

PETER G. VAN ALFEN *

MECHANISMS FOR THE IMITATION OF ATHENIAN COINAGE : DEKELEIA AND MERCENARIES RECONSIDERED

Abstract – This study reexamines two frequently cited mechanisms for the production of imitative Athenian ‘owls’ in the East: the occupation of Dekeleia (413-404 BC) and mercenary pay. Close examination of the hoard evidence and the imitative series suggests that neither of these mechanisms played important roles driving imitative owl production.

I. INTRODUCTION

AS IS WELL KNOWN, the classical period ‘owls’ of Athens were copied extensively. Many of these copies were not counterfeits meant to deceive with bad alloys or weights, but were rather good coins often with inscriptions or symbols openly identifying their non-Athenian producer, many of whom were located in Egypt, the Levant, Arabia, Mesopotamia, and as far east as Bactria.^[1] It has long been noticed that while there were imitative owls produced in the early- to mid-fifth century BC,^[2]

* For her help with the charts, I am ever grateful to Müserref Yetim. I also thank the audience at the conference at the Numismatic Museum in Athens where an earlier version of this paper was presented for their insightful comments and criticisms, particularly those of Sophia Kremydi and John Davies.

[1] For overviews of the Athenian imitation phenomenon see NICOLET-PIERRE 1986 and FIGUEIRA 1998, chp. 20. In VAN ALFEN 2005, I discuss the wider problems of imitative and counterfeit coinages in antiquity, but with particular focus on Athenian imitations. For metallurgical analyses of imitative owls see DIEBOLT & NICOLET-PIERRE 1977; FLAMENT 2007C; GITLER & TAL 2006, p. 329-334; GITLER, PONTING & TAL 2009.

[2] E.g., PRICE & WAGGONER 1975, no. 422-423. FISCHER-BOSSERT 2010, p. 134, n. 7, notes these additional examples of Athenian imitations dating before the 430s: *Gemini* 5, 6/1/2009, no. 104 “before 490 BC”; *SNG Kayhan* 46 “480-460 BC”; *Leu* 83, 6/V/2002, no. 243 “Imitation from Southern Asia Minor or the Northern Levant, c.480-440” = *Gorny* 97, 11/X/1999, no. 258 “Athen, um 520” = *Numismatica Ars Classica* 11, 29/IV/1998, no. 63 “Western imitation, c.520”, allegedly from the 2nd

production of the imitations, it would seem, ramps up near the end of the century. An increase in production that coincides with the final stages of the Peloponnesian War, when we know the Athenians faced unprecedented economic problems. Among these was the Spartan occupation of Dekeleia in Attica between 413 and 404, which cut the Athenians off from their native source of silver at the Laurion mines (Thuc. 6.91-6, 7.27-5; Xen. *Vect.* 25), and has been thought to have led to a serious reduction in coinage output.^[3] Certainly near the end of the Peloponnesian War, the silver supply at Athens had fallen off so much that the monetary situation disintegrated, resulting in the unheralded production of Athenian silver plated bronze as well as gold coinage.^[4] This rather sad attempt to maintain coin production in Athens came after many happier decades of seriously massive quantities of coins being churned out by the Athenian mint (the “*Massenprägung*” or “standardized issues”),^[5] coins which were then pumped into eastern Mediterranean markets and trade channels. This flood of owls flowing to the east no doubt fostered a high demand for the coinage. It has long been argued that the rather sudden late-fifth century drop-off in the production of silver owls in the face of this demand thus led to increased

Decadrachm Hoard; *Gorny & Mosch* 130, 8/III/2004, no. 1193 “Münzstätte im südlichen Kleinasien oder in Syrien, c.480-440”; *Stack’s* 22/IV/2009, no. 1087 = *Stack’s* 12/II/2009, no. 2174 = *Stack’s* 10/IX/2008, no. 588 = *Stack’s* 24/IV/2008, no. 2099 = *Stack’s* 14/II/2008, no. 2205 “Southern Asia Minor, 480-440”; Berlin, inv. 1902/704, ex Zagazig hoard (*IGCH* 1645), cf. SELTMAN 1924, p. 217, pl. XXIII-14; REGLING 1927, p. 121, no. 205, pl. v; *SNG Copenhagen, Attica* 155, cf. SELTMAN 1924, pl. XXIII-15; SCHWABACHER 1950, p. 145, n. 4, “östlicher, wenn nicht ägyptischer Ursprung”.

- [3] There is no direct evidence for the occupation of Dekeleia having an (immediate) effect on the production of Athenian coinage (see n. 20 below), although this has long been suspected (see n. 7 below). Certainly, the Athenians were not doing well financially near the end of the War, which, combined with the inaccessibility of Laurion silver, may have led to a reduction of silver coin production at least for domestic uses (cf. FIGUEIRA 1998, p. 535; SALMON 2000, p. 168; CAMP & KROLL 2001, p. 145; FLAMENT 2007D, p. 279-286). On the problems of correlating Athenian public finance with coin output see FLAMENT 2007D, chp. III, and VAN ALFEN 2011. Unfortunately, we do not possess the die study needed to provide insight into the scale or rhythms of late fifth century Athenian coin output, so we have no way of gauging the levels in the years around 413 regardless of the fiscal situation.
- [4] These issues appeared in 407/6 and 406/5 BC respectively. See FIGUEIRA 1998, chp. 19; FLAMENT 2007B, p. 118-120. For the plated coinage specifically also see KROLL 1976 and 1993, p. 7-8; for the gold coinage, THOMPSON 1970. These issues served domestically and possibly internationally freeing up, as KROLL 2009, p. 199, notes, “good silver coins for state expenditure on war.”
- [5] See STARR 1970, chp. IV, FLAMENT 2007D, chp. III, and KROLL 2009, p. 195-199.

production of local imitations.^[6] Another oft-repeated set of arguments have identified a second mechanism for imitative owl production, that of mercenary pay. Imitations in this case were not necessarily produced to supplement diminishing market supply, but were rather produced by foreigners to pay Greek mercenaries demanding payment in a specific, familiar type of coin. Those employers who did not have ready access to *bona fide* Athenian owls thus made their own.^[7]

My purpose here is to consider more carefully the accuracy of both these arguments, the Dekeleian War and mercenary pay, as key mechanisms in the production of eastern imitative owls. In order to do so, I first survey the hoard evidence for the circulation of *bona fide* and imitative owls from the archaic to early Hellenistic period in the eastern Mediterranean. This evidence offers a means of measuring the relative importance of owl coinage within a given region and time period. I then survey the types of imitative owls produced in the fifth and fourth centuries in order to map their chronology and function. My conclusions are generally negative, suggesting that there was a range of specific, local mechanisms, such as a need for civic coinage, that were generally likelier motivations than mercenary pay, and that the Dekeleian War was not a major impetus for imitative production.

II. THE HOARD EVIDENCE

This survey considers all hoards with and without (imitative) owls found in the eastern Mediterranean, Arabia, and Central Asia. I ignore Aegean and western Mediterranean hoards since there is no conclusive evidence to date that owls were imitated there. My regional arrangement differs somewhat from that in the *Inventory of Greek Coin Hoards (IGCH)* and *Coin Hoards (CH)* 1-X: for Asia Minor, I focus only on hoards appearing in the

[6] HILL 1877, p. 235; MILNE 1937, p. 58; ROBINSON 1937, p. 189; SCHWABACHER 1950, p. 142; MILDENBERG 1996, p. 122, n. 20; FIGUEIRA 1998, p. 529, 535; and NICOLET-PIERRE 1998-1999, p. 101, and 2003, p. 148. ROBINSON 1947, p. 117, states it rather clearly: "The finds from Al-Mina and later fourth-century finds from Egypt show that at the end of the fifth century and the beginning of the fourth, when the Deceleian War had dried up the flow of Athenian silver southwards and eastwards, there was an outbreak of imitation Athenian tetradrachms in the Levant which passed into circulation in considerable numbers." FISCHER-BOSSERT 2010, p. 138, questions the validity of these arguments *vis-à-vis* Philistian coinage.

[7] Most arguments for mercenary pay have focused on the imitative owls from Egypt, particularly the Buttrey types (see no. II·A·1 below) and the satrapal types (no. II·A·5 below): see KRAAY 1976, p. 76; NICOLET-PIERRE 1986, p. 375-376; 2003, p. 150, and FIGUEIRA 1998, p. 532. MILDENBERG 1998, p. 282, however, argues that these issues were for local use, not mercenary pay. ELAYI 1992, p. 28, sees mercenary pay as the impetus behind imitative production generally.

Central and Southern provinces of Lycia, Pisidia, Pamphylia, Lycaonia, and Cilicia. Koray Konuk's recent paper deals with the hoard evidence from the western parts of Asia Minor and the Black Sea.^[8] My heading "Levant" corresponds to those areas under the domain of the Persian fifth Satrapy ("Beyond the River"; *eber nahr*), including Syria to the north, Gaza to the south, and the island of Cyprus.^[9] For the chronology, I have divided the classical period in two, with the first period running from 480 to 360 BC, and the second from 350 to 330. This is done in order to make some distinction between the hoarding of Athenian *pi*-style coinage, introduced in 354 BC, from that which came before.^[10] My early Hellenistic period runs from 320 to 290 BC. Table 1 provides an overview and list of all the hoards used in this survey by region and period.^[11]

Charts 1-6 provide an overview of the hoard evidence region by region, illustrating the total number of hoards for each period, the number of hoards containing owl coinage, and the number of hoards containing imitative owls.^[12] Charts 7-10 present the same evidence but by period rather than by region.

[8] KONUK (forthcoming) concludes that there was weak demand for owls in the western parts of Asia Minor, in part because of the incompatibility of the Attic weight standard with local standards. I thank Konuk for allowing me to see an early version of this paper. Cf. SCHÖNHAMMER 1993, HARRISON 2002 and FLAMENT 2007D, p. 256ff.

[9] For the boundaries of the Fifth Satrapy, see ELAYI & SAPIN 1998, chp. 1. Although these boundaries likely fluctuated over the course of the fifth and fourth centuries, particularly under the rule of the satrap Mazday, I have left them unchanged from periods classical I to classical II to ease comparison.

[10] For the introduction of the *pi*-style coinage, see KROLL 2011. As various hoards show (e.g., ANS Near East, CH X-244 and 1989 Syria, CH VIII-158), the vast majority of the *bona fide* owls in eastern circulation after c.350 were *pi*-style types, with only a limited number of highly worn later fifth century standardized owls still available.

[11] For compiling the list of the hoards I have relied primarily upon *IGCH* and *CH* 1-X. FLAMENT 2007B most recently re-examined all hoards with owl content specifically and generally I have followed his dating and content lists, incorporating as well material now published in HUTH 2010A (Appendix) for the Arabian hoards. My goal here is not to provide an exhaustive examination of the hoards and their contents, but rather provide a reasonable, comparative impression of owl circulation in the various regions. See also NICOLET-PIERRE 2000 for an earlier reevaluation of owl hoards from the Near East.

[12] The "number with owls" is not exclusive, meaning that it incorporates hoards with any owl-type coinage. The "number with imitations" is exclusive, incorporating only those hoards with imitative owl coinage. Since I have relied primarily upon the listings in *IGCH*, *CH*, and FLAMENT 2007B for these calculations, which do not differentiate between the types of imitations (see Table 2) involved, these calculations probably include all imitative types, including "artistic".

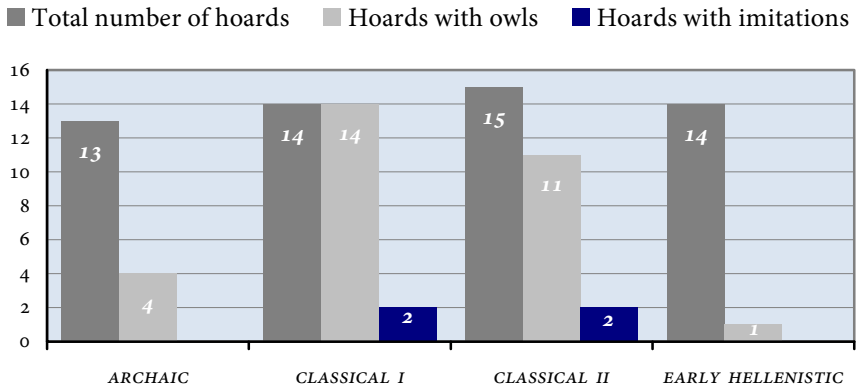


Chart 1 - Egypt

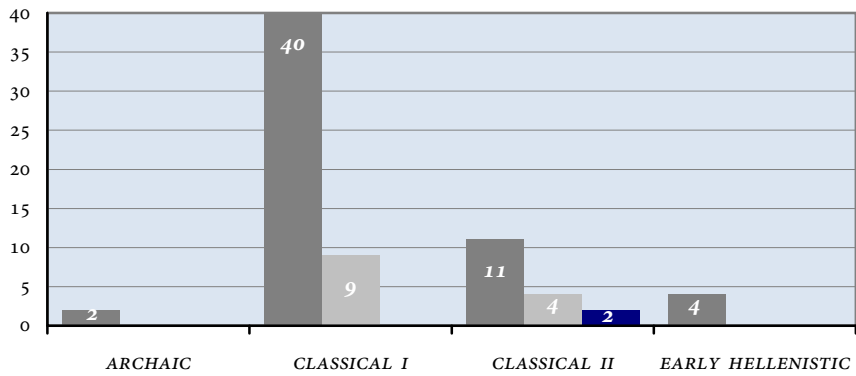


Chart 2 - Central and Southern Asia Minor

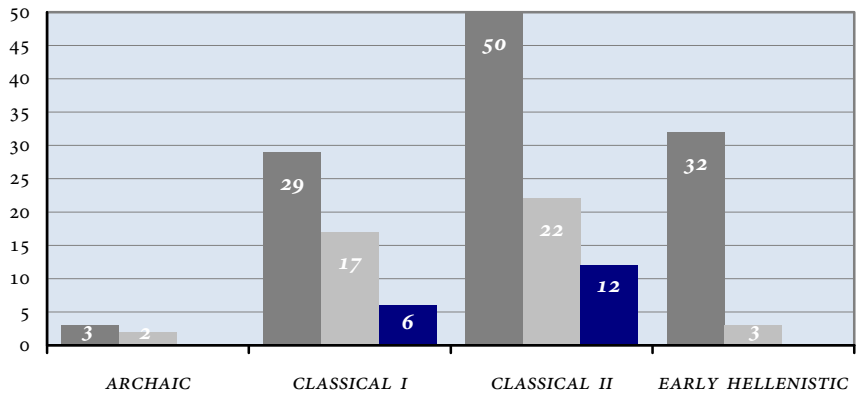


Chart 3 - Levant

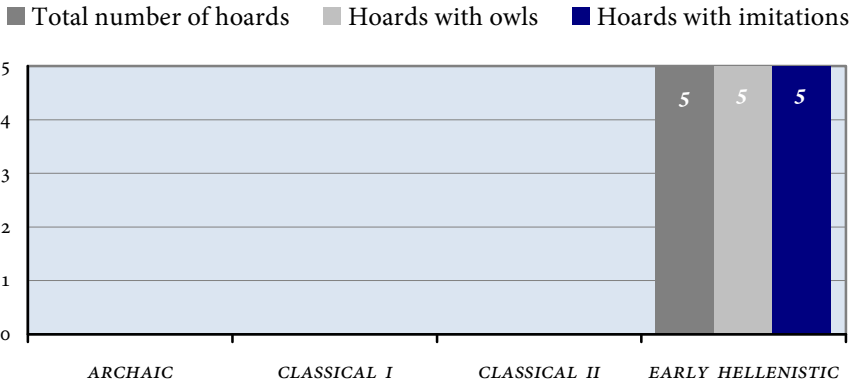


Chart 4 - Arabia

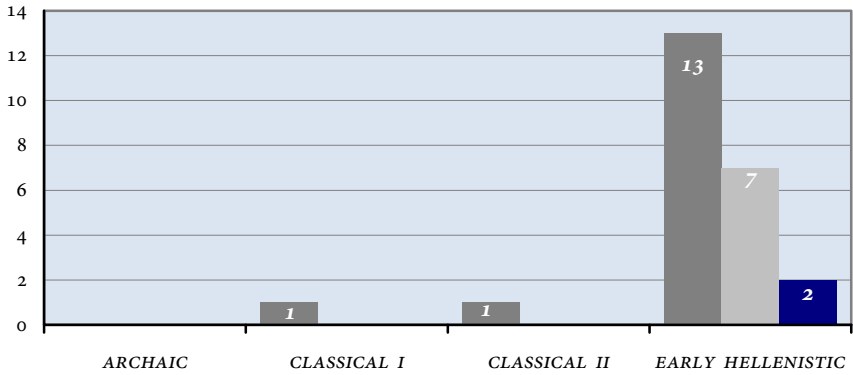


Chart 5 - Mesopotamia

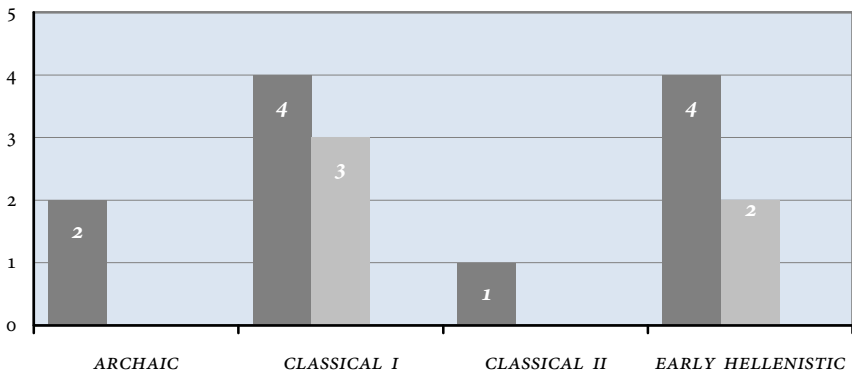


Chart 6 - Persia and Central Asia

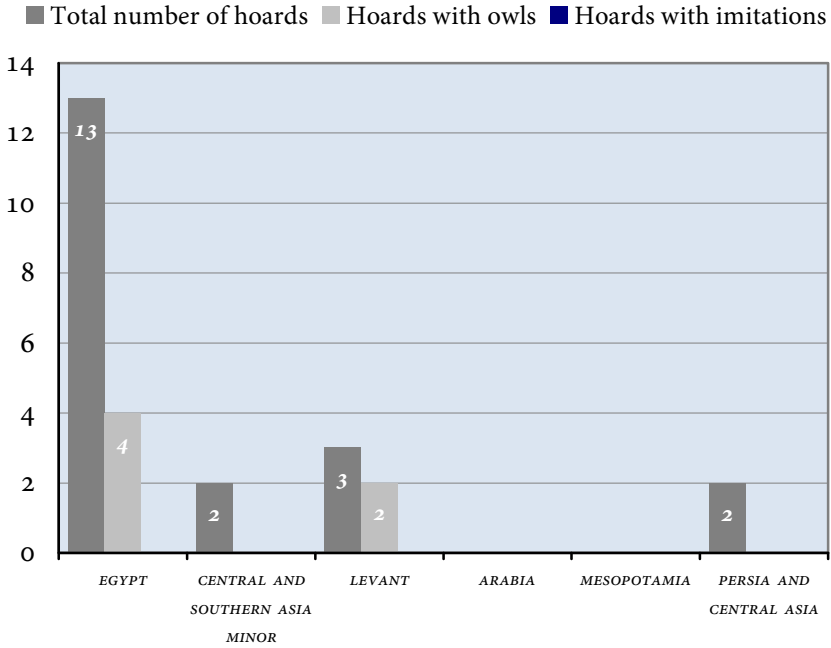


Chart 7 - Archaic period

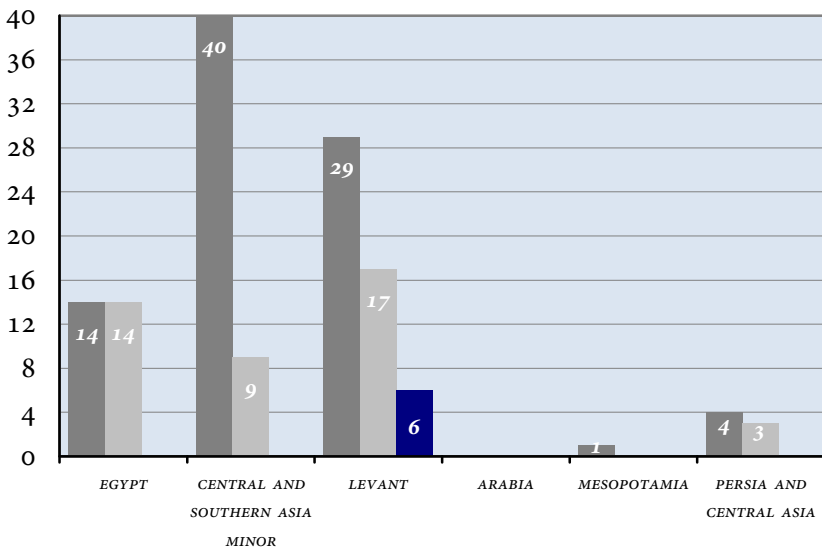


Chart 8 - Classical I period (480-360 BC)

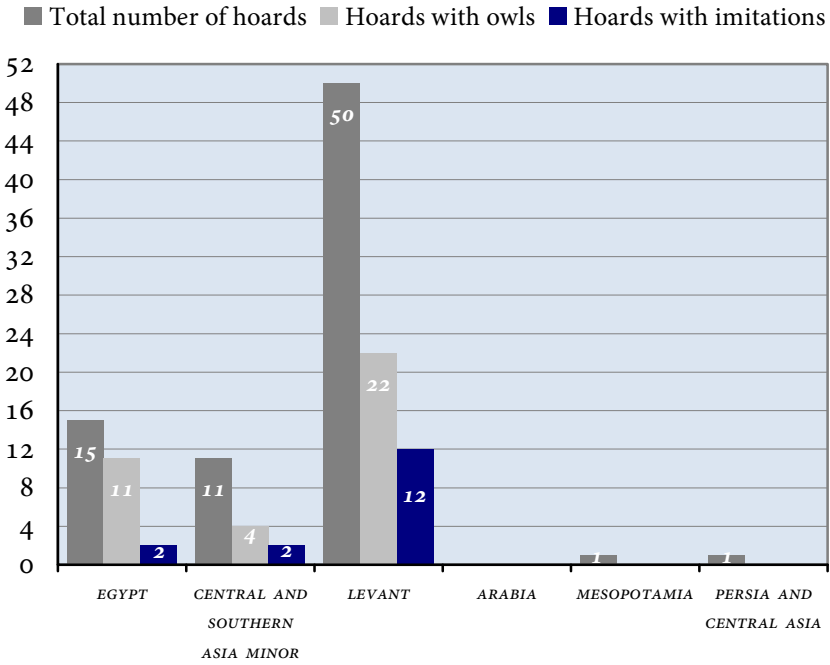


Chart 9 – Classical II period (350-330 BC)

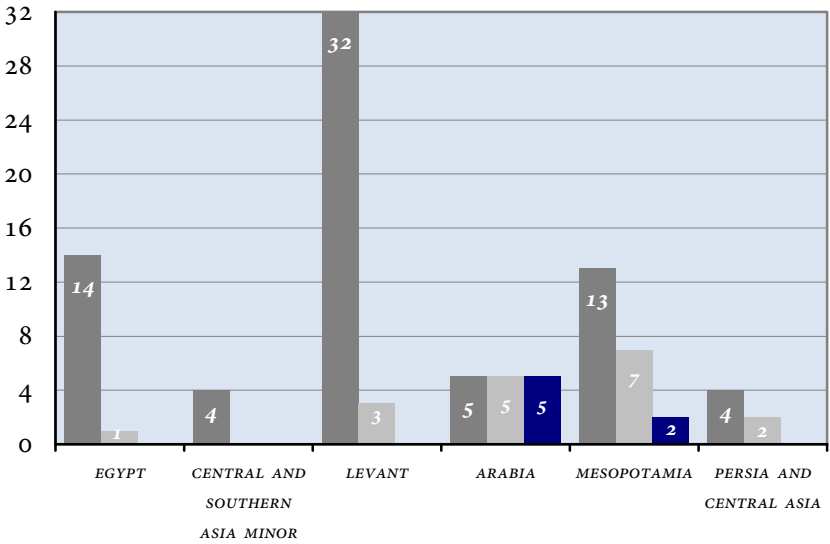


Chart 10 – Early Hellenistic period (320-290 BC)

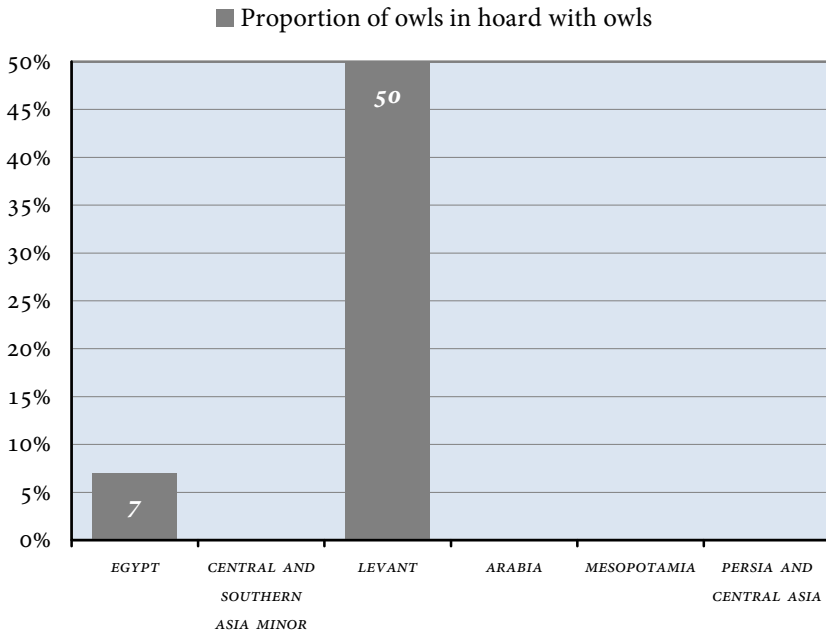


Chart 11 – Archaic period

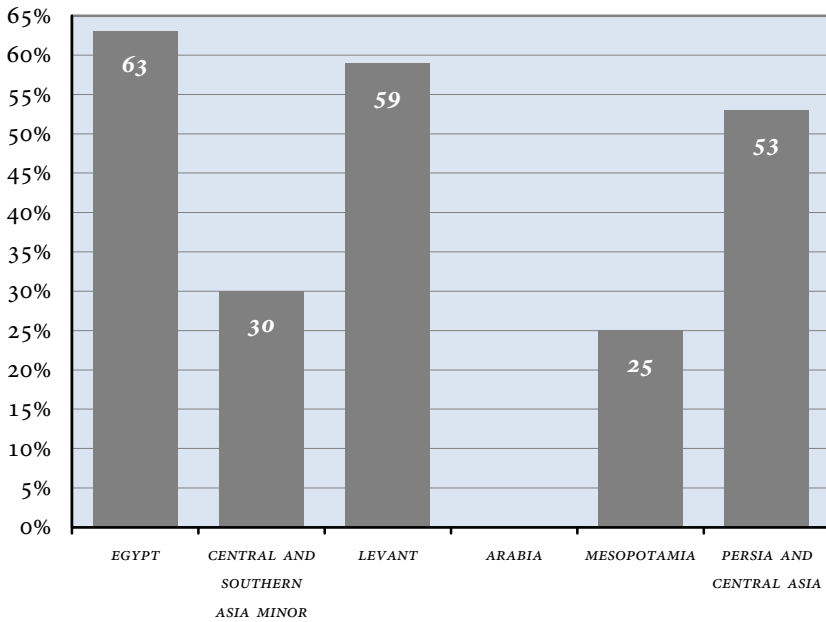


Chart 12 – Classical I period (480-360 BC)

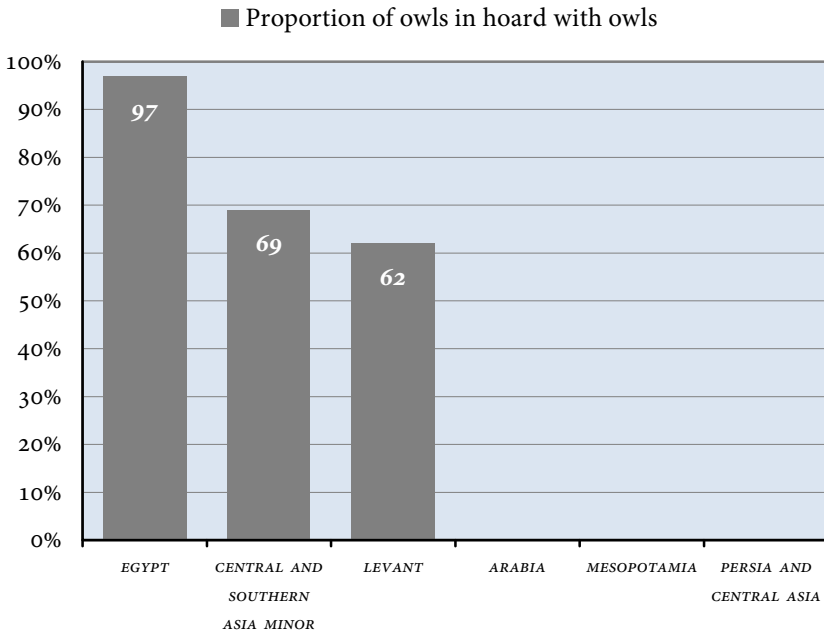


Chart 13 – Classical II period (350-330 BC)

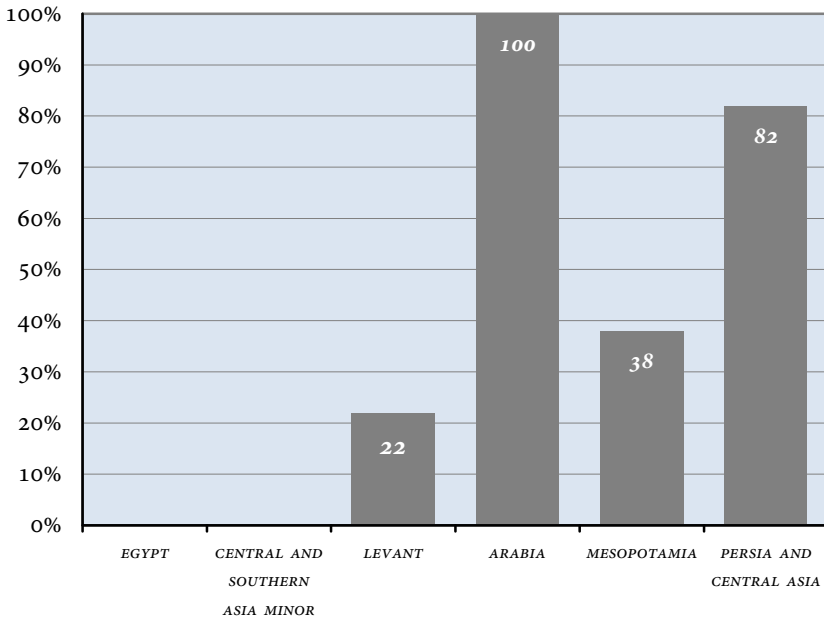


Chart 14 – Early Hellenistic period (320-290 BC)

And, finally, charts 11-14 illustrate the proportion of owls, including imitations, in hoards containing owls for each period. This number was obtained by first calculating the proportion of owls within each hoard and then averaging those proportions for each period and region; reading charts 11-14 against charts 7-10 provides a clearer understanding of the role owl coinage played in each region during a particular period.

Considering the hoard evidence regionally, there is little question that owl coinage, by the classical period (I and II), was an important monetary medium in Egypt, which saw a precipitous decline in importance under the Ptolemies. Owl circulation in the central and southern parts of Asia Minor was not great, especially when compared to Egypt. In the Levant, owls played a more important role than they did in Asia Minor, but on a more moderate scale than they did along the Nile. A comparatively small, but steady supply of Greek coins, including owls, passed into Mesopotamia, Persia, and Central Asia during the archaic and classical periods, but large numbers only arrived with the Macedonians. Arabia contrasts sharply with all other regions regarding owl coinage, at least in the classical II and early Hellenistic periods, since it was used exclusively along the trade routes between Gaza and Marib, where considerable numbers of imitative owls were also produced (*see below*).

Chronologically, note that the comparative importance of owl coinage reached its highest point during the classical I period, which corresponds with the mass striking of owls in Athens in the second half of the fifth century, and the continuing circulation of those coins into the early fourth century. Imitative owls appear in more hoards in the classical II and early Hellenistic periods than earlier, which is not surprising given the large number of imitative types produced in the second half of the fourth century, as we shall now see.

III. A SURVEY OF IMITATIVE OWLS

Imitative owl production was concentrated in Egypt, the Near East and Central Asia. To date, there are no securely attested imitative (rather than counterfeit) types that were produced in the western Greek world, in the Aegean, or the Black Sea regions. Here I present a survey of imitative owls produced in Egypt, Asia Minor, the Levant, Arabia, Mesopotamia and Bactria between roughly 500 BC, when the first imitations were likely produced, and 300 BC, when the 'Old Style' owls lost their dominant position to Alexander-type coinage. First, however, I offer some definitions. Table 2, adapted from VAN ALFEN 2005, sets forth how I define the general types of ancient imitative coinages: anonymous, artistic, and marked. I do not con-

sider here coins that were demonstrably counterfeits, i.e., those meant to deceive with bad alloys and weights.

III·A – EGYPT

As the hoard evidence indicates, Egypt was the largest and most important market for Athenian owls in the classical period. It stands to reason that Egypt would also then be the largest producer of imitative owls, beginning probably in the last quarter of the fifth century and continuing until Alexander's conquest. With only a couple of exceptions, coin production in Egypt before the Macedonians focused on imitative owls.^[13]

III·A·1 – THE BUTTREY TYPES



Fig. 1 – Buttrely TYPE B tetradrachm, 17.03 g, ↑←
(ANS 1965·187·1)



Fig. 2 – Buttrely TYPE M tetradrachm, 17.09 g, ↑←
(ANS 1944·100·24206)



Fig. 3 – Buttrely TYPE X tetradrachm, 17.09 g, ↑←
(ANS 1944·100·24232)

^[13] For an overview of pre-Macedonian minting in Egypt, see VAN ALFEN 2002A and NICOLET-PIERRE 2003.

Perhaps the largest, most important, and yet least understood series of imitative owls are those first identified by Theodore Buttrey in two brief papers (BUTTREY 1982, 1984) discussing coins from the Fayum hoard (CH X.442). Buttrey argued that his TYPES B, X and M (randomly assigned designators) were not produced by the Athenians, but rather by the Egyptians, most likely under official supervision in Memphis. In a series of recent papers and in his monograph, Christophe Flament (FLAMENT 2003, 2005, 2007A-C) has challenged this attribution, calling instead to reattribute the coins to Athens. Flament's arguments, built upon hoard finds, die links between hoard finds, and metal analysis, are, in brief, that TYPES B and M are *bona fide* Athenian issues produced near the end of the fifth century. Their clearly unusual style is due to the use of engravers with lesser talent than those normally employed (FLAMENT 2003, p. 7), an exigency brought on by the difficulties the Athenian faced in the aftermath of the Peloponnesian War. Metal analysis indicates little difference between TYPES B and M and earlier fifth-century Athenian coins produced presumably with Laurion silver. TYPE X he also assigns to Athens, but the arguments for doing so have not been presented as fully.

While Flament's arguments are cogent, ANDERSON & VAN ALFEN 2008, p. 165-166, have doubts about their validity. Finds of actual owl dies in Egypt, like the reverse owl die from the Tel Athrib hoard (IGCH 1663), make it clear that imitations were produced there.^[14] Of the utmost importance for the Buttrey types, however, is the recent discovery of still more dies in Egypt, discussed by Andrew Meadows in this volume (p. 95-116). One of the new dies is clearly a TYPE M obverse, proving Buttrey's initial theory about Egyptian production. In light of the large number of die links he noted in the Fayum hoard, it seems probable that TYPES B and X are Egyptian products as well.^[15] Resolution of these matters, however, must await Carmen Arnold-Biucchi's full publication of the Fayum hoard, now in preparation, as well as a die study of the Buttrey type coinage.

In the meantime, Flament (2003, p. 1-3; 2007B, p. 222) has made some important observations concerning the dating of these coinages. He brings to attention excavations in Sicily that have produced a small hoard of coins (CH X.378, 1985 Naxos), including Buttrey TYPES B and M, in a context that cannot date later than 403 BC. Flament's desire to push the start date of these types still higher, to just before the catastrophic Athenian expedition

[14] The die is currently on display in the Numismatic Museum in Athens. See NICOLET-PIERRE 1986, fig. F and 31; and 2003, pl. II, fig. 12a-b, for illustrations of both the die and its impression. Andrew Meadows in this volume discusses the evidence for Athenian dies from Egypt at length.

[15] But see also Kroll in this volume for early fourth century Athenian coinage and its similarities to TYPE B owls.

to Sicily in 415, is based, in part, on his desire to attribute these coins to Athens, but still a start date in the 410s is not unreasonable. Mando Oeconomides' studies (1999, 2006) of two hoards found in Attica, the 1977 Piraeus (CH V·14; IX·58) and 1979 Ano Voula (CH X·15) hoards, both containing Buttrey TYPES B and M, offer further support for a date before the end of the Peloponnesian War.^[16] Of relevance here also is a very large hoard of Athenian owls (Northern Syria 2007) – some reports say close to 10,000 coins – found north of Aleppo and first noted by Richard Buxton (2009), but which has, unfortunately, been dispersed on the market. I have been able to gather information on just over 2,600 of the owls, which I hope to publish in the near future. The bulk of what I have recorded of the hoard, roughly 83%, is composed of later fifth century standardized owls (c.440–410 BC), most of which exhibit little wear. Around 1% of the material is Starr v types (c.450 BC), and an additional 3% or so are immediate post-Starr owls.^[17] The presence of these earlier owl varieties puts upward pressure on the dating of the hoard.^[18] Finally, 13% of the recorded portion of the hoard is composed of imitative owls, 4% of which are anonymous types, 3% Buttrey TYPE B, and 6% TYPE M. While precise dating for this hoard is not possible, I would suggest that a burial date between 415 and 400 is highly probable. Although the evidence is not as secure as could be hoped, nevertheless this large and statistically important hoard does not counter Flament's arguments for placing the initial production of Buttrey's TYPES B and M at a point in time right around the initial occupation of Dekeleia.

If we accept that production of Buttrey TYPES B and M began sometime during the Dekeleian War, is it possible to infer a direct correlation? Of all the imitative types discussed here, the Buttrey types are the likeliest candidates for such a correlation, and, considering the large scale of their production, it would be tempting to see them as the products of a serious effort to replace a staunch flow of owls from Athens. However, as the large hoard mentioned above illustrates, there were still abundant supplies of *bona fide* owls circulating in the eastern Mediterranean during the Dekeleian occupation, or, if the hoard dates closer to 400, even after the War had ended. Indeed, given the massive quantities of owls produced by the Athenians in the years before the occupation, the effects of the occupation on owl supplies would take many years to be fully realized even in Ae-

[16] Oeconomides dates the Ano Voula hoard to the “end of the Peloponnesian War” based solely on the coins; the similarly composed Piraeus hoard, however, was found with a small *skyphos* dated to c.425 BC.

[17] For the types, see FLAMENT 2007B, p. 61ff.

[18] Reports also included as part of the hoard a Sicilian tetradrachm of c.475 and a mid-fifth century tetradrachm of Cyrene; see BUXTON 2009, p. 4.

gean,^[19] or in Athens where the Athenians themselves resorted to desperate monetary means, e.g., plated bronze and gold coinage, only at the very end of the War. While production of the Buttrey types may have continued through to the end of the century, and even beyond, augmenting eastern Mediterranean supplies before owl production in Athens restarted in the early fourth century (see KROLL 2006 and this volume), it is highly doubtful that initial or even continued production of these types was in direct response to the Dekeleian War.

As FLAMENT 2003 has shown, Buttrey TYPES B and M circulated widely beyond Egypt in the west, in the Aegean, and in the east, caught up in the flow of *bona fide* Athenian coinage, and indistinguishable from them in terms of metal content and weight. But without marks to indicate who produced these coins, we can only speculate who did. Even without a die study to confirm the supposition, TYPES B and M appear to have been produced using tens, if not hundreds of obverse dies, indicating that both were substantial coinages.^[20] Since states are generally the only entities with the resources to initiate and maintain large coinages, Buttrey suggested that the coins were produced in Memphis under official auspices. Some years ago, I speculated that the coins might have been privately produced by Delta warlords to finance their skirmishes against powers in Memphis.^[21] Private production, warlords or not, to me still seems a viable theory because state producers of imitative Athenian coinage, as this survey shows, never hesitated to mark their coins in some conspicuous way, whether in Egypt, the Levant, Mesopotamia, Arabia or Bactria.^[22] Besides

[19] On this point KROLL 2009, p. 199, is worth quoting at length: “Minting of the standardized coinage would have continued at peak levels until 413 when the Spartan fortification of Decelea fatally disrupted mining operations in Attica (although not of course any Athenian minting of silver that may have been obtained through the restriking of other coinages) ... [t]he desperate state of Athens’ finances during the final decade of the *arche* should not, however, be allowed to obscure the fact that Athenian silver coinage was at that time still by far the most plentiful currency in circulation throughout the Aegean.”

[20] BUTTREY 1982, p. 138, for example, noted 124 different obverse dies among TYPE B coins in the Fayum hoard (CH X.442), and another 70 from the Tell el-Maskhuta hoard (IGCH 1649).

[21] See VAN ALFEN 2002A, p. 45-46; cf. FIGUEIRA 1998, p. 532. NICOLET-PIERRE 2003, p. 146 suggests that the coins may have been produced by early-fourth century Egyptian rulers, e.g., Nephertites (398-393), Hakoris (392-380), or Nectanebo I (380-361). Cf. NICOLET-PIERRE 2001, p. 175-176.

[22] Of note here, NICOLET-PIERRE & KROLL 1990, p. 18-19, suggest that the third century BC ‘heterogenous’ owls appear to be carefully prepared privately produced imitations meant to blend in with the pool of circulating owls. Production of these coins was instigated by the lack of *bona fide* issues in the mid-third century. Cf. KROLL 1993, p. 11-12.

mercenary payments, the mechanisms for private production no doubt varied, but would have included profiting on the overvaluation of (Athenian) coinage *vis-à-vis* bullion, and the ability to spend silver stocks more readily.^[23]

III·A·2 – NAUKRATIS



Fig. 4 – Naukratis obol, 0.64 g, ↑←
(ANS 1944·100·75458)

Almost certainly minted in Naukratis, as the legend NAU, replacing the Athenian ethnic, implies, this unique obol (ANS 1944·100·75458) also escapes conclusive dating, although the fourth century is stylistically most probable. If minted by the community at Naukratis, this coin was no doubt intended as a local, civic issue (VAN ALFEN 2002A, p. 21; BUSSI 2010).

III·A·3 – TACHOS



Fig. 5 – Tachos, AV stater, 8.30 g, ↑←
(KRAAY 1976, pl. 12, no. 217)

The British Museum owns the sole example of an Athenian imitation with the Greek legend ΤΑΩ, referring to Ta(ch)os, Pharaoh of Egypt for only two years, 363/2–362/1 BC. While unique, the coin is also highly unusual because it is made of gold, a metal the Athenians only minting when under duress. Literary sources tell us that Tachos aggressively pursued combat with the Persians, and sought novel economic measures to pay for his military activities.^[24] Of all the imitations discussed here, this coin alone has

^[23] As both KROLL 2001 and I (VAN ALFEN 2004/5A) have shown, large amounts of bullion, some of it clearly derived from Athenian coinage, was in circulation in fifth-century Egypt. While bullion was used for some internal transactions, it was probably less acceptable for international payments than Athenian owls. For the overvaluation of Athenian coinage *vis-à-vis* bullion, see FIGUEIRA 1998, p. 353–363.

^[24] Psuedo-Aristotle (*Oec.* 2.2.25, 37) and Polyainos (3.11.5) note that Tachos, with the Athenian Chabrias advising, went to extreme lengths to wring gold and silver out of the population in order to finance his campaigns, which appears to have included the minting of new gold coins. Cf. NICOLET-PIERRE 2003, p. 141; 145.

the surest connection to military or mercenary pay. No other coins of Tachos are known; previously I (VAN ALFEN 2002A, p. 44) discussed and dismissed the possibility that the Buttrey types could be connected to him.

III·A·4 – UAH-SERIES



Fig. 6 – uah (𐤀)-obol, 0.53 g, ↑↑
(ANS 1944·100·62652)

Discussed most recently in VAN ALFEN 2002A, p. 20, this small enigmatic series of obol or hemiobol imitations (the weight standard is unclear) is known only from a hoard found in Sicily (IGCH 2165). All are profile-eye type owls, indicating fourth century production, with the hieroglyph 𐤀 = *uah* (“lasting”) located on the reverse between the Athenian ethnic and the owl. Little else can be said about the date or purpose of the coins.

III·A·5 – ARTAXERXES, SABACES, AND MAZACES



Fig. 7 – Artaxerxes tetradrachm, 16.76 g, ↑↖
(ANS 2008·15·39)



Fig. 8 – Sabaces tetradrachm, 16.70 g, ↑↖
(ANS 1944·100·75462)



Fig. 9 – Mazaces tetradrachm, 16.65 g, ↑↖
(Paris; NICOLET-PIERRE 1979, pl. 26, no. 27)

Immediately upon their reconquest of Egypt in 343 BC, the Persians set about issuing marked imitations, first in a series bearing the name of the Great King Artaxerxes in Demotic, followed by a series giving in the name of the satrap Sabaces in Aramaic, and a final series in the name, also in Aramaic, of the last satrap of Egypt before the Macedonian onslaught, Mazaces. These coinages are among the best known Athenian imitations and have been well studied.^[25] Although there are still a number of questions concerning the coins, it is clear that all three coinages should be considered consecutive parts of a continuum of official Persian minting in Egypt.

For our purposes, it is important to note that the Persian produced imitative owls almost exclusively as tetradrachms; Sabaces and Mazaces also produced signed fractional issues in silver and bronze but used different types, some of Phoenician and Tarsian inspiration; there is as well a unique Athenian-type drachm in the name of Mazaces (NICOLET-PIERRE 1979, pl. 26, i). Currently we know of roughly a dozen obverse dies each that were used in the production of the Artaxerxes and Sabaces types, meaning these were not small issues, while only a few dies were used for Mazaces' coinage.^[26]

Despite their appearance in the Levantine 1989 Syria (CH VIII.158) and ANS Near East (CH X.244) hoards, both of which seem to be connected to the upheavals of the late 330s, and thus not representative of "normal" pre-Alexander circulation patterns, I have argued that these coinages were meant for Egyptian consumption, not for international use like the *bona fide* Athenians owls (VAN ALFEN 2002A, p. 34-42). Among the reasons for this are the conspicuous Demotic and Aramaic inscriptions, which would no doubt have curtailed their acceptability, when presented alongside *bona fide* owls, beyond the Persian realm in Egypt. Although Mazaces' short-lived issues might have been associated with the military buildup prior to Alexander's invasion, a direct military purpose for Artaxerxes and Sabaces' coinages are more difficult to establish. Continued unrest in Egypt following the Persian takeover required military intervention no doubt, but whether this was the sole cause for the production of these imitations is nevertheless open to question.^[27] Abundant supplies of *bona fide* owls, including newly minted *pi*-style varieties, were in circulation in Egypt

[25] See NICOLET-PIERRE 1979 and 2003, p. 141-144; VLEEMING 2001; VAN ALFEN 2002A; ANDERSON & VAN ALFEN 2008, p. 163-164.

[26] *Ibid.*

[27] Mercenary pay is commonly cited as the primary purpose for these satrapal issues, but without further explication; see KRAAY 1976, p. 76; NICOLET-PIERRE 1986, p. 375-376, and 2003, p. 150; FIGUEIRA 1998, p. 532. MILDENBERG 1998, p. 282, however, argues that these issues were for use more broadly within the local economy, and were not tied exclusively to military pay.

when the satrapal types were being produced (*see fig. 1 and 13*); these no doubt would have been preferred by the troops over the marked imitations because of their more wide-spread acceptability. Within the Persian Egyptian fisc, the satrapal imitations clearly served some special purpose, but what exactly that purpose was, we cannot at this point say with any certainty.

III·B – ASIA MINOR

Compared to other regions in this survey, Athenian owls were not in much demand in Asia Minor (*see section I above*), particularly along the southern coastal regions and in the interior. The comparatively low importance of owls in Asia Minor is particularly curious because of its location midway between the production center of Athens and the heavy consumers of owls farther east, and because of the metrological and stylistic influence of Athenian coinage on some local issues.^[28] The reasons for this low demand are likely to do with longstanding and robust indigenous traditions of coin production, especially in Lycia, which precluded the wholesale adoption of others' coinages (cf. KONUK [forthcoming]). The minor role of Athenian coinage in this area meant that the production of marked or anonymous imitations was insignificant, if it existed at all.

III·B·1 – ANONYMOUS TYPES



Fig. 10 – Anonymous imitation
(STACK'S 22/IV/2009, lot 1087)

A handful of anonymous imitative owls have appeared in auction catalogues attributed to (southern) Asia Minor, some of which are dated to the early fifth century.^[29] The reasons for the attributions are not always explicit, and likely not correct. Given that some of the attributions include “or Northern Levant”; “oder Syrien”, etc., it is obvious that an attribution to Asia Minor is highly speculative. These coins should be included with the anonymous Levantine imitations discussed below (*see section II·C·1*).

^[28] For Athenian influence on the ‘light’ Lycian weight standard, see TIETZ 2002; for the stylistic influence, see VISMARA 1989, p. 81-83, for the problem of Athenian influence on Lycian coinage.

^[29] See n. 2 above.

III·B·2 – LYCIAN TYPES AND THE ‘TISSAPHERNES’ OWL



Fig. 11 – Lycian dynast Kherei, stater, 8.59 g, ↑←
(CNG 85, 15/IX/2010, lot 460)



Fig. 12 – “Tissaphernes” tetradrachm, 16.96 g
(KRAAY 1976, pl. 12, no. 206)

As part of their larger coining program, several mid-fifth century Lycian dynasts produced a small series of coins that borrowed Athenian motifs for either the obverse or the reverse (cf. KRAAY 1976, p. 73, pl. 208-209). As artistic imitations these would hardly be confused for *bona fide* issues.^[30]

In the same vein is the unique and notorious “Tissaphernes” owl, again a coin that is much more an adaptation of an Athenian owl than an attempt to produce a passable facsimile of the prototype.^[31] Since the discovery of the Tissaphernes owl in the late 1940s as part of the problematic Karaman hoard (IGCH 1243),^[32] scholars have been keen to associate this coin with

[30] NICOLET-PIERRE 1986, fig. 1-15, illustrates coins from a variety of western Mediterranean and Aegean mints that borrow design or type elements from Athenian coinage, e.g., the owl, but again these I would consider “artistic” imitations or adaptations rather than marked or anonymous imitations, like the Buttrey types (II·A·1), which might readily be confused with Athenian coinage, or be an inspiration for Nikophon’s *nomos* of 375/4 (see below n. 51).

[31] KRAAY 1976, p. 74, notes that this coin is “perhaps best described as an adaptation rather than an imitation, but which was certainly intended to pass muster among true Athenian tetradrachms.” His “adaptation” is spot on, but it is highly doubtful whether such a coin would, in fact, “pass muster.”

[32] FLAMENT’S 2007B, p. 186-188, analysis of the hoard illustrates how little we actually know about its contents, findspot, and possible date, and indeed Flament suggests that if it can be dated at all, the 340-330s seem more probable, which would then require a revised assessment of the “Tissaphernes” owl; see also section III·B·3. Cf. FLAMENT 2000.

Persian payouts to Greek military forces during the last years of the Peloponnesian War.^[33] Besides the potential dating problems (see n. 33), the fact that only one set of dies is currently known indicates that this was a comparatively small coinage, certainly not on the scale needed to support fleets or armies for any length of time.

III·B·3 – OWLS WITH SYMBOLS IN LOWER RIGHT FIELD ON THE REVERSE



Fig. 13 – *Tetradrachm with symbol*, 17.18 g, ↑↑
(ANS 2008·15·38)

There are a number of well-produced, imitative tetradrachms that have in the lower right field on the reverse an elaborately carved symbol; these include a bearded head in profile, a crowned male head in profile, a facing lion's head, a *bucranium*, a bull's head in profile, a crowned sphinx and a Phrygian helmet.^[34] In an important study of this series, Wolfram WEISER 1989 argued that these owls were issued under Kyros the Younger at Sardis as the prince initiated his bid for the Persian throne at the end of the fifth century. Since Weiser wrote, additional examples have come to light (WARTENBERG 1998, p. 51; ANDERSON & VAN ALFEN 2008, no. 38) that do not exhibit fifth century features on the obverse, but rather are derived from the later fourth-century Athenian *pi*-style series. In light of these new examples, ANDERSON & VAN ALFEN 2008, p. 162, took issue with Weiser's rather circumstantial evidence for fifth century production in Sardis, noting that there is nothing that unequivocally ties these owls with symbols to any one event or minting locale, which could just as likely be in eastern as in western Asia Minor, or even in the Levant.^[35] GITLER & TAL 2006, p.

[33] ROBINSON 1948, p. 43-59; WEISER 1989; FIGUEIRA 1998, p. 534. HARRISON 2002 downplays the role of such a coin in Persian military payments in favor of darics and *sigloi*.

[34] SCHULTEN, Oct. 1988, lot 238, has a "Persian head" in profile on Athena's cheek on the obverse, a coin which may have some connection with this other series.

[35] MESHORER (SNG ANS 6, n° 2), for example, attributed to either Tyre or Gaza Weiser's pl. XVI, n° 8, a coin in the ANS collection (1971-196-3) featuring a facing lion's head as the symbol on the reverse.

165ff., in fact, have described a similar practice of placing elaborate symbols in the lower right field on imitative owls produced in Philistia, where the Attic standard, or something like it, was in more widespread use than it was in Asia Minor. While a general Persian context seems probable due to the nature of some of the symbols involved, there is no way to tell: 1) if all of these owls are, in fact, related; 2) whether they were satrapal, civic, or even private issues; or 3) the purpose(s) for which they were issued.^[36]

III-C – THE LEVANT

Heavy coin production by the Phoenician cities from the mid-fifth century onward meant that other coinages were overshadowed by Phoenician issues generally in the Persian Fifth Satrapy. As we have seen (section 1), Athenian owls nevertheless achieved notable prominence the region, except in Cyprus, which saw almost no circulation of foreign coinage. This was especially true in the southern reaches of the Levant, from Samaria to Edom, where owls were extensively imitated.^[37]

It should be noted, however, that imitations in the Levant only occasionally adhered faithfully to the Athenian model; more often the owl was simply used as a starting point for free adaption of the design. Also, the mints in Samaria and Philistia, widely adapted the coin designs of others, and not just the Athenians, in addition to using designs of their own. Athenian motifs then were just a small portion out of the several hundred used.

The vast majority of imitative owl types issued in the Levant were small denominations – between roughly a drachm and a hemiobol – made to local standards, that were clearly intended as civic coinages; few of them circulated beyond their immediate place of manufacture. The production of these coins began well before the end of the fifth century; in Philistia, GITLER & TAL 2006, p. 63, have argued that Athenian imitative types were produced there as early as 450 BC, and continued until the Macedonian invasion.

^[36] Following Weiser, FIGUEIRA 1998, p. 533, suggests these coins were issued by Kyros to pay Peloponnesian sailors their monthly wages. For counterclaims, see HARRISON 2002.

^[37] There are a fair number of marked Athenian imitative issues from the Levant that are difficult to attribute to one mint or another, for example, those discussed by BRON & LEMAIRE 1995 and LEMAIRE 1999. I have therefore focused on the major recognized imitation production centers of Samaria, Philistia, Edom, and Judea.

III·C·1 – ANONYMOUS AND PERFUNCTORY IMITATIONS



Fig. 14 – *Anonymous imitation*, 16.92 g, ↑↑
(ANS 2006·12·46)

In addition to the imitative types issued by political authorities, there are a fairly large number of imitative owls, which because they are unmarked, like the Buttrey types (II·A·1), cannot be easily attributed to any particular official mint. But unlike the Buttrey types they are not of homogenous style and weight, so likely represent some number of independent, private producers. These types of owls, distinguished mostly by their rather crude style, which copy both fifth century as well as fourth century traits, have been found primarily in hoards originating in the Levant or farther east.^[38] The majority of these imitations are larger tetradrachm-like coins, although their weights often fall well below the ideal Attic mark of 17.28 g. A handful of drachms are also known. To date, little work has been done on sorting these types and studying them in depth. While state production of many of these issues is possible, private production seems likelier because of the lack of identifying marks or legends.

III·C·2 – PHILISTIA



Fig. 15 – *Philistian tetradrachm*, 17.19 g, ↑↑
(ANS 1960·176·14)

GITLER & TAL 2006, p. 63, argued that the earliest Philistian coinage, which imitated Athenian coinage, appeared c.450 BC, but based this on a hoard context that is problematic. Recently, Wolfgang FISCHER-BOSSERT 2010 has reexamined the hoards, particularly the Ismailiya hoard, concluding that a

[38] See, for example, VAN ALFEN 2000, no. 122-163; VAN ALFEN 2002A, p. 92-114; ANDERSON & VAN ALFEN 2008, p. 45-54.

pre-410 start date for Philistian owls can be confirmed. As noted, Philistian producers made use of Athenian imagery, but were free in their adaptation of it, and indeed, this imagery was only a small part of their repertoire.

Over the course of more than a century of continuous (?) output, the Philistian cities, including Gaza, Ashdod, and Ascalon, produced primarily small coins, generally no larger than ‘drachms’ of 3-4 g, and including many still smaller issues. Tetradrachm-sized coins are known, but are rare. Although we await a die study to provide still more insight into the coinages, they generally do not appear to have been large issues. This modest output, limited range of circulation, and small denominations all indicate that this coinage was intended mostly to serve small-scale, local transactions.^[39]

III·C·3 – SAMARIA



*Fig. 16 – Samarian obol, 0.73 g
(CNG 148, 20/IX/2006, lot 232)*

Samarian coinage, which began c.380 BC, shares many of the same characteristics as Philistian: it was primarily issued in small denominations, and used a plethora of types, many of which were borrowed from other coinages, especially those produced in Phoenicia and Cilicia.^[40] Athenian imitations and the use of Athenian imagery was less prevalent in Samarian coinage than in Philistian, and again does not appear to have been a critical component of the coinage’s acceptance. This also was a local coinage, again meant for small-scale transactions.

III·C·4 – EDMOM



*Fig. 17 – Edomite obol
(HENDIN 2010, no. 1025)*

GITLER, TAL & VAN ALFEN 2007 identified a series of drachms and obols having a dome-shaped, featureless obverse and an owl-type reverse as fourth century unmarked imitative issues of Edom. Once again, the size of the coinage was not large, and the circulation restricted mostly to the province of Edom.

[39] See GITLER & TAL 2006, p. 63, and FISCHER-BOSSERT 2010, p. 146.

[40] MESHORER & QEDAR 1999.

III·C·5 – JUDEA



Fig. 18 – Judean obol
(HENDIN 2010, no. 1050)

Towards the end of the fourth century, the Judeans issued a small number of marked Athenian imitations, which also appear to have been issued alongside other types.^[41] Like the other area coinages, this was issued in small denominations, and at a modest scale.

III·D – ARABIA

As was the case in Egypt, imitative owls played a momentous role in the monetization of the Arabian Peninsula, particularly in the corridor running from Gaza to the South Arabian kingdoms located in what is now Yemen. Only recently have hoards appeared in Arabia containing *bona fide* owls, primarily standardized varieties.^[42] Despite the paucity of *bona fide* owls finds in Arabia, there is no doubt that large numbers of the coins travelled south, likely via Philistia, in payment for Arabian spices, and there influenced the production of indigenous coinage. The South Arabian kingdoms of Qataban and Saba' were major producers of imitative owls. In Saba' particularly owl production began in the fourth century and continued well into the first century BC, with imitations of New Style owls. Unlike the Levant, where Athenian-ness was not always a critical component in the iconography of local issues, in Arabia it was. Although nearly all Arabian imitations were marked, they maintained Athenian details throughout, including the Greek ethnic.

III·D·1 – NORTH ARABIA



Fig. 19 – Lihan drachm, 3.93 g, ↑↑
(HUTH 2010C, no. 35)

[41] For an overview of the coinage see HENDIN 2010, p. 87-88. GITLER 2009 assembles the rather extensive bibliography on Judean issues.

[42] HUTH 2010A; also see VAN ALFEN 2004/5B for a hoard of owls (CH X:253) reportedly found in Arabia.

A number of marked imitative owls, most recently discussed by Martin HUTH 2010B (cf. HUTH & QEDAR 1999), have been attributed to various tribes or kingdoms in northwestern Arabia and dated between the fourth and first centuries. While precise attribution is not possible, some of the coins may have been produced by the Kingdoms of Qedar, Lihyan, or Dedan. With only a dozen or so examples known of each series, it is not likely that any of them was particularly large; their circulation appears likewise limited, which would accord both with the debasement observed in many of the coins, and their weight standard, which appears to be non-Attic.

III·D·2 – MA'IN



Fig. 20 – Minean tetradrachm, 16.35 g, ↑↖
(HUTH 2010C, no. 152)

Martin HUTH 2010A has attributed a series of marked, folded-flan imitative tetradrachms to the Kingdom of Ma'in, which was located at an important cross-roads in the overland routes between northern and southern Arabia. The coins, probably dating to the fourth (or third) century, appear to have been made by hammering, and then bending other coins, perhaps *bona fide* owls. The weight standard, however, appears to have been c.16.50 g, which means that if actual Athenian coins were used in their production, some silver may have been removed from the coin in the process of converting it into a Minean issue.

III·D·3 – QATABAN



Fig. 21 – Qatabanian tetradrachm, 16.82 g, ↑↙
(HUTH 2010C, no. 338)

Around c.350 BC, the Qatabanians began to produce a series of well-made, marked imitations employing both fifth century and fourth century stylistic

traits, on a reduced Attic standard, with an extensive range of denominations indicating civic use, including tetradrachms, didrachms, drachms, hemidrachms, and tritartemoria, all but the largest and smallest marked by a discrete denominational sign on the obverse.^[43] This initial series was large, using perhaps 60 obverse dies for the tetradrachms alone. Even so, the Qatabanian series does not appear to have been as long-lived, or as extensive as the Sabaeen series that began at roughly the same time. Production probably had ended by 300 BC, if not long before. Qatabanian coins have not been found beyond South Arabia.

III·D·4 – SABA'



Fig. 22 – Sabaeen unit, 5.31 g, ↑
(HUTH 2010C, no. 213)

The first Sabaeen coinage is represented by a unique marked tetradrachm with fifth century traits, weighing 16.67 g, thus sharing some similarity with neighboring Qatabanian coinage.^[44] This brief series was likely coeval, or perhaps slightly earlier than the first Qatabanian issues. At some point in the later fourth century, the Sabaeans completely overhauled their coinage, introducing a new series, the largest coin of which is commonly referred to as the 'unit' weighed c.5.35 g. Other denominations included the ½-unit, ¼-unit, ⅛-unit and 1/16-unit, most marked on the obverse with denominational signs. Initial production of this new series, all of which have Athenian *pi*-style features, appears to have been on a massive scale, using an estimated 140 dies for the unit coinage alone. This initial series was followed by 48 subsequent series, none of which were as large as the first, but each of which was marked on the reverse by a discrete monogram or symbol. Production of these Old Style imitations likely continued well into the second century BC, when they were replaced by New Style Athenian imitations. No other imitative owl coinage was as large, as long lasting, or as administratively intense as the Sabaeen issues, or as restricted in its circulation. None have been found beyond South Arabia.

The purpose of this coinage was probably as varied as it was for Athens herself. Through the fourth and third centuries, the Sabaeans were engaged

[43] See HUTH 2010B, STEIN 2010 and VAN ALFEN 2010.

[44] *Ibid.*

in hostilities with their neighbors, mostly notably the Qatabanians, but they also were heavily engaged in monumental building projects, religious and social events, and an extensive range of economic affairs, which we continued to learn about from the various contracts, receipts and correspondence they left written on wooden sticks and palm fronds (see STEIN 2010).

III·E – MESOPOTAMIA

The monetization of Mesopotamia only occurred in the wake of Alexander's conquest. Between the time of Alexander's death in 323 and the Seleucid takeover of the region, there were a number of unusual coinages issued in Babylonia, which possibly included coins issued by Persian satraps brought from the Mediterranean and reemployed by the Macedonians (cf. NICOLET-PIERRE 1999). Athenian owls played only a very brief role in Mesopotamian monetary history, before being completely eclipsed by Alexander-type and Seleucid coinages.

III·E·1 – MAZACES



Fig. 23 – *Mazaces tetradrachm*, 16.61 g, ↑←
(ANS 1960·176·47)

Shortly after the Macedonian takeover of Babylon, a Persian official by the name of Mazaces, who may or may not be the same Egyptian Mazaces noted above (see II·A·5 above), initiated a rather extensive series of marked and unmarked imitative tetradrachms.^[45] The standard used appears to have been 16.80 g, the purported Babylonian double shekel known from other imitative owls.^[46] In my study of these coins (VAN ALFEN 2000, p. 39), I dismissed the notion that they were issued specifically for military pay, for which Alexander's own coinage would be better suited, and rather sug-

[45] In my study of the coins from the 1973 Iraq hoard (VAN ALFEN 2000), I counted over 70 obverse dies.

[46] ANDERSON & VAN ALFEN 2008, p. 174-184; VAN ALFEN 2010, p. 261; and FISCHER-BOSSERT 2010, p. 145-148.

gested their use was in the administration and rebuilding of Babylonia following Alexander's conquest. Part of the argument was based on the restricted circulation of the imitations within Babylonia. Production of these coins, which occurred alongside Alexander's issues, and Mazday's Babylonian lion staters, probably lasted little more than a decade, if even that.

III·E·2 – ΑΙΓ



*Fig. 24 – ΑΙΓ tetradrachm, 16.72 g, ↑←
(ANS 1963·169·1)*

Four examples of these tetradrachms are known, which have on the reverse the inscription ΑΙΓ in place of the Athenian ethnic, an inscription which could represent either a personal name or ethnic. Suggestions have included the Aigloi (cf. Hdt. 3·92), who along with the Bactrians, gave tribute to the Great King. Stylistic affinity, however, with Mazaces' Babylonian series suggests that the coinage may likewise be late fourth century and may have originated in the rather confused monetary situation of Babylonia in the 320s.^[47]

III·F – BACTRIA



*Fig. 25 – Bactrian tetradrachm, 16.80 g, ↑↙
(LEU 83, 6/V/2002, lot 263)*

Some of the farthest travelling owls made their way to Central Asia and Bactria already in the archaic period (*see section I above*). However, marked

^[47] See LE RIDER 1972 and NICOLET-PIERRE 1986, p. 374.

imitative owls only appeared at the end of the fourth century. A well known, but enigmatic series was produced between 325 and 300 BC in Bactria in a range of denominations (tetradrachms, didrachms, drachms, hemidrachms, and obols) on both the Attic and a local standard. We cannot be sure who produced the coins (transplanted Greeks?), or their purpose (civic?).^[48]

IV. CONCLUSIONS

Table 3 provides an overview of the above survey. The suggested functions for the coinages are noted, including civic, satrapal, and private.^[49] The weight standards and ranges of the denominations are indicated, as is the overall scale of the coinages based on observed and estimated obverse dies; large indicates dozens of observed dies, medium around a dozen observed dies, and small fewer than a dozen.

Several things should be immediately apparent: the imitation of Athenian coinage was primarily a fourth century phenomenon, mostly in the second and third quarters. Close adherence to the Athenian prototype was less important in those regions, like the Levant, where, not so surprisingly, owls played a less important role monetarily. Many of the imitative owls produced were civic coinages, very often in small denominations and in local weight standards. And, the vast majority of imitative owls were official coinages, conspicuously marked to indicate the non-Athenian authority producing them.

The Dekeleian War, as we can see, does not loom large here. There were only two significant later fifth-century imitative series: Philistian production was already well underway by the time of the occupation in 413, as was, arguably, production of the Buttrey types. As we have seen, state producers of imitative owls never hesitated to mark their coins, which in large measure kept marked imitative owls close to where they were manufactured. The anonymity of the Buttrey types was key to their wide travels alongside *bona fide* issues, and is also a fair indication that these coins were not produced in an official mint in Memphis. The reasons for, and re-

[48] See NICOLET-PIERRE 1973, NICOLET-PIERRE & AMANDRY 1990 and *SNG ANS* 9, nos. 1-19.

[49] Civic coinages served a variety of governmental payment types, which could include payments to soldiers, but also payments for non-military services and supplies, payments to contractors working on public buildings, etc. The variety of payment types is reflected in the variety of denominations produced. Satrapal coinages likely served a similar range of purposes, but it is assumed that their function generally was more militarily oriented. Privately produced coinage obviously was more restricted in its function, serving the immediate needs of the producer, whether those were profit-generating activities or political.

sources supporting such a large private production of tetradrachms, however, remain speculative, although the second mechanism that I sought to reassess – mercenaries demanding payment in owls – might be at play here.

There is evidence for non-Athenian or Athenian-aligned combatants preferring payment in Athenian coinage (Thuc. 8.5.5, 29.1; cf. Xen. *HG* 1.5.6-7; 2.3.8), and there seems little question that some imitative types, e.g., the gold Tachos stater (II.A.3 above), were closely connected to military or mercenary payments. But if soldiers or sailors were in a position to demand payment in a preferred coin, we might then wonder at their willingness to accept marked imitations of such coins, at least in silver. Their ability to use imitative owls as *bona fide* Athenian issues would be severely curtailed by the markings or inscriptions in non-Greek languages; traders, money changers, and the Athenian *dokimastes* would certainly reject their parity with Athenian coins, only accepting them, if at all, at a discount.^[50] A devaluation *vis-à-vis* Athenian coinage meant that few marked imitations would travel beyond those areas where their value was maintained by those who issued them; as the hoard evidence demonstrates, marked imitations tended to stay put.^[51] Of the imitations surveyed here, only the Buttrey types fit the bill as high quality, far-travelling, anonymous imitations that could be readily accepted by fussy mercenaries and those they did business with. Other imitative owls might have been used for paying mercenaries on occasion, but it is highly questionable whether such payments were the primary reason for their production.

To conclude, when considered more closely, the Dekeleian War and mercenary payments are less convincing as key mechanisms for the production of imitative Athenian coinage than is generally stated. Imitative Athenian owls were produced in times of healthy owl supply, as well as in times of peace, indicating that the mechanisms for production were far more varied, complex, and localized than the globalizing Dekeleian or mercenary payment explanations permit.

^[50] As BUXTON's 2009 analysis of the cuts and countermarks on owls circulating in the east has shown, few owls escaped close examination by their users. In Athens, the *dokimastes* installed by Nikophon's *nomos* of 375/4 BC (*SEG* 26.72; see PSOMA, this volume) could reject coins for use in the *agora* if they did not pass his test of authenticity. Cf. ERCOLANI COCCHI 1982 who argues that the *nomos* was specifically directed at marked rather than anonymous imitations.

^[51] NICOLET-PIERRE 2000, p. 117-119, comments as well on the localized circulation of (marked) imitative types.

TABLE 1 – OVERVIEW OF HOARDS

	EGYPT	TOTAL
Archaic (before 480 BC)	<i>IGCH</i> 1632, 1634-1643, <i>CH</i> II·10, VIII·57	13
Classical I (480-360)	<i>IGCH</i> 1644-1653, <i>CH</i> I·7, X·437, X·438, X·442	14
Classical II (350-330)	<i>IGCH</i> 1654-1663, <i>CH</i> VIII·125, VIII·151, X·440, X·444, X·445	15
Early Hellenistic (320-290)	<i>IGCH</i> 1664-1676, <i>CH</i> I·41	14
ASIA MINOR (LYCIA, PISIDIA, PAMPHYLIA, LYCAONIA, CILICIA)		
Archaic	<i>IGCH</i> 1177, <i>CH</i> VIII·11	2
Classical I	<i>IGCH</i> 1243-1245, 1249-1264, <i>CH</i> II·18, II·27, V·9, V·16, VIII·32, VIII·39, VIII·40, VIII·48, VIII·91, IX·349, IX·352, IX·354, IX·384, IX·389, IX·393, IX·394, IX·402, IX·403, IX·408, IX·416, IX·417	40
Classical II	<i>IGCH</i> 1265-1268, <i>CH</i> IX·410, IX·415, X·220-222, X·242, X·245	11
Early Hellenistic	<i>IGCH</i> 1398, 1421-1422, <i>CH</i> X·263	4
THE LEVANT		
Archaic	<i>IGCH</i> 1478-1479, <i>CH</i> X·209	3
Classical I	<i>IGCH</i> 1272-1278, 1481-1490, <i>CH</i> IX·346, IX·356, IX·363, IX·367, IX·368, IX·372, IX·378, IX·386, IX·399, X·218, X·219, X·228	29
Classical II	<i>IGCH</i> 1279-1280, 1491-1506, <i>CH</i> VIII·143, VIII·591, IX·369, IX·373, IX·374, IX·383, IX·405, IX·406, IX·413, IX·428-433, IX·437-439, IX·441, IX·443, IX·444, IX·446, IX·449, IX·453, IX·456, X·224, X·226, X·235, X·237, X·243, X·244, X·253	50
Early Hellenistic	<i>IGCH</i> 1468-1472, 1507-1524, <i>CH</i> IX·448, IX·460, IX·465, IX·468, IX·469, IX·476, IX·484, X·256, X·260	32
ARABIA		
Early Hellenistic	<i>CH</i> X·303, HUTH 2010A, Appendix, no. 10-13	5
MESOPOTAMIA		
Classical I	<i>IGCH</i> 1747	1
Classical II	<i>IGCH</i> 1748	1
Early Hellenistic	<i>IGCH</i> 1749-1759, <i>CH</i> I·78, X·258	13
PERSIA AND CENTRAL ASIA		
Archaic	<i>IGCH</i> 1789, <i>CH</i> X·206	2
Classical I	<i>IGCH</i> 1790, 1791, 1820, 1830	4
Classical II	<i>CH</i> IX·452	1
Early Hellenistic	<i>IGCH</i> 1792-1795	4
		258

TABLE 2 – TYPES OF IMITATIVE COINAGE

- 1) PROTOTYPE (*BONA FIDE*) ISSUE *
 Producer : Political Authority 'X'
metal quality ~100%; weight ~100%; design 100%
- 2) ARTISTIC (ADAPTIVE) IMITATION
 Producer : Political Authority not 'X'
metal quality ~100%; weight ~100%; design 50-75%
- 3) ANONYMOUS IMITATION
 Producer : Private (?)
metal quality ~100%; weight ~100%; design 75-100%
- 4) MARKED IMITATION
 Producer : Political Authority not 'X'
metal quality ~/<100%; weight ~/<100%; design 75-90%
- 5) PERFUNCTORY IMITATION
 Producer : Private (?)
metal quality ~/<100%; weight ~/<100%; design 75-90%
- 6) PLATED OR DEBASED IMITATION
 Producer : Political Authority 'X'/not 'X'
metal quality ~25-75%; weight ~/<100%; design ~100%
- 7) COUNTERFEIT
 Producer : Private
metal quality ~25-75%; weight ~/<100%; design <100%

* The prototype coinage, with its original (i.e., 100%) metal quality, weight standard, and design, serves as the reference for all imitative types. For further discussion of these issues, see VAN ALFEN 2005.

TABLE 3 : OVERVIEW OF EASTERN IMITATIVE OWL TYPES*

TYPE	START DATE	FUNCTION	WEIGHT	SCALE	DENOMIN.
III-A – EGYPT					
A-1 <i>Buttrey types</i>	before 403	private?	Attic	large	4 \mathcal{D}_p , 1 \mathcal{D}_p
A-2 Naucratis	4 th c.	civic	Attic?	small	obol?
A-3 <u>Tachos</u>	361	military	Persian	small	daric
A-4 <i>uah</i> (𐤀) series	post-350	civic?	local?	small	obol?
A-5 Persian satrapal	343	satrapal	(sub-)Attic?	medium	4 \mathcal{D}_p
III-B – ASIA MINOR					
(B-1 <i>Various anonymous</i>)	before 450	private	sub-Attic	large	4 \mathcal{D}_p , 1 \mathcal{D}_p)
B-2 <u>Lycian types</u>	c.440	civic	local	small	stater-obol
B-2 " <u>Tissaphernes</u> "	before 410	satrapal	Attic	small	4 \mathcal{D}_p , \mathcal{A}
(B-3 Types w/symbols)	c.375?	civic?	Attic	medium	4 \mathcal{D}_p)
III-C – THE LEVANT					
C-1 <i>Various anonymous</i>	before 450	private	sub-Attic/local	large	4 \mathcal{D}_p , 1 \mathcal{D}_p
C-2 <u>Philistian</u>	450	civic	local	large	4 \mathcal{D}_p -hemiobol
C-3 <u>Samarian</u>	380	civic	local	large	1 \mathcal{D}_p -hemiobol
C-4 <u>Edomite</u>	4 th c.	civic	local	small	1 \mathcal{D}_p -obol
C-5 <u>Judean</u>	4 th c.	civic	local	small	1 \mathcal{D}_p -hemiobol
III-D – ARABIA					
D-1 North Arabian	4 th c.	civic	local	medium	4 \mathcal{D}_p , 1 \mathcal{D}_p
D-2 Minean	4 th c.	civic	local?	medium	4 \mathcal{D}_p
D-3 Qatabanian	c.350	civic	sub-Attic	large	4 \mathcal{D}_p -tritar.
D-4 Sabaean	c.350	civic	sub-Attic/local	large	4 \mathcal{D}_p , U.- $\frac{1}{16}$
III-E – MESOPOTAMIA					
E-1 Mazaces	c.330	satrapal	Attic	large	4 \mathcal{D}_p
E-2 AIF	late 4 th c.	?	(sub-)Attic	small	4 \mathcal{D}_p
III-F – BACTRIA					
II-F BACTRIA	325	civic?	Attic/local	medium	4 \mathcal{D}_p -obol

* Notes for Table 3 :

- *italicized* headings indicate the coinage is an anonymous imitative type
- underlined headings indicate the coinage is an artistic/adaptive imitative type
- (parentheses) indicate that attribution to that region is questioned
- FUNCTION is the suggested purpose for which the coinage was produced
- WEIGHT indicates the weight standard of the coinage
- SCALE is the comparative size of the coinage based on observed dies
- DENOMIN. indicates the range of denominations: 4 \mathcal{D}_p = tetradrachm; 1 \mathcal{D}_p = drachm; U = unit.

REFERENCES

- ANDERSON & VAN ALFEN 2008 = L. ANDERSON & P.G. VAN ALFEN. A fourth-century BCE hoard from the Near East. *American Journal of Numismatics* ser. 2, 20, p. 191-234.
- BRON & LEMAIRE 1995 = F. BRON & A. LEMAIRE. Pseudo-athéniennes avec légende araméenne LBLT et monnaie BLT en Arabie du sud. *Transeuphratène* 10, p. 45-56.
- BUSSI 2010 = S. BUSSI. Naukratis e l'inizio della monetazione ellenistica. *RIN* 111, p. 471-476.
- BUTTREY 1982 = T.V. BUTTREY. Pharaonic Imitations of Athenian Tetradrachms, in T. HACKENS & R. WEILLER (eds.), *Proceedings of the 9th International Congress of Numismatics, Berne, September 1979*, vol 1, Louvain-la-Neuve & Luxembourg, Association Internationale des Numismates Professionnels, p. 137-140.
- BUTTREY 1984 = T.V. BUTTREY. Seldom What They Seem: the Case of the Athenian Tetradrachm, in W. HECKEL & R. SULLIVAN (eds.), *Ancient Coins of the Græco-Roman World: the Nickle Numismatics Papers*, Waterloo (Ont.), Wilifrid Laurier University Press for the Calgary Institute for the Humanities, p. 292-294.
- BUXTON 2009 = R. BUXTON. The northern Syria 2007 hoard of Athenian owls: behavioral aspects. *American Journal of Numismatics* ser. 2, 21, p. 1-27.
- CAMP II & KROLL 2001 = J.M. CAMP II & J.H. KROLL. The Agora mint and Athenian bronze coinage. *Hesperia* 70.2, p. 127-162.
- DIEBOLT & NICOLET-PIERRE 1977 = J. DIEBOLT & H. NICOLET-PIERRE. Recherches sur le métal de tétradrachmes à types athéniens. *SNR* 56, p. 79-91.
- ELAYI 1992 = J. ELAYI. Le phénomène monétaire dans les cités phéniciennes à l'époque perse, in T. HACKENS & Gh. MOUCHARTE (eds.), *Numismatique et histoire économique phéniciennes et puniques*, *Studia Phoenicia* IX, Louvain-la-Neuve, p. 21-31.
- ELAYI & SAPIN 1998 = J. ELAYI & J. SAPIN. *Beyond the River: New Perspectives on Trans-euphratene*. Sheffield, JSOT Supplement Series 250.
- ERCOLANI COCCHI 1982 = E. ERCOLANI COCCHI. Il controllo statale sulla circolazione di moneta straniera nelle città greche. *Revista storica dell'antichità* 12, p. 53-59.
- FIGUEIRA 1998 = T. FIGUEIRA. *The power of money: coinage and politics in the Athenian empire*. Philadelphia, University of Pennsylvania.
- FISCHER-BOSSERT 2010 = W. FISCHER-BOSSERT. Notes on the coinages of the Philistian cities. In M. HUTH & P.G. VAN ALFEN (eds.), *Coinage of the caravan kingdoms: studies in the monetization of ancient Arabia*, p. 133-196. New York, American Numismatic Society.
- FLAMENT 2000 = Chr. FLAMENT. Les imitations des monnaies athéniennes retrouvées en Cilicie et en Syrie du Nord. *RAHAL* 33, p. 184-185.
- FLAMENT 2001 = Chr. FLAMENT. À propos des styles d'imitations athéniennes définis par T.V. Buttrey. *RBN* CXLVII, p. 39-50.
- FLAMENT 2003 = Chr. FLAMENT. Imitations athéniennes ou monnaies authentiques ? Nouvelles considérations sur quelques chouettes athéniennes habituellement identifiées comme imitations. *RBN* CXLIX, p. 1-10.
- FLAMENT 2005 = Chr. FLAMENT. Un trésor de tétradrachmes athéniens dispersés suivi

- de considérations relatives au classement, à la frappe et à l'attribution des chouttes à des ateliers étrangers. *RBN CLI*, p. 29-38.
- FLAMENT 2007A = Chr. FLAMENT. L'atelier athénien : réflexions sur la 'politique monétaire' d'Athènes à l'époque classique, in Gh. MOUCHARTE *et al.* (eds.), *Liber amicorum Tony Hackens*. Louvain-la-Neuve, Association de numismatique professeur Marcel Hoc, p. 1-10.
- FLAMENT 2007B = Chr. FLAMENT. *Le monnayage en argent d'Athènes : de l'époque archaïque à l'époque hellénistique (c.550-c.40 av. J.-C.)*, Études numismatiques 1. Louvain-la-Neuve, Association de numismatique professeur Marcel Hoc.
- FLAMENT 2007C = Chr. FLAMENT. L'argent des chouettes. Bilan de l'application des méthodes de laboratoire au monnayage athénien tirant parti de nouvelles analyses réalisées au moyen de la méthode PIXE. *RBN CLIII*, p. 9-30.
- FLAMENT 2007D = Chr. FLAMENT. *Une économie monétarisée : Athènes à l'époque classique (440-338). Contribution à l'étude du phénomène monétaire en Grèce ancienne*. Leuven, Peeters.
- GITLER 2009 = H. GITLER. A Persian period drachm of Judah. *Transeuphratène* 37, p. 169-170.
- GITLER, PONTING & TAL 2009 = H. GITLER, M. PONTING & O. TAL. Athenian tetradrachms from Tel Mikhal (Israel) : a metallurgical perspective. *American Journal of Numismatics* ser. 2, 21, p. 29-49.
- GITLER & TAL 2006 = H. GITLER & O. TAL. *The coinage of Philistia of the fifth and fourth centuries BC: a study of the earliest coins of Palestine*. Milano & New York, Edizioni Ennere/Amphora.
- GITLER, TAL & VAN ALFEN 2007 = H. GITLER, O. TAL & P.G. VAN ALFEN. Silver dome-shaped coins from Persian-period southern Palestine. *Israel Numismatic Research* 2, p. 47-62.
- HARRISON 2002 = C. HARRISON. Numismatic problems in the Achaemenid west: the undue modern influence of 'Tissaphernes'. In V.B. GORMAN & E.W. ROBINSON (eds.), *Oikistes. Studies in constitutions, colonies, and military power in the ancient world offered in honor of A.J. Graham*. Mnemosyne 234, p. 301-319. Leiden.
- HENDIN 2010 = D. HENDIN. *Guide to Biblical coins*. 5th edition. Nyack (NY), Amphora.
- HUTH 2010A = M. HUTH. Monetary circulation in south west Arabia between the fourth and second centuries BCE: the al-Jawf hoards of 2001 and 2002. In M. HUTH & P.G. VAN ALFEN (eds.), *Coinage of the caravan kingdoms: studies in the monetization of ancient Arabia*, p. 83-106. New York, American Numismatic Society.
- HUTH 2010B = M. HUTH. The Athenian imitations from Arabia. In M. HUTH & P.G. VAN ALFEN (eds.), *Coinage of the caravan kingdoms: studies in the monetization of ancient Arabia*, p. 227-256. New York, American Numismatic Society.
- HUTH 2010C = M. HUTH. *Coinage of the caravan kingdoms: a catalogue of ancient Arabian coins*. New York, American Numismatic Society.
- HUTH & QEDAR 1999 = M. HUTH & S. QEDAR. A coin from north Arabia with an Aramaic inscription and related coins of the incense road. *NC* 159, p. 295-298.
- IGCH [1973] = M. THOMPSON, O. MØRKHOLM & C.M. KRAAY (eds.). *An inventory of Greek coin hoards*, New York, American Numismatic Society.

- KONUK, K. (forthcoming). Des chouettes en Asie Mineure : quelques pistes de réflexion.
- KRAAY 1976 = C.M. KRAAY. *Archaic and Classical Greek Coins*, London, Methuen & Co.
- KROLL 1976 = J.H. KROLL. Aristophanes' *Porneia Khalkeia*: a Reply. *Greek, Roman & Byzantine Studies* 17, p. 329-341.
- KROLL 1993 = J.H. KROLL. *The Athenian Agora*, vol. xxvi. *The Greek coins*. Princeton, American School of Classical Studies at Athens.
- KROLL 1996 = J.H. KROLL. The Piraeus 1902 Hoard of Plated Drachms and Tetradrachms (IGCH 46). In ΧΑΡΑΚΤΗΡ, *Mélanges Mando Oeconomides*, Athens, p. 136-146.
- KROLL 2001 = J.H. KROLL. A small bullion find from Egypt. *American Journal of Numismatics* ser. 2, 13, p. 1-20.
- KROLL 2006 = J.H. KROLL. Athenian tetradrachms recently discovered in the Athenian Agora. *RN* 162, p. 57-64.
- KROLL 2009 = J.H. KROLL. What about coinage? In J.T. MA, N. PAPAΖARKADAS & R. PARKER (eds.), *Interpreting the Athenian Empire*, p. 195-209. Duckworth.
- KROLL 2011 = J.H. KROLL. The reminting of Athenian silver coinage, 353 BC, *Hesperia* 80 (2011), p. 229-256.
- LE RIDER 1972 = G. LE RIDER. Tétradrachmes « au lion » et imitations d'Athènes en Babylonie. *Gazette numismatique suisse* 22, p. 1-7.
- LEMAIRE 1999 = A. LEMAIRES. MBGY/Menbigi, monétaire de Transeuphratène avant Alexandre ? In M. AMANDRY & S. HURTER (eds.), *Travaux de numismatique grecque offerts à Georges Le Rider*, p. 215-219. London.
- MESHORER & QEDAR 1999 = Y. MESHORER & S. QEDAR. *Samaritan Coinage*, Jerusalem.
- MILDENBERG 1998 = L. MILDENBERG. Money Supply under Artaxerxes III Ochus, in R. ASHTON & S. HURTER (eds.), *Studies in Greek Numismatics in memory of Martin Jessop Price*, p. 277-286. London.
- NICOLET-PIERRE 1973 = H. NICOLET-PIERRE. Monnaies grecques trouvées en Afghanistan. *RN* 129, p. 34-53.
- NICOLET-PIERRE 1979 = H. NICOLET-PIERRE. Les monnaies des deux derniers satrapes d'Égypte avant la conquête d'Alexandre. In O. MØRKHOLM & N.M. WAGGONER (eds.), *Greek numismatics and archaeology: essays in honor of Margaret Thompson*, p. 221-230. Wetteren, Cultura.
- NICOLET-PIERRE 1986 = H. NICOLET-PIERRE. L'oiseau d'Athéna, d'Égypte en Bactrine : quelques remarques sur l'usage d'un type monétaire à l'époque classique. In L. KAHIL, C. AUGÉ & P. LINANT DE BELLEFONDS (eds.), *Iconographie classique et identités régionales*. *BCH Suppl.* 14, p. 365-376.
- NICOLET-PIERRE 1998-99 = H. NICOLET-PIERRE. Tétradrachmes pseudo-athéniens en Sicile et en Italie. *Klearchos* 157-164 [2002], p. 93-112.
- NICOLET-PIERRE 1999 = H. NICOLET-PIERRE. Argent et or frappés en Babylonie entre 331 et 311 ou de Mazdai à Séleucos. In M. AMANDRY & S. HURTER (eds.), *Travaux de numismatique grecque offerts à Georges Le Rider*, p. 285-305. London.
- NICOLET-PIERRE 2000 = H. NICOLET-PIERRE. Tétradrachmes athéniens en Transeuphratène. *Transeuphratène* 20, p. 107-119.
- NICOLET-PIERRE 2001 [2004] = H. NICOLET-PIERRE. Retour sur le trésor de Tel el-Athrib

- 1903 (IGCH 1663) conserve à Athènes. *Arkhaiologike ephemeris* 139, p. 173-187.
- NICOLET-PIERRE 2003 [2005] = H. NICOLET-PIERRE. Les imitations égyptiennes des tétradrachmes athéniens d'époque classique (v^e-iv^e s. av. J.-C.). *Arkhaiologike ephemeris* 142, p. 139-154.
- NICOLET-PIERRE & AMANDRY 1994 = H. NICOLET-PIERRE & M. AMANDRY. Un nouveau trésor de monnaies d'argent pseudo-athéniennes venu d'Afghanistan (1990). *RN* 150, p. 34-54.
- NICOLET-PIERRE & KROLL 1990 = H. NICOLET-PIERRE & J.H. Kroll. Athenian tetradrachm coinage of the third century BC. *American Journal of Numismatics* ser. 2, 2, p. 1-35.
- OECONOMIDES 1999 = M. OECONOMIDES. Contribution à l'étude du monnayage athénien à l'époque classique : le trésor trouvé au Pirée en 1977. *RBN CXLV*, p. 17-20.
- OECONOMIDES 2006 = M. OECONOMIDES. Contribution à l'étude du monnayage athénien à l'époque classique (*suite*) : le trésor trouvé à Ano Voula en 1979. *RN* 162, p. 73-76.
- PRICE & WAGGONER 1975 = M. PRICE & N. WAGGONER. *Archaic Greek coinage: the Asyut hoard*. London, V.C. Vecchi and Sons.
- ROBINSON 1948. = E.S.G. ROBINSON. Greek coins acquired by the British Museum, 1938-48. *Numismatic Chronicle* ser. 6, VIII, p. 43-59.
- ROBINSON 1960. = E.S.G. ROBINSON. Some problems in the later fifth century coinage of Athens. *American Numismatic Society Museum Notes* 9, p. 1-15.
- SAMONS 2000 = L.J. SAMONS. Empire of the owl: Athenian imperial finance. *Historia Einzelschriften* 142. Stuttgart, Franz Steiner.
- SCHÖNHAMMER 1993 = M. SCHÖNHAMMER. Some thoughts on the Athenian coinage decree. In T. HACKENS & Gh. MOUCHARTE (eds.), *Actes du XI^e congrès international de numismatique organisé à l'occasion du 150^e anniversaire de la Société royale de numismatique de Belgique, Bruxelles, 8-13 septembre 1991*, p. 187-191. Louvain-la-Neuve.
- STEIN 2010 = P. STEIN. The monetary terminology of Ancient South Arabia in light of new epigraphic evidence. In M. HUTH & P.G. VAN ALFEN (eds.), *Coinage of the caravan kingdoms: studies in the monetization of ancient Arabia*, p. 303-342. New York, American Numismatic Society.
- SVORONOS 1975 = J. SVORONOS. *Corpus of the ancient coins of Athens*. Chicago, Ares.
- TIETZ 2002 = W. TIETZ. Der westlykische Münzstandard zwischen Athen und Persien. In H. BLUM, B. FAIST, P. PFALZNER & A.-M. WITKE (eds.), *Brückenland Anatolien?*, p. 59-67. Tübingen.
- THOMPSON 1970 = W.C. THOMPSON. The golden Nikai and the coinage of Athens. *Numismatic Chronicle* ser. 7, X, p. 1-6.
- VAN ALFEN 2000 = P.G. VAN ALFEN. The "owls" from the 1973 Iraq hoard. *American Journal of Numismatics* ser. 2, 12, p. 9-58.
- VAN ALFEN 2002A = P.G. VAN ALFEN. The "owls" from the 1989 Syria hoard with a review of pre-Macedonian coinage in Egypt. *American Journal of Numismatics* ser. 2, 14, p. 1-58.

- VAN ALFEN 2002B = P.G. VAN ALFEN. Two unpublished hoards and other “owls” from Egypt. *American Journal of Numismatics* ser. 2, 14, p. 59-71.
- VAN ALFEN 2004/5A = P.G. VAN ALFEN. Herodotus’ “Aryandic” Silver and Bullion Use in Persian-Period Egypt. *American Journal of Numismatics* ser. 2, 16/17, p. 7-46.
- VAN ALFEN 2004/5B = P.G. VAN ALFEN. A new Athenian ‘owl’ and bullion hoard from the Near East. *American Journal of Numismatics* ser. 2, 16/17, p. 47-61.
- VAN ALFEN 2005 = P.G. VAN ALFEN. Ancient imitative and counterfeit coinage in context. In Z. ARCHIBALD, J. DAVIES & V. GABRIELSEN (eds.), *Making, moving, and managing: the new world of ancient economies, 323-31 BC*. London, Oxbow.
- VAN ALFEN 2010 = P.G. VAN ALFEN. Die studies of the earliest Qatabanian and Sabaeen coinages. In M. HUTH & P.G. VAN ALFEN (eds.), *Coinage of the caravan kingdoms: studies in the monetization of ancient Arabia*, p. 257-302. New York, American Numismatic Society.
- VAN ALFEN 2011 = P.G. VAN ALFEN. Hatching owls: the regulation of coin production in later fifth-century Athens. In Fr. DE CALLATAÿ & E. LO CASCIO (eds.), *Quantifying monetary supplies in Greco-Roman times* (Pragmateiai, no. 19). Bari, p. 1-47.
- VISMARA 1989 = N. VISMARA. *Monetazione arcaica della Lycia. 1. Il dinasta Wekhssere 1. Glaux 2*. Milano.
- VLEEMING 2001 = S.P. VLEEMING. *Some coins of Artaxerxes and other short texts in the Demotic script found on various objects and gathered from many publications*. Studia Demotica v. Leuven, Peeters.
- WARTENBERG 1998 = U. WARTENBERG. Eastern imitation of Athenian tetradrachm. *Numismatic Chronicle* 158, p. 51.
- WOLFRAM 1989 = W. WOLFRAM. Die Eulen von Kyros dem Jüngerem: zu den ersten Münzporträts lebender Menschen. *Zeitschrift für Papyrologie und Epigraphik* 76, p. 267-296.