BETWEEN NECESSITY AND EXTRAVAGANCE:
SILVER AS A COMMODITY IN THE HELLENISTIC PERIOD

A DISTINCTIVE feature of Hellenistic economies is the proliferation of manufactured silverware. The appropriation by Alexander the Great of the rich Persian treasury after the capture of Sardis in summer 334 BC and the concomitant flow of income from his victories down to 324 BC significantly increased the presence in Mediterranean markets of a metal with remarkable properties: silver was bright, and could be hardened when alloyed with a little copper. It was scarcer than iron or copper, but more common than gold, and had for long facilitated economic transactions as currency (A. Oliver 1977, 13; Healy 1978, 227). It was with good reason that Rostovtzeff drew a parallel between the wide circulation of silver in the Hellenistic period and that of gold after the discovery of America: silver objects are reported in literary descriptions of royal processions and later in the triumphs of Roman generals at Rome, while the remarkably high quality of contemporary silver plate complements effectively the numerous and widespread Hellenistic silver (coin and other) hoard finds.

The present article aims to consider coined silver (which retained its intrinsic value) alongside silver traded in the form of commodities and to identify (through documentary evidence) the principles that channelled its movement in Hellenistic markets and beyond. By defining the economic and social behaviour of silver items and analysing their functions within and through (re)distribution mechanisms, we shall ultimately be able to reassess their economic significance and show their contribution to the formation of ‘globalizing’ Hellenistic economic patterns.

METHOD

Our approach to commodities gains in perspective from recent debates in the area of economic anthropology. In anthropological terms, a ‘commodity’ may be defined as a socially desirable ‘thing’ with an intrinsic, culturally defined use-value and with an exchange-value that potentially allows its owner(s) to obtain other things or currency (Stone–Hauga–

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1 I should like to dedicate this article to the ex-director of the Numismatic Museum at Athens, Dr Yannis Touratsoglou, upon his retirement, in recognition of his major contribution to both Classical archaeology and Greek numismatics, and of his generosity towards junior scholars. A first version of this piece was presented at the second conference on Hellenistic economies held in Liverpool in 2002. The article took its current shape in 2003, while I was at the Ashmolean Museum, Oxford as a BSA/Foundation of the Hellenic World postdoctoral fellow. The present version has largely benefited from stimulating discussions with Makis Aperghis, John Davies, Mark Lawall, Fred Hirt, Henry Kim, D. MacDowall, H. B. Mattingly, Kenneth Painter, Gary Reger, Katerina Rhomiopoulou, Michael Vickers, Dyfri Williams, and Helen Zimi: to them all, and, not least, to the anonymous reader of the BSA journal, are due my most heartfelt thanks. Any remaining errors are, of course, my own. I should also like to thank Dr Dimitra Tsangari, curator of the Alpha Bank numismatic collection at Athens, for kindly providing me with photographs of coins at the Alpha Bank Numismatic Collection.

2 For a detailed account of the silver resources of Alexander after the capture of Sardis, with bibliography, see Price 1991, 25–7; cf. Callataï 1989.

3 On the popularity of silver, see Rostovtzeff 1941, 165. For a comparison of Alexander’s conquests with the discovery of America, see ibid. 126–69. On the parallelism of the spread of silver in the Hellenistic period with that of gold after the discovery of America, see also Callataï 1989.
Little 2000, 5–6). It is found in the ‘commodity phase of its social life’, i.e. is not used in barter, as a gift, in tournaments of exchange, in ritual, for tax-tribute, or as an item of compensation; it is accepted as a commodity by a certain community, and it appears in commodity context (Appadurai 1986, 13; Collins 2000, 166). Theoretical interpretations of commodities were challenged in 1986 by Arjun Appadurai: defining a commodity as primarily ‘an object of economic value’ (Appadurai 1986, 3), he identified (a) commodities by destination, i.e. objects intended by their producers principally for exchange; (b) commodities by metamorphosis, i.e. things intended for other uses that are placed in commodity state; (c) commodities by diversion, i.e. objects placed in commodity state and then placed in some other state; (d) ex-commodities, i.e. items retrieved, either temporally or permanently, from commodity state and placed into some other situation. Going a step further, he polarized commodities as singular or homogeneous i.e. a work of art has to be unique, whereas a fifth-century Athenian tetradrachm owl conforms to a particularly standardized prototype; primary (i.e. necessities such as salt or timber) or secondary (i.e. luxuries, such as precious metals or spices); and, finally, as mobile or enslaved. Appadurai stressed that ‘all efforts in defining commodities are doomed to sterility unless they illuminate commodities in motion’; for ‘from a methodological point of view it is the things in motion that illuminate their human and social context’ (Appadurai 1986, 5). Thus the emphasis shifts rapidly from the ‘formalist’ study of the politics of production and marketing of goods to the effects of goods on the production relations of globalizing markets.4

In order to understand the functions of silver in Hellenistic economies along these lines, one may identify the following stages: (1) the metal is extracted from the mines and (2) is transported to centres of metalworking and storage; (3) silver objects and coins are manufactured; (4) they are then distributed and redistributed in the form of ingots, coins or artefacts; (5) they are occasionally recycled and reused. With this process in mind, this article has been divided into the following sections: first, I shall scan the argentiferous regions/ores around the Mediterranean; next, I shall describe the process of extraction, transport, and storage of the raw metal (stages 1–2); in the third part, the main metalworkshops will be presented, initially through archaeological and archaeometallurgical criteria and then through the stylistic analysis of Hellenistic silver objects. Whether a Hellenistic koine was developed and spread through silverware manufacture will be discussed through an examination of issues such as the specialization of crafts, the copying and reproduction of original silver objects, the movement of craftsmen, and the influence of Greek metalworking on new centres of toreutic and artistic metalwork (stage 3). The last two sections will focus respectively on the distribution and redistribution of silver within Hellenistic economic systems and they will explore their motors (stages 4–5). A survey of the prices of silver in the Hellenistic period will be excluded from this article, as this topic requires separate consideration.

The shape of the model is determined by the limitations of the evidence. The first stage in the silver commodity chain is straightforward to reconstruct, as mines and the extraction of raw silver have been gaining scholarly attention recently. However, a full description of the objects’ manufacture and (re)distribution is hindered by lacunae in the existing data. In terms of manufacture, while a platform for the systematic presentation of Hellenistic silver workshops has been provided by Michail Treister (Treister 1996), patterns of imitation or local reproduction of types, forms, and styles remain indistinguishable from mainstream metalworking trends (cf., for instance, Williams 2003).

Archaeological information can be important in showing movement and distribution, yet only up to a certain level: the commonest silver artefacts were often reshaped into new objects through the extensive practice of recycling silver. Silver reuse makes it indeed difficult to calculate with any precision the volume of this metal available in a given period. Furthermore, silver moved around the Mediterranean also through non-commercial channels: silver artefacts found in tomb burials, in hoards, or in treasures, for example, alongside those mentioned in temple inventories, or those known to have been offered as gifts do not represent straightforward ‘commodity situations’. As these were deliberately withdrawn from the circulation pool, it is only as ‘ex-commodities’ that they might tentatively become integrated into the model.

It is also worth questioning whether silver coins fit into the silver commodity chain. The very use of the term ‘circulation’ (instead of the more accurate term ‘distribution’) in numismatic assessments of the spread of coin finds is a sign that establishing the flow of silver (in strictly numismatic contexts, at least) has been a long-term desideratum for numismatists. Estimates of the size of issues based on obverse dies illustrate an attempt to overcome the effects of silver recycling upon coinage distribution. Thus, even though modern views of coins as ‘tournaments of exchange’ for traded goods or for services prima facie exclude them from the silver commodity chain, it may be argued that, because of its intrinsic value in antiquity, coined silver functioned as a commercial commodity in the Hellenistic period. That the spread of large quantities of precious metal coinage facilitated the movement of silver in the Hellenistic ecoescape might qualify silver coins, especially larger denominations, for a place in it; not least because they could be reshaped into goods for exchange. Moreover, as homogeneous and mobile commodities, coins constituted both a flexible transport means of silver and a warranty for the purity of the metal. As the role of coinage within the commodity chain still remains to be defined, references to coins will for the moment be kept separately from those to other silver objects.

In short, the silver artefacts surviving to date are essentially those which were not recovered or melted down in antiquity. This feature leads to the construction of a qualitative model based primarily on contemporary literary and epigraphical documentation, along with any surviving archaeological evidence. The present article will focus instead on the manufacture

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5 On the problème concerning the circulation of coinage, see Howgego 1995, 89-110; Mørkholm 1991, 19-22.


7 The approximate size of an ancient numismatic issue may be estimated through specialized statistical formulae. The number of obverse dies of a numismatic issue known to date is key information for the solution of these formulae.
of silver objects and on the motors that regulated their movement and (re)distribution through Hellenistic economies. Within such a vast topic, concentration on the major tendencies is inevitable. As the raw metal lay in the hands of Hellenistic kings and of the Roman state (initially the Republic and later both the state and the emperor), who owned the mines, it has been considered best to concentrate on them. After all, it is the activities of these authorities that, being presumably on an unusually large scale, were far more influential than other manipulations of silver in the Hellenistic period.

THE MODEL

STAGE 1: MINING

Silver extracted from silver–lead mines was refined in order to acquire the raw form of the metal. Moving from the East to the West, Hellenistic argentiferous ores are distributed around the Mediterranean as follows:8

(i) Anatolia was prolific in silver.9 In addition to the silver mines to the east of Mount Ida in the Troad, which presumably supplied both the Seleucid kingdom and Pergamon,10 the Seleucids drew ample silver from a number of sites, such as: Ergasteria (between Pergamon and Kyzikos: Galen ix. 3, 22 ff. Kühn); Argyria near Aeseus, and Pericharaxis (Balya Maden) in the upper valley of the river Tarsius or Enbeilus; Kuzza; Paphlagonia (Strab. xii. 3); Pontos; Kūthaya (Black Sea); Myndus (Caria); Zephyrion (Cilicia, Plin. xxxiv. 173); the Taurus mountains (Cilicia, Cappadocia) (Shepherd 1993, 224–9). In the Middle East, a river in Caucasia allegedly carried, among other materials, dust of silver (Strab. xv. 2. 14; Aperghis 2005, 30). Silver mines existed also in Iran, while Indian mines were often praised by Greek authors.11 After the death of Seleukos II (226/5 BC), the integration of Central Asia Minor into the Pergamene kingdom and the annexation of the southern Caucasus, of Armenia, and of part of the Taurus mountains to the Pontic kingdom deprived the Seleucid economy of significant metal resources (Healy 1978, 47). Further east, the silver mines near the head of the Panjshīr valley in the Hindu Kush and those near Herāt probably provided the silver resources for the Grecobactrian coinage of the Hellenistic East. Finally, silver in smaller quantities may have come from lead ores, such as the old mine at Frinjāl in the Ghorband valley.12

(ii) Egypt and North Africa were poor in silver. Small quantities of this metal came from Gebel Rusas near the Red Sea, 3 km south of Safaga Bay.13 Apparently silver was extracted alongside bronze in Cyprus.14 Despite the presence of silversmiths during Phoenician, Carthaginian, and Roman occupation, mining activity in North Africa must have remained insignificant.15

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8 On the inaccuracies of literary reports on mining areas, see Shepherd 1993, 1–2. The latter, along with Healy 1978 and Davies 1935, may be considered standard works on ancient mining. Treister 1996 largely follows Shepherd 1993 in the discussion of the related evidence.


10 Magie 1950, i. 44; ii. 782; Shepherd 1993, 224; Rostovtzeff 1941, 556 ff. It remains vague whether the silver mines mentioned by Homer in the Iliad near Tripoli, 480 km east of Kytoris, continued to be in use in the Hellenistic period: Shepherd 1993, 229.

11 Ktesias, FGrH 688 F 45; 26; D.S. ii. 96; 2; Plin. NH xxxiii. 67. Cf. Rostovtzeff 1941, 1175; Mørkholm 1991, 3.

12 Clarke et al. 1979, 34–5.

13 Lucas 1958. Nabataean silver and gold are mentioned in Strabo, but possible mines require identification: Strab. xvi. 4; Shepherd 1993, 258.

14 Rostovtzeff 1941, 1170–6.

(iii) In Northern Greece, exploitation of the mines was brought under royal control; their use was intensified by Philip II, and later revived by Philip V.16 Royal mines were closed down at the end of the Third Macedonian war (167 BC).17 To the east of the Strymon, argentiferous regions from the Classical period onwards included Mt. Pangaion, Scapte Hyle, Asyla, Thasos, Kassandra (which probably closed down in the second century BC), Stageira, Madenochorio, Dysoron (Hdt. v. 7. 2) and Damastion.18 Thermoluminescence analysis of pottery fragments and of gold confirms that lead–silver mines were also being worked in Thasos.19 Finally, Siphnos was the Greek island richest in silver ore (Hdt. iii. 46–7; Davies 1935, 3, 261–2).

(iv) Most of our information about mining technology in mainland Greece derives from the Laurion mines in Attica.20 These declined during the late fourth century BC (Strab. iii. 2. 9; x. 1. 9), but the minting of the New Style tetradrachms has been taken to indicate their revival in the first half of the second century BC.21 Their systematic exploitation eventually came to an end: apart from slave rebellions around 134 BC and 104/100 BC,22 Strabo notes that the silver resources at Laurion had been exhausted by the end of the first century BC (Strab. ix. 1. 23, x. 1. 9).

(v) Unlike mainland Greece, Italy was deficient in silver. Mining appears to have been restricted in Sardinia, despite the presence there of argentiferous ore.23 Traces of ancient working appear in a number of sites in Cisalpine Gaul. Finally, a revival of the Rio Tinto Neolithic lead–silver deposits might not be incompatible with Pliny’s description of Iberia as a land rich in precious metals including silver, but it still needs to be proved.24 If this was so, Diodorus Siculus’ remark on the superiority of the Spanish mines to their Laurion counterparts would significantly change our view of the distribution of mines during this period.25

Even though the process of silver elaboration (i.e. ore-crushing, grinding, concentration, washing, smelting, cupellation) appears to have been variable at most mines, the rate of annual production of raw metal in the respective areas in antiquity is hard to recover.26 As

16 The coinage produced might indicate the continued extraction of silver at least until Philip V: Hammond–Griffith 1979, ii. 69–91; Borza 1982, 8–12; Hatzopoulos 1996, i. 433–6. Livy (xxix. 24. 2) reports that Philip ‘not only increased royal revenues from the farm crops and from harbour dues but also reopened the old mines and began operations in several places’.
18 Strabo vii. 7–8; Davies 1932; Cary 1932, 130–42; Marlatos–Andronopoulos 1966; Shepherd 1993, 107–8.
19 On thermoluminescence, see Grün 2001, 47–50, 56.
22 Cf. Poseidonius in Athen. vi. 272 e–f = FG eH 87 F 35.
23 Shepherd 1993, 137–41.
24 Shepherd 1993, 187–208 does not make explicit the revival of these mines in the Hellenistic period, as Treister 1996, 293–4 assumes (rather than proves).
25 D.S. ν. 37. 1–2: μεγάλην δ’ ἔχει παραλαγήν τά μετάλλα ταῦτα συγχρόνως τοῖς κατὰ τὴν Αττικήν ἐκείνα μὲν γὰρ οἱ μεταλλεύοντες καὶ πρὸς ταῖς ἔργασις μεγάλα προϊόντες διαπάνω ἂν μὲν ἡλπίσει ἐνίοτε λαβέιν οὐκ ἔλαβον, ἀδ’ εἶχον ὀπέβαλον, ὡστε διόκειν αὐτοῖς ὀσπρα ἀνίγματος τρόπον ἄτυχεν· οἷς δὲ κατὰ τὴν Σπάνιαν μεταλλουργίαν ταῖς ἐλκείσι μεγάλους σφορεύσεις πλούσιον ὡς τοῦτον τῶν ἐργασίων, τῶν γὰρ πρῶτον ἐργόν ἐπιτυγχανόμενον διὰ τὴν τῆς γῆς εἰς τοῦτο τὸ γένος ἄρετην ἂς μᾶλλον εὐφράσκουσι λαμπροτέρα φλέβας, γεμώσονς ἀγρύψω τε καὶ χρυσοῦ· πάσα γὰρ ἡ σύνεγγυς γῆ διαπλέκεται πολυμερῶς τοῖς ἐλγιμοῖς τῶν ῥάβδων.
26 Rostozveff notes that the methods of extracting metal in Nubia and at Laurion were similar: Rostovzveff 1941, 1214. Tsaimou 2000, 106 estimates that the total volume of silver produced in the Laurion mines in approximately seven centuries rose to 3,500 metric tons. On the stages of ore processing, see Tsaimou 2000; Konophas 1980.
ancient miners presumably lacked geological expertise, scanning mines on a more local/regional level is likely to reveal regional technological divergences dictated by respective geological peculiarities; but this task falls beyond the scope of the present article. Moreover, working conditions in mines, not least in ventilation, inundation, lighting, and transport, are reported to have been difficult. With the exception of the workers at Laurion, who are known to have been slaves, little information survives regarding miners’ status and identity; it remains vague whether populations were deliberately moved within empires in order to undertake the running of mines, as was the practice in the Roman period. Similarly, unlike Athenian mines, which belonged to the state but which were run through leasing systems, other Hellenistic mines are assumed to have been public property administered by the respective kings. That royal revenue from natural resources is ranked second in importance in the discussion of the satrapal economy in Pseudo-Aristotle’s *Oikonomika* corroborates its significance (Arist. *Oik* ii. 1. 4; Aperghis 2005, 117–34). Little information survives, however, with regard to the strategies of their administration/exploitation. As for Rome, all mines were in public hands under the Republic; under the Empire, ownership of a mine was possible both for the state and for the emperor.

**STAGE 2: TRANSPORT AND STORAGE**

According to modern reconstructions of the silver mining process, the unworked metal (ἅπαξ ἀργύριον, Thuc. ii. 13, vi. 8, Alexis fr. 70 K.–A., P. Leid. X. 6), presumably in the form of ingots, was transported (possibly in ox-drawn wagons) either to storage-rooms or to metal workshops, in order to be turned into a marketable commodity. As there do not seem to have been any local variations in the quality of the raw metal per se, allowing as well for the Hellenistic practice of melting and reuse of old silver, it may be argued that the provenance of the raw metal that reached metal-producing centres was determined by proximity and politics. Sea transport, whenever possible, may have been preferred in order to reduce transport costs (Reger 2003, 337): even though silver bullion is not included in recent reports of Hellenistic shipwrecks, presumably because of pillaging ancient and/or modern, the silver ingots in the cargo of the Classical wreck from Porticello might indicate a transport practice which may have been continued through to the Hellenistic period. Similarly, the heavily corroded but most significant, large underwater coin hoard, unearthed near Sophikon (to the north of Epidauros in the Peloponnese) in 1893 and dated to c.230–220 BC, may also be taken as an additional testimony of Hellenistic transport practices of silver precious metal (in the form of coins). Land routes must have offered an obvious alternative to the maritime

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27 Shepherd reaches this conclusion on the basis of the ancients’ response to technical difficulties (their practice of abandoning shafts when faced with geological difficulties); he attributes the practice of abandoning ore deposits at the peak of their production in the hope that they might be rejuvenated to an ancient prejudice: Plin. xxxiv. 49; cf. Shepherd 1993, 3–57.


29 Under the Roman emperor Titus (AD 79–81), for instance, Jews were transferred to Egyptian mines: Shepherd 1993, 65.

30 Liv. xxxiv. 21. 7 reports that mines were declared state property after the Second Punic War.


32 The transport of silver via wagons may be assumed from similar practices in carrying building stones from quarries: Reger 2003, 336.

33 The Classical wreck from Porticello included at least twenty lead ingots in the cargo, along with small ingots and over 120 nuggets of silver at the stern: Gibbins 2001, 285.

34 Nicolet-Pierre–Kroll 1990, 31; IGCH 179 = Coin Hoards, 8 (1994) 316. For a catalogue of the known coins, found in a silver vase as part of the cargo of a shipwreck, see Hackens 1968, 69–75, esp. 71–2, with further bibliography. The synthesis of this coin hoard, comprising coins of Ptolemy III Euergetes I, of Seleukos II, of the
ones for long-distance and for short-distance trade: it may be assumed that silver, in the form of money at least, followed the same paths, yet in reverse direction, as luxury commodities such as spices or silk.35

That stored silver offered an effective alternative to the raw metal extracted from mines is shown by the enormous effect that the appropriation and coining by Alexander III of King Darius’ silver deposits (amounting to 2,200 metric tons of silver) had on the economic profile of Mediterranean markets down to the first century BC (see n. 2; Callataý et al. 1993, 113–18). But more important than the extraction of the raw metal was the placing of silver into ‘circulation’ mode.

**STAGE 3: COMMODITIES IN THE MAKING**

**Silver Workshops**

When not exchanged as barter, silver entered the marketplace in the form of objects shaped at metal workshops. Even though the artefacts surviving to date indicate the high level of sophistication in Hellenistic silver workshops, those specializing in silver are hard to distinguish from their counterparts in other metals; it is, after all, possible that, subject to demand, silversmiths also worked on materials other than silver. Casting pits dated to the Hellenistic period might indicate workshops: to the four casting pits and to the Hellenistic finds associated with bronzeworking known from the Athenian Agora, one might add three finds from Olympia, two casting pits, and a third century BC casting mould. Similar finds have been unearthed at Pella, at Nemea, at Demetrias, at Kassope, at Rhodes, and at Amorgos (Treister 1996, 294–5, with further bibliography).

Even though metal workshops have not been excavated in the Northern Pontic area, casting moulds for small objects from Olbia, Chersonesos, and Pantikapaion confirm that manufacture of silverware took place there in the Hellenistic period; jewellery workshops also operated in cities around the Bosporos (Treister 1996, 197). An early Hellenistic multi-room structure, unique in its function, found at Troy in 1997 and presumably intended for bronze-casting, might also have been related to the production of silverware.36 Armour workshops, in addition to those specializing in bronze, jewellery, and toreutics, have been traced alongside warrior settlements at Artaxata in Armenia (Treister 1996, 298).

Identifying workshops is made easier through study of the silver objects, arranged by regions. As it is impossible to provide a full list of Hellenistic silver workshops, perhaps it might be useful to distinguish between workshops with features common throughout the Hellenistic world (at least for small scale work), and regional stylistic tendencies, and possibly to identify particularly influential centres of production. The fact that most silverware was manufactured in the Balkans seems not unrelated to the availability of raw metal in the area. Apart from armour (i.e. shields or helmets) for troops such as the ἁγιοράσπιδες,37 one may

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36. Rose 1998, 71–113, esp. p. 79–80, figs. 7–10. I am grateful to Mark Lawall for pointing out this find to me.

assume the existence of local workshops in Macedonia, where silversmiths allegedly manufactured more than twenty-five different silver shapes and several subtypes, old and new (PLATE 18). Zimi identifies similarities in form between Macedonian and respectively Thracian and Italian silver and bronze examples; but she also recognizes Achaemenid influence in certain innovatory types. The decorative patterns on Macedonian vessels carry a ‘cosmopolitan’ flavour: Zimi considers the choice and layout of decorative patterns in the exterior of certain vessels a distinctly Macedonian feature, but she recognizes Achaemenid influences in certain decoration details (Zimi 1997, 208). The manufacture of silver jewellery in Macedonia was rare; some silver imitations of gold jewels, with types borrowed from Italy or adapting Pontic decorative motifs, survive, but they were certainly not the norm (Barr-Sharrar 1998, 82. Higgins 1961, 171 lists only silver fibulae, popular in Early Hellenistic Campania. Cf. Treister 1996, 301–2).

Silver craftsmanship also thrive in Thrace: Archibald assigns the prolific, high-quality silver plate (mostly phialai, bowls, rhyta, jars, calyx-cups, and silver gilt appliqués) revealed, primarily in burial or in hoard contexts, at Buyovtsi, Stoyanovo, Vorovo, Rogozen, and Lukovit, to craftsmen employed by the Odrysian royal court; she explains the strikingly large quantities of silver artefacts found in Thrace through their use in the context of taxation or gift exchange. She also argues that the gradual shift in Thracian silver craftsmanship from the fluid combination of Greek and Persian shapes and ornament to an underplaying of the Asiatic component and towards an effort to keep up with contemporary Macedonian fashions echoes the transition of the trend-setters from the Anatolian and local Odrysian rulers to the Hellenistic Diadochoi (Archibald 1998, 260–75). The distinctly Thracian silver rhyta in the shape of animals’ heads (mainly calves or deer), in particular, arguably ‘represent the finest surviving items which can be associated with a court art, whether on the European or on the Anatolian side of the Straits’. 

That there were several toreutic workshops around the Hellespont and the Black Sea in the late fourth century BC is suggested by analysis of zoomorphic silver rhyta (Pfrommer 1983, 281, Hellespont; Treister 1996, 304, southern coast of the Black Sea). Stylistic proximity is observed between Asia Minor and South Italian toreutics, while certain silver vessels produced early in northern Asia Minor followed Greek shapes but were decorated with Achaemenid and Egyptianizing patterns (Pfrommer 1989, 283–4, 1990a, 208–9; Treister 1996, 304) (PLATE 19). Certain medallions from Miletopolis in Phrygia, along with the centaur protome and silver bowls from the Civitâ Castellana treasure, came from a second century BC Seleucid (rather than Pergamene) workshop (Pfrommer 1987, 122; Treister 1996,
Silver ornaments for furniture were not rare in Asia Minor: that from the armrest of a couch, carrying an inscription, was manufactured in the year 206 of the Seleucid era (i.e. in 107/6 BC);\textsuperscript{12} while silver-plated parts of couches or chairs have been assigned to Parthia (Rostovtzeff 1941, 1490 n. 117).

Pergamon has been credited with silver relief bowl medallions with grasshoppers coming from a second century BC hoard found at Nihawand in Iran (Oliver 1977, 74, N38–9; Treister 1996, 305 n. 134). The silver bowls found in the 1960s in Iran, with gilded floral patterns, have been reattributed to Parthian manufacture through the anchor–dolphin emblem (Pfrommer 1993, 23–6, 56, figs. 17–19; Treister 1996, 317). The existence of a jewellery workshop in Asia Minor is also confirmed by the Kyme treasure (Williams 1991; Treister 1996, 304 n. 124).

The silverware manufactured in Syrian workshops was representative of the traditional Seleucid decorative repertoire and was highly reputed in the Hellenistic world:\textsuperscript{43} to the large collection of precious metalware, presumably of Syrian origin, mentioned in Cicero’s Verrine orations (Cicero, \textit{Verr.} iv. 62; Downey 1961, 22; Strong 1966, 120–1; Treister 1996, 316–17) may be added first century BC silver relief medallions, carrying mythological scenes and floral patterns. A late-first century BC rhyton from treasure II at the J. Paul Getty Museum presumably also came from a Hellenized workshop in Mesopotamia or Syria (Treister 1996, 317; Pfrommer 1993, 49). Finally, Greek influence has been observed on silver bowls and phalara coming from second century BC Graeco-Bactrian ateliers (Treister 1996, 319; on phalara, Boardman 1994, 106–7, fig. 4, 38–9; Pfrommer 1993, 10 ff.; Treister 1999). The recent attribution, however, of certain phalaron types to Parthian or other local, central Asian craftsmanship, explains occasional unskilful executions or misinterpretations in the reception of Greek themes. It may also be combined with other historical information, in order to stress the need for more refined methodological tools in identifying Hellenistic workshops as Greek, Hellenized, or local provincial (Treister 1999, with further bibliography).

As for Egypt, a hoard found in 1907 at the early Ptolemaic sanctuary and fortress at Tūkh-el-Qārāmūs confirms the operation at Alexandria of an Early Hellenistic toreutic school, which continued to expand down to the late Hellenistic period. The precious metal vessels and jewellery from the Tūkh-el-Qārāmūs hoard reflect a wide spectrum of influences and tendencies: an ‘Achaemenising’ tendency, at least in the earlier period; familiarity with Macedonian traditions; the gradual emergence of Ptolemaic themes; and a desire for cut standards (Pfrommer 1996, 185; Treister 1996, 310–11). Apparently metalworkers among the Hellenomemphites established a second, shorter-lived, early Hellenistic toreutic school at Memphis, developing interesting decorative motifs for armour.\textsuperscript{44} Finally, the very unusual preference for silver jewellery in Egypt, as represented by a small second-century silver set of Egyptian manufacture (Pfrommer 1996, 184–5), may be assigned to the dearth of silver in Ptolemaic Egypt, from the mid-third century onwards (Bagnall 1976, 211–12; Mørkholm 1991, 102–6; Kozloff 1996, 250–1).

Our survey of Hellenistic silver craftsmanship should end with the region which sparked off

\textsuperscript{12} Faust 1989, 148, cat. no. 457. The accompanying inscription indicates that it was purchased by Aphrodisias and Protos and that the work cost rose to 628 drachmai.

\textsuperscript{43} On the Romans’ high respect for Seleucid metalware, cf. e.g. Plb. fr. 154 = Athen. ii. 45 b.

\textsuperscript{44} On the Hellenomemphites, see Treister 1996, 310.

On the toreutics school at Memphis, see ibid. 310–15; Pfrommer 1996, 175–7.
and inspired metalwork in the Mediterranean since the fourth century BC: Sicily and Southern Italy. References to Sicilian precious metal treasuries pillaged by the Romans indicate the prior existence of metal (including silver) workshops in Sicily (Ridgway 1990, 368; Pfrommer 1987, 161–7; Treister 1996, 320 n. 241). Finally, the third-century-BC relief Calenian ware was allegedly inspired by elaborate silver vessels produced by Tarentine toreutai. Jewellery in silver may have been manufactured alongside that in gold in Tarentum; while the silver finger rings with elliptical bezels found in Teanum were locally produced (Treister 1996, 322 n. 258).

Identifications of silver workshops may benefit from stylistic and other comparisons with contemporary silver coinage from the respective regions. Indeed the recent advance in identifying Hellenistic mints (especially since the arrangement by Price of the Alexander lifetime and posthumous issues) enhances the integration of silver coinage into the study of metalware. Prior to 331 BC, silver coinage in the name of Alexander the Great came from eleven mints, three in Macedonia (Amphipolis, Pella, and possibly Aigai) and eight new ones in Asia (lying between Tarsus to the North, Ake to the South, Damascus to the East and Salamis in Cyprus to the West). New mints were hosted by Sardis and cities of Western Asia Minor (after 330 BC), Cyprus (after 329 BC) and, around 326/5 BC, Egypt (Alexandria) and South-Western Asia Minor (Price 1991) (Plate 206).

After Alexander’s death in 323 BC, the silver issues in his name were continued alongside new coinage carrying the names of his successors (Plate 20b). The troubled period of the Diadochoi, which is reflected on the numismatic issues struck between the death of Alexander and the establishment of the Hellenistic kingdoms under the Epigoni, deserves closer attention. In Egypt, Alexandria (since 321 BC) and, later, Cyrene became prolific Ptolemaic mints, along with Sidon, Soloi, Cyprus, and Corinth (Mørkholm 1991, 63–70). Further East, the transfer of the main Seleucid mint from Babylon to Seleukeia on the Tigris sparked new silver coinage with the types and legend of Seleukos I also at a number of mints. These included, apart from Susa and from Ecbatana, Carrhae, Antigoneia, Marathos, and Arados (after the battle of Ipsos in 301 BC); also, the Seleucid tetrapolis in Northern Syria, i.e. Seleukeia Pieria, Antioch on the Orontes, Apamea, and Laodicea ad Mare; Tarsos in Cilicia (after 294 BC) and possibly Cappadocia and Sardis (Mørkholm 1991, 71–6; Houghton–Lorber 2002).

Until 295/4 BC, Demetrios Poliorcetes had silver coinage minted at Tyre and Sidon. He introduced his individual coin types in Cyprus after his defeat by the Ptolemaic navy off Salamis (306 BC). In Cilicia, Tarsos began to strike coins in his name between 298 and 294 BC. Some Demetrian coinage was struck at Ephesus, at Miletos, at Corinth and, when he became king of Macedonia, at Pella and at Amphipolis. Pella, Chalkis on Euboea, Boeotian Thebes, Demetrias in Thessaly and possibly Corinth produced on his behalf the coinage that financed his campaigns in mainland Greece (Mørkholm 1991, 77–81; Newell 1927).

45 An overview of Hellenistic silver mints may be found in Mørkholm 1991. For a systematic study of key silver mints such as those of Alexander III or the Seleucids, for instance, see Price 1991 and Houghton–Lorber 2002 respectively, also Mousheghian–Depeyrot 1999; Mousheghian et al. 2000a; Mousheghian et al. 2000b. The complexity of numismatic discipline has in the past discouraged scholars from integrating numismatics into silverware studies (A. Oliver 1977, 16); Treister 1999 is an example of an attempt to associate the production of silver coinage with that of silverware (in attributing phalara to Bactrian or Parthian workshops).

46 A number of local silver coinages were resumed briefly after Alexander’s death: silver issues in the name of Philip II and local issues were struck respectively in Macedonia (primarily for exchange with people in the Balkans) and in Asia: Mørkholm 1991, 57–8.
Between c. 299/8 and 297/6 BC the Alexander mints in Lysimachos’ realm, namely Lampsakos, Abydos, Teos, Kolophon, and Magnesia, gradually shifted from Alexander-type to individual Lysimachic silver coinage. The latter, introduced after 297/6 BC, was struck simultaneously at various mints, i.e. at Lysimachia, at Sestos on the European side of the Hellespont, at Lampsakos, at Abydos and at Alexandria Troas in North-Western Asia Minor, at Sardis in Lydia, at Magnesia and at Kolophon in Ionia. To these were added, Ephesos (which was later renamed Arsinoe) in 294 BC, Kios (Propontis) and Heraclea Pontica since 288/7 BC, Amphipolis and Pella (respectively after 288 and 285 BC). The establishment of a new mint at Smyrna coincides with the beginning of prolific coinage production in Asia Minor, in view of the conflict between Seleukos and Lysimachos (Mørkholm 1991, 81–2; cf. Marinescu 1996). Alongside those, important issues were launched by lesser dynasts, by cities, i.e. Athens and Rhodes, or by leagues, Aitolian, Euboian, Achaean (Mørkholm 1991, 83–96, 128–60; Meadows 2001, 53–63).

Even if the frequent changes of rulers in key areas, such as the Black Sea, Northern Asia Minor, or Syria, often resulted in the striking at the same mint of silver coinages in the name of several royal issuing authorities, the emerging pattern of silver coinage production complements that of other Hellenistic silverware. Indeed, the fact that the principal royal silver monetary streams of the early Hellenistic period came from areas established in silverware manufacture cannot be coincidental. As Hellenistic coins largely represented Hellenized trends in metalware, the location of coin mints might serve as a tool in distinguishing between Hellenized and other workshops.

Administration

The surviving evidence might offer some clue to the way in which silver craftsmanship was structured during the Hellenistic period. In the first place, the scale of the workshops presumably depended on the type of objects manufactured. Unlike armouries or shipyards, for instance, which were no doubt large-scale enterprises, enjoying a high degree of specialization, the norm appears to have been small-scale, domestic silverware manufacture, involving a master craftsman along with one or two slaves. This is also favoured by representations of Hellenistic armourers making helmets, shields, or other articles in bronze during the second and first centuries BC (Treister 1996, 329 n. 298). Several epigraphic references to ἀργυροκόποι indicate specialization in silverware, but it is also possible that the same craftsmen were able to handle different crafts and metals; jewelers, for one thing, arguably might have produced also silver and metal plate (Williams 1998b, esp. 102). To judge both from excavation finds at Kassope and at Artaxata in Armenia, and from Greek mints (identified through finds of blanks), metal workshops were generally located in proximity to trading centres such as the Agora or local harbours; the mint at Pella, for instance, lay on the edge of the Agora, while that at Argos lay beneath the floor of a temple.

47 A guild of armourers specializing in swords is mentioned, for instance, in an inscription from Sidon, dating to 47 BC: Wilkordorf 1952, 170; Treister 1996, 329 n. 297.


It remains unclear whether the regular visits paid by the Seleukid king Antiochos IV to the workshops of gold- and silversmiths reported by Athenaios diverged from the normal attitude of kings to craftsmen or whether they illustrated a genuine royal interest in toreutics.\textsuperscript{59} Be that as it may, one might assume from the Classical references to the Karian slave Potainos, a goldsmith by profession sold for twice the normal price, and from the popularity of metalware in the Hellenistic period, that metal craftsmanship was highly respected (Pritchett 1953, 250–61, Hermokopidai stele II, l. 77–78; Williams 1998\textit{b}, 100 n. 12). The small scale of silver workshops presumably allowed metalworkers and mint officials to be responsive to the needs of Hellenistic royal courts: major projects, i.e. large-scale building programmes undertaken by royal authorities (which were the primary commissioners of raw metal and coordinators of silver craftsmanship) attracted reputed artists to the royal courts i.e. of Alexandria, Pergamon, and Asia Minor.\textsuperscript{51} Similarly, preparations for royal processions or for occasions such as the so-called Olympic Games organized by Antiochos IV c.167 BC, might have encouraged the movement of craftsmen to the respective centres (Downey 1961, 98–9 n. 58; Treister 1996, 317).

The borrowings from South Italian toreutics in Hellenistic metalware from Asia Minor, from around Bosporus and from Ptolemaic Egypt are plausibly assigned to craftsmen moving through Hellenistic royal courts (Pfrommer 1982, 122 n. 4; 1983, 283–4; 1987, 9–10, 111 ff., 132; Treister 1996, 304 n. 122). The decline of major silver metalworking centres, i.e. in consequence of the laws against extravagance imposed by Demetrios of Phaleron at Athens in 316 BC, might have prompted this movement (Habicht 1997, 55–8). Rather than assuming production at Athens, for instance, the stylistic proximity of the silverware from the necropolis at Pantikapaion to Attic West Slope pottery might be explained through the migration of Athenian craftsmen to the North or the copying there of objects of Athenian origin.\textsuperscript{52} Military events may also have contributed to this: the first defeat of Tarentum by the Romans in 272 BC, for instance, allegedly drove, among others, Tarentine and Southern Italian craftsmen to the new cultural capital of the oikoumene, Alexandria.\textsuperscript{53}

The flexibility of metal craftsmen is not incompatible with that of Hellenistic die-cutters. Obverse coin dies shared among different Hellenistic mints are explained either \((a)\) through central coin production at a central mint; or \((b)\) by the transfer of an obverse die from one place to another; or \((c)\) by mints accompanying armies, in order to meet their financial requirements (Mørkholm 1982\textit{a}; 1982\textit{b}; 1983; 1991, 18–19).

Even if the movement of craftsmen complicates workshop identifications, recent studies challenge Rostovtzeff’s statement about the rapid expansion in silverware of a Hellenistic \textit{koine}, i.e. the production and circulation of ‘Panhellenistic’ objects which influenced local designs and traditions and which eventually led to a change in taste and in fashion throughout the Hellenistic world (Rostovtzeff 1941, 1216 ff.; Pfrommer 1990\textit{a}). A systematic

\textsuperscript{59} The reputation that Antiochos IV ‘broke the rules of etiquette by fleeing from his court attendants and conversing with common people’ originates Athen. v. 193d, Plb. xxvi. 1, D.S. xxxi. 16: Herman 1997.

\textsuperscript{51} Royal monopoly of metals: on the Antigonids, Hatzopoulos 1996, 431–3 (the Macedonian king was presented as an \textit{administrador} of mines, which were public property); on the Seleucids, Rostovtzeff 1941, 447, 657–8, 826; Aperghis 2005, 64–6; on the Ptolemies, Kozloff 1996, 250–1 is tempted to consider the Ptolemaic monopoly of coinage also as a monopoly in metals; cf. Préaux 1939, 253–65. The economic implications of large-scale building programmes are discussed by Davies 2005\textit{a}, 117–35.

\textsuperscript{52} Treister 1996, 300 assumes from this similarity that Athens continued to be a leading artistic centre in the Hellenistic period.

\textsuperscript{53} On the Tarentine and Southern Italian origin of Alexandrian craftsmen, see Segall 1965, 586–8; Treister 1996, 334 n. 326; 335.
typological study of silverware has led Treister to identify regional peculiarities in vessel shapes, i.e. ‘Northern Pontic’, ‘Macedonian’, ‘Syroseleucid’, and ‘Ptolemaic’ (Treister 1996, 298–9). In his analysis of Hellenistic phalara (from Asia Minor, from Bosporus, from the Kuban area, from various Graeco-Bactrian centres and from the Ural region), regional preferences explicitly prevail over a tendency for a mainstream Hellenistic production developing Greek prototypes. The Sarmatian phalara, in particular, borrowed shapes, motifs and techniques from Sarmatian, Central Asian, late Hellenistic, Syrian and Parthian art.

The mobility of craftsmen, along with the remoteness of certain metalworking centres, account for the long-term development of the Greek tradition at the fringe of Alexander’s empire. The Greek decorative themes on silver dishes and bowls found in Bactria or the early Hellenistic decorative forms of silverware manufactured in North-Western Iran (i.e. the former Parthia and Hrycana) during later periods, for instance, have been convincingly assigned to these remote far-eastern Hellenistic markets (Treister 1996, 339). Likewise, the first-century-BC silver vessels from Treasure IV at the J. Paul Getty Museum ultimately echo the second-century-BC Seleucid tradition, which may have been continued after the collapse of Hellenism as a political power in the Indo-Greek or Partho-Indian world.

Rostovtzeff was also tempted to recognize a tendency for an ‘industrialized’ production of cheaper ware, with standardized forms and decoration (Rostovtzeff 1941, 1216); to that point we shall return later in this article.

Stage 4: Objects in motion

Products of silver craftsmanship became progressively commodified, i.e. integrated into commercial networks. Silver objects were diffused at all levels, royal, civic and domestic, over a wide range of Hellenistic patterns and practices: military, festive, religious, medical and financial. They spread through the multiple levels of economic transactions that took place at Hellenistic market centres, predominantly in the agora and in local ports, as described in the model and diagrams put forward by J. K. Davies (1998, 225–56, fig. 11. 1–3; 2005b, 142–56, fig. 6. 12–14).

The renowned Macedonian ἀργυρόσπιδες and the ἀργυροφύλαροι (Nisaean) horsemen, for instance, were named respectively after the silver shields and the silver phalara with which they were equipped (Athen. v. 194 e). Spear-heads, along with chains and armour, were also made of silver.

In royal courts, kings often strengthened bonds with their peers, with temples and with cities through gifts and/or loans (in silver plate, in money and/or in grain). A wide range of silver plate used, displayed, offered (as gifts) by the king to participants in Hellenistic symposia or lent for use in them emerges from prolific accounts such as Athenaios’ Deipnosophists; silver phialai (and other cups) were also used for σπονδαί during

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54 For example, Treister 1999 recognizes Seleucid features (imitating Parthian workmanship) in the decorative pattern of the Severskaya phalara. He also argues that a Greek mythological pattern was misinterpreted by a later North Pontic toreut in the Kurchanskaya phalara (late 2nd c. BC) and reassigns phalara with Greek-style themes to Parthian (rather than Bactrian) workshops, possibly by toreutai familiar with the Graeco-Bactrian or Iranian tradition.

55 To the Hellenistic silverware may be added the Hellenistic silver statuettes found in Nisa, the capital of Parthia: Treister 1996, 369.


57 See, for instance, Athen. iv. 129 e (ὑποσφόρων), 146 b, 153 d, v. 199 b–200 a, vi. 230 e, 231 e, viii. 331 e, xi. 784 a. 479 f–480 a. 496 E, xii. 538 e.
symposia. Ostentatious displays of silverware in royal processions and in triumphs presumably stimulated the political profile respectively of Hellenistic kings and of ambitious Roman politicians: the profusion of silver and gold plate in the royal Ptolemaic penteteric processions which were organized in Alexandria from 280–275 BC onwards, not least in that of Ptolemy Philadelphos, or in that of Antiochos IV in 168 BC may be taken as eloquent examples. Similarly, the wealth of the Macedonian king Perseus exhibited in M. Aemilius Paullus’ triumph at Rome after the battle of Pydna in 167 BC illustrates the prosperity of the Macedonian kingdom until its annexation to Rome (D.S. xxxi. 8. 9–13; Plut. Aem. 32–3).

Dedications of silver plate, i.e. phialai or skyphoi, at temples by kings or by individuals also added to royal or personal prestige (i.e. D.S. v. 46. 5, xxxii. 25. 1. Linders 1987; Schmidt-Dounas 2000. 1, 90–7, 98–101, 137–60). Gold and silver vessels were dedicated, for instance, at Miletos and at Delos by Seleukos I and by Stratoni (e.g. Miletos: Ameling et al. 1995, i. 334–8, no. 280, Seleukos I–Antiochos I; Delos: ibid. 212. 156–7, 214. 161–2, 163, Stratoni).

There survive some clues to the emergence of silver into civic life: silver lekythoi and strigils were used in Acragas, for instance, and silver stelae were put up in the Capitol in Rome in 44 BC, in order to confirm the decrees passed in Rome in honour of Caesar. On a domestic level, silver vessels were offered as gifts in weddings; while silver jewellery, cash, or bullion often formed part of Egyptian dowries (Rowlandson 2001, 151–4). Similarly, even if silver jewellery was ranked second to that in gold, perfume and jewellery are known to have been kept respectively in lekythoi (or in unguentaria) and in pyxies of silver, while textiles and other items may have been stored in silver larnakes (Plate 21). Architectural elements made of this metal, such as (pillar) bases, pillars, tiles, and plinths, added a glimpse of τριφή in buildings; while occasional references to silver bases for beds and tables plated with silver, together with the above-mentioned silver arm-rest of a couch from Asia Minor, add to the general impression of luxurious royal and domestic living in the Hellenistic period.

In religious contexts, silver cups were used in rituals, they were buried or burnt along with the dead (Zimi 1997, 206); the urn of the dead was kept in a κάλπις or hydria made of silver.

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58 σπονδαὶ during symposia: Athen. vi. 231 d (misquoting Hdt. ii. 151. 1); Plb. xxxi. 26. 4.
59 On the procession of Ptolemy Philadelphos, see Rice 1983; the silver objects displayed comprised silver couches διέδρα, see Callix. RGH 627 F 2. 260), a trapæza (ibid. §29), two kylikes δακτυλικῆ (ibid. §185) and vessels such as amphorae, psytères, and keramia (ibid. §§29–31). On the procession of Antiochos IV, see Athen. v. 193 d–195 f; Rostovtzeff 1941, 376, 1490 n. 118.
60 Acragas: Aelian, Varia Historia xii. 29. 15. Silver stelai put up on the Capitol in 44 BC Cass. Dio xlvii. 7. 1.
61 Cf. e.g. Athen. iv. 128 c; Plut. Regum et imperatorum apophthegmaton 198 c.
62 Lekythoi for perfume: Athen. iv. 129 b. On one of the earliest examples of unguentaria, see Strong 1966, 103 n. 1; Reger 2005, 272–7 comments on their role in the perfume trade. On pyxies, see Strong 1966, 103–4. On a silver larnax found in a tomb burial in Hagios Athanasios, cf. Tsimpidou-Avloniti, 2000; on a silver larnax found at Amphipolis, see Lazarides 1993, 97, pl. 49.
63 Silver tiles and plinths, for instance, are known to have been used at the temple of Aion: Plb. x. 27. 12–13.
64 On silver-plated pieces of furniture, see D.S. iii. 47. 6; Musonius Rufus 20. p. 110, l. 14 Hense; see also Rostovtzeff 1941, 1490 n. 117; Andrianou 2006, 233–5, 247. no. 40. 251. Silver couches and trapæzi were displayed at the grand procession of Ptolemy Philadelphos (διέδρα, a trapæza); see n. 58, Andrianou 2006, 233 notes that such costly couches were reported in the earlier periods as offerings in temple offerings, not as domestic items. On the arm-rest of a couch from Asia Minor, see n. 42. For more examples of Hellenistic luxurious living, cf. ὑγροκόμα in Zenon’s correspondence: P.Zen. 59038, 59044, 59327; P.Tebt. 118, 772. 6 (πλῆθος ὕγρονων). See also Andrianou 2006.
BETWEEN NECESSITY AND EXTRAVAGANCE

In addition to their dedication to gods, silver cups might be distributed as prizes in athletic games, continuing Classical practices. The use of silver objects was recommended in texts preserved in magical papyri, while it is presumably because of the metal’s chemical properties that silver vessels, alongside glass, were preferred in medical contexts. Alternatively silverware was accumulated, as will be discussed below.

Accumulated Wealth (‘Ex-Commodities’)

Most archaeological information about the economic behaviour of silver in antiquity derives from accumulated wealth withdrawn from circulation and not recovered at the time. In addition to silver (in the form of objects or coins) accumulated by individuals for potential public demonstration, silver plate was withdrawn from markets through depositions in burials, possibly as gifts (see stage 3), or through votive offerings. The Macedonian burial customs that legitimized the inclusion of silver plate in burials since the fourth century BC have been associated with the raw material which was abundant in the region (Themelis 2000; cf. Rawson 1985). Occasional literary references shed light on contemporary notions about accumulated wealth; Arrian’s estimate, for instance, that Philip II at his death owned ‘only a few gold and silver cups and less than sixty talents in his treasury’ might be taken to indicate that the intrinsic value of silver objects was taken into consideration, just as that of silver bullion.

Temple wealth largely derived from offerings, royal or individual. In 288/7 BC, for instance, kings Seleukos I and Antiochus I dedicated silver plate at the temple of Apollo at Didyma. Dedications of gold and silver vessels are also reported at Miletus and at Delos (Ameling et al. 1995: i. 162, nos. 156–7). A silver model of a battleship was also dedicated at the Apolline temple at Delos by Seleukos I (Schmidt-Dounas 2000, 93, 96; Ameling et al. 1995, i. 212, no. 155); Ptolemaic offerings to the same sanctuary amounted to approximately two talents in silver; in total (Bruneau 1970, 516–18; Reger 1994, 267 n. 44; Ameling et al. 1995, i. 204–11, nos. 143–54). Precious metal objects (and their money equivalents) are mentioned in the Beroean accounts of the priests of Asclepius in Macedonia, dated to the second half of the third century BC (Hatzopoulos 1996, ii. 96, l. 7, 12–16, 25–6; 97, l. 12–14, 21, 28–33, 38–41). Dedications in silver made by individuals were not uncommon: diverging from the customs of other slaves, who normally offered silver phialai, manumitted slaves in Athens were expected to offer skyphoi and drinking horns.

References

66 Cf. e.g. Philostr. V.A ii. 8 (silver δρέπανα dedicated to the god Dionysos).

67 Silver phialai as prizes at games: Scholia in Pindarum (scholia vetera), Ol. 9, 137b, l. 2; Pyth. 8, 112.6 (Marathon); Nem. 9, 121 (Pythian games).

68 Cf. e.g., PGM 3, 410, 10.26, 36, 38; Galen xiii. 104, l. 3 (silver pyxides), xiv. 268, l. 12 Kühn.


70 Bresson 2005 considers the practice of hoarding, i.e. withdrawing a proportion of metal from the circulation pool, as a key mechanism in maintaining a balance between metal supply and money demand.


73 Athenian documents: IG ii. 1578–80. Dedication of skyphoi and horns by manumitted slaves are also mentioned in Macedonian documents, e.g. the letter of Demetrios II to Harpalos, dated to 248 BC, but their material is not specified explicitly: Hatzopoulos 1996, ii. 28–30, no. 8. Vessels of various types and sizes (and their money equivalents) are also mentioned in the
Finally, coins deposited in temples or reused as jewellery plausibly fall into the category of ‘commodities by diversion’ or into that of ‘ex-commodities’, as they were practically withdrawn from the circulation pool. On the other hand, concentrations of coin hoards have been interpreted as groups of objects often deposited during troubled periods and not retrieved until to date (Crawford 1969; Duncan-Jones 1994, 85; Howgego 1995, 88–90). Small change, combined with the representation of ‘international’, larger denominations in hoards, sheds light upon regional economic transactions, so long as the limitations posed by the nature of the evidence make this possible.

Were Coins Commodities?

Most of the above cases illustrate the level of luxurious living in the different areas discussed. It is worth examining at this point whether coins may be classified as commodities. Since it was the owners of the bullion who either sold the metal or commissioned the manufacture of silver goods and often distributed them in the form of gifts, explicit commodity contexts involving silver arguably stand outside gift-giving and hoarding practices. Even more so, the fact that coinage in antiquity maintained its intrinsic value makes it more difficult to draw a firm line between silver commodities and coinage functioning as tournament of exchange, as in modern economies. Indeed some connection between coinage and the proliferation of silver in the Hellenistic lingua franca cannot be denied; silver coinage in Rome, for instance, allegedly started at a time when large quantities of this metal were at hand (Cass. Dio, Hist. Rom. p. 140, l. 25). Moreover, occasional transactions in silver objects indicate that payment in coinage was not always the norm. The appropriation by Caesar, for instance, of gold and silver plate in payment of a debt echoes Aristophanic references to the use of silver cups for payments (Plut. Caes. 48. 7. 5; Aristoph. Babyl., fr. 68 K–A); while a silver sphinx was offered as ‘payment’ (μισθός) to the orator Hortensius by Varro in Rome during the first century BC (Plut. Regum et imperatorum apophthegmata 205 b). In the light of these, one might wonder whether it is worth drawing a line between objects and coinage in silver at all when it comes to exchange.

Be it as it may, one may propose an empirical factor underlying both interpretations of coinage, either as an ‘aid to trade’, ‘both helping and being helped forward by the procedures of profit making’ towards a Greek monetary economy, or as deprived of an initial commercial purpose but retaining its value as bullion throughout:74 leaving aside fiduciary and countermarked coinage, as well as forgeries, it may be argued that the high metal purity in silver coinage (98–99%), as opposed to that in other forms of silverware (this emerges from the metal analysis of silver plate), rendered coinage a most effective, guaranteed, flexible transport means of silver in its purest form around the Mediterranean and beyond.75 As such, coinage cannot be denied a place in the commodity chain.

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74 Cf. the summary of the strong vs. the weak view about ancient coinage in Davies 1998, 239–40.
75 On the high purity of silver coinage in antiquity, see e.g. Tsaimou 2000, 161–6; Mørkholm 1991, 5; Rihl–Tucker 2002, 278. Metal admixtures rendered silver plate less pure: Healy 1978, 218; Craddock et al. 1998, 111–21. Vickers 1995, esp. p. 167 n. 24, argues that the silver purity of Classical and Hellenistic vessels was high, but that the silver content in silverware from Vergina was as low as 26%, the remainder being up to 49% bronze and 14% gold: Assimacos 1983; Zimi 1997, appendix 2, 214–16, with further bibliography. See also Healy 1978, 218. On the higher level of purity in late Roman and Sassanian plate, see Hughes–Hill 1979.
Warfare, finance, and mechanisms of trade channelled silver currency through Hellenistic markets, while the so-called weight standards regulated its use through economic transactions. Weight standards were conventional units of weight, the fractions or multiples of which provided the various denominations of issues (Crawford 1983, 222–5). The Attic weight standard was the most popular in the Hellenistic period, but the lighter standards, Ptolemaic, Rhodian, Chian, and cistophoric, were also in use (Mørkholm 1991, 7–11). In terms of distribution, silver currency occurred in urban rather than in rural contexts; it may be argued that rural societies were not transformed significantly by the use of money.76

Occasionally changes in the distribution map of silver objects in Hellenistic markets were caused by transformations in the technoscape, i.e. by the exhaustion of metal deposits, by changes in trade routes during war periods or by concomitant shifts in the respective spheres of influence. Changes in the gold:silver and silver:bronze ratios or in the metal content of silver coinage were in the main associated with known historical events (Mørkholm 1991, 5). But can one identify the main channels through which silver was (re)distributed in Hellenistic economies?

STAGE 5: REDISTRIBUTION: RECYCLING V. REUSE

The obvious alternative to shaping raw metal into silver plate was the redistribution of the existing stocks. This was possible either through reuse of old objects or through their recycling, i.e. melting down and refashioning, into new items. Most motors of silver redistribution in antiquity were related, in order of priority, to warfare, to finance and to mechanisms of trade. Between the capture by Alexander III of 2200 metric tons of Persian silver and the transfer by successful Roman generals of 550 metric tons of silver (by imposing heavy taxation on cities, through confiscation of citizens’ silverware or as war booty) from the East to Rome during the second and first centuries BC (Plin. xxxiii. 49–54; Howgego 1995, 89; Derow 2003, 65; McGing 2003, 86; Reger 2003, 348, 352), large quantities of this metal changed hands frequently. ‘Violent’ forms of redistribution, such as pillage or war booty, can often be traced only through literary evidence.77 The absence of silver plate from Delphi, for instance, may be explained through the pillage of the sanctuary by the Celts in 275 BC.78 Because of their intrinsic value, silver commodities, i.e. captured armour, were often found in secondary use: during the Parthian campaign of Antiochos IV, for instance, ordinary warriors fastened their boots with gold clasps and with silver objects.80 In similar vein, the practices of over striking and counter marking silver coins confirm that the metal was also redistributed in economic contexts.

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76 On fiscal aspects of Hellenistic warfare, see Chaniotis 2005, 115–21. On the motors for minting coins, see Bresson 2005, esp. p. 47–50, with earlier bibliography, on the transport of coins in the Greek world, see Callataÿ 2006.

77 With regard to Egypt, for instance, Rowlandson notes that ‘a rural society could be thoroughly monetized in the sense of having assimilated both the concept and, to a lesser extent perhaps, the actual use of money into its pre-existing culture and traditional practices, without being significantly transformed by them’: Rowlandson 2001, esp. p. 154; cf. von Reden 2001; Alston 1998; Alston and Alston 1997.


80 Just. xxxviii. 10. 3; Val. Max. ix. 1, ext. 4.
In cases of need, silver plate was recalled from poleis and from sanctuaries, i.e. as borrowings or as confiscations. Antiochus III, Seleukos IV, and Antiochus IV resorted to the silver treasured at temples in order to overcome temporary financial difficulties. The attempt of Seleukos IV, in particular, to confiscate the treasury of the Temple at Jerusalem, was confronted with indignation by the priests and by the population (Macc. iii. 3, 10, 15; iv. 4, 7; Rostovtzeff 1941, 1282; Gruen 2003, 266). Sulla also borrowed gold and silver from the richest Greek sanctuaries at Olympia, Delphi, Epidaurus (Rostovtzeff 1941, 940).

During military campaigns, confiscations and fines were often inflicted on the defeated. Six hundred pounds of silver, for instance, were confiscated from the Athenian Akropolis after the conquest of Athens by Sulla in 84/3 BC (App. Mithr. 39). The Greek cities’ complaints to the Romans at the meeting at Ephesos that they had handed over to Brutus their money, plate, and jewels only reflected reality: in the late Republic, cities in Asia Minor such as Laodicea, Tarsus, Rhodes, or those in Lycia were made to pay fines, while in certain cases citizens were ordered to surrender their gold and silver: apart from Tarsus, Cassius confiscated from Rhodian citizens more than eight thousand talents (of silver and gold), and imposed a 500-talent fine on the city (Appian, BC iv. 73; Plut. Brutus, 32; Cass. Dio xlvii. 33. 4; Rostovtzeff 1941, 1003–4 n. 109). Similarly, a fine of 150 talents was imposed on Lycian cities, while the Roman invasion in Cappadocia resulted in the confiscation of the Cappadocian treasury (App. BCiv. 63; Cass. Dio xlvii. 33, Plut. Cato Minor 73; Rostovtzeff 1941, 1004 n. 111). After the battle of Philippi (42 BC), Mark Antony came to Asia κάνταθα ... τάς τε πόλεις ἥργυρολόγει καὶ τάς δυναστείας ἐπίπρασκε (Cass. Dio xlviii. 24. 1; Rostovtzeff 1941, 1580 n. 120).

A closer study of the redistribution of silver reveals that two dominant but conflicting, yet distinctly Hellenistic, motives regulated its circulation: on the one hand, warfare and other moments of need; on the other hand, indulgence in luxury and wealth accumulation. Preparation for wars stimulated the manufacture of armour and that of ‘wartime’ coinage, presumably to the detriment of luxury items. War circumstances intensified the practice of recycling.

Recycling

In order to overcome the limited rate of silver extraction, Hellenistic cultures responded to circumstances when demand for silver was higher through melting down silver objects and refashioning them into new items. Even though the low survival of silverware and of coinage has been traditionally assigned to this practice, recycling per se has drawn little scholarly attention. However there is ample evidence for this practice since the Classical period: apart from the gold from Athenas’s statue, which was recycled in Athens during the Peloponnesian war, Lykourgos signed contracts with goldsmiths in the late 330s, in order to provide new ceremonial vessels by melting down old votives; while, according to the Delphic records of the early 330s, the authorities commissioned craftsmen in order to replace the plate melted down by the Phocians (Williams 1998b, esp. 102). An examination of similar cases, combined with a metrological study of surviving silver objects, has led to the assumption that ‘all the silver objects were destined for the melting pot, the usual fate of silver through the ages from antiquity to the present day’ (Vickers 1990; cf. Vickers 1985b, 137; 1992; 1995; 2002).

81 App. BC iv. 74, v. 4-5; Cass. Dio xlvii. 32. 4, cf. App. BCv. 6; Rostovtzeff 1941, 1004 n. 112.
82 On wartime coinage, see Aperghis 2005, 256–42. On the notion of replacement coinage, see Bresson 2005, esp. 56-9.
83 With regard to silverware, cf. e.g. Vickers 1985.
Turning to coinage, the most representative example of reminting silver was the closed monetary system imposed by the Ptolemies during the mid-third century BC: a letter from the Zenon archive, dated to 258/7 BC, reveals that turning foreign coin into Ptolemaic coin was a common practice at the mint of Alexandria.\(^8\) It has been suggested that the practice of recycling silver was progressively expanded over the areas that eventually came under the Ptolemaic realm: the absence of Macedonian silver issues from Thrace and from the coastal areas of Asia Minor before the 220s, for instance, may be ascribed to the need for reuse of this precious metal because of the absence of silver ore from the regions occupied by the Ptolemies during the second half of the third century, as well as from Egypt (Panagopoulou 2001, 344–6).\(^9\) The implications of this practice on the monetary profile of Ptolemaic peripheral areas should not be neglected in any analysis of the respective economies. Moving a step further, one might be tempted to see echoes of silver reuse in two remarkable peculiarities of Hellenistic silverware, one metrological and one related to artistic quality: firstly, Ptolemaic silver plate was made to match round-figures (in Ptolemaic drachmai: Vickers 2002, 337–8). Secondly, the decoration of surviving specimens of Hellenistic silver plate is generally simple; this has been interpreted by Rostovtzeff as a ‘tendency for industrialized production’. Rather than discarding these features as coincidental, one might propose that, ultimately, the preponderance of weight over artistry in manufacture might indicate how extensive recycling silver was. Rather, they might be taken to underline that silver plate functioned primarily as bullion ready to be melted in time of necessity (Rostovtzeff 1941, 1216; Vickers 1995; Baratte 1985, 625–9; see above stage 3).

Measuring the regularity of the flow of silver through the commodity channels that existed in a period constantly troubled by warfare might ultimately appear to be a futile endeavour. Even so, some tentative remarks might emerge from recent calculations (based on the number of known obverse dies) of the volume of the silver coinage made available to Hellenistic econoscopy. It is generally agreed that coinage production was maximized during war periods; whether the rate of coin production was in reverse proportion to contemporary manufacture of silver objects other than coinage needs to be explored. Maximizing coinage production in preparation for a war presumably meant not only striking the unworked metal at hand but also bringing other silver items, accumulated wealth, and worn coinage back into the circulation pool either by refashioning them into coins or by reusing them as they were in economic transactions. Along these lines, the volume of wartime coinage might open a window to rough estimates of the total amount of silver available at the moment of the respective war: the total of the silver issues struck by Antiochos III in anticipation of his conflict with Rome, for instance, added to those struck at Rome on the same occasion, might offer a clue to the amount of silver available before the Antiochic war.\(^10\)

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\(^8\) P. Cairo Zenon 59022; Mørkholm 1991, 104; Howgego 1995, 5–21. The melting down of foreign coinage is explained by the absence of silver raw metal from Egypt. On the coinage and on its circulation in the Ptolemaic realm, see Bagnall 1976, 176–212, esp. 210–12; cf. Callataj 2005b, 128 n. 46.

\(^9\) The quasi-absence of Ptolemaic coinage from excavation contexts in Thrace, in the Aegean islands, and in Asia Minor has recently led researchers to assume that the Ptolemies did not adopt a common monetary policy for the regions under their political control: Chryssanthaki 2005, Davesne 2005. It is, however, worth pointing out that the absence of this piece of evidence need not be interpreted as signifying that of Ptolemaic issues from the circulation pool in the respective areas. It may also be worth examining whether practices known from the main Ptolemaic realm, in particular the melting-down of foreign coinage reported in P. Cairo Zenon 59022, were also applied in the peripheral areas of Egypt.

\(^10\) On ‘peacetime’ coinage (being the opposite notion of ‘warranty’ coinage), see Aperghis 2001, 93; cf. n. 82.
Subject to the ‘market-clearing’ rule of thumb, excess wartime coinage may have continued in use during times of peace; alternatively, it may have been refashioned into other forms of silverware. Might, however, more accurate estimates of the silver recycled against impending military conflicts be achieved? One may propose that the difference between wartime and peacetime coinage represents silver stocks, i.e. extracted raw metal or other, accumulated in a given period of peace, plus recycled silverware. Given that, if one assumes that (geological changes apart) the volume of silver extracted annually was regular, one may be able to calculate the amount of recycled silver with greater accuracy. But that is a point worth pursuing in the future.

The melting-down of silver items and reuse of the metal were caused by the need for this precious metal, as a result of the extended wars during the Hellenistic period.

CONCLUDING REMARKS

The above analysis sheds light on the structure of the silver ‘commodity chain’ and on the economic behaviour of this metal in the given period. The key points may be summarized as follows:

(i) In the first place, silver–lead mines were established as key centres of power and wealth in all Hellenistic kingdoms. They presumably controlled a small-scale, regional market for labour and for the miners’ daily maintenance, but they may also have prompted the installation of populations in the mining areas by Hellenistic (royal and sometimes civic) authorities, which in the main controlled the mines.

An overall picture of the extent to which the mines were exploited and their productivity over time is for the moment blurred by regional variations that are inevitably lost in a telescopic overview of the role of silver in antiquity; even so, the effective exploitation of mining areas may still be argued to have had the potential of maximizing the prosperity of the respective states on an international level.

(ii) The raw metal extracted from Spanish, mainland Greek, Anatolian, and Middle Eastern mines was shaped into silver objects, which then emerged into the marketplace as commodities. Silver workshops could be local, state-owned or temple-owned, temporary or ‘travelling’. The degree to which they were under centralized state or temple control remains to be defined.

(iii) The wide distribution of silver articles reflects the flourishing manufacture of precious metal vessels and utensils through to the Roman period. A survey of the main metalworking centres reveals that a wide-ranging network was developed among craftsmen in this field, alongside the regular minting of precious metal coinages destined for mercenary and other, large-scale payments.

(iv) A region-by-region assessment of the existing evidence for Hellenistic silverware challenges the general consensus favouring the rapid expansion of a Hellenistic koine in silver metalware. The emerging regional peculiarities, i.e. local preferences for specific shapes, reveal various levels in the reception of Greek craftsmanship by regional and other workshops.

(v) Silver items became progressively integrated into commercial networks: they were gradually accepted in local markets and spread through the multiple levels of economic transactions that developed around Hellenistic market centres. That they travelled over greater distances, were exchanged in larger quantities or were modified in order to be
(re)used is related to the establishment—by mercenaries, craftsmen, and populations—of economic networks within which silver (in the form both of traded goods and of coins) became a broadly accepted commodity. The restructuring of local markets in order to accommodate the newly valued commodities presumably forms part of those large-scale processes that eventually globalized the Hellenistic econoscope. This set of transformations led to wider global market networks that ‘both polarized, excluded and connected people and places’ (Haugerud et al. 2000, 3).

(vi) In providing prototypes for pottery, which was cheaper, silver vessels may be argued to have influenced cultural production at the level of microeconoscapes. As silverware manufacture increased in importance during the Hellenistic period, bronze vessels were gradually reduced to middle-class utensils.

(vii) In regard to coinage, our remarks reinforce Rowlandson’s point of view, that ‘coin ... is more closely related to other potential bearers of meaning, from piglets to gold bracelets, than it is differentiated from them’ (Rowlandson 2001, 154).

(viii) Allegedly the rise in the popularity of silver during the Hellenistic period is bound primarily to the needs of royal courts and to those of traders (Treister 1996, 326–7). The extensive use of silver plate seen in the prolific descriptions of Hellenistic royal symposia stands in stark contrast with (but may not be unrelated to) contemporary civic legal restrictions and other reactions to the proliferation of silver. That luxurious lifestyles were not promoted in civic contexts is shown, for instance, by the laws enacted at Athens by Demetrios of Phaleron with a view to limiting civic extravagance, not least by that of 316 BC prohibiting the making of large grave stelai.87 Similarly, the unfavourable reception of the inflow of silver from the East to Rome during the Late Republic is echoed in contemporary literature. By contrast, the frequent references to silver in Hellenistic military contexts,88 along with the display of silver objects in royal processions, illustrate effectively the level of luxurious living in the royal sphere, which also tended to expand at the domestic level.89 Thus the proliferation of silver during the Hellenistic period may plausibly be interpreted as a phenomenon bound up with the practices and mentality of royal authorities. That silver formed an integral part of royal values explains the dramatic increase in its popularity among societies restructured in order to follow royal trends. Hence, rather than promoting economic growth, the role of accumulated silver appears to have been confined to the demonstration of wealth.

(ix) A combination of the patchy archaeological evidence with the documentary record shows that, evoking luxury and being recycled, silver served multiple purposes at various levels and contexts in the Hellenistic period, ranging from demonstrations of τρφη through to military payments. As its economic behaviour reveals that there were ultimately no breaks in what was, in essence, a fluid process, separating the study of coinage from that of metalware becomes unjustified. Bridging the Hellenistic tendency for extravagance with practices

responsive to emergencies imposed by the military, the spread of silver through Hellenistic macro- and microeconomies opens up a promising avenue, worth exploring in the future.

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PLATE 19

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PLATE 20

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