynasts (important local individuals) who were able to yield power. The presence of such individuals as minting authorities in the Classical period suggests that this phenomenon alreadt existed in the Archaic period. VAN ALFEN (371) explores the role of the state in early Archaic coinage. He argues that the convenient term 'state', often used in modern discussions, does not reflect the situation we face in the Archaic period when we know very little about the institutions in place. What we do know about Asia Minor is that instability of monarchy or rulers was a common feature and that different stakeholders might have differing roles in coin production, in which they might have tried, probably unsuccessfully, to monopolize coin production.

Studies of Specific Series and Mints

HILBERT'S (157) die study of 1,096 electrum coins of Miletus is undoubtedly one of the most impressive contributions to the field of early electrum in the period under review. HILBERT presents a detailed analysis of the different denominations which allows him to construct a relative chronology of this important coinage. However, the lack of hoard evidence or any other archaeological or historical fixpoints highlight the problem of dating this massive coinage more precisely (he suggests c. 600-530). In a subsequent article, HILBERT (158) revises some of his findings. He discusses a few coin series which can be linked to the Milesian lion with reverted head series on the basis of shared reverse dies. This important discovery, which comes from his continuation of the study undertaken by SPIER (*Studies in Greek Numismatics in Memory of Martin Jessop Price* (1998), pp. 321–326), suggests that Miletus had started minting coinage by at least 610.

FISCHER-BOSSERT (139) studies the well-known coinage in the name of Phanes, which was issued on the Milesian standard in a full set of denominations from a stater to a 1/96th stater. The die study reveals a tightly interlinked coinage. Interestingly, both the reverse die punches and the obverse dies link across different denominations. Due to one coin being found in the Artemision at Ephesos, it is possible to date this series to the last quarter of the 7th century. The Phanes coinage is not, however, among the earliest coins from this archaeological context. BRESSON (54) has noticed an interesting epigraphical detail on the coinage of Phanes whereby the letters *eta* and *sigma* are engraved in two different forms which are generally thought to be chronologically separated. KARWIESE (172) makes a connection between the stag of Phanes and the Milesian coinage, where a punch shows a similar head. This was implicitly refuted by Fischer-Bossert, as the stags of Phanes and the Milesian coinage are of diverging species, and cannot refer to each other. KARWIESE'S other

discovery within the difficult earlier series of striated coins is a die-link between two 1/12th staters: one obverse shows the regular striated obverse, whereas the other is part of the main confronting lion series. FISCHER-BOSSERT (136) publishes die studies of two similar series, one with a horse protome and the other with flying horses. These series, which consisted of staters and smaller denominations on the Milesian standard, were clearly substantial and thus illustrate how much coinage was circulating in the last decades of the 7th century. NEBEL (276) publishes two of these staters in a short article.

Many of the die studies indicate that the long-held view that electrum coinage largely disappears after the introduction of Croesus' gold and silver coinage is misguided. The focus of is increasingly on the late Archaic and even the early Classical period when electrum coinage continued to flourish. In this context, scholars are trying to re-examine old attributions as well. In an important article, FISCHER-BOSSERT (141) produces a die study of a series with head of Herakles which has traditionally been attributed to Erythrai. He argues that this enormous coinage of *hektai* (84 obverse and 131 reverse dies) should instead be assigned to Herakleia Pontike and divided into 26 groups. The coinage was first issued *c*. 530 and issued for the next three decades. Stylistic analysis indicates that the last series (5 obverse dies) was issued sporadically *c.* 480-420 and stands apart. FISCHER-BOSSERT (135) provides a die study of the series with the Lydian-style lion obverse issued as *hektai* and four smaller denominations on the Milesian weight standard and argues that they date to the mid-6th century or later.

Another focus of research has been the identification of Archaic coinages issued in both electrum and silver with identical designs such as Klazomenai's flying boar types. FISCHER-BOSSERT (138) draws attention to another case which is of considerable importance for the transition from electrum to silver coinage in the mid-6th century. He observes that coins of Ephesos with a bee on the obverse were issued in both electrum (as a *hekte*) and silver (as a diobol) and share the same die pair. Other such electrum/silver series can perhaps be observed at Miletos and with the large windmill series on the Phokaian standard. WARTENBERG (383) discusses the latter in the context of several hoard finds from northern Greece or Thrace. She considers whether electrum coins found in this region were also minted there or came through trade with the region around Phokaia. FISCHER-BOSSERT (140) examines Carian silver fractions and a related electrum series with a monster-like head. The electrum coinage, which might appear to an uninformed eye to be from the 6th century, is dated *c.* 480 because of the corresponding silver coinage. In a second article, which is in part clarifying comments made earlier in (140) about the coinage of Lindos with a lion head, FISCHER-BOSSERT (142) publishes die studies of two other groups of lion head coinages which are probably from Ionia. A shared die demonstrates that the Lindos coinage is another example of a coinage issued in both electrum and silver.

WARTENBERG (387) has undertaken a die study of all staters represented in a number of hoards of the second half of the 5th century, among them a previously unknown hoard from western Asia Minor of the early 1990s, in order to re-examine the so-called Ionian Revolt coinages. A newly discovered die-link connects the so-called Abydos series with a standing eagle type with the famous stater with an Athena head. This raises the old question of whether these staters should be associated with different mints and whether they should be assigned to Ionia, Thrace, or the Propontis. MARCHAND (237) discusses the electrum series with standing eagle, previously attributed to Abydos, and illustrates the denominations of this series.

Undoubtedly one of the biggest desiderata in the field of electrum coinage is a full die-study of Kyzikos. DE CALLATAŸ (68) has begun this daunting task and gives a short overview of his work in progress. After an overview of earlier scholarship, he provides a list of types (still in the order given by VON FRITZE over a century ago), for which he provides a

preliminary obverse die count; unsurprisingly, the die order of the reverse punches remains to be done. DE CALLATAŸ estimates that the entire coinage was minted from at least 500 obverse dies which makes it one of the largest coinages of the Classical period.

PSOMA (307) summarizes what is currently known about Kyzikos, its history, and coinage while also interpreting some of the historically significant types of the Kyzikene staters. TOURATSOGLOU (357) looks at the types related to events in the history of Macedonia, including the famous 'Eleutheria' stater. MIELCZAREK (259) analyses the role of Kyzikene staters in the grain trade with the northern Black Sea region. He provides an overview of all known hoards and single findspots and discusses possible reasons for the use of this particular electrum currency. MARCHETTI (238) reinterprets the famous Olbia decree and the exchange rate between Kyzikene staters and Olbian coins, dating this decree to the mid-4th century.

Coin Finds and Archaeology

Finds from controlled excavations are particularly important for the understanding of early electrum coinage but sadly very rare. For the earliest coins, the Artemision in Ephesos has provided for over a century of important finds which KERSCHNER AND KONUK (178) have now published again in great detail. Previous publications by BAMMER and PRICE, which put the beginning of coinage *c.* 600, have been revised to *c.* 630 or perhaps earlier to reflect new interpretations of the Artemision's archaeology. KERSCHNER (177) gives a detailed overview of the temple's building phases and their interpretation. In an exhaustive investigation of the archaeological record over the last century he explains why BAMMER and PRICE'S views are now superseded by these new studies. KROLL (202) republishes another important piece of evidence from the Artemision, a lead inscription containing an account of gold and silver. He emphasizes in particular that gold was the primary currency even when electrum coins were already in circulation. WEISSER (391) publishes a 1/6th stater of the so-called striated series, found at the Archaic Aphrodite sanctuary in Miletos. Unfortunately, the context does not narrow down the dating of this mysterious series, of which four found in the Artemision at Ephesos. WEISSER provides an overview of other specimens with the same set of reverse punches, one of which links to a 1/24th stater. ZAKHAROV (396) mentions the two Lydian electrum 1/3 staters in his article about the excavation coins from Dinar.

SHEEDY (325) discusses an electrum coin with a frontal bull head found in the Athenian Agora in Athens. The findspot appears to confirm an old theory that Athens minted electrum coinage, although there is still some doubt whether an electrum series with an owl is a genuine coinage. From Sardis, CAHILL, HARI, ÖNAY, and DOKUMACI (63) publish three Lydian coins. IŞKAN (165) in a general overview of coins found at Patara in Lycia, mentions the discovery of a Lydian coin. BUTKEVYCH (59) publishes electrum coins and ingots which were reportedly found on the island of Berezan (Borythenes) in a self-published study. KIM (*SNR* (2004), pp. 5–16) did a metallurgical analysis of a group of ingots from this find and concluded that they were modern forgeries. BUTKEVYCH, however, who also discusses other coins rumored to have been found in this hoard, believes this material to be genuine. Although this publication lacks scholarly rigour and would benefit from proper editing, it is extensively illustrated with local finds of electrum coins.

Regnal Dates of Lydian Kings and Linguistic Discussions

Lydian inscriptions on coins as well as the dates of the Lydian kings continue to receive new interpretations. The Lydian king list is famously obtuse, known largely from Herodotus, Nikolaus of Damascus, and Assyrian sources. In an attempt to make sense of these sources in the context of the numismatic evidence, DALE (92) revives the idea that the inscription WALWET refers to Alyattes, whereas KUKALIM, which is found in the same

coin series, means 'descendent of Kukas' and refers to Gyges. On this basis he downdates the reign of Gyges to 635-585. OETTINGER (288) briefly discusses the Lydian letter *k* in the context of KUKA referring to Gyges. SCHÜRR (320) views the reading of WALWET as Alyattes as problematic, which many scholars now consider as generally accepted, but this short note shows that one needs to be careful about such assumptions. WALLACE (381) proposes a more radical re-interpretation of the Lydian king Croesus. He argues that the relatively short reign that is generally given to Croesus and based on Herodotus might have already begun in the 580s.

Metallurgy

Over the last few years, all areas of numismatics have seen an increased use of scientific analysis to gain more data about coins. In the area of electrum coinage, curators in several major collections and a few private collectors have used XRF analysis in particular, but also more sophisticated technologies. Not all these analyses are yet published, and we can expect more over the next few years. The results, in particular when available in larger numbers, help classify the coinages by grouping them together on account of their similar metal composition. The study of BLET-LEMARQUAND and DUYRAT (44) on 97 early electrum coins in the BnF using both LA-ICP-MS (Laser Ablation Inductively Coupled Plasma Mass Spectrometry) and XRF is the most significant of these. Interestingly, the results of these two methods do not differ significantly, and this study gives a solid basis for comparison. GITLER, GOREN, KONUK, TAL, VAN ALFEN, and WEISBURD (145) used XRF to analyse 209 electrum coins in two major private collections. VAN LOON, NELSON, WARTENBERG KAGAN, BARRON, and BANERJEE (374) make the first attempt to analyse electrum coins by micro-computed tomography (μCT) imaging. Their μCT analysis of a Phanes coin sheds light on the internal structure of the object and its production. HILBERT (157) has also been able to gain significant insights into the electrum coinage of Miletos by analyzing 159 examples by XRF.

Metallurgical research has begun to overturn the long-held view that electrum was naturally found in the rivers around Sardis and then used either in this unadulterated form or with some addition of silver. CAHILL, HARI, ÖNAY, and DOKUMACI (63) interpret the finding that the surfaces of Lydian electrum had higher gold content as evidence that the surfaces were deliberately enriched. Furthermore, they try to reconcile the results of a new study of the alluvial gold from the Paktolos, which is almost pure, with the idea that electrum was enriched with silver to create coinage, suggesting that other areas of the Lydian kingdom were the source for the metal to mint coinage. KLEBER (184) argues against the traditional view of numismatists and archaeologists that the process of separating gold and silver was unknown until the reign of Croesus. He discusses evidence from Babylonia showing that the process of cementation was already in use by *c*. 1750. The various metallurgical studies cited here illustrate that there was a deliberate use of gold and silver in place. In order to fully understand the process and its implications for early coinage, more analysis, not just by XRF, will be needed.

Persia

We limit ourselves here to royal and satrapal coinages. However, items relating to the impact of the Achaemenid Empire on the coinages of Asia Minor are to be found throughout the regional surveys below.

The recent companion edited by JACOBS and ROLLINGER (167) includes a comprehensive chapter on Persian royal coinage by HOERNES (160); other chapters in this massive two volume work also discuss numismatic evidence. DE CALLATAŸ, *RBN* (2014), pp. 357–359 has reviewed BODZEK'S important book on satrapal coinage which appeared in Polish in 2011. TUPLIN (358) provides an excellent overview of coinage and monetary

development in the Achaemenid Empire and addresses many of the problems often observed about this material. Weights, types, classification into the traditional royal and satrapal coinages, usage, mercenaries, and much more besides are all discussed, often with interesting insights. The article's one major shortcoming is that it does not have a single illustration. Although not strictly speaking about coins, the long article by TUPLIN (359) on military scenes on Achaemenid seals is of importance to numismatists interested in iconography. In a short section on numismatic parallels, the author points out that there is less overlap in these two media than one would think. Nevertheless, there is much to be learned from his erudite description of battle scenes, weapons, and the historical context of the various objects.

In a basic, largely historical overview of portraits and other representations of rulers, MÜSELER (273) presents an overview of coins from the Achaemenid sphere, with a particular emphasis on Lycia. his wide-ranging discussion continues down to Hellenistic ruler portraits and the later coinage of Persis. BODZEK (46) provides an overview of similar issues, but with a more numismatic focus and many more illustrations. The Western part of the Achaemenid Empire, where coins largely circulated, was home to many regions, which maintained some sort of autonomy. Caria and Lycia, in particular, both minted coinage from the sixth century onwards, but their relationship to the Persian rulers are not always clear. BODZEK (49) discusses the unique Lycian stater of Tissaphernes as satrap or karanos which, although minted at Xanthos, he interprets as a satrapal coinage destined for a local market. He also discusses a second coinage which imitated the Milesian series, bore a Lycian inscription for Xanthos, and was issued in staters (apparently not known to BODZEK), drachms, diobols, and hemiobols. He argues against the idea expressed by others that these are Lycian coins belonging to the Carian sartrap Mausolos and instead argues they are local imitations. MÜSELER (263, 264) also discusses both series.

BODZEK (47) draws attention to two series of satrapal coins that are probably part of the Achaemenid empire. He dates one, which he thinks is unique, *c.* 350-332. It shows an archer on one side and a horseman on the other, both very generic types that cannot be easily attributed as the coin lacks a legend. The second coin he discusses is a silver obol which he associates with the earliest coinage of Tarsos which he would date to the end of the 5th century (for an earlier date being preferable see the section on Cilicia below).

Among coin finds it is worth mentioning the siglos and the 1/24th siglos from Dinar (ancient Apameia) which ZAKHAROV (395) publishes. The fraction is rumored to came from a hoard of 100 similar coins found in the northern part of Dinar and the author highlights that this is the second such siglos hoard from this town (see further the section on Phrygia below).

Alexanders and Lysimachi

MEADOWS (245) studies the paradigm shift in Greek coinage brought about by the introduction of Alexander's coinage. In adapting coinage to the new challenges of the Hellenistic world, the aim was primarily to solve short-term problems and we should not imagine there was a broader vision for turning coinage into a more rational financial instrument even if, quite unintentionally, that was in some respects the ultimate outcome. MEADOWS argues that the great impact of Alexander's coinage came from the massive scale on which it was minted and the total uniformity of its design. This created a stable money supply, lowered transaction costs, and monetized regions which had not previously used coinage. However, the decision to produce an entirely uniform coinage on such an enormous scale was not driven by these goals but rather by the need to find a way to pay troops across the empire in a coinage which would be accepted everywhere. The consequences of this choice, such as the disappearance of much local coinage in the Greek world, Phoenicia, and Egypt and the (temporary) dissolution of currency zones, were largely unintended. In a similar vein, he argues that the widespread adoption of bronze coinage was not motivated by

thoughts of the money supply or by a desire to monetize lower value transactions, but rather by considerations of immediate financial gain and civic pride.

MEADOWS (249) re-examines the development of Alexander-type coinage in western Asia Minor 323-223. He splits the first hundred years of posthumous Alexander coinage into two parts with the advent of Seleucid rule *c.* 280-275 as the hinge point. In the first half of this period posthumous Alexanders are characterised by extremely complex systems of controls which do not straightforwardly identify the minting authority. While scholars have certainly tried to identify the eight early mints through their controls, the reasoning is frequently questionable. While these eight cities may indeed have been Alexander mints, we cannot reliably establish that through their controls. He contrasts this with the Alexanders which he would date after *c.* 280. These have much less complex controls which usually make clear which civic authority was responsible for their production. This shift in the character of the controls appears to reflect a transition from a centralized model of producing Alexanders at a handful of mints which were directly administered by royal officials to a decentralized model in which this job was devolved to civic authorities. It should be noted that the dating of this transition to *c.* 280-275 is heavily reliant on PRICE'S chronology for the relevant series being correct which, at least in the case of Ionia, it almost certainly is not. It is more likely that the transition period was *c.* 300-280 and involved Demetrios and Lysimachos rather than Seleucus (see, for example, VĂDAN (376), pp. 88–90 for the case of Magnesia).

DELRIEUX (104) surveys the Alexanders produced in western Asia Minor in the late 3rd and early 2nd century. The conclusions he reaches must be considered provisional in light of his reliance on PRICE'S arrangement and dating of these series which new hoard evidence and die studies are increasingly bringing into question. For example, the 'Seleucus III' (*CH* X 272 – an incomplete listing) and 'Black Sea' Tetradrachm hoards (MARINESCU AND LORBER in *Festschrift Ilya Prokopov* (2012), pp. 197–259), which are not discussed here, have revealed that a number of series which PRICE dated to the 200s/190s in fact belong pre-225. Likewise, when we have die studies as opposed to just typologies of these series it frequently transpires that PRICE'S arrangement is misleading (see, for example, ELLIS-EVANS, *RN* (2021), pp. 57–89 on the Alexanders of Assos and Phokaia). Caution is also needed in the interpretation of the lower die counts for Alexander series post-188: the consistently high *n/d* figures for pre-188 series and the consistently low figures for post-188 series reflect the pattern of hoarding in the 190s which has led to the over-representation of pre-Apameia emissions in our evidence. Finally, one wonders how much sense it makes to exclude Lysimachi from this discussion when they performed a functionally identical role to Alexanders in this period.

LORBER (230) publishes a die study of a series of Alexander-type drachms imitating drachms of Chios from *c.* 280-270 (BAUSLAUGH Period 1). Three lots of Alexandrine coinage which appeared in commerce in 2001-2002 included 293 examples which substantially expand our knowledge of the series. The series dates to the end of the 3rd century, used at least 57 obverse dies, and may represent somewhere in the range of 150 talents of expenditure (this would outstrip the drachm production of Ariarathes V also recently studied by LORBER (229)). The unique tetradrachm from this series in *CH* X 292 (Phrygia or Pamphylia?) and the examples in private collections in Izmir point to a mint in the western half of Anatolia. She speculates that the series was minted by a dynast to pay mercenaries who hailed from a variety of locations in western Asia Minor (suggested by the controls), but there can be little certainty about the context. Two mysteries remain. First, it remains unclear what motivated the minting authority to imitate a specific issue of Chian drachms struck 70-80 years earlier. Second, it is deeply odd that this minting authority should have chosen to produce such a large emission of Alexander drachms at a time when Alexanders were being minted almost exclusively as tetradrachms.

MARINESCU (241) publishes 37 coins from *IGCH* 1450 in the ANS collection including 28 Lysimachi, provides new information on the acquisition of this packet, and suggests a new date of *c.* 200 for its burial. MARTÍNEZ CHICO and GONZÁLEZ GARCÍA (242) publish a small hoard of 15 Alexanders found on the outskirts of Batman in south-east Turkey in 2017. The hoard was buried shortly after 322 and so is one of the earliest known hoards of lifetime Alexanders. They speculate that the one posthumous Alexander (an example of Price 109e from Amphipolis dated to 322) came to be part of this hoard because it was deposited by troops which had been back to Greece before returning east. MARCELLESI (235) compares the contents of three hoards found (*IGCH* 1303, 1405, 1406) from the 200s in excavation contexts to hoards of the mid-3rd century and speculates as to what this tells us about how monetary circulation in Asia Minor changed in the second half of the 3rd century.

ANDRADE (13) publishes a die study of the silver coinage of Manbog-Hierapolis which straddles the end of Achaemenid rule and the period of Alexander's conquest. Of interest here are Series 10-16 which have the Aramaic reverse legend *'lksndr* referring to Alexander the Great. For discussion as to whether the type with a horseman hunting a wolf might be intended as a depiction of Alexander and whether the type with seated Atargatis is influenced by Alexander's silver coinage see BLÖMER and NIESWANDT (45) and WARTENBERG (386).

Pontus, Paphlagonia, and Bithynia

DE CALLATAŸ (64) revisits his corpus of the gold and silver coinage of Mithridates VI published in 1997. He comments on the evidence for an unrecorded hoard having been dispersed in trade in the 2000s, on how best to explain the now firm evidence for certain issues having anomalously high weights (a question of poor quality control rather than deliberate policy), and the new varieties which have appeared in the interim. ÖZTÜRK (296, 296) publishes 90 Hellenistic gold, silver, and bronze coins from the 2009-2013 excavations of Oluz Höyük a short distance south-west of Amaseia in Pontos. ÖZLEM YALÇIN and ÇIZMELI ÖĞÜN (295) publish the İnebolu 2003 Hoard which was found near the ancient site of Abonoteichos-Ionopolis and consists of 55 bronze coins, almost all of which date to the reign of Mithridates VI and come from cities of Pontos and Paphlagonia. TEK, KÖKER, and TARAKAN (335) mention a hoard in Side Museum of 141 coins which was confiscated in 2015 and clearly originated in this region. It was buried in the reign of Mithridates I (*c.* 281-266) and consists of coins of Amisos (124), Amastris (6), Sinope (4), Komana (3), Amaseia (1), Kromna (1), and two unidentified issues.

In two articles GÜNEY (150, 152) catalogues predominantly bronze coins of the Bithynian kingdom in hitherto unpublished museum collections. The first article catalogues 122 coins from the museums of Istanbul, Iznik, Sakarya, Bolu, and Naples and concludes with a table summarizing the hoard evidence for all the Bithynian kings, while the second catalogues 194 coins from Bursa. LENGER and ATASOY (222) publish coins found in and around the site of Tios, a minority of which date to the 4th to 1st century and come from Pontos, Paphlagonia, Bithynia, and Galatia. TÜRKOĞLU (360) comments on the civic coinage of Kalchedon and provides a typology of the mint's gold, silver, and bronze emissions.

MARINESCU (240) provides a die study of the gold and silver Lysimachi of Kios. He dates the 'lifetime' issues to the late 280s/early 270s and the posthumous issues to various points between the late 270s and the late 250s/early 240s. The die study indicates that half the issues were produced at the very end of this period in an episode of intensive production which was co-ordinated with Byzantion, Kalchedon, and an unknown mint. MARINESCU speculates that these coins were produced as part of the so-called Northern League's resistance to Seleucid encroachment and that they may have been intended as pay for Galatian mercenaries.

MICHELS (256) analyses the iconography of the bronze coinage of Prusias I and II. He argues against the view that these coins, which only circulated within the kingdom, were intended to Hellenize the non-Greek rural population of Bithynia via their Greek iconography. In so far as the types of Bithynia's silver and bronze coinage targeted different audiences, these were Greeks outside the kingdom (silver) vs. Greeks within the kingdom (bronze).

Northern Mysia

ELLIS-EVANS and VAN ALFEN (124) study the early silver coinage of Lampsakos in its regional context. They argue that the mint shifted from an epichoric 'Troad' standard at the very end of the 6th century to the Persic standard in the first quarter of the 5th century and note that a similar shift is seen at mints throughout northern Mysia and the Troad at this time, thus emphasizing the importance of studying these regions in tandem. ELLIS-EVANS (117) discusses the *xi* series of electrum staters of Lampsakos and places their production in the context of Lysander's campaigns of 405/4. In his study of Memnon of Rhodes, ELLIS-EVANS (120) analyses the silver and bronze coinage with pseudo-Rhodian types which Memnon minted at Lampsakos. He places this series in the context of Memnon manipulating coin production throughout northern Mysia and the Troad in the mid-350s in order to support the revolt of his father-in-law, Artabazos. ELLIS-EVANS (122) provides die studies of the late Hellenistic tetradrachms of Parion and Lampsakos. A variety of indications, above all new hoard evidence, suggests that Parion's first series dates to the late 160s/150s and its second series and the Priapos tetradrachms of Lampsakos to the early 1st century. He discusses a possible connection between the Lampsakene series and an epiphany of Priapos during the war with Aristonikos and argues that both the second Parian series and the Lampsakene series were minted at the behest of the Roman authorities as DE CALLATAŸ has likewise argued for Abydos and Tenedos in the Troad.

KÖKER (195) catalogues 66 coins from the 1954 excavations at Dasklyeion which include Hellenistic bronzes of Kyzikos, Parion, and Priapos. CANTILENA (70) discusses a gold stater of Lampsakos which was found in 2001 in excavations of the southern sanctuary at Paestum. The stater, which comes from the beginning of this series, belongs to a broader context of gold coinage produced in Asia Minor travelling west to Magna Graecia in the early 4th century.

OYARÇIN (289) summarizes the coin finds from the 2010-2014 excavations at Parion: of 1905 coins found, just 17 are Hellenistic. KELEŞ (174) examines some of the literary, archaeological, and numismatic evidence for Parion's strong relationship with Thrace throughout antiquity. YAĞIZ (394) publishes two hoards of Parian coins in Tekirdağ Archaeological Museum (ancient Bisanthe on the northern coast of the Propontis). The Kılıçlar hoard consists of 57 of these silver coins with the types Gorgon head/incuse punch, while the TAM 1986 hoard consists of 65 coins with the same types, but rendered in a different style and at an appreciably lower weight. The hoards likely date to the late 6th/early 5th century and indicate the importance of Parion's links across the Propontis to Thrace.

KELEŞ (174) discusses four gold objects found in wealthy graves in Parion's southern necropolis dating to the late 4th/early 3rd century. These objects depict facing portraits of Helios, a Gorgon, Apollo, and Persephone and were initially interpreted as examples of Charon's obol. KELEŞ instead argues they are 'coin appliqués' which originally adorned the golden crowns also found in the tombs. If correct, this would be interesting evidence for the aesthetic value attributed to coin types. However, for the argument to work the coins from which these objects were made must be identified: while the Helios is plausibly connected to Rhodes, the Gorgon is not in a style seen on Parion's coins (*pace* KELEŞ), and the Apollo and Persephone remain unidentified.

TEKIN (336) catalogues the bronze coins attributed to Agathokles son of Lysimachos. In addition to the two series which can be attributed to Maroneia in Aegean Thrace with certainty due to excavations finds, he argues that the other five series were minted at Adramytteion in northern Mysia. TEKIN relies heavily for this attribution on the number of these coins ÖZKAN ARIKANTÜRK was able to purchase at Burhaniye near ancient Adramytteion. However, as the volumes of *SNG Turkey 9* illustrate, ARIKANTÜRK was able to purchase coins in abundance from all over the Troad, Mysia, and Aiolis from Burhaniye, and so it is far from clear how much weight can be placed on this argument. TEKIN also proposes that the obverse portrait of a diademed young man on these coins is a portrait of Agathokles. However, this would be a surprising thing for Agathokles to have done considering that his own father did not take this step.

NOLLÉ (283) discusses a variety of Kyzikene coin types which relate to the myth of Zeus identifying the omphalos or navel of the earth by simultaneously dispatching eagles in opposite directions and seeing where they met. He argues that these images relate not to the well-known tradition that the omphalos lay at Delphi, but rather to a local tradition which first emerged in the 5th century that Kyzikos itself was the omphalos. Towards the end of an article on an unrelated topic, FISCHER-BOSSERT (134) observes that while the tuna fish parasemon of Kyzikos is traditionally explained as referring to the great shoals which can be fished in the Propontis, another possibility is that it is a pun on the name of the Thynoi, the Thracian tribe who inhabited northern Mysia and no doubt integrated with the Greeks of Kyzikos.

TEKIN (338) revives the argument that the winged-horse symbol which appears on coins of Kyzikos, Lampsakos, Skepsis, Adramytteion, and Iolla began life in the Archaic and Classical period as a winged horse but by the Hellenistic period became transformed into a winged horse with a bird's tail akin to a hippaelctryon. KILLEN (180), focusing only on the evidence for Lampsakos, persuasively argues that the symbol was always intended to be a winged horse. Insofar as later numismatic depictions give a different impression, this arises from the fact that over time the attempt to show the rear wing was schematized and then misunderstood by later die cutters. The stele reliefs and market weights which are cited in support of the hippalectryon interpretation need to be considered in light of their production context and priority should be given to the numismatic evidence. In the course of a discussion on myths of separation and connection between Europe and Asia in the Propontic region, NOLLÉ (284) discusses a variety of coins from the Hellespont.

The Troad

Three new studies argue for a much more precise chronology of the Archaic and Classical coinage of the Troad than has hitherto existed. ELLIS-EVANS and VAN ALFEN (124) use hoard evidence to date the shift at mints across the region from an epichoric 'Troad' standard to the Persic standard to the late 6th/early 5th century. In Chapter 4 of his book on the region ELLIS-EVANS (121) summarizes ongoing work with JONATHAN KAGAN arguing that cities in and around the former peraia of Mytilene produced coins on the Attic weight standard *c*. 425-405. Finally, ELLIS-EVANS (120) has published a hoard group from commerce which allows us to date the shift in the 4th century from the Chian to the Persic standard specifically to the late 350s in the case of the Troad. He argues that Memnon of Rhodes co-ordinated minting at cities across the Troad at this time to support the revolt of his father-in-law Artabazos and that he adopted the cult of Athena Ilias as a unifying symbol for the region. Appendices provide die studies of the silver and bronze coinage of Memnon of Rhodes at Lampsakos, the silver coinage of Sigeion, and the coinages of Abydos, Assos, Ilion, and an anepigraphic type from the mid-4th century which depict the cult statue of Athena Ilias. The studies of LAZZARINI (206, 207) on the Classical coinage of Assos were

unable to take these studies into account, and so the chronology he proposes will need to be reconsidered in light of these contributions.

LAZZARINI (205) identifies Gergis as the mint responsible for a hitherto unattributed series of anepigraphic silver coins with a seated griffin on the obverse and either a helmeted head of Athena or a Gorgon's head on the reverse. Using stylistic arguments, he dates the series *c.* 470-440. The attribution is possible but should not be considered secure given the lack of reliable provenances for these coins and how common this iconography was in the first half of the 5th century.

LENGER (209, 212) presents coin finds from the ongoing excavations at Assos. Of particular importance are the bronzes of Larisa-Ptolemais and those with the legend AIOΛE which support locating the mints responsible for both these coinages in the Troad. LENGER (216) elsewhere uses the secure provenance of these AIOΛE bronzes to argue that these coins were minted at Assos by a koinon of the Aioleis and not by a hitherto unattested city of Aioleion in the Troad as LOUIS ROBERT argued. In Chapter 6 of his book on the region ELLIS-EVANS (121) presents further evidence in favour of Assos being responsible for minting these coins and argues that the series can be dated to the 340s.

ELLIS-EVANS (119) studies the bronze coinage variously attributed to either Achilleion or Achaiion. He argues that Achilleion was always a small fort rather than a polis and therefore never a minting authority. As such, all this coinage belongs to Achaiion and was produced during periods in the 4th and 2nd centuries when it escaped the control of Tenedos. ÇIZMELI ÖĞÜN (87) summarizes the coin finds from the ongoing excavations in the sanctuary of Apollo Smintheus. ESCH (129) revisits the argument, first made by Sestini, that there are rare coins of Neandreia overstruck with the ethnic of Alexandreia Troas which, if correct, would bear on the date of the city's synoikism. In fact, these are simply bronzes of Alexandreia which date much later in the Hellenistic period and have nothing to do with Neandreia. ÇIZMELI ÖĞÜN (90) draws attention to the significance of a bronze of Hamaxitos recently published in *SNG Turkey 9.1* where the reverse type of Apollo Smintheus is accompanied by a mouse as the control mark. This refers to the foundation myth of the cult, as discussed in much more detail by PALAMIDIS (297).

NOLLÉ (282) analyses the iconography of the Classical coinage of Antandros, arguing that the female head on the obverse is Cybele rather than Artemis Astyrene, that the fir tree on the reverse specifically depicts the species Abies nordmanniana ssp. equi-trojani, and that the city's symbol of a goat along with the use of grapes and ivy leaves as control marks refer to Dionysiac worship. ELLIS-EVANS (121) in Chapter 2 of his book on the region provides an alternative view on these first two identifications. In a paper on the representation of mountains in western Asia Minor, DELRIEUX (101) includes coins of Antandros, Skamandria, and Skepsis as evidence for Mt. Ida. RIEDEL (311) discusses the iconographic evidence for the cult statue of Athena Ilias on the coins of both Ilion and the koinon. WARTENBERG (383) discusses provincial coins of Skepsis from the reign of Trajan which re-use a reverse die from the city's pre-188 bronze coinage, thus indicating the length of time cities could hold on to Hellenistic dies and the influence they could have on the iconography of provincial coinage. KISBALI (183) places the janiform head iconography of the coinage of Tenedos in the broader context of how janiform heads operate in Greek art.

ELLIS-EVANS (118) studies the coinage which the koinon of Athena Ilias minted in the name of their goddess. On the basis of a die study and re-examination of the hoard evidence he argues that it was minted continually but at a low level from the 180s/170s down to the 60/50s. He further argues that the coinage was minted on the authority of the presiding agonothetes of the festival (who is named in the exergue) in order to meet the costs of putting on the Panathenaia festival. He also provides a die study of the beginning of Alexandreia's coinage in the name of Apollo Smintheus. In Chapter 1 of his book on the region ELLIS-

EVANS (121) argues that the types of Alexandreia's Apollo Smintheus coinage from the mid-170s and Parion's Apollo Aktaios coinage from the late 160s (on which see ELLIS-EVANS (122)) deliberately emulated the coinage of the koinon of Athena Ilias, an organisation of which both were members. In the same chapter he argues that the Troad as a region was really split into northern and southern halves which the koinon brought together, and that this split is reflected in whether mints chose to mint Lysimachi, as we see to the north, or Alexanders, as we see to the south. ELLIS-EVANS and EROL-ÖZDIZBAY (123) publish coins from the Kırıkhan hoard (*CH* X 310) in Hatay Archaeological Museum including a Lysimachos of Ilion which is the first Lysimachos-type coin attested for this hoard. They provide a die study of the Ilian Lysimachi and date the series *c.* 155-145.

Southern Mysia

CHAMEROY (78) studies the fractional silver coinage of Elaia and Pergamon from the late 5th and early 4th century. He identifies the possible weight standards and denominations in use in these and other contemporary series from the Kaikos valley. On the basis of this, he argues that Elaia and Pergamon were aligned with one another in their monetary production: regional connectivity therefore trumped the fact that Elaia belonged to the Athenian Empire while Pergamon was within the Persian sphere. CHAMEROY presents quantitative data for the Elaian and Pergamene series based on a die study which indicates that, at this time, Elaia was the more productive mint. He also reattributes silver fractions with a 'T' as the reverse type from Tegea to Elaea on the basis of find spots and stylistic similarities between the obverses and interprets the 'T' as a value marker.

MARCELLESI (234) discusses the coin finds from Pergamon and its territory. She considers the publication history of this material, to what extent excavation coins can help us date Pergamene and Attalid bronze coinage, and the geographical distribution of the coin finds. CHAMEROY and SAVALLI-LESTRADE (79) compare the evidence which prosopography and coin finds provide for the nature of Pergamon's regional network between the 4th and 1st centuries. Placing these bodies of evidence side by side helps identify the biases of each, clarify the particular nature of the connections in question, and establish how Pergamon's regional network evolved over time in the context of its political history. CHAMEROY AND WEISSER (80) have produced a fully searchable online database of all the coin finds from the excavations at Pergamon which makes this material significantly more accessible.

TEKIN and EROL-ÖZDIZBAY (345, 348) publish coins from the 2000-2001 campaigns at Allianoi. These include a billon fraction of Mytilene from the 5th century and late Classical/Hellenistic bronzes from Aigai, Kyme, Atarneus, Elaia, and Pergamon. TEKIN and EROL-ÖZDIZBAY (347) also publish 155 coins of Elaia in Bergama Museum and another 5 from Kuvay-ı Milliye Museum in Balıkesir. As they note, the coins in Bergama Museum will originate nearby and thus help establish which coins with an ambiguously short ethnic should be attributed to Elaia rather than Elaious in the Thracian Chersonese. YAĞIZ (393) publishes a small number of coin finds from Adramytteion including six Classical and Hellenistic bronzes from the city itself, an Athena Nikephoros bronze, and a brass coin of Apameia.

ZIESMANN (398) discusses four Pergamene bronzes in the Berlin Münzkabinett which have not previously been published. BARBARA (37) argues that an anepigraphic bronze with the types helmeted head of Athena/coiled snake and two monograms should be considered an Attalid emission despite the absence of the Philetaerus legend and the Corinthian rather than Attic helmet Athena wears. RIEDEL (311) discusses the iconography of the cult of Athena at Pergamon on the city's coinage.

The simultaneous publication of CHAMEROY'S study of the Hellenistic bronze coinage of Pergamon (*Chiron* (2012), pp. 131–182) and MARCELLESI'S monograph on the coinage of Pergamon (*Pergame: de la fin du V^e^ au début du I^er^ siècle avant J.-C.* (2012) with the review

of CHAMEROY, *Gnomon* (2013), pp. 711–718) has kicked off an important debate on the chronology of Pergamon's late Hellenistic bronze coinage in the names of deities and the Pergamenoi. MARCELLESI (234) criticizes CHAMEROY'S use of excavation evidence in order to defend her view that these coinages were minted continuously from the early 2nd to the early 1st century by the civic authorities of Pergamon who were thus able to operate in parallel with the royal authorities who were producing their own bronzes in the name of Philetaerus. CHAMEROY (77) studies the overstrikes and countermarks on the bronzes in the names of Asklepios Soter, Athena Nikephoros, and the Pergamenoi. This important but hitherto overlooked evidence makes it clear that MARCELLESI'S chronological ordering of these series requires revision. While this and the evidence of brass issues amongst these series suggest that parts of these coinages do indeed post-date 133, it should also be noted that there are examples of the Athena Nikephoros coinage with explicit mint marks of Ephesos and Sardis (see e.g. CNG EA 466 (22/4/2020) 162) which must pre-date 133.

Cistophoroi

MEADOWS (250) publishes an overstrike which first appeared in commerce in 2012 and potentially settles a number of important chronological problems in Attalid coinage. He identifies the overtype as a late Philetaerus of Group VII and the undertype as a tetradrachm of Antiochos IV minted at Antioch *c.* 173/2-169/8. Based on the hoard evidence already known and where he believes this Philetaerus issue fits within the sequence of Group VII, MEADOWS is able to provide a precise chronology for all four phases of this final group of Philetaeri. Since some of these Philetaeri share controls with both the earliest cistophori and the portrait tetradrachms of Eumenes II, MEADOWS is also able to resolve the dispute over the dating of these coinages: on this view, both date to the mid-160s. MARCELLESI'S (236) discussion of the historical context of the portrait tetradrachms of Eumenes II hinges on her dating of these coins to the late 190s: if MEADOWS is correct, then her argument cannot stand. KRENGEL (200) argues that the iconography of the cistophori draws on Orphic mythology about the creation of Dionysos and should be connected to the Attalid dynasty's promotion of the Orphic cult and, in particular, the iconographic scheme of the Great Altar which she would date to the mid-160s along with the cistophori.

CARBONE (72) publishes a monograph-length study on the largest hoard of cistophori which has thus far come to light. The hoard was recorded in commerce in 2002, consists of 1,370 cistophoric tetradrachms from the mints of Pergamon, Ephesos, Tralles, Laodikeia, Apameia, Adramytteion, Nysa, and Smyrna, and was buried in 90/89. The sheer size of this hoard means that its composition solves numerous problems in the chronology of the late cistophori and related series. In addition to cataloguing and analysing the hoard, CARBONE places the late cistophori in the broader context of the early fiscal history of the province of Asia. The volume needs to be read with the critical review of KINNS, *NC* (2021), pp. 526–530 to hand.

METCALF (255) publishes a comprehensive catalogue of the so-called 'proconsular' cistophori produced *c.* 58-48 which puts our understanding of this important coinage on an entirely new footing. In a review, AMANDRY (*RN* (2019), pp. 385–389) makes several consequential arguements regarding the mysterious Q ATPA emission whose mint and signer remain unidentified. First, he notes that whereas the emissions from the other five mints are very well-attested (*n/d* ranging from 3.8 at Apameia to 13.5 at Pergamon), Q ATPA is not (*n/d* of 1.8). Despite already being the largest series at 34 obverse dies it is certain to grow substantially. Second, he argues that both hoard evidence and metrology point to this emission dating *c.* 67-58/7 and thus being earlier than the rest of the 'proconsular' cistophori. This is more controversial: his interpretation of *IGCH* 1464 in particular in not above

reproach, and it is surely significant that the dies are loose unlike the rest of the pre-48 issues (as METCALF (255), p. 59 observes). For the moment, the later date should stand.

METCALF (254) catalogues the cistophori of Nysa and briefly argues in favour of the city employing the Sullan era on these coins. However, the evidence of the hoard CARBONE (72, pp. 183–185) has now published shows that Nysa's era began in 90/89, not 85/4. MEADOWS (246) comments on four hoards containing cistophori. The first two (*IGCH* 1340, 1415) were dated to the 2nd century in *IGCH* but in fact date to the second quarter of the 1st century. The second two appeared in commerce in the late 1980s and early 1990s and are thus difficult to disentangle. However, MEADOWS argues they were probably buried in the 40s (*CH* 8.537) and *c.* 58/7 (*CH* 8.447+525+526+539) respectively. MEADOWS (244) identifies a cistophoric fraction which appeared in trade as belonging to Tralles and discusses how the iconography of this diobol relates to the rest of Trallian coinage. On the grounds that a cistophoric diobol neatly equates to the weight of a *sestertius*, he tentatively suggests a post-Attalid date for this issue.

Aiolis and Lesbos

ELLIS-EVANS (117) discusses the unique electrum stater of Mytilene in the British Museum. He argues that it does not belong to the context of Mytilene's revolt against Athens in 428/7, but rather Lysander's campaign of 405/4, and compares this issue to electrum staters of Chios and Lampsakos likewise produced at this time. In Chapter 4 of his monograph on the region ELLIS-EVANS (121) argues that the billon coinage of Lesbos from the late 6th and 5th centuries should be attributed to Mytilene specifically not Lesbos in general and discusses the numismatic evidence for Mytilene's commercial relationships with cities in the Troad and Aiolis in the late 5th and early 4th centuries. In Chapter 5 he draws on coinage to chart the evolving civic identities of Mytilene and Methymna between the Classical and Hellenistic periods.

RALLI and KOUREMPANAS (309) publish coin finds from graves discovered in rescue excavations at Mytilene. These include a 4th century silver fraction and Hellenistic bronzes of Mytilene and a gold stater with Alexander types found in a wealthy grave. LENGER (210) attributes a series of small bronzes with the types turreted female head/bow and arrow and the legend MY to Myrina and rejects previous attributions to various cities in Ionia and Caria. He bases this attribution in part on four examples which appeared in a hoard of mixed bronze purchased by MUHARREM KAYHAN in 2002 and published in *SNG Turkey 1.2, nos. 1601-4* over half of whose content comes from Aiolis. Another possibility which LENGER does not consider is Mytilene: there are rare bronzes in the ANS and BnF with the types wreathed head of Apollo/bow and MYTI which are the same module.

EROL-ÖZDIZBAY (127) provides a detailed overview of what we know about Nesos Pordosilene in antiquity and the role which the evidence of the city's coinage plays in reconstructing its history. In particular, she draws on coinage to examine the changing forms of the city's name over time, what the iconography of the coins can tell us about the city's preferred interpretation of the etymology of its name, and the question of whether Nesos and Pordosilene were two separate settlements or different names for the same settlement. A typology of the mint's output is also provided. CORFÙ (82) publishes a silver fraction of Autokane which appeared in commerce in 2015 and is the first known example of the city's silver coinage. The coin appears to be a Chian standard obol and would thus date to the first half of the 4th century. TEKIN (339) catalogues 124 bronze coins of Gryneion from various sources and private Turkish collections. In an addendum (342), he notes the recent appearance of silver drachms and hemidrachms of Gryneion. In a third publication (341) he discusses, inter alia, the symbol of the *pinna nobilis* (mussel) on these coins and in a fourth (344) he publishes balance weights of the city.

ASHTON (28) presents a typology of the prolific late Classical and early Hellenistic coinage of Kyme. In establishing the relative chronology of Kyme's bronze coinage he lists the contents of a hoard which was dispersed in commerce in 2014 and contained 200+ Kymaian bronzes. Appendices list the *c.* 150 names and *c.* 50 monograms which appear on these coins. In the same volume, CACCAMO CALTABIANO, CARROCCIO, and PUGLISI (62) analyse 421 coins found in the recent excavations of Kyme, a third of which date to the Classical and Hellenistic periods. The non-Kymaian coins found at the site from the Classical through to the Imperial period give a consistent picture of the city's core region which extended north to Lesbos, east up the Hermos valley to Sardis, and south to the Kaystros valley and Ephesos. The authors also consider possible iconographic influences on Kyme's coin types, but these arguments do not make use of the evidence for Kyme's regional network set out in the first half of the paper, nor the chronology of Kyme's coinage provided by ASHTON (28) in the same volume. There is further analysis of the coin finds in CARROCCIO, APOLITO, RIZZARI, and SPINELLI (75) and CARROCCIO (74).

In publishing a packet from the Kırıkhan hoard (*CH* X 310) in Hatay Archaeological Museum, ELLIS-EVANS and EROL-ÖZDIZBAY (123) comment on the 26 wreathed tetradrachms of Kyme it contains and what they contribute to the ordering and dating of this series. Based on a revised die study of the entire series, they suggest a new order for the signers and split the production of this coinage into three episodes *c.* 151/0 and soon after, *c.* 150/49-144/3, and *c.* 143 and soon after. FRASCONE'S (143) catalogue of the coin finds from the excavations at Zeugma includes a rare single find of a wreathed tetradrachm of Myrina. The issue is SACKS 45 (not 25 as in the catalogue) from the very end of the series and was discovered in the suburb of Apameia on the left bank of the Euphrates. BOULAY (51) discusses the extension of Aigai's territory in the Hellenistic period to include the neighbouring community of Olympos. He identifies the full-figure depictions of Zeus on Aigai's 2nd century coinage as being of Zeus Olympios and therefore indicating the point by which Aigai had taken over control of this cult from Olympos.

Ionia, Chios, and Samos

LENGER (211) publishes an intriguing body of coin finds from Mt. Nif (ancient Mt. Olympos) east of Smyrna. These include 39 coins collected by a forester working on the mountain, 20 coins found in excavations of Ballıcaoluk, a fort on the south-eastern slopes of Mt. Nif which was occupied from the late 4th to the 1st century (208, 217), 164 coins found in the excavations at Karamattepe, a necropolis opposite Ballıcaoluk which was in use from the late 4th to the mid-3rd century (41), and 20 coins discovered while surveying recently looted Classical and Hellenistic tombs around the nearby village of Dağkızılca (213). About a third of the finds are low-value coins of Alexander or Philip III, with civic bronzes (primarily of Smyrna) only predominating from the later 3rd century down to the 1st century. LENGER argues that Ballıcaoluk, which was part of a network of forts controlling the strategic Karabel pass connecting the Hermos and Kaystros valleys, was garrisoned with the troops of Alexander or one of his early successors and remained in royal hands until the mid-3rd century when the Karamattepe necropolis was abandoned. Thereafter, the fort likely came under the civic control of Smyrna until it was abandoned in the late 1st century. LENGER notes that bronzes of Philip III previously assigned to mints in Macedonia (for Price P2 see 213 and for Price 419A see 217) or Cyprus (for Price 3158 see 218) can now be attributed to mints in western Asia Minor (he specifically thinks Sardis) thanks to the significant number of examples found on Mt. Nif and elsewhere in the region. Finally, LENGER argues that the appearance of Sardian civic bronzes on the northern but not the southern slopes of the mountain indicate that the territorial border between the two cities lay here. However, this cannot be correct for the Hellenistic period since it is fairly clear that Smyrna's territory

bordered Magnesia ad Sipylum north of Mt. Nif and to the east the independent cities of Troketta and Tmolos lay between the territories of Smyrna and Sardis.

RALLI and KOUREMPANAS (309) discuss coins found in rescue excavations of graves on Chios. A wealthier grave with gold earrings also contained a silver coin of Chios from the 2nd century rather than the usual Chian bronzes. Foreign coins found in Hellenistic graves include bronzes of Erythrai, Chalkis, Rhodes, and the Bithynian kingdom. MEADOWS (246) provides a tentative listing of the autonomous tetradrachms and drachms of Smyrna contained in *IGCH* 1340. ERSOY, ÖNDER, and TURAN (128) catalogue coins from the 2008-2012 excavations of Smyrna, a small number of which are Hellenistic bronzes. SCHACHINGER (318) discusses coin finds from the theatre and from the Basilica Stoa in the Upper Agora at Ephesos, a small proportion of which are Hellenistic.

WEISSER (389) publishes coin finds from the eastern rock sanctuary at Priene. These include bronzes of Priene, Ephesos, Magnesia, Miletos, Pergamon, Kolophon, and possibly Erythrai dating from the late 4th to the early 1st century. WEISSER considers possible explanations for the high proportion of foreign coins (11 of 24) which REGLING observed for the site as a whole (53% foreign to 47% Prienian) and which is out of line with what we see at other sites. WEISSER (389) has also constructed an online database which makes the coin finds from Priene held in Berlin fully searchable.

DELIKAN (96) and ROLAND (314) both discuss the coin finds from the excavations at Metropolis the original publication of which has been covered in previous surveys. DELIKAN provides a very brief overview of the coin finds which, to judge from the figures provided in ROLAND, is based on out-of-date numbers. ROLAND'S focus is primarily on the methodological issues involved in contextualizing coin finds from an excavation with Metropolis being his case study. Given the late date at which Metropolis itself began minting, the predominance of Hellenistic coin finds from Ephesos (200+ finds), Smyrna (30+), and Pergamon (20+) in the city itself and Kolophon in the Sacred Cave of Meter Gallesia provides an intriguing case study in the circulating currency of a non-minting polis. It should be noted, however, that ROLAND does not use the most recent datings for these series and that for the coinage of Metropolis itself he omits the key study by KINNS, *NC* (2004), pp. 83–93.

DELRIEUX (98) provides an exhaustive catalogue of the coin finds from the 2001-2011 excavations at Klaros including 214 coins from the Archaic to Hellenistic periods (this expands on the previous publication of this material by ÇIZMELI ÖĞÜN in *RN* (2007), pp. 213–233 and (2011), pp. 321–338). The catalogue includes Kolophonian bronzes not previously published in the standard references (nos. 11, 13, 135-6); no. 15, catalogued as an unpublished coin of Kolophon, is in fact a bronze of Smyrna (Milne 137). In analysing the bronzes of Kolophon found at Klaros, DELRIEUX does not broach the question of which of these coins belonged to Old Kolophon and which to Notion/Kolophon-on-Sea. ROUSSET (313) raises this issue in the course of publishing a new inscription from Klaros (*SEG* 64.1081, *c.* 250-200). He reports the findings of KINNS that between *c.* 375 and *c.* 294 the reverse types of the issues of Old Kolophon concentrate on equine types, whereas those of Kolophon-on-Sea consistently have a kithara or tripod, and that in the 4th century these cities minted in parallel. The finds DELRIEUX publishes from Klaros would appear to support this, since the early issues are mostly those which KINNS would attribute to Notion, while 4th century issues which were commonly found in the excavations of Old Kolophon are here absent.

ŞAHIN (329) discusses the date and iconography of the Kolophonian bronzes depicting Homer on the obverse. She first argues that this series dates *c.* 175-150 and not *c.* 50 as KINNS had argued on the grounds that examples were found in an archaeological context which she would date earlier than this (DELRIEUX (98), nos. 157-161). The archaeological argument is not beyond reproach and the weight of the numismatic parallels

KINNS adduced is given insufficient consideration. ŞAHIN then argues that the figure on the reverse is not Apollo Citharoedus but rather Leto. This identification is based on a series of misconceptions about the well-established iconography of Apollo Citharoedus, which is in any case not best judged from poorly preserved excavation bronzes, and should be rejected.

VAN ALFEN (367) examines the alignment in coinages which we see in the second half of the 6th century between Teos and Abdera and Phokaia and Velia after these communities split in the wake of the Persian invasion of western Asia Minor in the 540s. In the case of Teos and Abdera, these cities aligned their types to express their communal solidarity, but did not attempt the more complex feat of aligning their weights and denominations. By contrast, Phokaia and Velia attempted this latter more challenging form of alignment, albeit in a manner which was not complete and which only lasted a few decades. As these cases illustrate, long-lasting monetary co-operation of the kind Phokaia embarked on with Mytilene in the last quarter of the 6th century for their jointly produced electrum coinage was difficult to sustain because of the political and economic obstacles which needed to be overcome. VAN ALFEN (370) adds further data to this argument by examining the late 6th century silver coinages of Phokaia and how these were aligned with parallel series at Teos, Velia, and Massalia. In this connection, although not strictly to do with Asia Minor, RIPOLLÈS and CHEVILLON (313) on the Archaic silver coinage of Emporion should be read with an eye to Phokaia.

ELLIS-EVANS (117) argues that certain rare coins of Chios including a wreathed electrum stater, a wreathed silver tetradrachm, and an accompanying pair of drachms were minted in parallel and belong to the context of Lysander's campaigns in western Asia Minor in 405/4. KINNS (182, correcting KINNS, *NC* (2006), pp. 31–9) demonstrates that a coin he had previously published as the first example of a new mid-3rd century Chian silver series is in fact a modern forgery.

KARWIESE (173) presents a corpus of the coinage of Ephesos in the Classical period. This volume makes important progress in tackling the 5th century silver and 4th century bronze of Ephesos, neither of which had previously been studied in depth. However, the volume must be used with caution. KARWIESE catalogues the 4th century coinage by alphabetical order of magistrate rather than on a chronological basis, and there is no clear demarcation of the smaller denominations in silver or bronze. This creates confusion and, on occasion, error, as for example with the inclusion of the octobols as fractions of the main tetradrachm sequence, when in fact they are a later series on a different weight standard (KINNS, *CH* IX (2002), p. 200; *NC* (2006), pp. 35–6). In addition, KARWIESE omits a bronze series whose early 4th century date is well-established (KINNS, *CH* IX (2002), pp. 188, 191; *NC* (2003), pp. 26–30) and excludes two silver series on the grounds of being post-280 when their 4th century date seems assured (the common diobols as *SNG Kayhan* 194-242 and the rare octobols as *SNG Kayhan* 249-276).

BOULAY (52) discusses the political status of Teos in the 2nd century. He argues that the city was recognized as free after the Peace of Apameia and that this status rules out the possibility that the Attic-weight tetradrachms minted in the name of the Dionysiac Artists at Teos (LORBER and HOOVER, *NC* (2003), pp. 59–68) were minted at the behest of Attalos II to support Alexander Balas. While BOULAY is surely right that this series was not minted for military payments, the reason is not that Teos was free, since there are many exceptions to such a principle, but rather that the series is only known from a single example and so was clearly a small, one-off issue. VĂDAN (376) publishes a die study of the posthumous Alexander tetradrachms of Magnesia on the Maeander and includes an appendix by KINNS which presents a die study of the accompanying drachms. The series is large (43 obverse dies) and was produced on a fairly continuous basis throughout the 3rd century. Of particular interest are the examples early in Series 1 which are the first Alexanders from western Asia

Minor to complement Alexander's name in right field with the title ΒΑΣΙΛΕΩΣ in left field. VĂDAN reports KINNS' view that the issues date to 287/6 and the conflict between Lysimachos and Demetrios Poliorketes in this region when Magnesia sided with Demetrios.

KINNS (181) publishes an important survey of lunate forms of *sigma*, *omega*, and *epsilon* on Ionian coinage in order to determine to what extent letter forms can be used to date Hellenistic coins. KINNS finds that the lettering of ethnics is much more conservative than that of signers' names and that lunate forms are permissible earlier on bronze coinage than on silver. He plausibly suggests that cursive letter forms were slow to be adopted on coins because they were associated with informal writing on perishable materials. This would help explain why they generally appear later on precious metal than fiduciary coinage and later in ethnics (a static part of coin design) than in signers' names. He identifies possible examples of an individual die engraver preferring lunate forms rather than this being evidence of a general trend. As a result, when we encounter exceptions to clear patterns we should always consider the possibility that this may just reflect the idiosyncratic preferences of the die cutter. Studies of this kind are a major desideratum for other regions which may well have their own regional peculiarities (for example, in Ionia lunate *omega* and *epsilon* prove to be much stronger indications of date than *sigma*).

Caria and the Dodecanese

SELENE PSOMA'S chapter in this survey provides the principal summary of material relating to the Dodecanese. For Rhodes, this includes a new hoard (27), studies on the plinthophoric coinage (14, 15, 16), studies on the city's late Hellenistic bronze coinage (17, 18), and a synoptic account of the island's coinage (327). For Karpathos, it includes a study of the island's early 5th century silver coinage (328), while for Kos there is a study of the city's coin iconography as it relates to Asklepios (375) and a review article of STEFANAKI'S 2012 monograph on the island's coinage (233).

Several other items relating to the Dodecanese are also worth noting. TEKIN (343) publishes a packet of coins which the Turkish authorities confiscated in 2008 and entrusted to Edirne Museum. This presumed hoard contained 122 coins: 6 plinthophoric drachms and 110 plinthophoric hemidrachms which cover JENKINS Groups A-D, and 2 tetradrachms and 4 didrachms from the second half of the 3rd century which are certainly intrusive. The preponderance of plinthophoroi suggests this hoard originated in south-west Turkey, while the absence of JENKINS Group E indicates it was concealed around the time of the First Mithridatic War. ASHTON (26) has previously argued that Rhodes minted a rare series of didrachms and bronzes with a radiate portrait of Helios on the obverse to commemorate the erection of the Colossus in the early 3rd century. He here presents new evidence for the range of larger bronze denominations (obols, tetrachalka, dichalka) which were used in this emission. MIELCZAREK (257) discusses what the coinage of Ialysos, Lindos, and Kamiros can tell us about the history of the island prior to the 408/7 synoikism.

WAALER (381) discusses the 6th century silver fraction of Kos found in the rich grave complex of Ketef Hinnom in Jerusalem. He argues that the coin is a trihemiobol on the Lydo-Milesian standard, not the Aeginetan standard as previously thought, and that it must date *c.* 500. BROUSSEAU (57) discusses a Koan didrachm in Boston which was forged from an example in the BnF in the 19th century. ROLAND (315) examines mid-4th century coins of Kos with renderings of Heracles and Demeter which, it has been alleged, resemble portrait sculptures from the Mausoleum in Halicarnassus. He questions this connection and in turn the speculation based on this supposed link that Hecatomnus was somehow involved in the synoikism of Kos in 366. ASHTON (24) presents die studies of the posthumous Alexander tetradrachms attributed to Knidos (Price 2472-2473) and Nisyros (Price 2507-8). Both series date to the campaigns of Philip V in the region in 202/1 and thus to the same context in which

Rhodes (Price 2509-2527) and Kos (Price 2498-2503) likewise rapidly produced Alexanders in order to make military payments.

Returning to mainland Caria, DELRIEUX publishes coins found in the excavations at Iasos since 1960. Of identifiable coins, these include 157 of Iasos itself (105) and 109 from elsewhere (99, 99, 102). The majority of these coins date to the Hellenistic period, but there is a significant chronological divide between the late 4th and first half of the 3rd century, when coins from outside Iasos and in particular coins with royal types predominate, and the rest of the Hellenistic period when coins with civic types and above all those of Iasos predominate. Given the evidence we have for Iasos being garrisoned by royal troops in the early Hellenistic period (e.g. *I. Iasos* 2), this pattern should perhaps be related to the impact of these garrisons on the city.

NILSSON (279) publishes a small packet of coins from the excavations at Labraunda which found their way to Ödemiş Museum including a Hellenistic bronze of Ephesos. TEK, KÖKER, and SARIIZ (334) publish 96 late Classical and Hellenistic coins found in the 2008-2014 excavations at Stratonikeia. They note that the high number of Stratonikeian coins (63%) and low number of coins from beyond Caria (15%) is in sharp contrast to the much more mixed picture at the sanctuary of Hekate at Lagina. DELRIEUX (103) discusses 8 coins found at Hyllarima in 1991-1993 and another 8 recorded by JEANNE and LOUIS ROBERT in 1947, 6 of which are Hellenistic.

ASHTON and KONUK (33) publish a die study of the so-called *ketos* coinage. These silver fractions were *hektai* on a slightly reduced Milesian standard with a target weight of 2g. The coinage can be attributed to Halikarnassos, dates shortly after *c.* 500, and was thus most likely produced to pay for Carian military expenditure during the Ionian Revolt. This conclusion is supported by the various indications of rapid production and, above all, by the size of the coinage. ASHTON AND KONUK record 58 obverse dies which, if we assume 10,000-20,000 coins per die, would suggest 50-100 talents of silver expenditure. They argue for the bottom end of this range, but this still makes this coinage one of the largest silver emissions of the period.

THONEMANN (355) studies the silver coinage of Antioch on the Maeander. This previously rare series has become more common in auctions since 2018 when a hoard was evidently dispersed in commerce. A number of factors (above all metrology and prosopography) indicate that this coinage does not date to the middle decades of the 2nd century as previously thought, but rather *c.* 90-65. In particular, THONEMANN notes that the Diotrephes who signs several issues can be identified with the orator and civic benefactor known to us from inscriptions. He argues that this surprisingly large coinage (at least 19 tetradrachm and 12 drachm obverse dies) was produced at the behest of the Roman authorities and fits into a wider regional pattern of hitherto inactive or dormant mints producing silver coinage to meet Roman expenditure at this time.

KONUK (190) provides a survey of the Archaic and Classical coins of Caria aimed at a general readership. DELRIEUX (97) surveys the Alexanders produced at civic mints in Caria in the late 3rd and early 2nd century, focusing in particular on the more uncertain attributions of issues to Antioch or Tabai, to Euromos (where Teos seems more likely), and to Mylasa. LENGER (220) and TATAR (330) discuss the civic and Seleucid coinages of Alinda respectively. TÜRKOĞLU (362) provides a typology of the coinage of Attouda including the small number of silver and bronze issues which the city produced in the Hellenistic period. TÜRKOĞLU (361) also produces a typology of the coinage of Keramos which draws in part on examples from local museums and the private collection of YAVUZ TATIŞ and discusses the iconography and signers of this mint in some depth.

Lydia

HOCHARD (159) publishes a study of the coinages of Lydia from 228 BC to AD 268 which includes die studies of the Hellenistic coinage of Apollonis, Hierakome, Magnesia ad Sipylum, Mostene, Philadelphia, Sardis, and Thyateira. In defining the limits of his study, HOCHARD distinguishes between 'Greater Lydia', which includes the northern and southern 'buffer zones' of the upper Kaikos valley and the northern bank of the Maeander respectively, and what he terms Lydia *strictu sensu* which is focused on Sardis and encompasses the Hermos and Kaystros valleys. This produces some awkward results for the Hellenistic material. For example, the cistophori Aristonikos minted at Thyateira and Apollonis are included, whereas those he produced in parallel at Stratonikeia just 25 km to the north are excluded. Likewise, while there is no straightforward way of deciding whether places such as Klannouda and Blaundos to the east or Tralles, Nysa, and Mastaura to the south belong to Lydia or to Phrygia and Caria respectively, the arguments for these places being culturally orientated towards Lydia are significant, especially when interpreting coin iconography (see, for example, NOLLÉ (281) on Mastaura below).

The value of the catalogue is vitiated by the way in which the Hellenistic material has been organised according to principles more suited to provincial coinage. 'Series' are defined as time periods and then split into 'Groups' which are defined as coins with the same obverse portrait. This results in clearly distinct emissions being mixed together, as for example with HOCHARD'S Sardis Series 4 (civic coinage post-133), Group 8 (Dionysos portrait) which includes the Dionysos/lion forepart issue (second half of 3rd century based on archaeological evidence: see EVANS (131) below), the Dionysos/panther issue (post-188), and the Dionysos/Demeter issue (1st century based on prosopography). A related problem of clearly distinct issues not being numbered separately arises from the arbitrary decision to treat obverse/reverse type combinations with different signers as separate issues, but combinations with different monograms as not being so. As a result, HOCHARD'S referencing system for the Hellenistic coinage is largely unusable.

EVANS (131) has published the coins from the 1973-2013 excavations at Sardis and in two further papers (130, 132) discusses the new evidence this has provided for the dating of Sardian civic coinage and the attribution of royal issues to Sardis. Based on find contexts, she dates the Dionysos/lion forepart emission to the 3rd century and argues that the Herakles/Apollo emission went into production *c.* 245-220 and continued down to the 2nd century. This demonstrates that HOCHARD'S blanket post-133 date for all the civic coinage of Sardis cannot be correct. That being said, EVANS' 3rd century date for the Tyche/Zeus Lydios emission is likely too early given the clear iconographic parallels with the tetradrachms with a similar reverse type dating to the second quarter of the 2nd century. Likewise, her dating of the Dionysos/Demeter and Artemis/Athena issues *c.* 189-133 is disproved by the prosopographical links HOCHARD examines which point firmly to the 1st century. In addition, EVANS argues that a number of royal bronze issues not previously attributed to a specific mint can be assigned to Sardis on the grounds that they were found in the excavations. However, this can hardly be proved on the basis of coin finds alone given that these coins were produced to pay highly mobile soldiers and could be spent anywhere within the kingdom.

LENGER (215) argues that the 4th century bronze coins traditionally attributed to Thymbra in the Troad in fact belong to Thyessos in northern Lydia. The iconographic parallels which have been made with coinages in the Troad work just as well for mints in the Kaikos valley. What is more, no examples have been found in the Troad, whereas eight have now turned up at Pergamon. Of the available toponyms whose ethnic begins ΘΥ, Thyateira was not yet founded and Thymbrara to the east of Sardis is too far away, leaving only Thyessos. GKIKAKI (147) discusses the date of the five issues of civic bronzes Thyateira minted in the Hellenistic period. She argues that the emission with bust of Artemis/naked

Apollo with bow and arrow is the earliest and pre-dates 190 since this reverse type is commonly encountered on Seleucid bronzes throughout the 3rd century and thus indicates that Thyateira was still under Seleucid control at the time. She compares this emission to the so-called 'quasi municipal' coinages which first appeared under Antiochos IV in the Levant and featured a royal portrait on the obverse with a civic type on the reverse; this, however, is the opposite of what we see on this Thyateiran issue. Given the similarity between the Artemis portrait on this issue and the other Thyateiran issues, it seems more likely that there is no political significance to the pilfering of this type from Seleucid coinage for the city's first emission and that it belongs with the rest of Thyateira's Hellenistic bronzes post-188.

NOLLÉ (281) reconstructs what we can know about the city of Mastaura from the iconography of its coinage. He rightly challenges the view that the city had no pre-Imperial coinage by identifying bronzes which must belong to the late Hellenistic period. These feature the eponymous hero Mastauros with a double-headed axe either on horseback or standing performing sacrifice. On the basis of literary sources and the types of the provincial coinage, NOLLÉ is able to relate the types of the Hellenistic coinage to an aetiological myth in which Mastauros inaugurated the sacrifice of a bull to Ma. This nexus of myth and cult is much more strongly connected to Lydia to the north of the Mesogis than Caria across the Maeander valley. LENGER (219) discusses the bronzes in the name of Zeus Larasios which were minted at Seleukeia-Tralles in the 3rd and 2nd centuries. He argues that the fact these coins are minted in the name of a god without a city ethnic means they were a so-called 'panegyris coinage' produced for the purpose of the festival. However, for problems with the concept of panegyris coinages in general see NOLLÉ (280). ÖZBIL (291) discusses the coin finds from the excavations of Nysa 1992-2012. As a result of work so far being focused on areas which were important in the Imperial period, the excavations have so far yielded just three Hellenistic coins from Nysa, Pergamon, and Ephesos.

Phrygia

ZAKHAROV (395) catalogues coins from the 2008-2010 survey of Kelainai-Apameia. Of particular note are the silver fraction of Miletos from *c.* 500, the plated siglos and siglos fraction, and the high proportion of Hellenistic royal bronzes. ZAKHAROV (395) also publishes coins of Apameia in Moscow museum collections including 23 bronzes of Apameia. KÖKER (194) publishes coins from the 2013-2014 excavations at Aizanoi including Hellenistic bronzes of Pergamon (Asklepios Soter), Aizanoi, and an unidentified mint.

ASHTON (30) assigns the pseudo-Rhodian drachms signed by Mousaios and Iason to Kibyra. He identifies Mousaios with the individual who signed an issue of Kibyra's cistophoric weight drachms and places these pseudo-Rhodian drachms in the context of the mutual support Kibyra and Alabanda offered one another in the mid-2nd century. He argues that the era on the pseudo-Rhodian and civic-type coinage of Kibyra is the same era beginning 167/6 we find on coins of Alabanda and, moreover, that this is also the era on the didrachms of Oinoanda (*pace* DE CALLATAŸ, *Liber Amicorum Tony Hackens* (2007), pp. 203–11, who argued for the 80s). If correct, this downdates the recently published treaty between the Termessians-near-Oinoanda and the Lycian League from the 160s/150s to the late 130s (*SEG* 60.1569). Finally, he discusses the reference in *I. Kibyra* 42 (AD 72/3) to "Rhodian drachms" being worth 10 assaria whereas a denarius was worth 16 assaria at Kibyra. He argues that this refers to the lower-weight pseudo-Rhodian drachms signed by Mousaios and Iason (2.4-2.1g) and is thus an example of the phenomenon whereby coinage continues to be used as a unit of account long after the coins themselves have become obsolete. ASHTON (25) identifies a group of drachms with Rhodian types signed by Eukrates and Ameinias as imitations from the 170s/160s of a Rhodian series originally minted *c.* 225-215. In light of the parallels he identifies with the pseudo-Rhodian drachms signed by

Mousaios and Iason in (30), it seems likely the Eukrates and Ameinias imitations were produced somewhere in the borderlands between Caria, Lycia, and Phrygia.

CORFÙ (82) discusses a silver fraction which recently appeared in trade with the ethnic ΓΟΡΔΙΑΝΩΝ. This is not an unpublished coin (*pace* CORFÙ), but rather the second example of an issue first published by BORRELL, *NC* (1845/6), p. 27 (now BnF AA.GR10254, until recently in the trays for Iulia Gordos in Lydia). CORFÙ misidentifies the mint as 'Gordianon' (i.e. Gordioukome-Iuliopolis in Bithynia) when it is in fact Gordion in Phrygia. Manlius Vulso razed Gordion in 189, and excavation attests a massive destruction layer and no rebuilding until the reign of Augustus, so CORFÙ's 2nd/1st century date for this coinage is ruled out and a date in the 3rd century must instead be correct (see THONEMANN in *Roman Phrygia* (2013), pp. 20–1).

ASHTON (29) publishes a die study of Apameia's base metal coinage from the first half of the 1st century. This consisted of four broadly contemporary issues produced in huge volumes in brass (Type 1: 103 obverse dies) and bronze (Type 2: 173 dies; Type 3: similar numbers to Type 2; Type 4: 22 dies). He notes that, based on the evidence of the Dinar 1991 hoard (*CH* IX 565) which consisted of almost 6,000 Type 1 coins from the same pair of fresh dies, we have grounds for thinking that the productivity of these dies may have been higher than we normally assume, perhaps in the range of 20,000-40,000 coins per die. The scale of this coinage, which dominated coin circulation in the wider region (note e.g. ASHTON'S view that Pisidian Antioch systematically countermarked this coinage to profit from its use within the city), dwarves Apameia's earliest issue of bronze from the mid-2nd century which consisted of just two obverse dies (the profile of Eumeneia's Hellenistic coinage is similar: see ÜNAL (365) below). The coinage dates from *c.* 90 to at least the 50s based on prosopographic links with Apameia's contemporaneous cistophori. The start date of shortly before 90/89 (newly established by the 2002 cistophori hoard: CARBONE (72)) complicates the traditional view that the coinage was prompted by Mithridates VI's gift of 100 talents in 89/88 to help reconstruct the city after an earthquake (Strabo 12.8.18). While paying for reconstruction might nevertheless explain why the coinage began, it remains much less clear why it continued to be produced at such high levels for the next four decades (ASHTON is unconvinced by the explanation in terms of a panegyris coinage argued for by THONEMANN, *Maenader Valley* (2011), pp. 117–120; for problems with this concept see NOLLÉ (280)). A postscript records a commerce hoard consisting of at least 71 base metal coins of Apameia whose burial probably dates to the mid-1st century.

ÜNAL (365) discusses the base metal coinage of Eumeneia based on the results of an unpublished die study. He argues that Series 1-3 (16 obverse dies) probably belong to the mid-2nd century soon after the city's foundation in the early 160s, whereas Series 4-6 (130 dies) began in the late 2nd century and ended with the brass Series 6 in the mid-80s which ÜNAL connects to Mithridates VI. The parallels with Apameia are obvious.

THONEMANN (354) discusses the hitherto unattested community of Kleonnaeion which is mentioned in a recently published Attalid letter from Pessinous (*SEG* 64.1296, late 180s). He argues that Kleonnaeion was responsible for the bronzes whose ethnic was previously read as ΛΕΟΝΝΑΙΤΩΝ (both surviving examples are struck off centre, and so the initial *kappa* is off flan). He further notes the similarity of Kleonnaeion's types (bust of Tyche/seated lion) to the 1st century coinage of Pessinous with the legend ΜΗΤΡΟΣ ΘΕΩΝ ΠΕΣΣΙΝΕΑΣ and thus proposes that Kleonnaeion and Pessinous were either one and the same community (compare Pergamon and Tralles which likewise produced coinages both in the name of the city and in that of their cults) or a closely aligned dyad of former military colony and Phrygian sanctuary complex (HAMON, *BE* (2015), p. 611, no. 658 compares the case of Aizanoi). However, a potential objection is that the seated lion on Kleonnaeion's coinage holds a spear in its left paw and rests its feet on an object which is either an amphora

or spearhead. Both these distinguishing details are absent from the Pessinous coins even though they are of a much larger module (22-23mm as opposed to 15mm) which could easily feature them. The types are not themselves remarkable (e.g. many newly opened mints of the later Hellenistic period employed busts of Tyche), and so it is all the more important to account for the details which distinguish Kleonnaeion's coins from those of Pessinous.

Lycia

MÜSELER (264) provides the first comprehensive overview of Lycian autonomous coinage in over a century. To the extent that the work is limited by its reliance on private collections, this problem has been corrected in a series of eight studies (265, 266, 269, 268, 271, 272, 274; MÜSELER and SCHÜRR 275; cf. SCHÜRR 321) on Lycian dynastic coinage which he has published expanding on his book. Taken together, he provides an almost complete type catalogue of the coinage. The works are replete with important numismatic observations and historical reconstructions. MÜSELER largely adopts the sequence of dynasts which MØRKHOLM and ZAHLE provided in the 1970s. However, this has now been called into question by KAGAN (169) whose arguments impact many of MÜSELER'S dates, attributions, and historical interpretations.

KONUK (188, 189) discusses new coin types from the 5th century which clarify a number of aspects of the political geography of Lycia in this period. ADIEGO (8) examines the Lycian legends on these new types published by KONUK. BODZEK (49) contributes a study on the striking of coins in Lycia by the satraps of Caria. VISMARA (378, 379) adds to her work on Lycian coins with a study of Artumpara and a re-analysis of the Tissaphernes hoard. Her conclusions will need to be revisited in light of the chronology KAGAN (169) proposes. VISMARA (380) also publishes new examples of the coins of Trbbẽnimi overstruck on coins of Evagoras of Cyprus.

Two historical monographs make extensive use of the numismatic evidence in reconstructing the history of Lycia. HOFF (161) provides an overview of Lycian coinage primarily based on published public collections which inevitably limits its utility (see the review by MÜSELER AND SCHÜRR, *Gnomon* (2019), pp. 39–46). Coins also play a prominent role in KOLB'S (185) massive history of Lycia which is the culmination of his work as head of the Tübingen-Lycia Project. In addition to these works, ÇELIK (86) provides a brief account of Lycia's turbulent history in the early 4th century using numismatic evidence. KORKUT (186) discusses the religious iconography of Lycian coins and focuses in particular on Tlos. HOFF (162) studies Lycian tiarate heads and argues that those worn by certain Lycian dynasts indicate their allegiance to Persia.

BÜYÜKYÖRÜK and ÇELIK (59) record a hoard of 68 coins of Mithrapata and Aruwãtijesi found in south-east Lycia. LÓPEZ SÁNCHEZ and GÓMEZ CASTRO (227) publish the Gaza 1960s hoard which includes one of the first issues of Kuprlli. This supports a start date for this coinage shortly before the hoard's *c.* 475 burial date. MITCHINER (260) records a small early hoard that may have been part of an old collection of 10 coins (3 from Lycia, 2 from Aspendos, 5 from Cilicia). While his speculation that the group may have come from the Asyut hoard (*IGCH* 1644) is unconvincing, the hoard is of crucial importance for dating the start of Pamphylian and Cilician coinage. The Lycian coins with the types striding boar/tortoise were not in Asyut and so should date later *c.* 460-450 (cf. MØRKHOLM, *JNG* (1964), p. 68).

LENGER (219) publishes a preliminary summary of the coin finds from Patara. Of particular interest is the Ptolemaic hoard which is fully published by DÜNDAR and LENGER (223). This provides further evidence for the presence of a garrison at Tepecik which helped the Ptolemies maintain control of this strategically important port. BULUT and ŞENGÜL (58) report on the coin finds from the 2009-2012 excavations at Andriake, the port of Myra. These

included 62 Hellenistic coins of which 36 belonged to the Lycian League. ÖZER (292) discusses the Lycian League and pseudo-League coinage of Olympos in order to reconstruct the city's history in the late Hellenistic period. REYNAUDO (310) discusses two unpublished drachms of the Lycian League which recently appeared in commerce. The coins bear the legend KO which does not obviously correspond to any of the cities of the League. In the course of a discussion of the history of Podalia in northern Lycia, TEK (333) discusses its small Hellenistic bronze coinage which he associates with the period when the city belonged to the Lycian League.

Pamphylia

DE CALLATAŸ (67) examines the overstriking of Pamphylian and Cilician silver staters in the Classical period. The phenomenon is rare (he catalogues 44 examples out of an estimated 10,000 coins in public and private collections) and takes different forms in the 5th and 4th centuries. In the second half of the 5th century, undertypes were drawn from outside the region: Phaselis and Cyprus in the case of the Pamphylian mints, Aegina and Cyprus in the case of the Cilician mints. By contrast, in the 4th century the undertypes come from within this region: Pamphylian mints overstrike Pamphylian coins and Cilician mints overstrike Pamphylian and Cilician coins. This supra-regional perspective on the phenomenon makes it clear that the Persian authorities were co-ordinating the minting of silver staters across both Pamphylia and Cilicia. DE CALLATAŸ (66) discusses a 4th century stater of Aspendos in the KBR where a piece of leather appears to have got between the punch and the flan leaving an unusual impression on the coin. DE CALLATAŸ interprets this as evidence for the haste and carelessness with which this particular issue (KI) was produced. He provides a die study of the issue and discusses some of the methodological issues which this case raises for conducting die studies in general.

LESCHHORN (225) discusses the drachms of Side based on his unpublished die study. 167 examples are known from 40 obverse dies, meaning that the drachms are both dramatically smaller than the accompanying tetradrachms (218 obverse dies) while still being a surprisingly large series given the comparative rarity of drachm coinages in the early 2nd century (the other major example being Ephesos' contemporary bee/stag before palm tree series). LESCHHORN speculates that the signers on the tetradrachms who have not yet appeared on the drachms (about a third of the total) will do so in time, but it is equally possible that production of the accompanying drachms was episodic (the decent *n/d* of 4.2 suggests we know the series fairly well). Note that the common countermark on these coins which LESCHHORN describes as a fly is in fact a bee and, according to MEADOWS (248), p. 199, belongs not to Lycian Telmessos but probably to Ephesos.

MEADOWS (243) examines the recurring phenomenon in Pamphylia of coinages originally minted in the late 3rd/early 2nd century being imitated in the 1st century. This occurs at Side with the Kleuchares IV coins, at Perge with Series 2 of the Artemis Pergaia coinage, and with a subset of the Alexanders of Aspendos. All three series bear era dates, the latest being Year 12. MEADOWS argues that the era in question is the Pharsalan era beginning in 48/7 thus dating the latest example to 37/6. In this year Antony made Amyntas, whose coinage is die linked to the Kleuchares IV series, king of Galatia. He notes finally that all three imitative series have in common a significantly lower target weight than we typically see in the 2nd century (16g rather than 16.8g) and interprets this as evidence for these mints aligning their production with Roman weight standards.

TEK (332) surveys the coin finds from the excavations at Side since 1947. 236 Greek coins have so far been identified, with the earliest dating to the 4th century but the majority being Hellenistic. He makes two striking observations. First, foreign coins come from the entire coast of Asia Minor but from nowhere in the interior (this pattern only begins to

change in the Imperial period). This is not entirely surprising for an important port. However, second, he notes that no foreign coins south of Antioch have so far been found. This is rather more surprising and may suggest that Side belonged to a different circuit of movement to cities along the Levantine coast. Finally, it is worth noting his methodological arguments when conducting an analysis such as this for categorising foreign mints not by region but by whether they are more or less than 100km away. TEK, KÖKER, and TARAKAN (335) report on the royal coinages in Side Museum. Of particular interest is their observation that the museum contains none of the lifetime Alexanders which have traditionally been attributed to Side (the drachms might reasonably have been expected to turn up; for doubts about the identification of these mints in general see MEADOWS (249)).

MEADOWS (248) examines the countermarking of silver in Greek coinage. In the case of the Alexanders countermarked in late 4th century Egypt and the Attic weight coinage countermarked by Byzantium and Calchedon in the 230s/220s, the host coins come from all over. By contrast, episodes of countermarking in the 2nd century focus specifically on Pamphylian coinage: all Attalid ('cistophoric') and more than 98% of Seleucid (anchor/Helios) countermarks were applied to Pamphylian coins, while 75% of civic countermarks were applied to Sidetan coins with the other 25% being Attic weight coinages from other mints. MEADOWS notes that Sidetan coins are over-represented as hosts for Attalid and civic countermarks, whereas they are under-represented as hosts for Seleucid countermarks, suggesting that we are dealing with two different populations of coinage available for countermarking, with Sidetan coins predominating within the Attalid sphere but not within the Seleucid sphere. Regarding the civic countermarks (the 25 examples of which he catalogues here), he wonders whether their purpose was to mark coins as being Attic weight at a time in the third quarter of the 2nd century when the silver coinages then in production (cistophori and plinthophori) were not on this standard (he thus interprets A-N on these countermarks as *Attikon/Alexandreion nomisma*). BRESSON (53) instead argues that Attalid, Seleucid, and civic countermarks all need to be interpreted in terms of trade. However, this interpretation is not tenable in light of the evidence presented by MEADOWS and, in particular, THONEMANN (356), who demonstrates that the Attalid countermarks were applied centrally at Pergamon and do not signify the countermarking authority but rather the recipient of the countermarked coins.

Pisidia

ASHTON (32) catalogues the 154 coins of Pisidia in Afyon museum (responsible for Phrygia and parts of western Pisidia) and the 66 in Fethiye (responsible for eastern Caria and western Lycia). Provenance information is provided where known. SANCAKTAR (317) publishes coin finds from the 2008-2012 excavations of Antioch in Pisidia which include a small number of Hellenistic coins. DÖNMEZ-ÖZTÜRK (108) discusses a group of coins from Termessos which have ended up in the collection of the Istanbul Archaeological Museum.

KÖKER (197) argues that the bronze coinage of Etenna dates to the 3rd/2nd century rather than the 2nd/1st century as traditionally assumed. Overstrikes on royal coinage dating to the late 4th and first half of the 3rd century and on Pamphylian coinages of the 3rd/2nd century indicate a higher date. Likewise, the royal and civic coinage which accompany Etenna's coins in hoards also point in this direction (three of the hoards reside in Side Museum and are unpublished; listings are provided). KÖKER wonders whether the occasion for some of this minting (and perhaps also the explanation for the decision to overstrike circulating coinage) might be connected to the emergency circumstances of sending military support to Pednelissos in 218 when it was being besieged by Selge (Polyb. 5.73.3).

KÖKER (196) catalogues the rare silver coinage of Komama. Of the 22 examples known (all from the same die pair), the majority have appeared since the 2000s and clearly

represent a small hoard dispersed in trade. The weights suggest these are hemidrachms at 1.8g which KÖKER parallels with emissions produced by the Lycian League (TROXELL Period IV, Series 7) and Stratonikeia (MEADOWS Group 4) in the third quarter of the 1st century. He suggests this brief emission is contemporary with issues of Sagalassos (on which see next), Kremna, and Keraeitai and may have been produced to support the military campaigning of Amyntas. VAN HEESCH and STROOBANTS (153) publish a die study of the silver coinage of Sagalassos. The city produced a brief emission of Alexander tetradrachms in the 200s/190s from a single obverse die (Type 1) and then four more issues with civic types in a variety of denominations (didrachms, drachms, hemiobols) in the 1st century from similarly few dies (Types 2-5). It seems more likely than not that Types 2-5 were produced close in time to one another and in support of the campaigns of Amyntas in the region. KÖKER (198) discusses a new bronze type of Sagalassos in Burdur Museum with the types zebu/rider holding club and the legend CAΛΓA. In the region of northern Lycia and Pisidia it is frequently difficult to tell whether a depiction is meant to be of the local god Kakasbos or Herakles, but KÖKER argues that in this case the figure is most likely intended to be Herakles. He dates the issue to the 2nd/1st century, but the lunate *sigma* in the legend may point specifically to the 1st century given that it first appears on the silver of Sagalassos (VAN HEESCH and STROOBANTS Type 5) in the third quarter of the 1st century.

Cilicia

POLOSA (303, 304, 305) discusses the coin finds from Elaioussa in Rough Cilicia. Of the 2,900 coins found so far, only a small proportion are Hellenistic. Although the city was only founded in the 2nd century, bronzes of Antiochos II and Ptolemy III have been found with 2nd century pottery which may indicate earlier activity on the site. ARSLAN and POLOSA (22) publish a group of 135 bronzes which were seized at the Kapıkule border crossing with Bulgaria in 1992 and entrusted to Edirne Museum. All but two of the coins come from Cilicia, with 100 coming specifically from Elaioussa, Korykos, and Seleukeia on the Kalykadnos. Given the similar patina many of the coins have, ARSLAN and POLOSA therefore propose this is a hoard from the region of Elaioussa. While they acknowledge that the three coins from the reigns of Domitian, Marcus Aurelius, and Commodus must be intrusions, this should also be extended to the seven coins with civic types from the 1st century AD since it is implausible that someone would be maintaining a savings hoard of Hellenistic civic bronzes by the reign of Augustus. GÜNEY (151) catalogues 34 coins of Soloi which are in Istanbul Archaeological Museum including nine from the Classical period and 19 from the Hellenistic period.

ERHAN (125) publishes the coin finds from the 2007-2019 excavations at Tatarlı Höyük, a rural settlement 12 km south-west of Hierapolis-Kastabala. The earliest coin is a Macedonian bronze minted at Tarsos in or soon after Alexander's lifetime. Most of the coin finds from the site are Hellenistic, above all from the 2nd century, with Antioch dominating the Seleucid material in the 3rd and 2nd centuries (ending, as elsewhere in Cilicia, with Antiochos IX) and Hierapolis the civic material in the 2nd and 1st centuries. The latest coin is a bronze of Tarkondimotos II dated *c.* 20 BC – AD 17 which will have been deposited around the time the site was abandoned. AKÇAY (9) discusses three coins found in the excavations of Olba in Rough Cilicia. These include an obol probably minted under the satrap Mazaeus at Laranda to the north-west in Lykaonia and two Macedonian bronzes dating to the last quarter of the 4th century. AKÇAY notes that Olba is a highly defensible site at a crucial crossroads in the road network connecting Cilicia to central Anatolia. He therefore speculates that first the Persian authorities and then the Macedonians set up a garrison here, a hypothesis which will be verifiable through future work on the site.

MÜSELER (267) gives an overview of the many coin series associated with satraps. His interpretation of Achaemenid history of the late Classical period, at times rather idiosyncratic, serves as the background to his interpretation of the monetary history of this period. He argues that the earlier issues of Pharnabazos and other satraps were issued under their authority as *strategoi*, whereas the later issues of Mazaios in Cilicia were issued in his function as satrap. The rich illustrations throughout are of particular use. MÜSELER (263) provides an overview of several types of the coinage of Tarsos which are considered the earliest series of this prolific mint. He dates the beginning of Cilician coinage *c.* 425, but the massive influx of new examples which has recently appeared due to an enormous hoard reaching the market is likely to lead to this coinage being dated significantly earlier in the 5th century.

MÜSELER (270) discusses some of the new types which have recently been offered in commerce, most likely as a result of the dispersal of this new hoard. After surveying types of Tarsos depicting the god Nergal and types of Soloi and Anchiale depicting a female figure (traditionally identified as an Amazon), he turns his attention to a remarkable type in which a Persian is dispatching a prone Greek with a dagger. The motif is common in other media but otherwise unattested before the 3rd century on coins (cf. MA, *Historia* (2008), pp. 243–254 for the motif's place in Achaemenid military art). MÜSELER argues this scene must commemorate a specific historical event and speculates that there was an otherwise unattested conflict between Tarsos and other cities in Cilicia Pedias in the late 5th century. This will need to be reconsidered in light of the new hoard evidence. GÜNEY (149) discusses a coin in Istanbul Archaeological Museum with the types of Soloi (kneeling female figure/bunch of grapes) but the legend ΑΓΧΙΑΛΑ for the neighbouring city of Anchiale. The example in Istanbul is a third stater in worn condition, but the legend is confirmed by a stater which has turned up in commerce (also discussed by MÜSELER but without knowledge of this paper). GÜNEY considers whether this is a case of two mints using the same types or a single mint going under two names.

SHANNAHAN (324) provides a die study of Tiribazus' Cilician staters with Baal/figure in winged disc types. These coins were minted at Issos, Mallos, Soloi, and Tarsos *c.* 387/6-April 381 and most likely relate to Tiribazos campaigning against Evagoras I of Cyprus. Unlike the enormous satrapal coinages of Pharnabazos and Tarkumuwa which run into the hundreds of dies, this is a relatively small coinage (17 obverse dies) which is unlikely to grow ($n/d = 6.7$). An odd feature of these coins which SHANNAHAN does not discuss are their weights which averaging at *c.* 10.3-5g are appreciably below the target of 10.8g. CASABONNE (75) briefly discusses a Cilician siglos dating *c.* 400-385 which he would attribute to Tarsos rather than Mallos. He discusses the identity of the god on the obverse and explores possible connections with Sanda and Tarhunta. For DE CALLATAŸ'S (67) paper on overstrikes of Pamphylian and Cilician satrapal coinages see the section on Pamphylia above.

CORFÙ (81) studies a group of silver fractions which pair a running archer obverse type with a variety of reverse designs. These are usually assigned to uncertain mints in Cilicia. Although the overview of the types is useful, the analysis of weights, types, and above all attribution (he implausibly assigns these coins to Kolophon in Ionia) leave much to be desired. DĄBROWA (94) examines the development of coin types in Cilicia from the 5th century BC through to the 3rd century AD, focusing in particular on the character of the region and how this is reflected in various coinages. ZIEGLER (397) publishes a bronze coin which appeared in commerce in 2005 and was assigned to the Seleucid pretender Achaeus at Sardis. He persuasively argues that it instead belongs to Tarkondimotos I. ERHAN (126) studies the coinage of Hierapolis-Kastabala in antiquity. He provides a typology of the mint's output and detailed discussion of the coin types.

Cappadocia

LORBER (229) publishes a die study of the silver coinage of Ariarathes V (reigned 163-130) primarily based on a packet of 239 coins from a larger hoard which was dispersed in commerce in 2005. Setting aside the arrangements of MØRKHOLM and SIMONETTA, she divides the coinage into six series produced at four mints. Series 1-3 (shortly before 135 to 130) can be attributed with confidence to Eusebeia-Tyana and Series 5 (131-130) to Eusebeia-Mazaca. Series 4 (shortly before 132 to 131) is from a mint initially dependent on help from Eusebeia-Tyana which LORBER tentatively identifies as neighbouring Cybistra (previously a bronze mint for Ariarathes III), while Series 6 (130) is from a mint which similarly was initially supported by Eusebeia-Mazaca and which she therefore identifies with nearby Ariaratheia. Production falls into two phases. From shortly before 135 to 132, minting consisted of a mix of tetradrachms and drachms produced in modest quantities at Eusebeia-Tyana and Cybistra(?). By contrast, in 131-130 the centre of minting shifts east to Eusebeia-Mazaca, only drachms are produced, and production ramps up to truly impressive figures (for example, there are 33 obverse dies attested for the Eusebeia-Mazaca mint in 130 alone, of which 16 are singletons, thus indicating that the true figure was significantly greater). While the purpose of the first phase of minting is not entirely clear, the second phase certainly corresponds to Ariarathes becoming involved in the war against Aristonikos when Roman troops appeared in force in Asia Minor in spring 131. However, LORBER notes that the levels of production we see from the Cappadocian mints could only have supported relatively small number of troops (somewhere in the low thousands). It therefore seems likely that these coins were only intended to cover some of Ariarathes' military expenditure (perhaps just that of professional soldiers or mercenaries).

KÖKER (193) publishes a small hoard of 5 silver coins of Ariobarzanes III (reigned 51-42) found in Gebiz (44km north-east of Antalya) and purchased by Burdur Museum in 2009. This is the first recorded hoard containing coins of Ariobarzanes III and, with the exception of a hoard in Tire Museum in Izmir, the most westerly hoard of Cappadocian coins so far found. The coins bear Year 9 and 11 dates (44/3, 42/1) and so the hoard was likely buried soon after this. All five coins in the hoard have different obverse and reverse dies. MEADOWS (10) discusses coin finds from the late Hellenistic sanctuary at Kınık Höyük, Niğde. These include three hoards of bronzes as well as scattered finds of bronze coinage. The contents indicate that the assemblage closed *c.* 39/8-37/6.

Sophene, Commagene, Osrhoene, Armenia

FACELLA (133) argues against the widely held view that the Commagenian kingdom had its own era beginning in 163/2 which commemorated their breaking away from the Seleucid kingdom. The idea that such an era exists rests on the bronzes of Samos II (reigned *c.* 130-109) which bear the letters ΓΛ on the reverse which has been interpreted as Year 33 of this era. However, there is no other firm literary or epigraphic evidence for a Commaegnian era in the Hellenistic period. Based on the close parallels between early Commagenian coinage and contemporary Seleucid coinage, FACELLA instead suggest that these letters should be interpreted as control marks. DILLEN (106) provides a basic illustrated typology of Commagenian coinage based on a limited range of sources.

KOVACS (192) presents an overview of all the coinage minted in Armenia (whether by Armenian rulers or external powers) and by Armenian rulers (whether within Armenia or not) in the Hellenistic and Imperial periods. His detailed typology gives indications of denominations and die axes of each issue and provides references to recent scholarship. The book ends with a very helpful set of indexes. For a critical review see NERCESSIAN, *Armenian Numismatic Journal Newsletter* 24 (2018), pp. 2–4. NERCESSIAN'S (277) study of the metrology of copper coinage from Sophene and Armenia is based on a corpus of 168 coins of

Sophene and 3,046 coins of the Artaxiad dynasty. While the book does not have much to contribute in terms of its intended purpose (NERCESSIAN seems not to have engaged with any work on the denominational structure of base metal coinages more recent than NEWELL), there is value in the repertory of examples he has assembled which draws on private collections and museums in Armenia which are not readily accessible. NERCESSIAN (278) has also published a third collected volume of his papers on Armenian numismatics. NURPETLIAN and KAZARIAN (287) use numismatic and sculptural evidence to argue that the Armenian royal tiara took both prismatic and, less frequently, cylindrical forms. They speculate that this difference might have had significance for different royal ranks (e.g. kings having prismatic tiaras, princes cylindrical tiaras). NURPETLIAN (286) publishes what may be a new Armenian bronze coin type. However, the state of preservation is so poor that nothing certain can be established.

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Bibliography

1. *Historia Numorum Online: Caria*, available online at: http://hno.huma-num.fr/.
2. *Corpus Nummorum Online*, available online at: https://www.corpus-nummorum.eu/.
3. *PELLA: Coinage of the Kings of Macedonia*, available online at: http://numismatics.org/pella/.
4. *Ptolemaic Coins Online*, available online at: http://numismatics.org/pco/.
5. *Seleucid Coins Online*, available online at: http://numismatics.org/sco/.
6. *Coin Hoards*, available online at: http://coinhoards.org/.
7. *Hellenistic Royal Coinage*, available at: http://numismatics.org/hrc/.
8. ADIEGO, I.-X., Sobre algunes noves llegendes monetals lícies, GUZZO, N. B. and TARACHA, P. (eds), "*And I Knew Twelve Languages*"*: A Tribute to Massimo Poetto on the Occasion of His 70th Birthday* (Warsaw, 2019), pp. 9–17.
9. AKÇAY, T., Sikke Buluntuları Işığında Olba'daki Pers ve Makedon Varlığı Üzerine Düşünceler / Considerations on the Persian and Macedonian Presence at Olba in the Light of Coin Finds, *Olba* 25 (2017), pp. 211–226.
10. D'ALFONSO, L., GORRINI, M. E., and MEADOWS, A. R., Archaeological Excavations at Kınık Höyük, Niğde (campaign 2016). The 5th-1st Century BCE Levels, and the End of the Occupation of the Citadel, *Athenaeum* 105 (2017), pp. 742–751.
11. AMANDRY, M. (ed.), *La monnaie antique* (Paris, 2017).
12. AMEDICK, R., FRONING-KEHLER, H., and HELD, W. (eds), *Marburger Winckelmann-Programm 2014* (Marburg, 2014).
13. ANDRADE, N. J., The Silver Coinage of Syrian Manbog (Hierapolis-Bambyke), *AJN* 29 (2017), pp. 1–45.
14. APOSTOLOU, E., Les plinthophores rhodiennes, les Romains et la première guerre mithridatique, *RN* 173 (2016), pp. 123–138, available online at: https://doi.org/10.3406/numi.2016.3319.

15. APOSTOLOU, E., Les plinthophores rhodiennes et la fin de ce monnayage, in (61), vol. 1, pp. 454–458.
16. APOSTOLOU, E., L'argent rhodien après les plinthophores, *RN* 175 (2018), pp. 129–146, available online at: https://doi.org/10.3406/numi.2018.3416.
17. APOSTOLOU, E., Monnaies rhodiennes à la tête de Dionysos, in (299), pp. 109–121.
18. APOSTOLOU, E., Crète-Cyrénaïque et Rhodes: relations continues et influences monétaires, in (71), pp. 341–347.
19. ARSLAN, M. and BAZ, F. (eds), *Arkeoloji, Tarih ve Epigrafinin Arasında: Prof. Dr. A. Vedat Çelgin'in 68. Doğum Günü Onuruna Makaleler* (Istanbul, 2018).
20. ARSLAN, M., Ayvalık-Cunda Adası, Kaya Sayar Koleksiyonundaki Troas Bölgesi Grek Sikkeleri, in (176), pp. 99–119.
21. ARSLAN, M., Ayvalık-Cunda Adası, Kaya Sayar Koleksiyonundaki Mysia Bölgesi Grek Sikkeleri, in (176), pp. 121–146.
22. ARSLAN, M. and POLOSA, A., A Hoard from the Region of Elaiussa (Cilicia Tracheia), *Olba* 27 (2019), pp. 477–500.
23. ARZONE, A. and CAPPIOTTI, F., *SNG Italy. Civici musei d'arte, Verona* (Roma, 2017).
24. ASHTON, R. H. J., Opuscula Anatolica IV. (iv) The Late Alexander Tetradrachms of Knidos and ?Nisyros, *NC* 174 (2014), pp. 19–22.
25. ASHTON, R. H. J., Opuscula Anatolica IV. (v) An Issue of Pseudo-Rhodian Drachms from Karia or Lykia, *NC* 174 (2014), pp. 23–25.
26. ASHTON, R. H. J., Opuscula Anatolica IV. (vi) The 'Colossus' Bronzes of Rhodes, *NC* 174 (2014), pp. 25–26.
27. ASHTON, R. H. J., Unknown Findspot before June 2003, *NC* 174 (2014), pp. 303–304.
28. ASHTON, R. H. J., The Late Classical and early Hellenistic Bronze Coinage of Kyme in Aiolis: a Sketch, in (109), pp. 25–48.
29. ASHTON, R. H. J., The Late Hellenistic Brass and Bronze Coinage of Apameia. A Sketch, in (166), pp. 379–433.
30. ASHTON, R. H. J., The Pseudo-Rhodian Drachms of Kibyra, in (340), pp. 161–174.
31. ASHTON, R. H. J., *SNG Great Britain 12. The Hunterian Museum, University of Glasgow. Part VII: Cimmerian Bosporus – Cappadocia* (Oxford, 2020). [Review: DE CALLATAŸ, F., *RBN* 166 (2020), pp. 510–514]
32. ASHTON, R. H. J., The Coins of Pisidia in the Archaeological Museums of Afyon Karahisar and Fethiye, *NZ* 126 (2020), pp. 227–263.
33. ASHTON, R. H. J. and KONUK, K. The *Ketos* Coins of Karia, in (155), pp. 257–288.
34. ASOLATI, M., CALLEGHER, B., and SACCOCCI, A. (eds), *Suadente nummo vetere: studi in onore di Giovanni Gorini* (Padova, 2016).
35. ATASOY, S. and YILDIRIM, Ş. (eds), *Zonguldak'ta Bir Antik Kent: Tios. 2006-2012 Arkeolojik Çalışmaları ve Genel Değerlendirme / An Ancient City in Zonguldak: Tios. General Assessment of Works between 2006 and 2012* (Ankara, 2015).
36. BAER, M., FISCHER-BOSSERT, W. and SCHINDEL, N. (eds), *Cista Mystica: Festschrift für Wolfgang Szaivert* (Wien, 2020).
37. BARBARA, S., An Anepigraphic Bronze Close to the Pergamene Issue with Types Athena-coiled Snake, in (109), pp. 49–58.
38. BAŞARAN, C. and KELEŞ, V. (eds), *Parion Kazıları 10. Yıl Armağanı / Festschrift 10th year of Parion excavations* (Ankara, 2015).
39. BERLIN, A. M. and KOSMIN, P. J. (eds), *Spear-Won Land Sardis from the King's Peace to the Peace of Apamea* (Madison, WI, 2019), available online at: https://doi.org/10.2307/j.ctvj7wnr9.
40. BERNHOLZ, P. and VAUBEL, R. (eds), *Explaining Monetary and Financial Innovation: A Historical Analysis* (Berlin–New York, 2014), available online at:

https://doi.org/10.1007/978-3-319-06109-2. [Review: DE CALLATAŸ, *RBN* 163 (2016), pp. 345–348]
41. BIANCONI, M. (ed.), *Linguistic and Cultural Interactions between Greece and Anatolia. In Search of the Golden Fleece* (Leiden, 2021), available online at: https://doi.org/10.1163/9789004461598.
42. BILGIN, M. and LENGER, D. S., Nif Dağı Karamattepe Nekropolisi'nden Bir Mezar Konteksti / A Grave Context from the Karamattepe Necropolis of Mount Nif, *Olba* 27 (2019), pp. 189–206.
43. BLAND, R. and CALOMINO, D. (eds), *Studies in Ancient Coinage in Honour of Andrew Burnett* (London, 2015).
44. BLET-LEMARQUAND, M. and DUYRAT, F., Elemental Analysis of the Lydo-Milesian Electrum Coins of the Bibliothèque nationale de France Using LA-ICP-MS, in (373), pp. 337–378.
45. BLÖMER, M. and NIESWANDT, H.-H., Atargatis und Alexander der Große: ikonographische Überlegungen zu einer Münze aus Manbij/Hierapolis, in (322), vol. 1, pp. 13–30.
46. BODZEK, J., Achaemenid Asia Minor: Coins of the Satraps and of the Great King, in (109), pp. 59–78.
47. BODZEK, J., On Two Lesser-known Satrapal Issues, *NN–ZN* 10 (2015), pp. 13–26, available online at: https://doi.org/10.11588/diglit.31074.5.
48. BODZEK, J., *SNG Poland 3. The National Museum in Cracow. Part III: Thrace and Pontus* (Krakow, 2018).
49. BODZEK, J., The Satraps of Caria and the Lycians in the Achaemenid Period: Where is the Numismatic Evidence?, *NN–ZN* 14 (2019), pp. 15–41.
50. BOTEVA, D. (ed.), *Ex Nummis Lux: Studies in Ancient Numismatics in Honour of Dimitar Draganov* (Sofia, 2017).
51. BOULAY, T., Aigai, Zeus Olympios et le terroir de l'Aἰγαῖς, *RN* 173 (2016), pp. 95–121, available online at: https://doi.org/10.3406/numi.2016.3318.
52. BOULAY, T., La liberté de Téos et le soutien d'Attale II à Alexandre Balas, *Syria* 95 (2018), pp. 133–154, available online at: https://doi.org/10.4000/syria.7156.
53. BRESSON, A., Coins and Trade in Hellenistic Asia Minor: the Pamphylian Hub, in (392), pp. 67–144, available online at: https://doi.org/10.2307/j.ctvddzgz9.9.
54. BRESSON, A., The Choice of Electrum Monometallism: When and Why, in (373), pp. 477–496.
55. BRICAULT, L., BURNETT, A. M., DROST, V., and SUSPÈNE, A. (eds), *Rome et les provinces monnayage et histoire: Mélanges offerts à Michel Amandry* (Bordeaux, 2017).
56. BRIJDER, H. A. G. (ed.), *Nemrud Dağı. Recent Archaeological Research and Conservation Activities in the Tomb Sanctuary on Mount Nemrud* (Boston, 2014), available online at: https://doi.org/10.1515/9781614516224.
57. BROUSSEAU, L., De Paris à Boston. Un faux didrachme de Kos, *BSFN* 73/7 (2018), pp. 354–355.
58. BULUT, S. and ŞENGÜL, M., 2009-2012 Yılları Andriake Kazı Sikkeleri ve Yerleşim Tarihine Katkıları, in (109), pp. 79–110.
59. BUTKEVYCH, I., *The Lion and the Bull. Vol. IV: Electrum Coins of the Scythians. History and Philosophy of Western Civilization's Earliest Coins* (Kiev, 2016).
60. BÜYÜKYÖRÜK, F. and ÇELIK, A., Mithrapata ve Aruwãtijesi (Musa Dağı?) Definesi / The Treasue of Mithrapata and Aruwãtijesi (Musa Dağı?), *Cedrus* 7 (2019), pp. 239–265, available online at: https://doi.org/10.13113/CEDRUS/201910.

61. CACCAMO CALTABIANO, M. (ed.), *XV International Numismatic Congress Taormina 2015 Proceedings*, 2 vols. (Rome–Messina, 2017).
62. CACCAMO CALTABIANO, M., CARROCCIO, B., and PUGLISI, M., The Coins and the Relational Network of Kyme: Evidence from the Italian Excavations, in (109), pp. 139–156.
63. CAHILL, N., HARI, J., ÖNAY, B., and DOKUMACI, E., Depletion Gilding of Lydian Electrum Coins and the Sources of Lydian Gold, in (373), pp. 291–336.
64. DE CALLATAŸ, F., Revisiting a Numismatic Corpus: the Case of Eupator, Last King of Pontus, in (109), pp. 117–138.
65. DE CALLATAŸ, F., Overstrikes in the Greek World: an Overview on the Full Landscape and an Explanation for Punctual Occurrences with Silver Coinage, *RBN* 164 (2018), pp. 26–48.
66. DE CALLATAŸ, F., Les statères d'Aspendos du IV^{e} s. Un curieux accident de frappe, une intrigante étude de coins (pour la variété avec les lettres KI) et une exceptionnelle signature de graveur, *Sicilia Antiqua* 13 (2016), pp. 67–72.
67. DE CALLATAŸ, F., Overstrikes on Pamphylian and Cilician Silver Sigloi (5th-4th c. BC), in (340), pp. 131–150.
68. DE CALLATAŸ, F., Prolegomena to a Die Study of the Electrum Coinage of Cyzicus, in (373), pp. 641–664.
69. CANEVARO, M., ERSKINE, A., GRAY, B., and OBER, J. (eds), *Ancient Greek History and Contemporary Social Science* (Edinburgh, 2018), available online at: https://doi.org/10.3366/edinburgh/9781474421775.001.0001.
70. CANTILENA, R., Una moneta d'oro di Lampsaco a Poseidonia, in (61), vol. 1, pp. 323–327.
71. CANTILENA, R. and CARBONE, F. (eds), *Monetary and Social Aspects of Hellenistic Crete*, ASAtene Supplement 8 (Athens, 2020).
72. CARBONE, L. F., Money and Power: The Disappearance of Autonomous Silver Issues in the Roman Province of Asia, *OMNI* 8 (2014), pp. 10–34.
73. CARBONE, L. F., *Hidden Power: Late Cistophoric Production and the Creation of Provincia Asia*, Numismatic Studies 42 (New York, 2020). [Review: KINNS, P., *NC* 181 (2021), pp. 526–530]
74. CARROCCIO, B., Not Only Kymaeans, Not Only Aeolians: New Light on Local and Foreign Coin Circulation in the Port City of Kyme from Italian Excavations, in (363), pp. 56–69.
75. CARROCCIO, B., APOLITO, P., RIZZARI, R., and SPINELLI, M., Le monete, segno delle relazioni di Kyme: primi risultati di un progetto a più voci, in (232), pp. 257–298.
76. CASABONNE, O., Divinité assise, pouvoir et plaisir à Tarse ou Mallos. Problèmes d'interprétation d'iconographie monétaire, *Anat. Ant.* 27 (2019), pp. 23–25, available online at: https://doi.org/10.4000/anatoliaantiqua.1261.
77. CHAMEROY, J., Manipulating Late Hellenistic Coinage: Some Overstrikes and Countermarks on Bronze coins of Pergamum, *Chiron* 46 (2016), pp. 84–118, available online at: https://doi.org/10.34780/zi37-sw42.
78. CHAMEROY, J., Early Silver Coinage of Elaea and Pergamum – a Comparative Study, *Chiron* 50 (2020), pp. 29–48, available online at: https://doi.org/10.1515/9783110699579-002.
79. CHAMEROY, J. and SAVALLI-LESTRADE, I., Pergame, cité et capitale dynastique au miroir de la prosopographie interne et des trouvailles monétaires, *Topoi* 14 (2016), pp. 229–284.
80. CHAMEROY, J. and WEISSER, B., *Pergamon: Fundmünzen*, available online at: http://ikmk.smb.museum/mk_pergamon/.

81. CORFÙ, N. A., Bogenschützen auf Kleinsilbermünzen vor 333 v. Chr. Tetartemoria aus Kleinasien, *SNR* 94 (2015), pp. 5–32, available online at: http://doi.org/10.5169/seals-825877.
82. CORFÙ, N. A., Zwei Unikate aus Kleinasien?, *SM* 65/260 (2015), pp. 103–106, available online at: http://doi.org/10.5169/seals-685843.
83. ÇEKILMEZ, M. and DEREBOYLU POULAIN, E. (eds), *Myrina ve Gryneion Arkeolojik Yüzey Araştırmaları, 1. Cilt* (Ankara, 2017).
84. ÇEKILMEZ, M., DEREBOYLU POULAIN, E., and ERDAN, E. (eds), *Myrina ve Gryneion Arkeolojik Yüzey Araştırmaları, 2. Cilt* (Ankara, 2018).
85. ÇEKILMEZ, M. and KAPUCI, U. (eds), *Alinda Araştırmaları. I, Alinda Antik Kenti ve Çevresi Arkeolojik Yüzey Araştırmaları: Eski Belgeler ve Yeni Araştırmalar* (Aydın, 2020).
86. ÇELIK, A., Likya Beyi Perikle ve Dönemine (MÖ 390/380-360) İlişkin Bazı Öneriler / Some Suggestions Regarding to Lycian Dynast Perikle and his Time (390/380-360 BC), *Belleten* 84/299 (2020), pp. 1–20.
87. ÇIZMELI ÖĞÜN, Z., The Sanctuary of Apollo Smintheus in the Light of Numismatic Evidence, in (294), pp. 93–104.
88. ÇIZMELI ÖĞÜN, Z. (ed.), *Kaunos/Kbid Toplantıları 3 Anadolu Nümismatik Araştırmaları Çalıştayı* (Ankara, 2016).
89. ÇIZMELI ÖGÜN, Z., Les monnaies provenant des fouilles archéologiques en Asie Mineure, in (55), pp. 273–290.
90. ÇIZMELI ÖGÜN, Z., Hamaxitos ve Apollon Smintheus: Yeni Bir Sikke Tipi, in (176), pp. 281–288.
91. DALAISON, J., *SNG France 7. Département des monnaies, médailles et antiques: Paphlagonie, Pont, Arménie Mineure* (Bordeaux, 2015). [Reviews: IRELAND, S., *NC* 176 (2016), pp. 474–475; DELREIUX, F., *RN* (2017), pp. 371–379]
92. DALE, A., WALWET and KUKALIM: Lydian Coin Legends, Dynastic Succession, and the Chronology of Mermnad kings, *Kadmos* 54/1-2 (2015), pp. 151–166, available online at: https://doi.org/10.1515/kadmos-2015-0008.
93. DAVIS, G., Athenian Electrum Coinage Reconsidered: Types, Standard, Value, and Dating, *NC* 175 (2015), pp. 1–9.
94. DĄBROWA, E., Coinage of the Cilician Cities as a Mirror of Historical and Cultural Changes (V c. BCE – III c. CE), *SAAC* 23 (2019), pp. 113–135, available online at: https://doi.org/10.12797/SAAC.23.2019.23.06.
95. DEBORD, P. and VARINLIOĞLU, E. (eds), *Hyllarima de Carie. État de la question* (Bordeaux, 2018).
96. DELIKAN, B., Metropolis Kazısı Sikke Buluntuları, in (363), pp. 70–82.
97. DELRIEUX, F., Les alexandres municipaux tardifs de Carie (fin III^{e}-début II^{e} siècle av. J.-C.): notes sur les ateliers d'Eurômos et Mylasa d'après le trésor de "Démétrios I^{er}", in (109), pp. 197–218.
98. DELRIEUX, F., Les monnaies de fouilles trouvées à Claros en 2001-2011, Essai de circulation monétaire dans un sanctuaire oraculaire, in (262), pp. 133–188.
99. DELRIEUX, F., Les monnaies de Rhodes trouvées dans le temps distyle d'Iasos, in (231), pp. 141–143.
100. DELRIEUX, F., La circulation monétaire à Iasos dans l'Antiquité d'après les monnaies grecques et provinciales romaines trouvées dans la cité depuis 1960. Introduction et catalogue, *Bolletino dell'Associazione Iasos di Caria* 22 (2016), pp. 6–15.

101. DELRIEUX, F., La représentation des montagnes sur les monnaies grecques d'Asie Mineure occidentale. Réalité et imaginaire d'un monde à part, in (312), vol. 2, pp. 31–99.
102. DELRIEUX, F., La circulation monétaire à Iasos dans l'Antiquité d'après les monnaies grecques et provinciales romaines trouvées dans la cité depuis 1960. Commentaire numismatique et historique, *Bolletino dell'Associazione Iasos di Caria* 23 (2017), pp. 14–23.
103. DELRIEUX, F., La circulation monétaire à Hyllarima, in (95), pp. 113–118.
104. DELRIEUX, F., Les derniers monnayages aux types et au nom d'Alexandre le Grand dans l'ouest de l'Asie Mineure (fin III^e-début II^e siècle). État de la question et perspectives nouvelles, in (199), pp. 89–131.
105. DELRIEUX, F., Les monnaies de fouilles d'Iasos en Carie. Les exemplaires au nom des Iasiens, *AIIN* 65 (2019), pp. 67–116.
106. DILLEN, R., Coins of Commagene, in (56), pp. 533–562, available online at: https://doi.org/10.1515/9781614516224.533.
107. DÖNMEZ, Ş. (ed.), *Amasya-Oluz Höyük. Kuzey-Orta Anadolu'da Bir Akhaimenid (Pers) Yerleşmesi: 2009-2013 Dönemi Çalışmaları Genel Değerlendirmeler ve Ön Sonuçlar* (Amasya, 2017).
108. DÖNMEZ-ÖZTÜRK, F., Istanbul Arkeoloji Müzeleri'nde Bulunan Bir Grup Termessos Sikkesi, in (109), pp. 231–244.
109. DÖRTLÜK, K., TEKIN, O., and BOYRAZ SEYHAN, R. (eds), *Proceedings: First International Congress of the Anatolian Monetary History and Numismatics, 25-28 February 2013, Antalya* (Istanbul, 2014).
110. DOYEN, C. and WILLOCX, L. (eds), *Pondera Antiqua et Mediaevalia I*, Numismatica Lovaniensia 22 (Louvain-la-Neuve, 2020).
111. DREYER, B. (ed.), *Neufunde – Analysen – Bewarung. Beiträge zur archäologischen, historischen und restaurativen Forschung in der Westtürkei*. *Eine Dankesgabe an R. Meriç*, Orient und Okzident in der Antike 3 (Berlin, 2018).
112. DUSINBERRE, E., GARRISON, M. B., and HENKELMAN, W. F. M. (eds), *The Art of Empire in Achaemenid Persia. Studies in Honour of Margaret Cool Root* (Leiden, 2020), available online at: https://doi.org/10.2307/j.ctv1q26vzm.
113. DUYRAT, F. and GRANDJEAN, C. (eds), *Les monnaies de fouille du monde grec (VI^e-I^er siècle a.C.): apports, approches et méthodes* (Bordeaux, 2016). [Review: CARRIER, C., *Revue archéologique* (2018), pp. 195–197]
114. DÜNDAR, E., AKTAŞ, Ş., KOÇAK, M., and ERKOÇ, S. (eds), *Havva İşkan'a Armağan Lykiarkhissa. Festschrift für Havva İşkan* (Istanbul, 2016).
115. ELAYI, J. (ed.), *Transeuphratène 50. Recherches pluridisciplinares sur une province de l'empire achéménide. Actes du IX^e Colloque international La Transeuphratène à l'époque perse: Unité et diversité* (Paris, 2016).
116. ELKINS, N. T. and EVANS, J. D. (eds), *Concordia Disciplinarum: Essays on Ancient Coinage, History, and Archaeology in Honor of William E. Metcalf*, Numismatic Studies 38 (New York, 2018).
117. ELLIS-EVANS, A., Mytilene, Lampsakos, Chios and the Financing of the Spartan Fleet (406-404), *NC* 176 (2016), pp. 1–19.
118. ELLIS-EVANS, A., The Koinon of Athena Ilias and its Coinage, *AJN* 28 (2016), pp. 105–158.
119. ELLIS-EVANS, A., The History and Coinage of Achaiion in the Troad, *REA* 119/1 (2017), pp. 25–47.
120. ELLIS-EVANS, A., Memnon and Mentor of Rhodes in the Troad, *NC* 178 (2018), pp. 33–69.

121. ELLIS-EVANS, A., *The Kingdom of Priam: Lesbos and the Troad between Anatolia and the Aegean* (Oxford, 2019), available online at: https://doi.org/10.1093/oso/9780198831983.001.0001.
122. ELLIS-EVANS, A., The Late Hellenistic Tetradrachms of Parion and Lampsakos, *AJN* 32 (2020), pp. 93–125.
123. ELLIS-EVANS, A. and EROL-ÖZDIZBAY, A., Coins from the Kırıkhan Hoard in Hatay Archaeological Museum, *NC* 180 (2020), pp. 39–58.
124. ELLIS-EVANS, A. and VAN ALFEN, P. G., Preliminary Observations on the Archaic Silver Coinage of Lampsakos in its Regional Context, in (340), pp. 41–51.
125. ERHAN, F., Tatarlı Höyük Kazısı Numismatik Buluntuları (2007-2019) Işığında Yerleşim Tarihi Üzerine Değerlendirmeler, *CollAn* 19 (2020), pp. 47–86.
126. ERHAN, F., Hierapolis-Kastabala Sikkeleri / The coinage of Hierapolis - Kastabala, *Osmaniye Araştırmaları* 1 (2020), pp. 35–103.
127. EROL-ÖZDIZBAY, A., The Coinage of Pordosilene (Pordoselene/Poroselene), in (340), pp. 65–83.
128. ERSOY, A., ÖNDER, M., and TURAN, H., *Antik Smyrna Sikkeleri (2008-2012) / Coins from ancient Smyrna excavations (2008-2012)* (Izmir, 2014).
129. ESCH, T., Alexandria Troas: Drei numismatische Notizen zur Stadtgeschichte, in (322), vol. 1, pp. 71–86.
130. EVANS, J. D., What Archaeology Can Tell Us about the Date of the Opening of the Civic Mint at Sardis, Turkey, in (61), vol. 1, pp. 486–488.
131. EVANS, J. D., *Coins from the Excavations at Sardis: Their Archaeological and Economic Contexts: Coins from the 1973 to 2013 Excavations* (Cambridge, MA, 2018). [Reviews: BURNETT, A., *NC* 179 (2019), pp. 403–404; HOCHARD, P.-O., *RN* 176 (2019), pp. 407–410; KROLL, J. H., *CR* 70/1 (2020), pp. 205–208]
132. EVANS, J. D., The Mint at Sardis, in (39), pp. 97–119, available online at: https://doi.org/10.2307/j.ctvj7wnr9.14.
133. FACELLA, M., The Alleged Dynastic Era of Commagene, in (330), pp. 336–348.
134. FISCHER-BOSSERT, W., Kyzikener Falzschrötlinge, *MÖNG* 55/2 (2015), pp. 79–92.
135. FISCHER-BOSSERT, W., Brüllende Löwen. Eine Elektronserie des 6. Jahrhunderts v. Chr., *MÖNG* 56/1 (2016), pp. 23–29.
136. FISCHER-BOSSERT, W., Horses with and without Wings, in (34), pp. 1–21.
137. FISCHER-BOSSERT, W., Electrum Coinage of the 7th century BC, in (340), pp. 15–23.
138. FISCHER-BOSSERT, W., Ephesus Switching from Electrum to Silver, in (285), pp. 157–171.
139. FISCHER-BOSSERT, W., Phanes: a Die Study, in (373), pp. 423–476.
140. FISCHER-BOSSERT, W., Ein karisches Monster, in (36), pp. 119–168.
141. FISCHER-BOSSERT, W., Die Elektronhekten mit dem Herakleskopf: Herakleia Pontike, nicht Erythrai, *NZ* 126 (2020), pp. 15–164.
142. FISCHER-BOSSERT, W., The Electrum Coinage of Lindos Again, in (252), pp. 9–18.
143. FRASCONE, D., *Zeugma IV: les monnaies* (Lyon, 2013).
144. GANSCHOW, T., *Münzen von Kappadokien: Sammlung Henseler. Bd 1: Königreich und Kaisareia bis 192 n. Chr.* (Istanbul, 2018). [AMANDRY, M., *RBN* 177 (2020), pp. 414–415]

145. GITLER, H., GOREN, Y., KONUK, K., TAL, O., VAN ALFEN, P. G., and WEISBURD, D., XRF Analysis of Several Groups of Electrum Coins, in (373), pp. 379–422.
146. GLENN, S., DUYRAT, F., and MEADOWS, A. R. (eds), *Alexander the Great. A Linked Open World* (Bordeaux 2018).
147. GKIKAKI, M., The Earliest Coin Series of Thyateira: a Precursor to the "Quasi Municipal" Seleucid Coinage, *Nom Khron* 33 (2015), pp. 75–83.
148. GÖKYILDIRIM, T., *İstanbul Arkeoloji Müzeleri Lydia Sikkeleri Kataloğu / Catalogue of the Lydian coins in the Istanbul Archaeological Museums* (Istanbul, 2016).
149. GÜNEY, H., Same Type, Different Legend: Anchiale or Soloi?, *Adalya* 17 (2014), pp. 45–54.
150. GÜNEY, H., Unpublished Coins of the Bithynian Kingdom, *NC* 175 (2015), pp. 357–363.
151. GÜNEY, H., İstanbul Arkeoloji Müzeleri'nde Bulunan Soloi-Pompeiopolis Kenti'ne Ait Bir Grup Sikke / Unpublished Coins of Soloi-Pompeiopolis at Istanbul Archaeological Museums, *Belleten* 79/286 (2015), pp. 827–846.
152. GÜNEY, H., Unpublished Coins of the Bithynian Kingdom at Bursa Museum, *NC* 177 (2017) pp. 494–500.
153. VAN HEESCH, J. and STROOBANTS, F., The Silver Coinage of Sagalassos in Pisidia, in (43), pp. 13–30.
154. HEMINGWAY, S. A. and KAROGLOU, K. (eds), *Art of the Hellenistic Kingdoms: From Pergamon to Rome* (New York, 2019).
155. HENRY, O. and KONUK, K. (eds), *KARIA ARKHAIA. La Carie, des origines à la période pré-hékatomnide* (Istanbul, 2019).
156. HENRY, O. and BELGIN-HENRY, A. (eds), *THE CARIANS, from Seafarers to City Builders / KARİALILAR, Denizcilerden Kent Kuruculara* (Istanbul, 2020).
157. HILBERT, R., *Die Elektronprägung von Milet*, Nomismata 9 (Bonn, 2018). [Review: DE CALLATAŸ, F., *RBN* 167 (2021), pp. 458–461]
158. HILBERT, R., Bemerkungen zu frühen Elektronprägungen, *JNG* 69/70 (2019/2020), pp. 1–34.
159. HOCHARD, P.-O., *Lydie, terre d'empire(s): étude de numismatique et d'histoire (228 a.C.-268 p.C.)*, 2 vols. (Bordeaux, 2020). [Review: STROOBANTS, F., *RBN* 167 (2021), pp. 466–468; BURNETT, A., *NC* 181 (2021), pp. 536–544]
160. HOERNES, M., Royal Coinage, in (167), vol. 1, pp. 793–814.
161. HOFF, C., *Identität und Politik – Kollektive kulturelle und politische Identität der Lykier bis zur Mitte des 4. Jhdt.s v. Chr.* (Wiesbaden, 2017). [Review: MÜSELER, W. and SCHÜRR, D., *Gnomon* 91/1 (2019), pp. 39–46]
162. HOFF, C., Lycian Tiarate Heads Reconsidered, in (61, vol. 1, pp. 365–368.
163. HÖGEMANN, P. and OETTINGER, N., *Lydien: ein altanatolischer Staat zwischen Griechenland und dem Vorderen Orient* (Berlin, 2018).
164. IOSSIF, P., DE CALLATAŸ, F., and VEYMIERS, R. (eds), *TYPOI. Greek and Roman Coins Seen through Their Images: Noble Issuers, Humble Users? Proceedings of the International Conference Organized by the Belgian and French Schools at Athens, 26-28 September 2012* (Liège, 2018). [Review: ELKINS, N. T., *AJA* 123/2 (2019), published online at: www.ajaonline.org/book-review/3845]
165. IŞKAN, H. (ed.), *Patara. Kent, Liman, Kült* (Istanbul, 2019).
166. IVANTCHIK, A., SUMMERER, L., and VON KIENLIN, A. (eds), *Kelainai II, Kelainai–Apameia Kibotos: eine achämenidische, hellenistische und römische Metropole* (Bordeaux, 2016).

167. JACOBS, B. and ROLLINGER, R. (eds), *A Companion to the Achaemenid Persian Empire*, 2 vols. (Malden, MA, 2021).
168. JONES, D. W., Mechanism Design Approach to Lydian Coinage, in (373), pp. 517–535.
169. KAGAN, J., Return to Xanthos. New Numismatic Light on the Harpagid Dynasty of Western Lycia, in (252), pp. 25–64.
170. KALLET, L. and KROLL, J. H., *The Athenian Empire: Using Coins as Sources* (Cambridge, 2020).
171. KARLSSON, L., CARLSSON, S., and BLID KULLBERG, J. (eds), *ΛΑΒΡΥΣ: Studies Presented to Pontus Hellström*, Boreas: Uppsala Studies in Ancient Mediterranean and Near Eastern Civilizations 35 (Uppsala, 2014).
172. KARWIESE, S., Some New Evidence on Early Electrum Coinage, in (109), pp. 319–332.
173. KARWIESE, S., *Die Münzprägung von Ephesos. 2. Prägeserien 7 bis 11 (5.-4. Jh. v. Chr.): Corpus und Aufbau der griechischen Stadtprägung mit allen erfassbaren Stempelnachweisen sowie numismatischen Analysen und Chronologien* (Wien, 2019).
174. KELEŞ, V., Parion Sikkelerinin Sirkülasyonu Işığında Parion'un Bölgesel Konumu, in (109), pp. 333–344.
175. KELEŞ, V., Parion Nekropolü'nde Ele Geçen Dört Altın Obje Üzerine. Yeni Bir Değerlendirme / A New Evaluation on Four Golden Objects Recovered from the Necropolis of Parion, *Olba* 22 (2014), pp. 117–128.
176. KELEŞ, V. (ed.), *Parion Studies III: Propontis ve Çevre Kültürleri* (Istanbul, 2020).
177. KERSCHNER, M., The Archaic Temples in the Artemision of the 'Central Basis', in (373), pp. 191–262.
178. KERSCHNER, M. and KONUK, K., Electrum Coins and Their Archaeological Context: the Case of the Artemision of Ephesus, in (373), pp. 83–190.
179. KILLEN, S., *Parasema: Offizielle Symbole griechischer Poleis und Bundesstaaten* (Wiesbaden, 2017). [Review: MACK, W., *BMCR* 2019.01.45, published online at: https://bmcr.brynmawr.edu/2019/2019.01.45/]
180. KILLEN, S., The Winged Horse Protome from Lampsacus and its Interpretations, in (340), pp. 53–64.
181. KINNS, P., Opuscula Anatolica IV. (i) Lunate Letter Forms in the 4th century and Hellenistic Coinage of Ionia, *NC* 174 (2014), pp. 1–15.
182. KINNS, P., Opuscula Anatolica IV. (ii) A Chiot Palinode, *NC* 174 (2014), pp. 15–17.
183. KISBALI, T. P., Two Faces and Many Interpretations: a Note on the Janiform Coinage of Tenedos, *NAC* 49 (2020), pp. 27–37.
184. KLEBER, K., As Skilful as Croesus: Evidence for the Parting of Gold and Silver by Cementation from Second and First Millennium Mesopotamia, in (373), pp. 17–34.
185. KOLB, F., *Lykien. Geschichte einer antiken Landschaft* (Darmstadt, 2018).
186. KORKUT, T., Die Götterdarstellungen auf den Münzen von Tlos, in (12), pp. 17–33.
187. KOUNTOURI, E. and GADOLOU, A. (eds), *Σωστικές ανασκαφές της Αρχαιολογικής Υπηρεσίας. Ι, Τα νεκροταφεία. Χωροταξική οργάνωση – ταφικά έθιμα – τελετουργίες*, 3 vols. (Athens, 2019).
188. KONUK, K., On Some New Lycian Coin Types, *Philia* 2 (2016), pp. 20–27.
189. KONUK, K., A New Lycian Coin Type of Pinara, *Philia* 3 (2017), pp. 97–98.

190. KONUK, K., Archaic and Classical Coins of Caria / Karia Bölgesi'nin Arkaik ve Klasik Dönem Sikkeleri, in (156), pp. 240–251.
191. KONUK, K., EROL-ÖZDIZBAY, A., and TEKIN, O., *SNG Turkey 1. The Muharrem Kayhan Collection Part 2* (Istanbul, 2015).
192. KOVACS, F. L., *Armenian Coinage in the Classical Period* (Lancaster, PA, 2016). [Review: NERCESSIAN, Y. T., *Armenian Numismatic Journal Newsletter* 24 (2018), pp. 2–4]
193. KÖKER, H., Küçük bir III. Ariobarzanes Eusebios Philoromaios Drahmi Definesi / A Drachms Hoard of Ariobarzanes III Eusebios Philoromaios, in (88), pp. 39–43.
194. KÖKER, H., Aizanoi Kazısı 2013-2014 Yılları Sikke Buluntuları / Aizanoi Coins Finds from 2013-2014 Excavation Seasons, in (293), pp. 197–207.
195. KÖKER, H., The Coins from the 1954 Excavation at Daskyleion, *NC* 176 (2016), pp. 431–435.
196. KÖKER, H., Komama Gümüş Sikkeleri / Silver Coins of Komama, *Olba* 25 (2017), pp. 227–239.
197. KÖKER, H., Overstruck Coins of Etenna, in (340), pp. 175–184.
198. KÖKER, H., Kakasbos/Herakles (?) ve Yeni Bir Bronz Sagalassos Sikkesi / Kakasbos/Herakles (?) and a New Bronze Coin Type of Sagalassos, *Olba* 27 (2019), pp. 465–476.
199. KREMYDI, S. and MARCELLESI, M.-C. (eds), *Les alexandres après Alexandre. Histoire d'une monnaie commune* (Athènes, 2019). [Review: GRANDJEAN, C., *RN* 178 (2021), pp. 471–474]
200. KRENGEL, E., Orphik in Pergamon. Die Bedeutung des Schlangenpaares auf den Cistophoren und römischen Prägungen, *JNG* 66 (2016), pp. 15–57.
201. KROLL, J. H., Striking and Restriking on Folded Flans: Evidence from Athens, Cyzicus, (?)Sinope, Elis, Thebes, and Aegina, in (61), vol. 1, pp. 378–382.
202. KROLL, J. H., The Inscribed Account on Lead from the Ephesian Artemision, in (373), pp. 49–63.
203. KROLL, J. H., Issue Identification, *Dynastai*, and the Plethora of Types in Early Electrum Coinage, in (373), pp. 537–545.
204. KURTH, D., *Greek and Roman Provincial Coins: Lydia*, 4 vols. (Istanbul, 2020). [Review: BURNETT, A., *NC* 181 (2021), pp. 536–544]
205. LAZZARINI, L., La prima monetazione di Gergis, città della Troade interna, in (34), pp. 53–58.
206. LAZZARINI, L., Assus Troadis: the Beginning of Coinage and its Later Silver Emissions in the V and IV Century BC, *West & East* 2 (2017), pp. 31–41, available online at: https://doi.org/10.13137/2499-7331/15057.
207. LAZZARINI, L., The Autonomous Coinage of Assos in the Troad, *NAC* 47 (2018), pp. 43–65.
208. LENGER, D. S., Monete dal Castello di Ballıcaoluk sul Monte Nif (Olympos), *AIIN* 61 (2015), pp. 293–301.
209. LENGER, D. S., Rinvenimenti monetali greci da Assos in Troade, *AIIN* 62 (2016), pp. 197–212.
210. LENGER, D. S., A New Myrinan (Aeolis) Bronze Coin?, *AIIN* 62 (2016), pp. 281–286.
211. LENGER, D. S., Monete provenienti dal Monte Nif (Olympos) in Ionia, in (330), pp. 598–610.
212. LENGER, D. S., Assos Kazılarında Bulunan Hellen ve Roma Eyalet Sikkeleri, in (88), pp. 113–119.

213. LENGER, D. S., New Evidence for the Western Asia Minor Origin of the Macedonian Royal Bronze Issue Price P2 from Nif Olympos Excavations, *Philia* 2 (2016), pp. 36–41.
214. LENGER, D. S., Coin Finds from Dağkızılca Necropolis on Mount Nif in Ionia, in (114), pp. 561–566.
215. LENGER, D. S., Not Thymbra in Troad but Thyessos in Lydia, in (50), pp. 221–227.
216. LENGER, D. S., A Phantom City in the Troad: Aioleion and its Coinage, *Philia* 3 (2017), pp. 99–106.
217. LENGER, D. S., Sikkeler / Coins, in (302), pp. 114–118.
218. LENGER, D. S., Price 419A: νέα ταύτιση υπό το φως νέων δεδομένων από το όρος Nif της Μικράς Ασίας / Price 419A: a New Attribution in the Light of New Data from Nif Mount in Asia Minor, *Nom Khron* 37 (2019), pp. 53–71.
219. LENGER, D. S., Seleukia-Tralleis Kentinde Darp Edilmiş Olan Panegyris Sikkeleri / *Panegyris* Coins of Seleucia-Tralleis, *MSGSÜ Sosyal Bilimler Dergisi* 19/3 (2019), pp. 112–119.
220. LENGER, D. S., Patara Kazılarında Bulunan Sikkeler, in (165), pp. 394–403.
221. LENGER, D. S., Alinda Kenti Otonom Sikke Darpları, in (85), pp. 75–88.
222. LENGER, D. S. and ATASOY, S., Tios Kazılarında Bulunan Sikkeler / Coins From the Tios Excavations, in (35), pp. 381–415.
223. LENGER, D. S. and DÜNDAR, E., Attestation of a Ptolemaic Garrison in the Light of Coins: Tepecik Hill at Patara, Lycia, *AIIN* 66 (2020), pp. 37–66.
224. LENGER, D. S. and TATAR, Ö., Not Salamis but Sardes: Price 3158 in the Light of İzmir Archaeology Museum Collection and the Archaeological Finds from Nif (Olympos) Mountain in İzmir, *Acta Classica Mediterranea* 2 (2019), pp. 59–77.
225. LESCHHORN, W., Die hellenistischen Drachmen der Stadt Side in Pamphylien, in (109), pp. 369–381.
226. LICHTENBERGER, A., MARTIN, K., NIESWANDT, H.-H., and SALZMANN, D. (eds), *BildWert: nominalspezifische Kommunikationsstrategien in der Münzprägung hellenistischer Herrscher* (Bonn, 2014).
227. LÓPEZ SÁNCHEZ, F. and GÓMEZ CASTRO, D., The Gaza 1960s Hoard: An Assemblage of Archaic Greek Coins, *AJN* 27 (2015), pp. 1–8.
228. LORBER, C. C., *Coins of the Ptolemaic Empire. Part 1. Ptolemy 1 through Ptolemy IV*, 2 vols., Numismatic Studies 32 (New York, 2018).
229. LORBER, C. C., The Silver Mints of Ariarathes V Eusebes of Cappadocia, *RBN* 164 (2018), pp. 271–301.
230. LORBER, C. C., The "Pseudo-Chios" Mint: a New Drachm Mint in Asia Minor, *NC* 180 (2020), pp. 21–38.
231. MASTURZO, N. (ed.), *Iasos. L'area a sud dell'agorà, I. Il tempio distilo d'età ecatomnide e l'architettura ionica* (Roma, 2016).
232. LA MARCA, A. (ed.), *Studi su Kyme Eolica VI* (Arcavacata, 2017).
233. MARCELLESI, M.-C., Monnaie, politique et économie à Cos de l'époque archaique à l'époque d'Auguste, *RN* 171 (2014), pp. 747–758.
234. MARCELLESI, M.-C., Territoire, institutions et rayonnement de Pergame: l'apport des monnaies de fouilles, in (113), pp. 203–224.
235. MARCELLESI, M.-C., À propos de quelques trésors: la circulation monétaire en Asie Mineure à la fin du III^e^ siècle av. J.-C., *RN* 173 (2016), pp. 55–73, available online at: https://doi.org/10.3406/numi.2016.3314.

236. MARCELLESI, M.-C., Power and Coinage. The Portrait Tetradrachms of Eumenes II, *Opuscula. Annual of the Swedish Institutes at Athens and Rome* 10 (2017), pp. 94–106.
237. MARCHAND, S., Electrum Coinage of the Ionian Revolt: the Complete Series of Abydos, in (61), vol. 1, pp. 387–390.
238. MARCHETTI, P., La nature particulière et la valeur du cyzicène, in (323), pp. 127–149.
239. MAREK, C., *Geschichte Kleinasien in der Antike*, 3rd ed. (Munich, 2017).
240. MARINESCU, C., The Lysimachi Coinage of Cius, Bithynia, in (50), pp. 177–220.
241. MARINESCU, C., The Asia Minor 1949 Hoard (IGCH 1450) at the American Numismatic Society, in (116), pp. 87–106.
242. MARTÍNEZ CHICO, D. and GONZÁLEZ GARCÍA, A., A Small Hoard of Alexander Tetradrachms from Batman (Turkey), *NC* 178 (2018), pp. 285–290.
243. MEADOWS, A. R., Imitative Coinage in First-Century Pamphylia, in (109), pp. 409–422.
244. MEADOWS, A. R., Opuscula Anatolica IV. (iii) A New Cistophoric Fraction of Tralles?, *NC* 174 (2014), pp. 17–19.
245. MEADOWS, A. R., The Spread of Coins in the Hellenistic World, in (40), pp. 169–194, available online at: https://doi.org/10.1007/978-3-319-06109-2_7.
246. MEADOWS, A. R., Four Cistophoric Hoards?, in (368), pp. 279–310.
247. MEADOWS, A. R., The Great Transformation. Civic Coin Design in the 2nd Century BC, in (164), pp. 297–318.
248. MEADOWS, A. R., Civic Countermarks on the Silver Coinage of Asia Minor in the 2nd Century BC, in (340), pp. 185–219.
249. MEADOWS, A. R., Invasion and Transformation. The Development of the Civic Alexander Coinage in Western Asia Minor, *c.* 323 to 223 BC, in (199), pp. 63–87.
250. MEADOWS, A. R., An Attalid Overstrike and its Implications, *RN* 177 (2020), pp. 117–125.
251. MEADOWS, A. R., *Tout ce qui brille* … Electrum and the Origins of Western Coinage, *RN* 178 (2021), pp. 443–470.
252. MEADOWS, A. R. and WARTENBERG, U. (eds), *Presbeus: Studies in Ancient Coinage Presented to Richard Ashton* (New York, 2021).
253. MELITZ, J. A., Model of the Beginnings of Coinage in Antiquity, *European Review of Economic History* 21/1 (2017), pp. 83–103, available online at: https://doi.org/10.1093/ereh/hew018.
254. METCALF, W. E., The Cistophori of Nysa, in (368), pp. 311–319.
255. METCALF, W. E., *The Later Republican Cistophori*, Numismatic Notes and Monographs 170 (New York, 2017). [Review: AMANDRY, M., *RN* 176 (2019), pp. 385–9]
256. MICHELS, C., Überlegungen zur Ikonographie der Bronzemünzen Prusias' I. und II. von Bithynien, in (226), pp. 225–246.
257. MIELCZAREK, M., Pomiędzy Wschodem i Zachodem: Mennictwo ośrodków Rodos w okresach archaicznym i klasycznym / Between East and West. Coinage of the Rhodian poleis in the Archaic and Classical periods, *AAL* 61 (2015), pp. 13–22.
258. MIELCZAREK, M., *SNG Poland 1. The Archaeological and Ethnographical Museum in Łódź. Part III: Bosporus-Cilicia* (Krakow–Warsaw, 2016). [Review: BODZEK, J., *NN–ZN* 14 (2019), pp. 335–337]
259. MIELCZAREK, M., Cyzicene Electrum Coinage and the Black Sea Grain Trade, in (373), pp. 665–688.

260. MITCHINER, M., A Small Hoard of Archaic Greek Coins: Lycia to Cilicia, *JONS* 225 (2015), pp. 12–14.
261. MITTAG, P. F., *Griechische Numismatik: eine Einführung* (Heidelberg, 2016).
262. MORETTI, J.-C. (ed.), *Le sanctuaire de Claros et son oracle: actes du colloque international de Lyon, 13-14 janvier 2012*, Travaux de la Maison de l'Orient et de la Méditerranée 65 (Lyon, 2014).
263. MÜSELER, W., Tarsos und die Anabasis des jüngeren Kyros. Persische Militärprägungen in Kilikien und der Levantezwischen dem späten 5. und frühen 4. Jahrhundert v. Chr., *JNG* 65 (2015), pp. 9–30.
264. MÜSELER, W., *Lykische Münzen in europäischen Privatsammlungen. Gephyra Einzelschriften IV* (Istanbul, 2016). [Review: BODZEK, J., *NN–ZN* 14 (2019), pp. 327–334]
265. MÜSELER, W., The Place of the Two Wekhssere in the History of Lycia, in (61), vol. 1, pp. 614–618.
266. MÜSELER, W., Ddẽnewele. Der vergessene Dynast vom Xanthos-Tal und das Nereiden-Monument, *JNG* 67 (2017), pp. 13–30.
267. MÜSELER, W., Das Geld der Strategen – Pharnabazos und die Finanzen der persischen Kriegsflotte, *JNG* 68 (2018), pp. 47–129.
268. MÜSELER, W., Pigs with Wings – the Port Towns of Phoinike and Phaselis in Lycia, in (363), pp. 216–221.
269. MÜSELER, W., Beyond the Xanthos Valley: Rulers and Mints in Eastern and Central Lycia at the Time of the "Dynasty of Xanthos", *Gephyra* 15 (2018), pp. 11–28, available online at: https://doi.org/10.37095/gephyra.337919.
270. MÜSELER, W., Nergal and the Amazon: a Tale of Three Cities, *SM* 69/275 (2019), pp. 63–78, available online at: http://doi.org/10.5169/seals-867830.
271. MÜSELER, W., Beyond the Xanthos Valley II: Lycian Dynasts at Telmessos and in the Carian Borderlands around the Middle of the 5th Century BC, in (285), pp. 361–370.
272. MÜSELER, W., Opponents and Successors of the Xanthian Dynasty in Western Lycia: the Weχssere Questions Reconsidered, *Gephyra* 17 (2019), pp. 27–81, available online at: https://doi.org/10.37095/gephyra.538128.
273. MÜSELER, W., Vom Symbol zum Ebenbild: Die Entstehung des Münzporträts in der griechisch-persischen Tradition, *Gephyra* 19 (2020), pp. 69–99, available online at: https://doi.org/10.37095/gephyra.707159.
274. MÜSELER, W., Kheriga and Kherẽi in Central Lycia and the Xanthos Valley: the Rise of a Migrant Dynasty, *SNR* 98 (2020), pp. 57–90, available online at: http://doi.org/10.5169/seals-919540.
275. MÜSELER, W. and SCHÜRR, D., Zur Chronologie in den Inschriften auf dem Agora-Pfeiler von Xanthos (TL 44), den betroffenen Dynasten und ihren Münzen, *Klio* 100/2 (2018), pp. 381–406, available online at: https://doi.org/10.1515/klio-2018-0101.
276. NEBEL, J., Two Electrum Staters, *The Numismatist* (Feb. 2015), pp. 53–55.
277. NERCESSIAN, Y. T., *Metrology of Copper Coinage of Sophene and Armenia* (Pico Rivera, CA, 2015).
278. NERCESSIAN, Y. T., *Armenian Numismatic Studies III* (Los Angeles, 2017).
279. NILSSON, H., Coins from Labraunda in Ödemiş, in (171), pp. 93–100.
280. NOLLÉ, J., "Panegyris coinages" – eine moderne Geisterprägung, *Chiron* 44 (2014), pp. 285–323, available online at: https://doi.org/10.34780/41w9-hawc.
281. NOLLÉ, J., Beiträge zur kleinasiatischen Münzkunde und Geschichte: 12. Mastaura am Fuße der Mesogis – Überlegungen zu den Patriatraditionen einer wenig

bekannten antiken Polis, *Gephyra* 13 (2016), pp. 49–82, available online at: https://doi.org/10.37095/gephyra.318427.
282. NOLLÉ, J., Beiträge zur kleinasiatischen Münzkunde und Geschichte 13-14, *Gephyra* 14 (2017), pp. 23–100, available online at: https://doi.org/10.37095/gephyra.318450.
283. NOLLÉ, J., Notizen zur antiken Numismatik 1. Kyzikos als Omphalos, *JNG* 68 (2018), pp. 12–45.
284. NOLLÉ, J., Creating Borders and Surpassing Them: Myths of the Propontis Region Reflected by City Coins, in (340), pp. 371–388.
285. NOLLÉ, M., ROTHENHÖFER, P. M., SCHMIED-KOWARZIK, G., SCHWARZ, H., and VON MOSCH, H. C. (eds), *Panegyrikoi Logoi. Festschrift für Johannes Nollé zum 65. Geburtstag* (Bonn, 2019).
286. NURPETLIAN, J., A Newly Discovered Ancient Armenian (?) Bronze Coin, *RBN* 165 (2019), pp. 425–428.
287. NURPETLIAN, J. and KAZARIAN, E., The Shape of the Armenian Tiara, *REArm* 36 (2014-2015), pp. 225–238, available online at: https://doi.org/10.2143/REA.37.0.3237125.
288. OETTINGER, N., Language Contact between Lydian and Greek or the Origin of Lydian *k*, in (41), pp. 116–130, available online at: https://doi.org/10.1163/9789004461598_007.
289. OYARÇIN, K., Parion Kazısı 2010-2014 Yılları Numismatik Çalışmaları, in (38), pp. 133–139.
290. ÖNDER, M., *Manisa Müzesi'ndeki Lydia Bölgesi Şehir Sikkeleri / Civic Coins of Lydian Cities in Manisa Museum* (Izmir, 2014). [Review: TATAR, Ö., *AIIN* 62 (2016), pp. 301–304]
291. ÖZBIL, C., Nysa Kazısı Sikke Buluntuları (1992-2012), in (109), pp. 429–436.
292. ÖZER, E., The Lycian League and Olympus in Eastern Lycia, *Mediterranean Journal of Humanities* 3/1 (2013), pp. 211–224, available online at: https://doi.org/10.13114/MJH/20131663.
293. ÖZER, E. (ed.), *Aizanoi II* (Ankara, 2016).
294. ÖZGÜNEL, C. (ed.), *Smintheion. In Search of Apollo Smintheus* (Istanbul, 2015).
295. ÖZLEM YALÇIN, D. and ÇIZMELI ÖĞÜN, Z., İnebolu 2003 Definesi: Bilirkişilik ve Define Saptaması, in (88), pp. 149–164.
296. ÖZTÜRK, B., Amasya Oluz Höyük 2009-2013 Dönemi Kazılarında Bulunan Sikkeler, in (107), pp. 313–337.
297. ÖZTÜRK, B., The Coin Finds at the Excavations of Amasya/Oluz Höyük, 2009-2013, in (352), pp. 420–428, available online at: https://doi.org/10.2307/j.ctv1pdrqhw.62.
298. PALAMIDIS, A. Des souris et des hommes. Une réinvention érudite du culte d'Apollon Smintheus à l'époque hellénistique?, *Kernos* 32 (2019), pp. 191–236, available online at: https://doi.org/10.4000/kernos.3137.
299. PAPAEFTHYMIOU, H. (ed.), *International 2-Day Symposium on Numismatics 'Mando Oeconomides', Athens 20-21 April 2016*, Obolos 13 (Athens, 2018).
300. PARDINI, G., PARISE, N., and MARANI, F. (eds), *Numismatica e archeologia: monete, stratigrafie e contesti: dati a confronto. Workshop internazionale di numismatica* (Roma, 2018).
301. PAYNE, A. and WINTJES, J., *Lords of Asia Minor: An Introduction to the Lydians* (Wiesbaden, 2016), available online at: https://doi.org/10.2307/j.ctvc5pfx2.
302. PEKER, M., BAYKAN, C., and BAYKAN, D. (eds), *Nif Dağı Ballıcaoluk (2008-2016). Prof. Dr. Elif Tul Tulunay Onuruna* (Istanbul, 2017).

303. POLOSA, A., Coin Production and Coin Circulation in Elaiussa Sebaste (Cilicia), in (109), pp. 509–514.
304. POLOSA, A., Rinvenimenti monetali da Elaiussa Sebaste, Cilicia, *AIIN* 62 (2016) 251–262.
305. POLOSA, A., Monete dagli scavi di Elaiussa Sebaste (Cilicia Tracheia), in (300), pp. 637–649.
306. POLOSA, A., ASENA KIZILARSLANOĞLU, H., and ORAL, M. (eds), *ΣΕΒΑΣΤΗ. Studies in Honour of Eugenia Equini Schneider* (Istanbul, 2019).
307. PSOMA, S. E., White Gold and Electrum in Literary Sources and Inscriptions, in (373), 65–82.
308. PSOMA, S. E., "Ἥδε Κύζικος πλέα στατήρων": How to Explain the Electrum Coinage of Cyzicus, in (373), pp. 689–701.
309. RALLI, E. and KOUREMPANAS, T., Εντάφια νομίσματα από νησιά του Βορειοανατολικού Αιγαίου / Burial Coins from Islands of the Northeastern Aegean, in (187), vol. 3, pp. 385–394.
310. REYNAUDO, R., Drachmes inédites de la ligue lycienne, *BSFN* 71/6 (2016), pp. 243–249.
311. RIEDEL, S., *Darstellungen der Göttin Athena auf den Münzen von Pergamon und Ilion* (Bonn, 2016).
312. RIPART, L. and LAGORGETTE, D. (eds), *Les bons comptes font les bons amis. Mélanges offerts à Christian Guilleré*, 2 vols. (Chambéry, 2017).
313. RIPOLLÈS, P. P. and CHEVILLON, J.-A., The Archaic Coinage of Emporion, *NC* 173 (2013), pp. 1–21.
314. ROLAND, H., Methodological Challenges Regarding the Interpretation of Excavation Coins. A Case Study from Metropolis in Ionia, in (111), pp. 29–50.
315. ROLAND, H., Coan Coinage and Carian 'Portraiture' in the Fourth Century BC, *CLARA: Classical Art and Archaeology* 6 (2020), pp. 1–37, available online at: https://doi.org/10.5617/clara.v6i0.8476.
316. ROUSSET, D., La stèle des Géléontes au sanctuaire de Claros. La souscription et les acquisitions immobilières d'une subdivision civique de Colophon, *Journal des Savants* 1 (2014), pp. 3–98, available online at: https://doi.org/10.3406/jds.2014.6310.
317. SANCAKTAR, H., Antiokheia (Pisidia) Kazısı Sikkeleri: 2008-2012, in (109), pp. 515–524.
318. SCHACHINGER, U., The Coin Finds from the Theatre in Ephesus and Some Remarks on Coin Circulation in Ephesus, in (109), pp. 525–540.
319. SCHAPS, D. M., War and Peace, Imitation and Innovation, Backwardness and Development: the Beginnings of Coinage in Ancient Greece and Lydia, in (40), pp. 31–52, available online at: https://doi.org/10.1007/978-3-319-06109-2_3.
320. SCHÜRR, D., Sardes, Spelmos, Krösus, und λαίλας im Lydischen, *Philia* 5 (2019), pp. 75–83.
321. SCHÜRR, D., Weχssere und so weiter: vom zögerlichen Auftauchen einer lykischen Dynastie, *Philia* 4 (2018), pp. 96–102.
322. SCHWARZER, H. and NIESWANDT, H.-H. (eds), *"Man kann es sich nicht prächtig genug vorstellen!" Festschrift für Dieter Salzmann zum 65. Geburtstag*, 2 vols. (Marsberg, 2016).
323. SÈVE, M. and SCHLOSSER, P. (eds), *Cyzique, cité majeure et méconnue de la Propontide antique* (Metz, 2014).
324. SHANNAHAN, J., The Baal/Figure in the Winged Disc Staters of Tiribazus, *NC* 178 (2018), pp. 15–32.

325. SHEEDY, K., The Question of Archaic Athenian Electrum, in (373), pp. 269–290.
326. SÖĞÜT, B. (ed.), *Stratonikeia Çalışmaları I, Stratonikeia ve Çevresi Araştırmaları* (Istanbul, 2016).
327. STEFANAKI, M. I. and DEMETRIOU, E., *Τα Νομίσματα της Νήσου Ρόδου κατά την Αρχαιότητα. Ιαλυσός – Λίνδος – Κάμιρος – Ρόδος* (Athens, 2015).
328. STEFANAKI, V. E., Corpus des monnaies aux dauphins attribuées a Potidaion/Poseidion de Carpathos, in (388), pp. 231–253.
329. ŞAHIN, N., Étude iconographique des monnaies autonomes frappées par Colophon-sur-Mer: nouveaux acquis, *Anat. Ant.* 24 (2016), pp. 147–162, available online at: https://doi.org/10.4000/anatoliaantiqua.379.
330. TAKMER, B., ARCA, E. N. A., and ÖZDIL, N. G. (eds), *Vir Doctus Anatolicus: Studies in Memory of Sencer Şahin*, Philia Supplements 1 (Istanbul, 2016).
331. TATAR, Ö., Alinda'da Darp Edildiği Düşünülen Seleukos Krallığı Sikkeleri, in (85), pp. 89–98.
332. TEK, A. T., Coin Finds from Side in Pamphylia: a Preliminary Assessment of Finds Made Between 1947-2015, *AIIN* 62 (2016), pp. 231–250.
333. TEK, A. T., Antik ve Orta Çağ Kaynaklarında, Yazıtlarda ve Sikke Basımları ile Podalia / Podalia in Ancient and Medieval Sources, Inscriptions and its Coinage, *Olba* 28 (2020), pp. 477–508.
334. TEK, A. T., KÖKER, H., and SARIIZ, E., Stratonikeia 2008-2014 Sezonları Sikke Buluntuları Hakkında Ön-rapor / Preliminary report on the coin finds from Stratoniceia 2008-2014, in (326), pp. 137–141.
335. TEK, A. T., KÖKER, H., and TARAKAN, E., Numismatic Studies at the Side Museum in 2016, *ANMED* 15 (2017), pp. 324–330.
336. TEKIN, O., More Coins of Agathocles, Son of Lysimachus: a Reattribution, in (109), pp. 559–574.
337. TEKIN, O., *Sylloge Nummorum Graecorum: Turkey 10, the Yavuz Tatış Collection. Part I: Ionia and Lydia* (Istanbul, 2016).
338. TEKIN, O., Winged-horse with Bird's Tail: Identification of a Creature on the Coins of Mysia and Troas, in (61), vol. 1, pp. 425–428.
339. TEKIN, O., Gryneion ve Sikkeleri, in (83), pp. 101–113.
340. TEKIN, O. (ed.), *Proceedings of the Second International Congress on the History of Money and Numismatics in the Mediterranean World, 5-8 January 2017, Antalya* (Istanbul, 2018).
341. TEKIN, O., Gryneum, Its Coins and the *Pinna Nobilis*, in (19), pp. 875–880.
342. TEKIN, O., Addendum: Gryneion ve Sikkeleri, in (84), pp. 202–204.
343. TEKIN, O., A Hoard of Rhodian Plinthophoric Hemidrachms in Edirne Museum, in (306), pp. 177–191.
344. TEKIN, O., Coins and Weights from Gryneum in Aeolis, in (110), pp. 73–78.
345. TEKIN, O. and EROL-ÖZDIZBAY, A., Coins from Allianoi Excavations: Campaign of 2000, *CollAn* 13 (2014), pp. 293–336.
346. TEKIN, O. and EROL-ÖZDIZBAY, A., *SNG Turkey 9. Özkan Arıkantürk Collection. Part 1: Troas* (Istanbul, 2015).
347. TEKIN, O. and EROL-ÖZDIZBAY, A., Coins of Elaia in Aiolis in the Bergama Museum, *CollAn* 15 (2016), pp. 248–270.
348. TEKIN, O., EROL-ÖZDIZBAY, A., Coins from Allianoi Excavations: Campaign of 2001, *Anat. Ant.* 24 (2016), pp. 117–146, available online at: https://doi.org/10.4000/anatoliaantiqua.377.
349. TEKIN, O. and EROL-ÖZDIZBAY, A., *SNG Turkey 9. Özkan Arıkantürk Collection. Part 2: Aeolis* (Istanbul, 2017).

350. TEKIN, O. and EROL-ÖZDIZBAY, A., *SNG Turkey 9. Özkan Arıkantürk Collection. Part 3: Mysia* (Istanbul, 2019).
351. TEKIN, O. and YACI, A., *SNG Turkey 11. The Çetin Erdem Collection: Lydia and Phrygia* (Istanbul, 2019).
352. TSETSKHLADZE, G. R., AVRAM, A., and HARGRAVE, J. (eds), *The Greeks and Romans in the Black Sea and the Importance of the Pontic Region for the Graeco-Roman World (7th Century BC-5th Century AD): 20 years on (1997-2017). Proceedings of the Sixth International Congress on Black Sea Antiquities (Constanţa - 18-22 September 2017)* (Oxford, 2021), available online at: https://doi.org/10.2307/j.ctv1pdrqhw.
353. THONEMANN, P., *The Hellenistic World: Using Coins as Sources* (Cambridge, 2015).
354. THONEMANN, P., Pessinous and the Attalids: a New Royal Letter, *ZPE* 194 (2015) 117–128.
355. THONEMANN, P., The Silver Coinage of Antioch on the Maeander, *NC* 179 (2019), pp. 49–80.
356. THONEMANN, P., Cistophoric Geography Revisited, in (252), pp. 221–237.
357. TOURATSOGLOU, I. P., Οι Μακεδόνες στην Κύζικο. Η μαρτυρία μίας νέας έκτης της Κυζίκου / Macedonians in Kyzikos. The Evidence from an Electrum Hekte, in (366), pp. 409–417.
358. TUPLIN, C., The Changing Pattern of Achaemenid Persian Royal Coinage, in (40), pp. 127–168, available online at: https://doi.org/10.1007/978-3-319-06109-2_6.
359. TUPLIN, C., Sigillography and Soldiers: Cataloguing Military Activity on Achaemenid Period Seals, in (112), pp. 329–459, available online at: https://doi.org/10.2307/j.ctv1q26vzm.15.
360. TÜRKOĞLU, I., The Civic Coinage of Calchedon, in (109), pp. 589–606.
361. TÜRKOĞLU, I., Civic Coinage of Keramos in Caria, *Adalya* 22 (2019), pp. 167–200.
362. TÜRKOĞLU, I., Civic Coinage of Attouda in Caria, *Anadolu Araştırmaları* 23 (2020), pp. 289–346, available online at: https://doi.org/10.26650/anar.2020.23.764535.
363. ÜNAL, C., ERSOY, A., GÜRBIYIK, C., and KASALI, B. (eds), *Port Cities of the Aegean World: Coins, Seals and Weights* (Manisa, 2018).
364. ÜNAL, C., TATAR, Ö., and TOY, M., *Tunay Demran Koleksiyonu* (Izmir, 2017).
365. ÜNAL, E., Hellenistik Dönem Eumeneia Sikkeleri, in (109), pp. 619–629.
366. VALAVANIS, P. and MANAKIDOU, E. (eds), *Ἔγραφσεν καὶ ἐποίησεν: μελέτες κεραμικές και εικονογραφίας προς τιμήν του καθηγητή Μιχάλη Τιβέριου / Essays on Greek Pottery and Iconography in Honour of Professor Michalis Tiverios* (Thessaloniki, 2014).
367. VAN ALFEN, P. G., *Metoikêsis* and Archaic Monetary Coordination: Teos-Abdera and Phokaia-Velia, in (109), pp. 631–652.
368. VAN ALFEN, P. G., BRANSBOURG, G., and AMANDRY, M. (eds), *Fides. Contributions to Numismatics in Honor of Richard B. Witschonke* (New York, 2015).
369. VAN ALFEN, P. G., Muddle Wrestling: Grappling for Conceptual Clarity in Archaic Greek Money, in (69), pp. 485–511, available online at: https://doi.org/10.3366/edinburgh/9781474421775.003.0018.
370. VAN ALFEN, P. G., The Limits of Cooperation: Prolegomena to a Die Study of the Archaic Silver Coinages of Phokaia, in (374), pp. 342–352.
371. VAN ALFEN, P. G., The Role of 'the State' in Early Electrum Coinage, in (373), pp. 547–567.

372. VAN ALFEN, P. G. and WARTENBERG, U., Introduction. White Gold and the Beginnings of Coinage: an Introduction to the Current State of Research, in (373), pp. 1–16.
373. VAN ALFEN, P. G. and WARTENBERG, U. (eds), with FISCHER-BOSSERT, W., GITLER, H., KONUK, K., and LORBER, C. C., *White Gold: Studies in Early Electrum Coinage* (New York–Jerusalem, 2020).
374. VAN LOON, L. L., NELSON, A. J., WARTENBERG KAGAN, U., BARRON, K., and BANERJEE, N. R., Bubbles in the Bullion: Micro-CT Imaging of the Internal Structure of Ancient Coins, *Microscopy and Microanalysis* 25, Suppl. 2 (2019), pp. 420–421, available online at: https://doi.org/10.1017/S1431927619002836.
375. VAN SCHAIK, C., The Currency of Medicine: Healing Iconography on the Coins of Trikka, Epidauros, Kos, and Pergamon, in (61), vol. 1, pp. 535–539.
376. VĂDAN, P., The Posthumous Alexander Tetradrachms of Magnesia on the Maeander, *AJN* 30 (2018), pp. 45–106.
377. VELDE, F. R., A Quantitative Approach to the Beginnings of Coinage, in (373), pp. 497–516.
378. VISMARA, N., Status quaestionis su Artumpara dal punto di vista della numismatica, LEMAIRE, A. (ed.), *Phéniciens d'orient et d'occident. Mélanges Josette Elayi* (Paris, 2014), pp. 205–224.
379. VISMARA, N., La Lycia durante l'epoca persiana tra unità e diversità, in (115), pp. 181–189, available online at: https://doi.org/10.2143/TE.50.0.3285512.
380. VISMARA, N., Due monete del signore licio Trbbẽnimi riconiate su terzi di statere di Evagora di Salamis: nuovi elementi numismatici relativi alle relazioni tra Lycia e Cyprus, *Gephyra* 15 (2018), pp. 29–36, available online at: https://doi.org/10.37095/gephyra.420724.
381. WAALER, E., A Sixth Century Coin from Kos Found at Ketef Hinnom, Jerusalem, *INR* 9 (2014), pp. 5–14.
382. WALLACE, R. W., Redating Croesus: Herodotean Chronologies and the Dates of the Earliest Coinages, *JHS* 136 (2016), pp. 168–181, available online at: https://doi.org/10.1017/S0075426916000124.
383. WARTENBERG, U., Die Geburt der Münze: Elektron als Geldmittel. Neue Wege der Forschung, *MÖNG* 56/1 (2016), pp. 30–49.
384. WARTENBERG, U., The Curious Case of a Hellenistic Die on a Roman Coin of Skepsis, in (55), pp. 225–228.
385. WARTENBERG, U., Archaic Electrum Coinage in Thrace and Macedonia in the Sixth Century: the Hoard Evidence, in (340), pp. 25–39.
386. WARTENBERG, U., Early Portraits of Alexander the Great: the Numismatic Evidence, in (154), pp. 23–30.
387. WARTENBERG, U., Was There an Ionian Revolt Coinage? Monetary Patterns in the Late Archaic Period, in (373), pp. 569–640.
388. WARTENBERG, U. and AMANDRY, M. (eds), *ΚΑΙΡΟΣ: Contributions to Numismatics in Honor of Basil Demetriadi* (New York, 2015).
389. WEISSER, B. *Priene: Fundmünzen*, available online at: http://ikmk.smb.museum/mk_priene/index.php.
390. WEISSER, B., Die Fundmünzen aus dem Felsheiligtum Ost in Priene, in (109), pp. 653–668.
391. WEISSER, B., An Archaic Striated Electrum Coin from the Sanctuary of Aphrodite at Miletus, in (373), pp. 263–268.
392. WOYTEK, B. (ed.), *Infrastructure and Distribution in Ancient Economies* (Vienna, 2018), available online at: https://doi.org/10.2307/j.ctvddzgz9.

393. YAĞIZ, O., Adramytteion Kazılarında Ele Geçen Sikkeler, in (363), pp. 303–359.
394. YAĞIZ, O., Tekirdağ Arkeoloji Müzesi'nde Bulunan Parion Sikkeleri ve Kılıçlar Definesi [alternative title in volume: Tekirdağ Arkeoloji Müzesi'nde İki Parion Arkaik Sikke Definesi], in (176), pp. 871–882.
395. ZAKHAROV, E., Ancient and Byzantine Coins from the Survey in Kelainai-Apameia Kibotos (2008-2010), in (166), pp. 331–366.
396. ZAKHAROV, E., Coins of Apameia from the Collections of the State Historical Museum and the State Pushkin Museum of Fine Arts, in (166), pp. 367–377.
397. ZIEGLER, R., Ein neuer Münztyp des kilikischen Königs Tarkondimotos, *JNG* 64 (2014), pp. 1–13.
398. ZIESMANN, S., Vier unedierte Bronzemünzen aus Pergamon, *SM* 66/261 (2016), pp. 3–11, available online at: http://doi.org/10.5169/seals-632484.