Andreas Morakis*

The Introduction of Coinage in Southern Italy: Sybaris and Metapontium

https://doi.org/10.1515/jah-2021-0013

Abstract: This article focuses on the introduction, diffusion and function of coinage in Sybaris and Metapontium, cities considered the first to mint coinage in southern Italy. In this paper, there is an effort to combine a series of numismatic data (coin hoards, fractions, numismatic standard, isolated coins, overstrikes, and number of dies) along with non-numismatic ones (literary sources, other archaeological data, location, fertility of the land) in order to draw broader conclusions on the introduction of coinage and its impact on the societies of these two *poleis*. The main argument is that coinage was introduced in order for the elite, rich landowners governing the cities to profit from selling their agricultural products. Nevertheless, the *demos* benefited also from coinage, as the minting of fractions reveals. This group also had a certain (limited) political power in these two cities and their interests (inevitably) were taken into consideration by the ruling elites. The spread of the coinage of these two cities in southern Italy and other areas suggests that ultimately coinage served (mostly), already from the Archaic period, as an important tool for all kinds of (interstate) economic transactions of which trade constituted the greatest part.

Keywords: Sybaris, Metapontium, introduction of coinage, coin hoards, society and coinage

The reasons for the introduction of coinage in the Greek cities are a subject of intensive and continuous research among modern scholars. This paper deals with the introduction of coinage in southern Italy, more precisely in Sybaris and Metapontium, and constitutes part of a broader investigation into the introduction and diffusion of coinage in the Greek poleis of southern Italy during the Archaic and early Classical periods. Metapontium and Sybaris are of particular interest because they are considered to be the first cities to mint coins in this area. The reasons that led them to mint coins can, therefore, be viewed as pertinent to the introduction/beginning of coinage in a wide area of the Greek world. In addition, these two cities

***Corresponding author: Andreas Morakis,** University of Athens / University of Thessaloniki, E-Mail: andmorakis@gmail.com

can be examined together because they had many other common features: they also resembled each other in their political and social organization and in their potential for economic growth. The neighboring cities were also of the same (Achaean) origin. Therefore, in this paper I will avoid expanding my inquiry onto other cities (even neighboring ones like Taras and Kroton) or making a more comparative approach. This will instead be investigated in a forthcoming work.

In particular, I will try to explore the reasons that prompted these two cities to mint coins and examine the functions of coinage during the Archaic period (in Sybaris, until its destruction by Kroton in 510, and in Metapontium, until the end of the second phase of the city's minting activity, namely until 480–470). I fully agree with van Alfen that a synthetic approach to issues related to (the introduction of) coinage is needed.[1] In this context, I will follow the exhortation of Psoma to use literary and archeological sources also, since the interpretation of numismatic evidence presupposes taking into consideration all kinds of available data.[2] More precisely, I will focus on the literary sources that give us information on the (nature of) economic activity of each city and its social organization (provided that this kind of data is available). Furthermore, I will explore the location of each city, its trading activity, the quality of their soil, and data from pottery production and circulation. All this information will then be combined with all kinds of numismatic data, namely, coin hoards, sporadic findings, dies, denominations, overstrikes, numismatic standards.

In southern Italy, there are eighteen known coin hoards until about 480.[3] From these hoards we will exclude the one found in Etruria (Volterra, IGCH 1875= CH 4.13), as well as IGCH 1880, Gerace, which apparently did not constitute a separate hoard, but was probably a part of the IGCH 1891, Calabria 1833 hoard, which was possibly found in the area of Rhegion.[4] In two of these coin hoards, it is impossible to make a quantitative analysis (IGCH 1883, CH 8.23). The former (IGCH 1883) is of especially great interest, as it contained more than a thousand coins. Moreover, in the great hoard of Taranto 1911 (IGCH 1874= CH 7.10= CH 9.596) and the one of Garaguso,[5] it is not clear whether there were only staters

1 Van Alfen (2012), esp. 12, 30.

2 Psoma (2016), 90.

3 IGCH 1872–1883, CH 2.9 = CH 4. 8, CH 7.9, CH 8.4, 18, 23, also the small hoard of S. Giorgio Ionico near Taras. For this last hoard, see Siciliano (2002), 502.

4 For the relation of IGCH 1880 and IGCH 1891, see Parise (2014), 133 n. 2 with previous bibliography (of mainly the same author), also Spagnoli and Taliercio Mensitieri (2004), 73, n. 37.

5 CH 8.18. For the Garaguso hoard some coins are identified; I follow Siciliano and Sarcinelli (2004) 254, see also below.

and/or smaller denominations. Finally, among these sixteen hoards under investigation, there are five or six more,[6] the exact origin of which is unknown to us (we only know that they have originated vaguely from Calabria or southern Italy).

As for the reasons that Greek cities started issuing coins, ancient writers generally associate the introduction of coinage with commercial activity. More precisely, Aristotle mentions at *Pol.* 1257a31–41 that coinage was introduced in order to facilitate the exchange of products and at *Eth. Nic.* 1133a 8–24 that coinage was invented to facilitate everyday transactions.[7] Plato, when describing the organization of his ideal city declares that, as soon as commercial transactions begin, coinage is needed (*Resp*. 370b). Demosthenes also claims that, according to Solon, coinage was invented for transactions between individuals (24 (*Tim.*). 213). Strabo, citing Ephorus, notes that the first coins were issued by Pheidon in Aegina, which was a commercial center, as its inhabitants were engaged in trade, due to the poverty of the soil.[8]

Based on these ancient references, many (older) scholars connected trade to the introduction of coinage.[9] Others, however, questioned whether coinage was first introduced to facilitate commercial activity (either local or overseas) and several views disassociated the introduction of coinage from the development of trade, while some of them related it to the creation and development of the *polis*.[10] However, others, like Lombardo, prefered an economic-social consideration for the introduction and utilization of coinage[11] and in recent years, there have been many objections, in particular by scholars who highlight the economic dimen-

6 This is because Spagnoli (2013), 212, 227 places the Calabria 1842 hoard (IGCH 1883) between Lucera and Ruvo.

7 On Arist. (and Pl.) and coinage, see also Lombardo (1979), 94–95 with n. 41 for older bibliography. For a critic on the evolutionary explanation of this passage of Arist. as mainly reflecting his theoretical assumptions and the knowledge of the function of coinage in his own time, see Martin (1995), 262; Catalli (2003), 35–36.

8 Strab. 8.6.16. For Pheidon's invention of coinage, see also 8.3.33, with Barritta and Carroccio (2006), 56 n. 53.

9 E.g. Babelon (1897); Seltman (1933), 17–18; Breglia (1964), 41–42; see also Lombardo (1979), 79 with n. 4.

10 See e.g. Cook (1958), 261; Kraay (1964), 88–90; Finley (1973), 166; Parise (1973), 116–117; Will (1975), 102; Starr (1977), 116; Lombardo (1979), 79–80 with n. 5 for older bibliography; Snodgrass (1980), 135; Price (1983), 6–10; Engelmann (1985), 165; Manville (1990), 171; Kurke (1999), 19ff.; Martin (1996); Gorini (1996), 223; Austin and Vidal-Naquet (1998), 90–91; von Reden (2002), 167–168; Catalli (2003), 37–38; Barritta and Carroccio (2006), 74–75; Macaluso (2008), 50 applied also in the Greek colonies of the West; Lauwers (2011), 35. For all these views (and many others), see Morakis, forthcoming, for more details.

11 Lombardo (1979); (1997).

sions of coinage introduction.[12] This approach relies on the results of archaeological research and the discovery of new coin hoards and coins, in which many hitherto unknown denominations have been found.[13]

Moreover, it is of great importance to determine the people that ultimately made the decision for the introduction of coinage, and defined the numismatic policy in each polis, namely their bias, their social and political standing.[14] In this context, we should always bear in mind that the decision to begin minting coins was, above all, a political one.[15] Therefore, the crucial question that needs to be answered is: Who took this political decision to strike coins for the first time and determined the monetary policy of the cities? It was the city itself, more specifically the authorities of the city, those in charge of the government.[16] And who were they? From the available data it is very clear that only a (small) part of the (free male) population could have a word in the government of the cities, which in some cases comprised about 1,000 people.[17] Eventually, though, the government of the cities was held in the hands of a more restricted number of citizens, that were the elite and wealthier people, who exercised their will (collectively) through a council,[18]

12 Among others see Schaps (2004), 108–110; Hall (2007), 252–253; van Wees (2009), 461–462; Kroll (2012), 37–40.

13 Mainly Kim (2001), 12–13; (2002); see also at Seaford (2004), 135, n. 61; Kagan (2006), also Bérend (1984), 10–11, but also Lombardo (1979), 114–116, 118–119 who also criticized many of Kraay's arguments and denoted correctly that the findings from the hoards should not be interpreted substractively for drawing conclusions regarding coinage circulation.

14 In this frame, see also Van Alfen (2012), 25.

15 For the relationship between politics and the introduction of coinage, in a context different than the one developed in this paper, see among others Seaford (1994), 199, who considered that the elites lost and the middle classes were favored by the invention of coinage, and that coinage was developed separately and in antithesis to the aristocratic form of wealth. According to Kurke (1995); (1999), 19ff. coinage represented a civic, egalitarian challenge to the structures of elite authority and was the culmination of the ideological conflicts between the traditional and the emerging elites. The former felt that they were threatened by the creation of the polis and the establishment of its institutions, while the latter were willing to accept the middling ideology, expressed by the polis and its institutions. In the end, she interpetated the introduction of coinage as an agreement between old and new elites, also at de Callataÿ (2001), 86; von Reden (2002), 167–168.

16 Cf. with regard to sixth-century Syracuse, Arist. *Pol.* 1303b21-26: <τῶν> ἐν ταῖς ἀρχαῖς ὄντων or τοὺς ἐν τῷ πολιτεύματι.

17 For Rhegion, Heracl. Lembus. *Pol.* 55: along with Morakis (2019), 153–158, for Kroton, Val. Max. 8.15 (ext).1; Iambl. *VP.* 9.45; 27.126, along with Morakis, *ibid.* 123–129 for Lokroi, Polyb. 12.16.10, along with Morakis, *ibid.* 141–144, 148–150, for Akragas, Diog. Laert. 8.66 = Timaeus *FGrHist* 566 fr. 2 along with Morakis, *ibid.* 364–365, 369. Compare also with Arist. *Pol.* 1316a35–38 and the oligarchies that governed Greek cities, also Arist. *Pol.* 1294b2–4.

18 There are references for such a council/boule in the cases of Cumae (Dion. Hal. *Ant. Rom.* 7.4.4; 7.5.3; 7.7.3) Lokroi (Dicaear. fr. 34 = Porph. *Pyth.* 18), Kroton (Dicaear. fr. 33=Porph. *Pyth.* 18: τὸ τῶν

and monopolized and competed for magistracies.[19] At the same time, i.e. at the end of the sixth century and in the beginning of the fifth century, the literary sources point out political transformations, which occurred in the Greek *poleis* of the West, namely tyrannies or regimes where the *demos* managed to gain rights in the government of the cities (proto-democracies or democracies), which succeeded oligarchic regimes.[20]

Finally, the decision for the introduction of coinage and, in a broader sense, the policies concerning coinage production were an initiative of either the elite/wealthier citizens (in most of the cases) or a broader citizen body (where a kind of sharing between the elite and the lower social classes occurred) or a sole man (a tyrant). But again, in the second type of political organization described, it is difficult to define (due to the scarcity of the literary sources) the extent of the political participation of the non-elites to the decision-making process. The first case was the commonest, while the other two were more occasional, as far as we can conclude from the available sources. In any attempt to define the nature of the introduction and spread of coinage in the Greek cities of the West, we should have in mind the general framework of the political and social conditions in these cities.

I Sybaris

The sources for Sybaris outline a city which had both intense agricultural and commercial interests. With regard to agriculture, it is important to note the very

γερόντων ἀρχεῖον, and Diod. Sic. 12.9.4, σύγκλητος, although in the case of Kroton things seem a little complicated regarding the political bodies of the city and their character, see in Morakis, 2019, 124–129), Syracuse (Plut. *Mor*. 825d), see also very briefly Morakis, *ibid*. 416.

19 In Syracuse there were the γαμόροι (those that divided the land among themselves) (Hdt. 7.155; *IG* XII.5, 444, l. 36; Diod. Sic. 8.11; Dion. Hal. *Ant. Rom*. 6.62.1; Hesych. <γαμόροι>), in Megara Hyblaea we find the παχεῖς (thick) (Hdt. 7.156), οἱ γνώριμοι (the well-known) that Arist. mentions for Taras (*Pol*. 1303a3–5), οἱ δυνατοὶ (the mighty), οἱ ἐν τέλει (the magistrates), οἱ προεστηκότες τῆς ἀριστοκρατίας (those at the head of the aristocracy), οἱ προεστηκότες τῆς πόλεως (those at the head of the polis), to whom Dion. Hal. refers regarding Cumae (*Ant. Rom*. 7.4.4–5; 7.5.2; 7.6.4; 7.7.2–3), for Zancle the κορυφαίους αὐτῶν τριηκοσίους (the top 300 of the Zanclaeans) (Hdt. 6.23), the περιπόρφυρα ἔχειν ἱμάτια (those dressed in purple clothing) (Heracl. Lemb. *Pol*. 69) in Akragas. See also Arist. who mentions that almost all tyrannies in Sicily resulted from oligarchical regimes (*Pol*. 1316a35–38).

20 See Morakis (2019), 72ff. (Cumae), 92ff. (Taras), 130ff. (Kroton), 158ff. (Rhegion), 180–181, 210ff. (Syracuse), 274ff. (Megara Hyblaea), 309ff. (Gela), 365ff. (Akragas), 385ff. (Selinous) and more broadly 417–420.

large extent of Sybaris' *chora*, which grew greatly after the destruction of Siris and the appropriation of its land by the Sybarites, making it one of the largest Greek colonies in the West.[21] Ancient writers testify that Sybaris' soil was suitable for every kind of agricultural activity, like cereals, olive trees, vineyards and timber, but also that the Sybarites were strongly engaged in animal husbandry (horses, cows, sheep, goats), fishing and hunting.[22] Finally, there was a great tradition in antiquity regarding the Sybarites' elevated standard of living, which even if exaggerated reveals the extent of Sybaris' wealth.[23] Among such references by ancient authors, it is worth mentioning Diodorus Siculus', who states that Sybaris' growth was due to the fertility of the land.[24] In the same context, Athenaeus also points out that Sybaris' prosperity was based on agriculture, since Sybaris had no harbor[25] and that all goods produced in its *chora* were consumed by the Sybarites themselves (Ath.12.519e-f).

There is also much evidence about Sybaris' commercial interests. We shall begin with the literary sources, particularly with Athenaeus who refers to the import of silk clothes from Miletus to Sybaris, and the special relationship that was established between the two cities as a result of this economic activity.[26] It seems that this kind of trade was of great importance, since the destruction of Sybaris caused much grief to the Milesians, according to Herodotus (6.21). Furthermore, Athenaeus writes that most rich Sybarites possessed wineries near the coast and they were selling part of their production outside the limits of their city.[27]

21 For this war between Siris and Sybaris, in which Kroton and Metapontium sided with the latter, see Just. *Epit.* 20.2.3–4. Dunbabin (1948), 153 calculated Sybaris' *chora* at approximately 2,500 sq km and remarked that Syracuse's along with Kamarina was at around 1,500 sq km. Ampolo (1994), 247 calculated Sybaris' size at about 3,000 sq km, similar to Akragas', but smaller than Syracuse's whose size is calculated at about 4.800 sq km. According to Osanna (1992), 132 and Muggia (1997), 61, Sybaris' size was approximately 650 sq km (apparently, they do not include the land of Siris).

22 For these sources see Mele (2018), 38. For an extensive analysis of the agricultural products cultivated in Sybaris, see Callaway (1950), 26–38 whose analysis is based mainly on the data that are known from the Roman period; Osanna (1992), 136–138 whose analysis is based on modern experiences; also Bèrard (1957), 145–146.

23 For these references, see Mele (2018), 40–42.

24 12.9.1–2.

25 Nevertheless, there seems to have been a small harbor located somewhere between the two rivers that ran through the *chora*: Stella (1930), 65; Osanna (1992), 135.

26 Ath. 12.519b=Timaeus *FGrHist* 566 fr. 50. For this friendship, see also Raviola (2005).

27 Ath.12.519d=Timaeus *FGrHist* 566 fr. 50: οἱδ' εὔποροι ... τοῖς δὲ πλείστοις αὐτῶν ὑπάρχουσιν οἰνῶνες ἐγγὺς τῆς θαλάσσης, εἰς οὓς δι' ὀχετῶν τῶν οἴνων ἐκ τῶν ἀγρῶν ἀφειμένων, τὸν μὲν ἔξω τῆς χώρας πιπράσκεσθαι, τὸν δὲ εἰς τὴν πόλιν τοῖς πλοίοις διακομίζεσθαι. For viticulture and wine production in Sybaris, see van der Mersch (1996), 166–167 who remarks that viticulture must have

Finally, in another passage, Athenaeus mentions that the importers of purple dye enjoyed a tax exemption (Ath.12.521d = Phylarchus *FGrHist* 81 fr. 45). In this context, modern scholars have argued that the growth and wealth of Sybaris was based on trade and the fact that Sybaris functioned primarily as an intermediary in the circulation of metal and pottery, not only from, but also to, Etruria and the Greek East.[28] Nevertheless, the argument that Sybaris was an important commercial city has been met with objections by other scholars.[29]

Recently, Sybaris has been considered to be the origin for a certain group of sixth-century wine amphorae (Corinthian B), which constitutes a clear indication of exportable agricultural surplus.[30] Their use was extensive, since they have been found at Cumae, Pithekoussai, Zancle, Mylae, Naxos, Gela, Kamarina, Massalia, Etruria and also in the shipwreck of Cala S. Vicenç.[31] If this view is to be followed, then the Athenaeus/Phylarchus reference about the exports of wine by the rich Sybarites seems to be confirmed. At this point, I must also mention the existence of seventh-century commercial amphorae from Corinth and Attica, as well as from Rhodes and Chios (the last two from the end of that century), found in Sybaris,[32] which imply the existence of commercial relations between Sybaris and the Aegean world.

Moreover, the Sybarites initially produced imitations of Protocorinthian and Corinthian pottery and, more importantly, during the sixth century, imitations of eastern Greek pottery with both linear and figural decoration, which cannot be found outside the area of Sybaris' influence. A series of wine vessels (kraters, deinoi, stamnoi) are also attested, with design features borrowed from many places in mainland Greece; these are also characterized by similarities to others

taken place in particular on the hills around Sybaris which were inhabited by the local populations subject to the Sybarites (also p. 175 with n. 223).

28 This view goes back to Grote (1869–1870), 3.395 and has been adopted to one or another degree and with variations by other scholars also, like Busolt (1893–1904), 1^2.400–401; Macan (1895), 284; How and Wells (1928), 2.71–72; Callaway (1950), 18, 43ff.; Bérard (1957), 146; Rutter (1970), 174; Pugliese Carratelli (1972–1973), 21; Guzzo (1982), 249; Kracht (1988); Osanna (1992), 134; Spagnoli (2013), 58–59; Mele (2018), 47–48, also Gambuto (2001), 1292, n. 4; Skele, (2002), 24–25.

29 Will (1973), 56ff.; Greco (1994), 481, also de Sensi Sestito (1984), 29–30; (1987), 242, who mentioned that, inevitably, some interstate commercial activities were occurring, but they were very limited.

30 For amphorae with respect to agricultural surplus and commercial polis activity, see among others Garlan (1983); (1989); Gras (1987); (1988); Lawall (1998); (2011); (2011a); (2016), 264ff.

31 Sourisseau (2000), 137–146; (2011), 204–206, 214; Barone, et al. (2005), 23, 25; Savelli (2009), 109–112; Sacchetti (2012), 40–42; Gassner (2015), 354–355 with n. 43; Bechtold, Vassallo, Ferlito (2019), 5–6.

32 Guzzo (1982), 244, 249–250.

from Sicily and the Ionian Gulf, dated from the early seventh century to the first half of the sixth.[33]

As a result, even if the view that Sybaris was a key place for commerce between Etruria and Aegean Greece is not to be accepted, this, of course, does not refute the fact that Sybaris did develop significant commercial activity and I assume that an important part of the population involved themselves in this. This activity is very clearly confirmed, from an archeological point of view, by the various places in which Sybarite amphorae are found. We could also ascribe the same kind of commercial activity to its *chora* and the local populations of the interior. All of this trade is directly linked to agricultural products. It is quite probable that their exportation activity provided the necessary bullion for minting coins.

Sybaris was probably the first city to adopt coinage[34] in southern Italy, ca. 540 or a little later,[35] and struck many coins before its destruction by Kroton in 510.[36] These coins, with types of a bull looking back,[37] included staters, weighing approximately 7.85 g[38] following the Achaean standard.[39] This was, in my view, a numismatic standard created by the Sybarites themselves, probably an adaptation of the Corinthian one, or a novelty based on Sybaritic/Achaean *nomima* of

33 Luberto (2017), 196ff; (2019), 435.

34 For the coinage of Sybaris until 510, see Parise (1973), 89–93, with n. 12 for an extensive older bibliography; Gorini (1975), 103–106; Holle (1978), 129–130; Stazio, Spagnoli (1994); Lombardo (1994), 259 n. 7; Rutter (1997), 22–24; (2001), 144–145; Barritta, Carroccio (2006); Spagnoli (2011); (2013), 61ff.

35 The introduction of coinage in southern Italy was placed at around 560–550 by earlier scholars who followed Head's high chronology (for example Noe 1957, 18–19, Noe and Johnston 1984, 12, 48). Recently, this has been down dated progressively from ten to more than thirty years. E.g. ca. 550, Kraay (1976), 163–164; Rutter (1997), 21–22; (2001), 3–4, 144, 550–540, Noe, Johnston (1984), 48; Arnold-Biucchi, Beer-Tobey and Waggoner (1988), 3–4; Le Rider (1989), 167, 540, Spagnoli (2013), 266–267; Cantilena (2015), 16, 540–530; Stazio (1974), 71–72 with n. 10, 530; Stazio and Spagnoli (1994), 606–608; Gorini (1996), 223–226; Stazio (1998), 373; Barello (2006), 171, ca. 525: Gorini (2010), ca. 520, Carroccio (2017), 83; or even later, Vickers (1985), 35–37. Others, though, still back a high chronology, Sternberg (1987), 123ff., (560/550).

36 The chronology occurs from Diod. Sic. 11.90. Regarding the war with Kroton which led to the defeat of Sybaris and its destruction, see among others Callaway (1950), 69–71; de Sensi Sestito (1983); Giangiulio (1989), 189–198; Luraghi (1994), 59–71; Aversa (2008), 13–18.

37 The bull depicted on the coins of Sybaris is connected to animal husbandry: Papadopoulos (2002), 38; or to its fertility in general: e.g. Parise (2002), 390–391.

38 Spagnoli (2013), 199–202.

39 Generally, a stater in the Achaean standard weighs about 8.05 g; see more recently in Borek (2020), 15 with n. 11.

measurements. Sybaris minted also smaller denominations, such as drachms (1/3 of a stater),[40] tetrobols, triobols and obols.

Recently, many scholars have suggested that Sybaris initially struck only staters and minted fractions only at a later date. More precisely, Parise was the first to date smaller denominations close to the time of the conflict with Kroton (510).[41] The same view was expressed by Spagnoli, who, in her detailed analysis of the coinage of Sybaris, considered that the smaller denominations should be placed only towards the end of Sybaris' coin production, while, at first, there were only staters and drachms.[42] Moreover, Carroccio related smaller denominations with the *arche* of Telys.[43] On the contrary, Lazzarini argued that the smaller denominations should be placed in the very first phase and dated some obols of Sybaris to an earlier date. Moreover, he identified two series of hemiobols as originating from Sybaris (one probably from an indigenous settlement in the dominion of Sybaris) and placed the oldest among them in the initial phase of Sybaris' minting activity, in approximately 530.[44]

All these coins were minted using the incuse technique. The number of dies in Sybaris is very important and quite exceptional. More precisely, Spagnoli calculated 190 obverse to 243 reverse dies for staters, 62 obv. / 62 rev. dies for drachms and 55 obv. / 55 rev. dies for obols. Spagnoli divided the minting activity of Sybaris in three phases, one (A) from about 535 to 525, a second (B) from about 525 to about 514, and a third one (C) from about 514 to the end and its destruction by Kroton (510). Most of dies are placed in phase B at 56 %, while phase A incorporated 25 % of the total amount of dies identified, and phase C incorporated approximately 19 %. In phase A, according to Spagnoli, there were staters that corresponded almost to the total of the minting activity (97 %) and only a few drachms (the remaining 3 %). During phase B, staters comprised about 66 % of the production, while drachms and obols approximately 19 % and 15 % respectively; for the last phase (C) staters covered about 55 % of the city's minting activity, drachms about 17 %, and obols about 28 %.[45]

40 The adoption of a stater divided into three and not two drachms by the Achaean cities of southern Italy is related by Stazio (1998), 371 to the strong economic relationshipss of Achaia to mainland Greece, but also to Achaean colonies and Corinth.

41 Parise (1999), 486.

42 Spagnoli (2013), 262ff.

43 Carroccio (2017), 84.

44 Lazzarini (2017), mainly 20–26.

45 Spagnoli (2013), 131 and more thoroughly 135–137, 144–151, 161–166, 305, 309, also 2011, 406, with minor differentiations. See also the remarks of Carroccio (2017), 80–81 who prefers to speak of parallel and not in sequence issues, referring to the first two groups of Spagnoli's classification.

No mint among the Greek cities of the West has produced more dies than Sybaris' (6.3 dies per year for staters, if a high date close to 540 is preferred and 10 dies per year, if obols and drachms are to be added),[46] but also of the rest of the Greek world in the period under investigation (65–100 dies are estimated for the Corinthian coinage of the Archaic period, 49 dies for the Athenian Wappenmünzen and 44 dies for the early linked series of Aegina).[47] It seems that the Sybarites generally did not overstrike their coins onto those of other cities,[48] which could denote a self-sufficiency in silver.[49] But more recently some overstrikes are mentioned on coins of Metapontium, Kaulonia and Corinth.[50] In the same sense, it should be mentioned that the Sambiase Hoard (IGCH 1872 = CH 2.8), the oldest discovered in southern Italy, contained 56 staters of Sybaris and three Corinthian Pegasi of a very early date.[51]

The coins of Sybaris are found in great numbers and in many places across southern Italy from the Ionian to the Tyrrhenian Seas during the Archaic period,[52] even after its destruction in 510.[53] In absolute numbers (from the coin hoards where a quantitative analysis can be made), there are about 311 coins (mostly staters and seven drachms, however, there is also the Taranto 1911, IGCH 1874,

46 For example, Selinous who initiated its minting activity at about the same time as Sybaris, has produced 165 dies for didrachms during the whole Archaic period (until 480), while Syracuse, probably the most prominent city of Sicily produced only 27 rev./ 33 obv. dies (for tetradrachms) for a period of about 25–30 years before the beginning of massive coinage production of Gelon and Hiero (Boehringer's Group III). For all these, see Morakis forthcoming, see also the remarks and the quantification of Brousseau (2019), 894.

47 Spagnoli (2013), 210; Brocato, et al. (2018), 15.

48 Noe (1957), 21; Garraffo (1984), 165 mentions that there are no overstrikes in Sybaris' case.

49 Noe (1957), 21. For the possible provenance of the silver for south Italian coinage (mines, trade with Sicily, Carthage, the Etruscans, and mainland Greece), see also Kraay (1962), 77–78. Contrary to the past where it was considered that the cities of southern Italy imported their silver (Milne 1931, 38; Sutherland 1942, 7–8, 11), now the *communis opinio* is that they extracted it (mostly) from their own soil (Noe 1957, 14ff.; Papadopoulos 2002, 38–39; Gorini 2010, 481). In Sybaris' case it cannot be excluded that part of the silver came as tribute from the area under its dominion (Strab. 6.1.13: τεττάρων μὲν ἐθνῶν τῶν πλησίον ἐπῆρξε, πέντε δὲ καὶ εἴκοσι πόλεις ὑπηκόους ἔσχε). For an analysis of this passage and the character of Sybaris dominion, see briefly Morakis (2019), 107–108 with older bibliography.

50 Scacchi (1998) assumes this for a stater of Kaulonia. Spagnoli (2013), 231–233 mentions some other coins, (two from Corinth, for one of them citing Garraffo 1984, and two from Metapontium), but she has not examined all of them.

51 For the Corinthian coins (one belongs to Ravel, I.1 period, while the two others to I.2) on the Sambiase hoard see Spagnoli and Taliercio Mensitieri (2004), 28–31, 33.

52 Stazio (1983a), 118.

53 For the spread of the coins of Sybaris (not only those hoarded, but also others found in excavations or elsewhere), see Spagnoli (2013), 211–231.

where there is no clarification of whether there were staters and/or lower denominations) fewer only than those of Metapontium in southern Italy.[54] Moreover, the coins of Sybaris are found in thirteen out of the sixteen coin hoards of southern Italy which have been included in this research (they are not present in IGCH 1876 found close to Poseidonia, in IGCH 1879 and in IGCH 1882, which contained coin(s) of Laos-Sybaris), as also in a coin hoard from Sicily, namely the Selinous 1985 (CH 8.35). In IGCH 1883 there is no data as for the number of coins, while in the Monte Papalucio Oria Hoard (CH 8.23) we do not know either the number, or the denominations. Finally, in three hoards (IGCH 1873, CH 7.9, CH 8.35) drachms were also found (two in the first two and three in the third one). The number of coins increases in the coin hoards during the sixth century, but it is reduced after 500–490 (only in absolute numbers, as compared to other cities' coins, the difference is not as large).

As regards the coin hoards whose find locations are known (10), the following conclusions can be made: Sybaris' coinage was very much preferred both by the local populations[55] and the Greek cities. For example, Sybaris' coins are found not only in the area of locals,[56] close to Sybaris itself (S. Nicola di Amendolara, CH 7.9),[57] but also in the area of the Lametina plain (Sambiase, 1959, 1961, IGCH 1872[58] = CH 2.8 and Curinga, 1916, IGCH 1881),[59] in the hinterland of Metapontium (Garaguso, CH 8.18), in Messapia, modern Salerno (Oria, Monte Papalucio, CH 8.23 and Valesio 1957, CH 2.9 = CH 4.8) and possibly in Daunia.[60] As for the Greek cities, Sybaris' coins are found in neighboring ones, such as Kroton (Manche da Vozza 1960, CH 8.24) and Taras (Taranto 1911 and S. Giorgio Ionico Hoards), and also in Sicily and Selinous (Selinous 1985, CH 8.35).

The data from other coin finds not only confirm this notion, but they further denote the dynamics of the spread of the Sybaritic coinage. As for the local populations, Sybaritic coins have been found in the Timpone della Motta sanctuary in the *chora* of Sybaris (three staters, one drachm and – most interesting of all – two

54 For Metapontium see below; for southern Italy and Sicily in general, see Morakis forthcoming.

55 Stazio (1983a), 118.

56 For the relations between the Sybarites and the local populations of Sybaris' hinterland, see Morakis (2019), 107–114.

57 For the coins found in this hoard, see Polosa (2009), 13–23; see also the remarks of Stazio (1982), 54–55; Spagnoli (2013), 216.

58 For the Sambiase Hoard, see in detail Spagnoli and Taliercio Mensitieri (2004), 11–49 and more briefly Spagnoli (2013), 218–222.

59 For the Curinga 1916 Hoard, see in detail Spagnoli, Taliercio Mensitieri (2004), 50–120. For the coins of Sybaris included in this hoard, see Taliercio Mensitieri (2004), 60, 79.

60 That it is because Spagnoli (2013), 212, 227 places the Calabria 1842 hoard (IGCH 1883) between Lucera and Ruvo.

obols)[61] and Messapia.[62] As for the Greek cities, coins of Sybaris have been found in Kroton, Poseidonia and Taras.[63] Finally, we should add five staters of Sybaris found at the sanctuary of Acqua di Friso in the area of Kroton's influence.[64]

De Sensi Sestito studied the use of smaller denominations and the spread of coinage from a political and social perspective. According to her, smaller denominations were used mainly to pay the wages of laborers and craftsmen and helped the formation of a large *demos* that managed to gain political rights.[65] Along the same lines, Stazio and Gorini argued that the great number of smaller denominations favored economic activity as a whole.[66] Furthermore, Lazzarini, based on the very small fractions, like the hemiobols, reflected a stimulated economy and an intensive commercial activity on both a large and small scale and related the smaller denominations mostly to the need of the Sybarites to facilitate commercial transactions with the indigenous people of the Sybaritic hinterland.[67] Finally, Mele related the introduction of coinage to the lower strata of the population, more precisely to clients of the rich aristocrats and to a middling economic class that could finally find a stable and autonomous commodity to accumulate.[68]

Other scholars, though, saw mostly political motives behind Sybaris' decision to mint coins. Parise suggested that Sybaris minted coins in order to better control the populations in its area of influence.[69] In the same context, Barritta and Carroc-

61 Polosa (2009), 122, 126 mentioning only one obol; Spagnoli (2013), 212–213, 216–217; Brocato, et al. (2018) 14–15, the second of the two obols could be also an even smaller denomination. These coins denote the circulation of low value coins and consequently of low value products, or more generally the use of coinage in low value economic transactions taking place between the *chora* and the local populations and the polis of Sybaris, if these coin dedications at the sanctuary were made by a local.

62 Travaglini (2004), 306–307 mentions a number of Messapian centers, like Egnazia, Ceglie Messapica, Oria, Mesagne-Masseria Muro and Valesio in which she (vaguely) refers that there were found incuse coins from the Achaean cities dated to the sixth and fifth centuries, see also below in Metapontium; Scavino (2011), 384 mentions Batromagno, Mesagne, Sava, Vaste; Spagnoli (2013), 213, 229–231 mentions Mesagne-Masseria Muro, Oria, Valesio, Vaste.

63 Spagnoli (2013), 213, 223.

64 Gargano (2017), 8–9 with n. 3.

65 De Sensi Sestito (1983), 46; (1984), 41; (1987), 244.

66 Gorini (1975), 104; Stazio (1983a), 117. Carroccio (2017), 84 denotes that the fractions of the coinage of Sybaris should be placed towards the last years of the first Sybaris' life and relates them with the *arche* of Telys.

67 Lazzarini (2017), 19, 28. For the coins of the cities that adopted the obverse type of Sybaris' coins, the so-called coins of Sybaris' imperium, see Parise (1973), 102–111; (1987), 307–309; Gorini (1975), 9, 12–13; Stazio (1983), 966; Rutter (1997), 24–26; Barritta and Carroccio (2006), 73–75; Spagnoli (2013), 68–74.

68 Mele (2018), 63–64.

69 Parise (1987), 309.

cio noted the existence of high value coins, disassociated the introduction of coinage in Sybaris' case from its economic activity and related it to political matters, like the forming of alliances, reciprocity among nobles and the relations with the natives.[70] Spagnoli linked the lower denominations (drachms and fractions) to the market and war preparations.[71]

In my opinion, the numismatic data fully confirm the articulated character of Sybaris' economy as revealed by the literary sources (e.g. Athenaeus) and the archaeological data mentioned above (mostly by the local production of amphorae), namely that coin production was tailored to meet the requirements of a variety of different kinds of economic and commercial activity. Therefore, it is through an economic lens that we should explore, at first, the introduction of coinage by Sybaris. The number of dies associated with and the number of hoards containing Sybaritic coins are higher than for any other Greek city of the West and reflect the significance of minting activity at Sybaris (dies) and the importance and spread of the Sybaritic coinage (coin hoards) at least in southern Italy.

More precisely, the coin hoards and the individual coin finds reflect the economic/commercial relations between Sybaris and a number of places in southern Italy, not only in the natives' area (in the *chora* of Sybaris, in the plain of Lametina, in the *chora* of Metapontium, in Messapia and in Daunia-Peucetia), but also in the Greek cities of the Ionian (Kroton, Taras) and Tyrrhenian Sea (Poseidonia). Its (apparent) commercial relations with the Achaean cities are further demonstrated by the overstrikes on coins of Kaulonia and Kroton. It is true, however that in some cases hoarded or individually found coins are not necessarily of a commercial character—they could be related to mercenaries or be of a votive character. This could explain, for example, part of the coin finds in the Timpone della Motta and Acqua di Friso sanctuaries.

The numismatic data also seem to denote commercial relations with Sicily, as it is revealed by the Selinous 1985 Hoard (CH 8.35), the only one in Sicily in which coins of the *poleis* from southern Italy are found, Sybaris' being the highest in number among them, namely five (the others are two from Metapontium and a single one from Poseidonia). It is worth noting that this hoard was also buried much later (490 BCE) than the destruction of Sybaris. Finally, the overstrikes on Corinthian coins and the Sambiase 1959, 1961 Hoard (IGCH 1872 = CH 2.8) highlight the economic/commercial relations to mainland Greece and more particular to Corinth.

70 Barritta and Carroccio (2006), 74–75, see also Carroccio (2017), 84 who generally tends to disassociate the beginning of coinage to everyday economic transactions and the commercial activity with other *poleis* and sees political and/or propagandistic causes for the initiation of coinage.

71 Spagnoli and Taliercio Mensitieri (2004), 41.

In the same context, we should further note that this minting activity took place in a short period of time, only until 510, when the city was eventually destroyed. The fact that the coins of Sybaris do not disappear completely, but are found in hoards even after 490, suggest even more the importance of Sybaritic coinage.[72] Moreover, the smaller denominations also seem to indicate that coinage served a range of economic activities and involved the whole population. If these denominations are as early as the earliest coins of Sybaris, then it is clear that they served that purpose from the very beginning. The spread of coinage throughout the Sybaritic society is revealed also by the number of dies for obols (55), which were used mostly in retail market and in (local) low value transactions.

At the same time the introduction of coinage could be also related to the political and social conditions that prevailed in the city. More precisely, the articulated character of the economic organization of Sybaris, as revealed by the numismatic data, could be related to its political organization and to the open character of the Sybaritic society and *politeia*, as revealed by a reference of Diodorus, who mentions that the Sybarites enfranchised many people.[73] In addition, the events connected to the last days of Sybaris, as described by the ancient sources, suggest a regime in which the *demos* had a share in the decision-making process.[74] It is

72 Most impressive is the incuse stater in IGCH 1894 the burial of which is placed ca. 440 BCE.

73 Diod. Sic. 12.9.2, along with Morakis (2019), 106ff.

74 Diod. Sic. 12.9.2; Hdt. 5.44; Ath. 12.521e-f; Phylarchus, *FGrHist* 81 fr. 45=Ath.12.521e. The political organization of Sybaris in the eve of the conflict with Kroton is unclear because of the obscure role of Telys and his political position. The sources point out that Telys had a leading role in the expulsion of the 500 wealthiest Sybarites and the confiscation of their property; at the same time they are contradictory as to his exact position (Hdt. refers to him as a tyrant and king, Diod. Sic. as a demagogue, Ath. refers both to the dissolution of the tyranny of Telys on behalf of the Sybarites, citing Heracleides Lembus, as also to the magistrates of Sybaris, omitting Telys, citing this time Phylarchus). In my view, Telys tried to use the conflict between the *demos* and the wealthy aristocrats to his benefit, probably in order to become a tyrant. Had Sybaris prevailed in the struggle against Kroton, in all probability he would have achieved it. The reference of Phylarchus to magistrates, and also the role of the *demos* in the treatment of the rich Sybarites, as revealed in Diod. Sic.'s narrative, suggests that the *demos* had a role in the decision making and that Telys was not an absolute ruler. For all these see Morakis (2019), 114–117. The expelled aristocrats who lost their property were the ones to initiate coinage in Sybaris. The *demos* led by Telys had started to gain rights already from the time of the introduction of coinage. Therefore, the smaller denominations are explained if placed at that time. Alternatively, if the smaller denominations are of a later period, then it could be said that this was a later victory of the *demos* in its struggle with the rich landowners, a victory that culminated in the expulsion of the 500 rich Sybarites, but which eventually resulted in the defeat and destruction of the city. In almost the same context, Spagnoli and Taliercio Mensitieri (2004), 40–41, n. 82 suggest that a transformation of the Sybaritic aristocracy to some kind of democratic regime took place at about 510, an evolution that ultimately isolated Sybaris

not to be excluded, therefore, that the new monetized economy would need to meet the needs of an enlarged and articulated citizen body. In this political/social context, the smaller denominations are more easily explained.

In any case, the introduction of coinage, as mentioned earlier, must have been an act (of economic character) from which the elites/aristocrats, whose wealth was based on agriculture and who were the authorities and decision-makers of the city, could benefit. In this context, I think that the agrarian elite of Sybaris saw in coinage a tool to help them better circulate their agricultural products (like the wine mentioned by Athenaeus) and make more profit from them. If so, the introduction of coinage resulted from the encouragement and will of the rich landowners, mostly to serve their own economic interests. The cosmopolitan character and the commercial potential of Sybaris undoubtedly played an important role in these decisions. They were probably inspired by the trading activity of Corinthian merchants, who brought with them coins from their city.[75]

At the same time, however, this new numismatic economy should also take into consideration the needs of the whole (and enlarged in the case of Sybaris, as denoted by the reference of Diodorus) body of citizens. That may explain why there were also smaller denominations. Therefore, other parts of the economically active population benefited, namely traders, mediators, artisans, and others. This enlargement of the body of citizens could be a reality already from the beginning of the city's minting activity; if this was the case, then the smaller denominations fit better in this context. Alternatively, it could be postulated that the rich landowners issued coins at an early stage, in order to meet their own needs only and the smaller denominations were introduced at a later stage under another political regime open to more people (the one that is described by Diodorus). Finally, it should be mentioned that die studies do not suggest an intensive minting activity in the final phase (C) of the city's coinage, namely a little before the war with Kroton, compared to the previous (B) phase. This might indicate that war is not always connected to intense coin production.

To conclude, I think that in the case of Sybaris three key factors that sparked the (early) introduction of coinage in the West were agricultural surplus, significant commercial potential (mainly in the form of trade with the Italian interior) and social/political organization (where the *demos* had some kind of participation in the decision-making in the city and the elite did not consider the possibility that coinage might alter the economic and, consequently, the social and poli-

from the rest of the Achaean cities and led to its destruction. It seems, however, that in Metapontium's case the *demos* had also some role in political decision making (as below).

75 For the Corinthian connection, see above on the Sambiase 1959, 1961 Hoard, IGCH 1872 = CH 2.8, and the possible overstrikes on Pegasi and below.

tical conditions, in a way that they would lose their dominant role in the city) that could lead to economic change/experimentation.

II Metapontium

Metapontium was founded in a very fertile area,[76] between the rivers Basento and Bradano.[77] Carter justifiably refers to a "thriving agricultural economy in the early sixth century, based on cereals, grape and olive in the river valleys and on pastoralism and animal husbandry in the areas not yet brought under the plow."[78] Metapontium had a (presumably) small (artificial) harbor on the outskirts of Basento, at a distance of approximately 5 km from the city.[79] Scholars have generally accepted its limited commercial interests,[80] others though argued for its trading potential through the Bradano river to the interior and then to Sele, up to Poseidonia and the Tyrrhenian Sea.[81]

Additionally, recent excavations have revealed an area of ceramic production (*ergasteria*) active already from the middle of the sixth until the fourth century. For the period under investigation, two *ergasteria* have been found, one dated to approximately the middle of the sixth century (producing mainly Ionian cups, *skyphoi*, *lecanae*), and another at the beginning of the fifth century, producing imitations of Attic pottery,[82] the area for which according to Cracolici was designated for ceramic production already from the foundation of the colony.[83] Kilns have also been found in the farmsteads in the *chora* of Metapontium, dated to the seventh and sixth centuries, which indicate that the potters in the *chora* worked simultaneously with those in the city.[84] Broadly speaking, the first ceramics of Metapontium were Corinthian imitations. Later in the middle of the sixth century,

76 For example Dunbabin (1948), 87; Bérard (1957), 183–184; Gorini (1975), 127; Holle (1978), 134; Muggia (1997), 90; Giardino and de Siena (1999), 335–336; Carter (2006), 117.

77 For the location see Muggia (1997), 89, n. 151.

78 Carter (2006), 117. Especially for horse breeding there is also a reference by Bacchylides for the potentials of Metapontium (5.114-115: ἄνδρεσσιν ‹ἐς› ἱπποτρώφον πώλιν Ἀχαιοῖς ἔσπεο· σὺν δὲ τύχᾳ ναίεις Μεταπώντιον).

79 Holle (1978), 134; Noe and Johnston (1984), 1; de Siena (2001a), 27–28.

80 For example, Dunbabin (1948), 87; Holle (1978), 134.

81 Bérard (1957), 183.

82 See for example Muggia (1997), 89 with n. 155; de Siena (2001a), 28; Tempesta (2001), 93; Cracolici (2001), 110; (2003), 128.

83 Cracolici (2001), 110.

84 Carter (2006), 150.

Metapontium began to produce imitations of Attic (Black Figure) pottery, mainly *skyphoi* and small amphorae.[85]

Moreover, the existence of specialized metallurgic production appears at the end of the sixth century.[86] The importance of the artisans in the social pyramid of the Metapontine society is suggested by a votive inscription of a potter dated to the end of the sixth century.[87] These products were not exported, but they rather seem to have been used exclusively for internal consumption.

Strabo mentions that Metapontium's growth was due to agricultural activity and that the people of Metapontium dedicated to Apollo at Delphi an ear of barley made of gold.[88] Evidently, this was the emblem of the city, as is depicted in its coins of the Archaic period. There is obviously a connection between the richness of its soil and its agricultural capacity.[89] From all the aforementioned it is rather clear that Metapontium's economy was geared towards agriculture and that its commercial activity was related to agricultural products. Nevertheless, there was also significant artisan activity that was destined for internal consumption and represents, in a way, the articulated character of Metapontium's economy. We could find many similarities with Sybaris.[90]

The coins of Metapontium[91] are dated to the same period as those of Sybaris (approximately in 540–530).[92] They also use an incuse striking technique and the

85 Denoyelle and Iozzo (2009), 75–77. See also Tempesta (2001), 93 who refers to a production of ceramics of both domestic (table and kitchen wares) and commercial (amphorae) use. To these we should add the local production of Greek ceramics in the indigenous-Greek settlement of Incoronata, dated from the end of the seventh to the beginning of the sixth century, for which see, e.g., Denti (2013), 92; (2018), 212.

86 Tempesta (2001), 92.

87 *SEG* 52, 958.1: Νικόμαχός μ' ἐπόε͜. / χαῖρε, ϝάναξ *h*(έ͜)ρακλες· ὅ τοι κεραμεύς μ' ἀνέθε͜κε· / δὸς δ' ἐϝὶν ἀνθρό͜ποις / δόξαν ἔχε͜ν ἀγαθ(έ͜)ν. See Cracolici (2001), 110; (2003), 128, with n. 114; Denoyelle, Iozzo (2009), 76, n. 115. See also Hdt. 2.167, and the status of the Corinthian artisans.

88 Strab. 6.1.15, with Papadopoulos (2002), 31.

89 See among others Rutter (1997), 28; Papadopoulos (2002), 38; Parise (2002), 390–391; Adornato (2007), 333.

90 As Stazio (1974), 77–78 does.

91 For the coinage of Metapontium of the Archaic period, see mainly Stazio (1974), 68–79; Gorini (1975), 14–19; Noe and Johnston (1984), 1–53; Holle (1978), 134–136; Rutter (1997), 21, 27–29; (2001), 130–132.

92 Noe (1957), 18, following Head (1911), 74 dated the beginning of coinage at Metapontium ca. 560–550 (cf. Noe and Johnston 1984, 12, 48). Recently, this date is considered relatively high and a date between 550 and 540 (Rutter 2001, 131; Noe and Johnston, *ibid*. 48; Taliercio Mensitieri 1988, 139–140), and even later to 540 (Cantilena 2015, 18), or 540–530 (Stazio 1974, 69–72) or even after 530 (Garraffo 1984, 98) has been adopted.

Achaean standard (stater of about 8 g).[93] I should note that the incuse struck coins of Metapontium are divided based on the size of their flans in three periods, the first one until about 500 (early), the second one (medium) from about 500 to 480–475 and finally the third one (late) from 480–475 till approximately 440. Noe and Johnston have identified 100 dies for the first period of the incuse coinage, 60 for the second and 40 from the third one.[94]

As for data from the coin hoards,[95] coins of Metapontium are found in twelve hoards, one of them being in Sicily (the hoard found in Selinous in 1985, CH 8.35) and another being the great hoard of Asyut Egypt (IGCH 1644 = CH 2.17),[96] making Metapontium the only city of the west, along with Himera, whose coins are found in hoards in Italy, Sicily and abroad. In the Selinous Hoard, two drachms have been found in a total number of about 170 coins, while in the Asyut Hoard, two staters have been found in a total number of about 681 coins. The total amount of coins of Metapontium found in these hoards is more than 316 specimens. These are mainly staters, but also fractions, namely eight drachms. The latter are distributed as follows: one drachm in the IGCH 1877, five drachms in the CH 7.9, two drachms in the Selinous Hoard (CH 8.35), as mentioned above. Finally, there is also a diobol in the IGCH 1877. These numbers are the highest amount among the cities of southern Italy, while Akragas is the only city in the West which exceeds this number. As regards the Taranto 1911 (IGCH 1874) and Garaguso (CH 8.18) Hoards, we should repeat that we do not know exactly the kind of coins (staters or fractions) contained in them, and in the Monte Papalucio, Oria Hoard (CH 8.23) both the number and the denominations of the coins remain unknown.

As for the spread of the coinage of Metapontium in southern Italy, based on the findings from coin hoards, Metapontium's coins are often found in the areas of the local populations and more precisely in the vicinity of the city (Garaguso, CH 8.18), in the *chora* of Sybaris (S. Nicola di Amendolara, CH 7.9), in the area of the Lametina plain (Curinga 1916, IGCH 1881),[97] in Messapia (Oria, Monte Papalucio, CH 8.23 and Valesio 1957, CH 2.9 = CH 4.8), as well as in neighboring Greek cities like Taras (Taranto 1911 and S. Giorgio Ionico hoards).

93 Parise (1973), 94; (2014), 17, 95.

94 Noe and Johnston (1984), 49; see also Holle (1978), 235. Brousseau (2019), 894 refers to 97 dies from the first period which terminates according to him in 510.

95 For some remarks on the hoards (mainly the Taranto 1911) containing coins of Metapontium, see Noe and Johnston (1984), 37–40.

96 For this hoard, see mainly Price and Waggoner (1975).

97 For the coins of Metapontium in the Curinga 1916 hoard, Spangoli and Taliercio Mensitieri (2004) 54–59, 74–78.

Moreover, Metapontian coins, dated to the beginning of the fifth century, are found in Corcyra and on the shores of Dalmatia.[98] In the same context, we should add an incuse drachm of Metapontium found in the *chora* of Kroton,[99] as well as coins of Metapontium, which are found in the area of the local populations to the north and east of Taras,[100] and at the sanctuary of Timpone della Motta near Francavilla Marittima[101] within the area of Sybaris' influence. Finally, we should add four (?) staters of Metapontium found at the sanctuary of Acqua di Friso, namely in the area of Kroton's influence.[102]

Holle, based on the data from the dies, remarked that the coinage production of Metapontium, which is greater in the second half of the sixth century, was limited after the fall of Sybaris, while it was significantly diminished after the prevalence of Kroton in the political affairs of southern Italy.[103] On the other hand, Rutter expressed the opinion that the great number of dies of the first period, compared to the relatively smaller of the two others, is perhaps due to the inexperience of the engravers.[104] More recently, de Callataÿ calculated the number of the obverse dies during the Archaic period at 200 for the staters, 23 for the drachms and 31 for what he postulates as diobols.[105]

Moreover, Metapontium struck a variety of fractions from the beginning of its minting activity, namely drachms, triobols, obols, and quarters of the stater. Recently, Lazzarini identified also a half of an obol.[106] In addition, coins of many cities are overstruck by Metapontium. Garraffo mentions for the two first periods of Metapontium's incuse technique six staters of Metapontium overstruck on Corithian Pegasi dated between 535/530 and 525 and another six staters on didrachms of Selinous dated between 510 and 475.[107] For the last period of the incuse technique, Garraffo identified two staters from Corinth and two from Thasos.[108] Gorini

98 Siciliano (2002), 492, also Scavino (2011), 382, n. 7.

99 Arslan (2004), 225, 242.

100 Travaglini (2004), 306–307 mentions a number of Messapian centers, like Egnazia, Ceglie Messapica, Oria, Mesagne-Masseria Muro and Valesio in which she (vaguely) refers that there were found incuse coins from the Achaean cities dated to the 6th and 5th centuries, see also previously in Sybaris; Scavino (2011), 383 mentions Batromagno and Pulsano.

101 Brocato, et al. (2020), 5, 14–16, a stater dated to 520–510.

102 Gargano (2017), 8–9 with n. 3.

103 Holle (1978), 136.

104 Rutter (1997), 21.

105 De Callataÿ (2003), 1–3.

106 Lazzarini (2017), 27.

107 Garraffo (1984) 74–75. Most of the coins overstruck are also mentioned by Noe (1957), 19–27; see also Kraay (1960), 59–60, 70; Stazio (1974), 72–73 and Sutherland (1942), 2–4; (1952).

108 Garraffo (1984), 75–79.

relates these overstrikes to necessity,[109] but in my view, they reveal the commercial relations between Metapontium and all these cities in the Archaic period. Metapontium's coins are also very often overstruck by other cities at this time, notably by Poseidonia, Kaulonia, Kroton and Sybaris.[110]

It is worth mentioning that scholars unanimously note the complex character of Metapontium's coinage and the excellence of its specimens.[111] As for the character of the introduction of coinage in Metapontium, different opinions have been expressed. Stazio, following Kraay, disassociated the introduction of coinage from commercial activity and related it to the construction of the temples of the city,[112] which took place roughly during the same period.[113] On the contrary, Parise, differentiating Metapontium's minting activity from Sybaris' and Kroton's, highlighted the numeral fractions and the important percentage of the drachms and obols compared to the staters, and expressed the opinion that the fractions were targeted at every kind of economic activity, including retail market, taxation, port charges imposed to small traders, as well as at domestic trade through the Bradano, Basento and Sele rivers and, most of all, for the movement of agricultural products.[114] In the same context, Carter remarked on the array of fractions, which indicates a developed coinage economy at an early stage and a complexity of economic activity.[115]

109 Gorini (1975), 91.

110 Sutherland (1942), 2 mentions a coin of the sixth-fifth century in Kroton and another in Poseidonia dated to the second half of the sixth century, while Noe (1957), 20–21 refers to two coins overstruck by Poseidonia and one by Kaulonia (middle incuse period) and Kroton respectively; Garraffo (1984), 98 mentions a coin by Poseidonia, while Spagnoli, see above n. 70 mentions two coins of Sybaris.

111 For example, Stazio (1974, 72); Holle (1978), 136; Rutter (1997), 29; Carter (2006), 208. Garraffo (1984), 98 notes that it was the most energetic mint of Megale Hellas during the second half of the sixth century.

112 Metapontium's first temples were built at around 580–570 and were dedicated to Apollo (A1) and Hera (B1). In the middle of the sixth century a reorganization of the area of the agora took place and the so-called *ekklesiasterion* was built and a little later ca. 530 the new Apollo (A2) and Hera (B2) temples were erected, along with another temple outside the city also dedicated to Hera (Tavola Palatinae). For these, see Mertens (2001), 54–65; (2006), 157–164; Greco (2001), 190–197; Carter (2006), 201–203.

113 Stazio (1974), 72–74; see also Noe and Johnston (1984), 48 and by implication Dunbabin (1948), 87.

114 Parise (1999), 468–469. But more recent data show that at least in the case of Sybaris there was an important coin production concerning drachms, as above.

115 Carter (2006), 208.

De Siena posits a tyrant behind both the reorganization and monumentalization of the agora area and the introduction of coinage,[116] one who based his power on the poorer classes and excluded from the government part of the population and favored commercial and craft activity.[117] On the contrary, Mertens related the reorganization of the *asty* and the monumentalization of the agora to the democratic regime associated with the 7,000- to 8,500-person capacity of the *ekklesiasterion* dated to the same period,[118] while Carter postulated a government structure of aristocratic families embedded with the middle classes.[119] Parise, for his part, argued for commercial activity between Metapontium and Poseidonia, based on a stater of Poseidonia found in the IGCH 1873 and on a stater of Metapontium restruck by Poseidonia.[120]

As noted, the character of the economy of Metapontium looked very much like that of Sybaris. This similarity also appears when comparing their numismatic data, which display an intensive numismatic activity, aimed at meeting the

116 The possibility that a tyrant ruled in the city for an unspecified period at (possibly) about the time that Metapontium initiated its coining activity could be supported by both literary and archaeological sources. With regards to the literary sources, see mainly Lombardo (1982); (1998), 97–98; Mele (2010), 183–189. The sources are mainly Arist. *Eth. Eud*. 1229a21–24 who vaguely refers to a tyrant killer in Metapontium because of a love affair; Plut. *Mor*. 760c who mentions Aristogeiton and Melanippus, the tyrant killers in Athens (Hipparchus) and Akragas (Phalaris) respectively, along with Antileon from Metapontium, as killers of the tyrants in their cities who had harmed their lovers; Parth. *Amat. narr*. 7 = Phanias fr. 16W whose account is the most elaborate but also problematic since he considers Antileon as originating from and acting in Heraclea and not in Metapontium; and finally Aelianus (fr. 70) who follows the narration of Parthenius/Phanias with some differences (in the first narration it is only the *erastes* who dies in the end, while in the second both the *erastes* and the *eromenos* are killed, while Aelianus makes Ipparinus the *erastes* and Antileon the *eromenos* and therefore the tyrant slayer, while all other sources refer to as Antileon the *erastes*-tyrant slayer). As for the archaeological data, there is an Archaic inscription (dated about in the middle of the sixth century) found in the temple of Hera (A2) which mentions αυτοι και γενε[ι], that de Siena related to the tyrant and his family. Also, de Siena related to the family of the tyrant, a complex of three generation burials dating from the late seventh to the mid-sixth centuries, discovered by him in the Crucina cemetery, which included a female wearing a *polos* on the head richly decorated with silver figures. Next to this grave there was a male's grave where an impressive ram's head helmet was discovered. De Siena identified the occupant of the grave with the tyrant himself. Finally, not far from the complex there have been excavated a cist tomb with four chambers, two of which being empty. On the edge of a tomb slab, in one of these two empty chambers ANTI is inscribed which de Siena related to Antileon, while the other empty one to Hipparinus: see de Siena (1998), 166; (2008), mainly 3–7, 11–12; Carter (2006), 207–208; Mele (2010), 189–191.

117 De Siena (2001a), 32–34.

118 Mertens (2001), 65.

119 Carter (2006), 206–207.

120 Parise (1999), 469.

requirements of a developed economy, in which trade played a considerable part. Therefore, it seems very probable that the conditions under which coinage was introduced and its function were similar in both cities. Moreover, the emblem the city struck on its coins (the ear of wheat), the extent of its *chora*, the fertility of its soil and the local production of amphorae reflect the agricultural potential of Metapontium and its capacity to create a significant agricultural surplus to be exported outside the limits of the *chora*. Moreover, its location (like that of Sybaris) aided its commercial potential, particularly of products coming from the other side of the Ionian Sea to the Italian hinterland.

The numismatic data depict the strong interconnection of the economies of Sybaris and Metapontium. In particular, all the coin hoards under examination that contained coins of Metapontium did contain at the same time coins of Sybaris (excluding the Asyut Hoard, ICGH 1644 = C 2.17). The same data, also suggest in Metapontium's case its strong economic/commercial ties[121] to the local populations in the vicinity of the city (Garaguso, CH 8.18), in the *chora* of Sybaris (S. Nicola di Amendolara, CH 7.9), in the area of the Lametina plain (Curinga, 1916, IGCH 1881), Messapia (Oria, Monte Papalucio, CH 8.23 and Valesio 1957, CH 2.9 = CH 4.8 hoards), as well as to neighboring Greek cities like Taras (Taranto 1911 and S. Giorgio Ionico Hoards) and those of Sicily and Selinous (Selinous Hoard, CH 8.35), as far as Egypt (Asyut Hoard). This intense commercial activity is clearly revealed from the rest of the numismatic data, such as isolated coin finds and overstrikes. These data indicate the (apparent) ties a) to all the Achaean cities of southern Italy as far as Poseidonia, b) to various places of the locals in the same broad area, such as the hinterland of Kroton and Sybaris, Messapia-Peucetia, c) across the Ionian and Adriatic Seas (Corcyra and Dalmatia) as far as the Aegean Greece (Corinth), d) to Sicily (Selinous).

Significant numismatic activity is indicated also by the data from the dies,[122] since there are approximately 3.6 obverse dies per year for staters in a period of 55 years, a percentage not corresponding to that of Sybaris, of course, which was unique, but nevertheless very important for the standards of both the area and the period. Moreover, smaller denominations (down to obols and possibly hemiobols)

121 It is true, however, that in some cases hoarded or individually found coins are not necessarily of a commercial character—they could be related to mercenaries or be of a votive character. This could explain, for example, part of the coin finds in the Timpone della Motta and Acqua di Friso sanctuaries.

122 Holle (1978), 136 remarks that Metapontium struck more coins than Sybaris and Kroton, both of which reached greater economic and political development; but this is not the case, at least for Sybaris, as noted above for the dies of Sybaris which exceed every other city in the West in the Archaic period.

were minted from the beginning, in order to facilitate everyday economic transactions, primarily agricultural products, but also products from other sectors of the economy (see above). This constitutes further evidence for the articulated character of the Metapontine economy. This is reinforced also by the significant number of dies for obols.

The initiative for issuing coins, as in the case of Sybaris, came in all probability from the wealthy landowners who, following the Sybaritic example, saw the introduction of coinage as an instrument, a commodity to increase the profits from their agricultural production.[123] It is very probable that some kind of understanding existed between the elites of the two cities and it is not to be excluded that they (possibly along with Kroton) formed some kind of a common plan to promote their agricultural surplus. In any case, the cities to mint coins later clearly understood the benefits of coinage based on the paradigm of the first ones to do so (namely Metapontium and Kroton from Sybaris). We should not forget that the three cities, namely their elites, finally allied and turned against Siris, in order to destroy it.

Moreover, the diffused character of the coinage of Metapontium seems to have been intended to support most of the *demos* and not to limit its benefits only to the elites and the disposal of their agricultural products, as is clearly revealed by the existence of smaller denominations mentioned above and could be related also to social and political conditions, as in the case of Sybaris. The existence of the large *ekklesiasterion* noted above indicates that a significant portion of the population (compared to other cases, mentioned in the introduction and, namely those of Kroton, Lokroi, Akragas, Rhegion, where there were assemblies of a thousand of people only) was politically active. It does not mean, of course, that the city was governed by such an assembly, as would have been the case in a democratic regime, but the elites would have to take into consideration the power (even limited) of (a significant) part of the *demos*, institutionalized through this kind of an assembly and include the wealthier in their plans to initiate this new coinage economy.

123 The possibility that a tyrant laid behind the decision to mint coins for the first time (as de Siena supports) is not to be excluded. Nevertheless, the scarce data as for the chronology of this tyrant's rule (Mele 2010, 185 places it on reasonable ground between 550–530) and the absolute lack of data regarding the character of his rule, along with the fact that until the fifth century we could not reasonably link a tyrant (Gelon in Gela, is probably the first one,) to the introduction of coinage in the Greek cities of the West, renders me very reluctant to associate the beginnings of coinage in Metapontium's case with a single man's rule.

III Conclusions

I should initially denote again that a prerequisite for the introduction of coinage was the existence of complex economic activity based on two elements. The first and most important was the existence of a great agricultural capacity, since agricultural products were the key element for economic activity in this time period. Both cities clearly had such a capacity, as we have seen. The second one was the commercial potential and orientation. Again, the data point towards this direction, for both cities, although they are not as abundant, comparing to their agricultural capacity. These are their location (mainly as distribution centers for products coming by sea from the east to the Italian mainland) and the archeological finds, like the import of ceramics that indicate commercial relations with Aegean Greece, but mostly the local amphorae production, which seems to suggest the exportation of agricultural products. In the case of Sybaris, the distribution of their amphorae is a clear indication of the extent of the city's commercial capacity. Finally, in the case of Sybaris there are also references by ancient sources (e.g. Athenaeus), which highlight these commercial interests.

To sum up, it was this coexistence of these two essential elements, namely of an important agricultural production and a complex commercial activity that provided the fertile ground for the minting of coinage to occur in the Greek cities of southern Italy. It is not accidental, I argue, that both cities combined these two elements. This complex economy is reflected also in numismatic data by both the important number of dies and the minting of a variety of smaller denominations by both cities.

Since these two key elements did exist, it was in the hands of those making the decisions, namely the elites, to act. The latter would not undertake an (economic) decision that would be contrary, as far as they could discern it, to their economic interests (and subsequently to their social and political interests in a society structured on wealth, as both societies apparently were); any decision must have been deemed as profitable mainly for them. And since their economic interests were focused on agriculture, I believe that the introduction of coinage in these two cities, which were the first to adopt it in southern Italy, was related to the amelioration of the procedure of selling their agricultural products.

Metapontium and Sybaris were not the only cities among the southern Italian and Sicilian ones that possessed these two factors/elements (namely significant agricultural production, and a privileged position which led to complex commercial activity). Some cities that also had the same potentials, like Selinous and Himera for example, followed the same line of numismatic policies, while others that lacked these two important factors or had developed a less articulated economic structure (like for example Gela, Leontinoi or Kaulonia) followed different

patterns. In some cases (Lokroi, Syracuse, Lipari islands) the evidence clearly show the relation between social and political structure on the one hand and numismatic policies/decisions on the other. All these issues are examined thoroughly, as mentioned above, in a broader analysis on the minting activity in the Greek colonies of the West I elaborate on.

The spark and inspiration, of course, for minting coins came from the east and mainland Greece. Merchants from the cities of mainland Greece, who were already familiar with this new tool for commercial transactions, made it known in southern Italy. The pioneers probably were Corinthian merchants, whose city had already minted coins.[124] This is indicated by the monetary system adopted by the Achaean cities, which was similar to the Corinthian (a Corinthian stater weighed 8.6 g, while an Achaean one weighed 8.05 g), as well as by the fact that the oldest hoard found so far in southern Italy contained coins of Corinth (namely the Sambiase 1959, 1961 Hoard, IGCH 1872 = CH 2. 8, 3 staters), while Corinth was the only city of mainland Greece whose coins are found in both the coin hoards of southern Italy that contained coins from mainland Greece (the other being the Taranto 1911 Hoard (IGCH 1874), which contained 13 Corinthian coins) in the period under investigation. Finally, Corinthian Pegasi were overstruck by both cities during the Archaic period.[125] Coinage came from Greece as a tool to facilitate commercial transactions, and it is in the same manner that it was adopted by Sybaris and Metapontium, namely to promote the selling of their agricultural surplus by the elites of the two cities.

I should note that both cities (meaning their elites) had developed close relationhips, as proven by the alliance against Siris that led to its destruction. This does not mean that the introduction of coinage was an organized plan designated and executed simultaneously by both cities, nor that I intend to revive the old views of a numismatic federation of the Achaean cities.[126] I suggest, though, that both cities had close relations and were affected in matters of political and economic organization, especially if these would be profitable for their elites. The numismatic data, like the common monetary system, the overstrike of a stater of Sybaris on Metapontium's, and the fact that all the coin hoards under investigation that contain coins of Metapontium also contain coins of Sybaris, confirm the economic relations between these two cities.

124 For the first coins of Corinth, see Kroll-Waggoner (1984), 333–335; Puglisi (2000), 203–205; Coupar (2000), 174ff.

125 For the Corinthian connection, see among others Le Rider (1989); Stazio (1998), 371; Spagnoli (2013), 220–222; Psoma (2016), 102. Also, Salmon (1993), 8 noted that although trade between Corinth and west was on a large scale, it did not take place substantially through coinage.

126 For this view, see Lenormant (1897), 65.

The numismatic data (coin hoards, isolated coin findings, overstrikes) also indicate the commercial interests and interactions not only between them, but also with other regions, like the rest of the Greek cities of both the Ionian (Kroton, Kaulonia, Taras) and Tyrrhenian Sea (Poseidonia), to various places of the local populations, namely in the hinterland of Kroton, Sybaris, Metapontium, in Messapia and Peucetia, to the plain of Lametina, but also across the Ionian and Adriatic Seas for Metapontium (Corcyra and Dalmatia), as far as Corinth. Moreover, we should draw attention to the coins of both cities in the Selinous Hoard and the two staters of Metapontium in the Asyut hoard. Finally, the significant number of fractions, down to hemiobols, not only indicate the articulated character of both cities' economic structure, as mentioned above, but they also reflect the social and political conditions that prevailed in both cities. In these cities, a political regime existed in which the *demos* had some (limited) sharing in the government of the city and so likely had a share in this new monetary economy.[127]

Slightly paraphrasing young Karl Marx, every economic phenomenon is at the same time a social phenomenon, and the existence of a particular kind of (numismatic) economy presupposes a definite kind of society.[128] In our case, this was a society where the elite was willing to experiment in economic matters (the introduction of coinage) in order to be the main beneficiary, without being afraid that such a novelty would change the existing economic, social and political status that guaranteed their dominant political role in the city (the elites in other cities, did not have the same attitude). They did it in such a way so as to include other parts of the population (in other cases, this was done in a different manner) in it.

Acknowledgements: This article is part of my postdoctoral research conducted at the University of Athens under the supervision of Prof. E. Psoma.

Bibliography

Adornato, G. "XAPAKTHP. Note iconografiche sugli stateri di Kaulonia." In *Kaulonía, Caulonia, Stilida (e oltre), II*, edited by M. Parra, 333–349. Pisa: Scuola Normale Superiore, 2007.

Ampolo, C. "La città dell'eccesso: per la storia di Sibari fino al 510 a.C." In *Sibari e la Sibaritide* 1994, 213–254.

127 In the same frame, see also Lazzarini (2017), 27–28 who generally relates fractions to political matters in southern Italy referring to a democratization due to the coinage, since the small fractions (in contrast to drachms and staters that were useful to the wealthy land aristocracy) were used for every day commercial transactions for the whole citizenry (and the poorer).

128 Bottomore (1964), 120–121.

Arnold-Biucchi, C., L. Beer-Tobey and N. Waggoner. "A Greek Archaic silver hoard from Selinus." *ANSMN* 33 (1998): 1–35.
Arslan, E. "Presenza e funzioni della moneta a Krotone e nella sua *chora*." In *Presenza e funzioni della moneta nelle chorai delle colonie greche dall' Iberia al Mar Nero*. Roma: Istituto Italiano di Numismatica, 2004.
Austin, M. and P. Vidal-Naquet. *Οικονομία και κοινωνία στην αρχαία Ελλάδα, μτφ. Τ. Κουκουλιός*. Athena: Zacharopoulos-Daidalos, 1998.
Aversa, F. "Società e politica a Sibari nel VI sec." *StAnt* 12 (2008): 7–47.
Babelon, E. *Les origines de la monnaie*. Paris: Firmin-Didot, 1897.
Barone, G., et al. "Archaeometric analyses on pottery from archaeological excavations in Messina (Sicily, Italy) from the Greek Archaic to the Medieval Age." *Per Mineral* 74 (2005): 11–41.
Barritta, F. and B. Carroccio. "Ritmi di coniazione e storia: elementi per una riconsiderazione della moneta incusa a Sybaris e nel suo 'impero.'" *NAC* (2006) 35: 53–82.
Bechtold, B., S. Vassallo and F. Ferlito. "La produzione delle anfore greco-occidentali di Himera: uno studio sulla loro identificazione." *Notiziario Archeologico della Soprintendenza di Palermo* 51 (2019): 1–21.
Bérard, J. *La colonisation grecque de l'Italie méridionale et de la Sicile dans l'antiquité*. Paris: Presses Universitaires de France, 1957.
Bérend, D. "Réflexions sur les fractions du monnayage grec." In *Studies in Honor of Leo Mildenburg*, edited by A. Houghton, et al., 9–30. Wetteren: NR, 1984.
Berve, H. *Die Tyrannis bei den Griechen*. München: Beck, 1967.
Borek, N. "More than just coins: a metrological approach to studying coin hoards from the western Mediterranean c. 550–480 BC." In *Politics of Value*, edited by E. Heymans and M. Termeer, 13–24. Heidelberg: Propylaeum, 2020.
Bottomore, T. *Karl Marx: Early Writings*. New York: McGraw-Hill, 1964.
Breglia, L. "La coniazione incusa di Magna Grecia e la sua attuale problematica." *AIIN* 3 (1956): 23–37.
Breglia, L. *Numismatica antica*. Milan: Feltrinelli, 1964.
Brocato, P., et al. "Nuovi scavi nell'abitato del Timpone della Motta di Francavilla Marittima (CS): risultati preliminari della campagna 2017." In www.fastionline.org/docs/FOLDER-it-2018–407.pdf (2018): 1–22.
Brocato, P., et al. (2020) "Scavi nell'abitato del Timpone della Motta di Francavilla Marittima (CS): risultati preliminari della campagna 2019." In www.fastionline.org/docs/FOLDER-it-2020–462.pdf: (2019): 1–18.
Brousseau, L. "Production et circulation monétaire en Lucanie antique." In *La Lucanie entre deux mers*, edited by O. de Cazanove, A. Duplouy and V. Capozzoli, 893–903. Naples: Centre Jean Bérard, 2019.
Busolt, G. *Griechische geschichte bis zur schlacht bei Chaeroneia*. Gotha: Perthes, 1893–1904.
Callaway, J. *Sybaris*. Baltimore: Johns Hopkins U. P., 1950.
Cantilena, R. "Poseidonia e la sua moneta." In *Poseidonia-Paestum e la sua moneta*, edited by R. Cantilena and F. Carbone, 11–65. Paestum: Pandemos, 2015.
Carroccio, B. "Pitagorismo e aristocrazie indigene: appunti per una ridefinizione del problema." In *Enotri e Brettii in Magna Grecia*, v. II. 1, edited by G. de Sensi Sestito and S. Mancuso, 78–107. Soveria Mannelli: Rubbettino, 2017.
Carter, J. *Discovering the Greek Countryside at Metaponto*. Austin: University of Michigan, 2006.
Catalli, F. *Numismatica Greca e Romana*. Roma: Istituto Poligrafico e Zecca dello Stato, 2003.

Coupar, S. *The Chronology and Development of the Coinage of Corinth to the Peloponnesian War*. PhD Diss., University of Glasgow, 2000.
Cracolici, V. "Le ceramiche. Tecniche e modi di produzione." In de Siena 2001, 103–114.
Cracolici, V. *I sostegni di fornace dal kerameikos di Metaponto*. Bari: Edipuglia, 2003.
de Callataÿ, F. "Sur les origines de la monnaie stricto sensu (nomisma). À propos de deux livres récents (S. von Reden et L. Kurke)." *RN* 157 (2001): 83–93.
de Callataÿ, F. *Recueil quantitatif des émissions monétaires archaïques et classiques*. Wetteren: Editions Numismatique Romaine, 2003.
Denoyelle, M. and M. Iozzo. *La céramique grecque d'Italie méridionale et de Sicile*. Paris: Picard, 2009.
Denti, M. "The contribution of research on Incoronata to the problem of the relations between Greeks and non-Greeks during proto-colonial times." *AWE* 12 (2013): 71–116.
Denti, M. "Aegean migrations and the indigenous Iron Age communities on the Ionian coast of southern Italy: sharing and interaction phenomena." In *The Emporion in the Ancient Western Mediterranean*, edited by E. Gailledrat, M. Dietler and R. Plana-Mallart, 207–217. Paris: Presses universitaires de la Méditerranée, 2018.
de Sensi Sestito, G. "Gli oligarchi sibariti, Telys e la vittoria Krotoniate sul Traente." *MStudStor* 3 (1983): 37–56.
de Sensi Sestito, G. *La Calabria in età arcaica e classica*. Roma: Gangemi, 1984.
de Sensi Sestito, G. "La Calabria in età arcaica e classica. Storia, economia e società." In Settis 1987, 227–303.
de Siena, A. "Metaponto: problemi urbanistici e scoperte recenti." In *Siritide e Metapontino*, edited by E. Greco, 141–170. Paestum: Centre Jean Bérard, 1998.
de Siena, A., editor. *Metaponto*. Cagliari: Scorpione, 2001.
de Siena, A. "Profilo storico archaeologico." In de Siena 2001, 7–43. 2001a.
de Siena, A. "Metaponto, località Crucinia, proprietà Giacovelli. Osservazioni su alcune tombe monumentali arcaiche della necropoli occidentale." *BdA* (2008) 143: 1–14.
Dunbabin, T. *The Western Greeks*. Oxford: Clarendon, 1948.
Engelmann, H. "Wege griechischer Geldpolitik." *ZPE* 60 (1985): 165–176.
Gambuto, M. *Ateneo I Deipnosofisti, I dotti a bachetto, Libri XII–XV (v.3)*. Roma: Salerno, 2001.
Gargano, G. "Il progetto Atlante e il patrimonio numismatico calabrese." In *Medaglieri Italiani, in Notiziario del Portale Numismatico dello Stato,* edited by S. Pennestrì, 78–83. Roma: Istituto Poligrafico e Zecca dello Stato, 2017.
Garlan, Y. "Greek amphorae and trade." In *Trade in the Ancient Economy*, edited by P. Garnsey, K. Hopkins and C. Whittaker, 27–35. Berkeley: University of California, 1983.
Garraffo, S. *Le riconiazioni in Magna Grecia e in Sicilia*. Catania: Università di Catania, Istituto di Archeologia, 1984.
Gassner, V. "Le anfore greco-occidentali: riconsiderando la loro evoluzione e l'identificazione dei centri di produzioni." In *Contacts et acculturations en Méditerranée occidentale,* edited by R. Poure, 345–356. Arles: Errance, 2015.
Giangiulio, M. *Ricerche su Krotone Arcaica*. Pisa: Scuola normale superiore, 1989.
Giardino, L. and A. de Siena. "Metaponto." In *La città greca antica*, edited by E. Greco, 329–363. Roma: Donzelli, 1999.
Gorini, G. *La monetazione incusa della Magna Grecia.* Milano: Arte e Moneta, 1975.
Gorini, G. "The western Greeks: coinage." In *The Western Greeks*, edited by G. Pugliese Carratelli, 223–232. London: Thames & Hudson, 1996.

Gorini, G. "Intervento in Tavola Rotonda." In *Kaulonia tra Krotone e Locri*, v. II, edited by L. Lepore and P. Turi, 480–485. Firenze: Firenze U. P., 2010.
Gras, M. "Amphores commerciales et histoire archaique." *DArch* 5 (1987): 41–50.
Gras, M. "L'apport des amphores à la connaissance des commerces archaïques en mer Tyrrhénienne." In *Navies and Commerce of the Greeks, the Carthaginians and the Etruscans in the Tyrrhenian Sea*, edited by T. Hackens, 291–299. Strasbourg: Conseil de l'Europe, 1988.
Greco, E. "L'impero di Sibari: bilancio archeologicotopografico." In *Sibari e la Sibaritide* 1994, 459–485.
Greco, E. *Αρχαιολογία της Μεγάλης Ελλάδας*. Trans. by K. Soueref. Thessaloniki: University Studio, 2001.
Grote, G. *A History of Greece*. London: J. Murray, 1869–1870.
Guzzo, P. "La Sibaritide e Sibari nel VIII e VII sec. a.C." *ASAA* 60 (1982): 237–250.
Hall, J. A History of the Archaic Greek World. ca. 1200–479 BCE. Malden: Blackwell, 2007.
Head, B. *Historia Numorum*. Oxford: Clarendon, 1911.
Holle, B. *Historical Considerations on the Origins and the Spread of Greek Coinage in the Archaic Age*. PhD Diss., University of Michigan, 1978.
How, W. and J. Wells. *A Commentary on Herodotus*. Oxford: Clarendon, 1928.
Kagan, J. "Small change and the beginning of coinage at Abdera." In *Agoranomia*, edited by P. van Alfen, 49–60. New York: American Numismatic Society, 2006.
Kim, H. "Archaic coinage as evidence for the use of money." In *Money and Its Uses in the Ancient Greek World*, edited by A. Meadows and K. Shipton, 17–21. Oxford: Oxford U. P., 2001.
Kim, H. "Small change and the moneyed economy." In *Money, Labour and Land*, edited by P. Cartledge, E. Cohen and L. Foxhall, 44–51. London: Routledge, 2002.
Kraay, C. "Kaulonia and south Italian problems." *NC* 20 (1960): 53–82.
Kraay, C. "Hoards, small change, and the origin of coinage." *JHS* 84 (1964): 76–91.
Kraay, C. "Demareteion reconsidered: a reply." *NC* 12 (1972): 13–24.
Kraay, C. *Archaic and Classical Greek Coins*. London: Royal Numismatic Society, 1976.
Kracht, P. "Die handelsgeschichtliche Bedeutung der Stadt Sybaris bis zu ihrer Zerstörung im Jahre 510 v. Chr." *MBAH* 7 (1988): 30–45.
Kroll, J. and N. Waggoner. "Dating the earliest coins of Athens, Corinth and Aegina." *AJA* 88 (1984): 325–340.
Kroll, J. "The monetary background of early coinage." In *The Oxford Handbook of Greek and Roman Coinage*, edited by W. Metcalf, 33–42. New York: Oxford U. P., 2012.
Kurke, L. "Herodotus and the language of metals." *Helios* 22 (1995): 36–64.
Kurke, L. *Coins, Bodies, Games, and Gold*. Princeton: Princeton U. P., 1999.
Lauwers, C. *L'importance de Syracuse aux VIe et Ve siècles avant notre ère jaugée sur la production et la circulation de son monnayage*. MA Thesis, ULB, 2011.
Lawall, M. "Ceramics and positivism revisited: Greek transport amphoras and history." In *Trade, Traders and the Ancient City*, edited by H. Parkins and C. Smith, 75–101. London: Routledge, 1998.
Lawall, M. "Greek amphorae in the archaeological record." In *Pottery in the Archaeological Record*, edited by M. Lawall and J. Lund, 38–50. Aarhus: Aarhus U. P., 2011.
Lawall, M. "Socio-economic conditions and the contents of Amphorae." In *PATABS II*, edited by C. Tzochev, T. Stoyanov and A. Bozkova, 23–33. Sofia: Bulgarian Academy of Sciences, 2011.

Lawall, M. "Transport amphoras and markets and changing practices in the economies of Greece, sixth to first centuries BCE." In *The Ancient Greek Economy*, edited by E. Harris, D. Lewis and M. Woolmer, 254–273. New York: Cambridge U. P., 2016.
Lazzarini, L. "Prime note su emioboli arcaici inediti di Sibari, Krotone e Metaponto." *NAC* 46 (2017): 19–29.
Le Rider, G. "À propos d'un passage des *Poroi* de Xénophon." In *Numismatic Studies in Memory of C. M. Kraay and O. Mørkholm*, edited by G. Le Rider, C. Kraay and O. Mørkholm, 159–172. Louvain-la-Neuve: Institut supérieur d'archéologie et d'histoire de l'art, 1989.
Lenormant, F. *La monnaie dans l'antiquité*. Paris: A. Lévy, 1897.
Lombardo, M. "Elementi per una discussione sulle origini e funzioni della moneta." *AIIN* 26 (1979): 75–121.
Lombardo, M. "Antileon tirannicida nelle tradizioni metapontina ed eracleota." *StAnt* 3 (1982): 189–204.
Lombardo, M. "Da Sibari a Thurii." In *Sibari e la Sibaritide* 1994, 255–328.
Lombardo, M. "Circolazione monetaria e attività commerciali tra VI e IV sec." In *I Greci, II, 2*, edited by S. Settis, 681–706. Torino: Giulio Einaudi, 1997.
Lombardo, M. "La democrazia in Magna Grecia: aspetti e problemi." In *Venticinque secoli dopo l'invenzione della democrazia*, edited by E. Greco, 77–106. Paestum: Fondazione Paestum, 1998.
Luberto, R. "Material koinai in the west: Achaean colonial pottery production between the 8th and 6th centuries BC." In *Material Koinai in the Greek Early Iron Age and Archaic Period*, edited by S. Handberg and A. Gadolou, 191–220. Aarhus: Aarhus U. P., 2017.
Luberto, R. "Archaic pottery from Sybaris, Kroton and Kaulonia." In *Gli Achei in Grecia e in Magna Grecia*, edited by E. Greco and A. Rizakis, 433–442. Atene: SAIA, 2019.
Luraghi, N. *Tirannidi arcaiche in Sicilia e Magna Grecia*. Firenze: Leo S. Olschki, 1994.
Macaluso, R. *La Sicilia e la moneta*. Roma: Fabrizio Serra, 2008.
Macan, R. *Herodotus*. London: Macmillan, 1895.
Manville, P. *The Origins of Citizenship in Ancient Athens*. Princeton: Princeton U. P., 1990.
Martin, R. "Coins, mints, and the polis." In *Sources for the Ancient Greek City-State, vol. 2*, edited by M. Hansen, 257–291. Copenhagen: Munksgaard, 1995.
Martin, R. "Why did the Greek 'polis' originally need coins?" *Hist.* 45 (1996): 257–283.
Mele, A. "Metaponto tra VI e V secolo." *MedAnt* 13 (2010): 173–206.
Mele, A. "Tra oriente e occidente: riflessioni su Sibari." In *Koinonia*, edited by M. Intrieri, 35–65. Roma: Bretschneider, 2018.
Mertens, D. "L' Architettura." In de Siena 2001, 45–70.
Mertens, D. *Città e monumenti dei greci d'Occidente*. Roma: Bretschneider, 2006.
Milne, J. *Greek Coinage*. Oxford: Clarendon, 1931.
Morakis, A. *Οι ελληνικές αποικίες της Μεγάλης Ελλάδας κατά την αρχαϊκή εποχή. Πολιτεία, κοινωνία, οικονομία*. Athena: Kardamitsa, 2019.
Morel, J. "Les amphores et les autres céramiques (sur quelques problèmes amphoriques)." In *Amphores romaines et histoire économique*, 523–527. Rome: École Française de Rome, 1989.
Muggia, A. *L'area di rispetto nelle colonie magno-greche e siceliote*. Palermo: Sellerio, 1997.
Noe, S. "Overstrikes in Magna Graecia." *ANSMN* 7 (1957): 13–42.
Noe, S. and A. Johnston. *The Coinage of Metapontum. Parts 1-2*. New York: American Numismatic Society, 1984.

Osanna, M. *Chorai coloniali da Taranto a Locri*. Roma: Istituto poligrafico e zecca dello Stato, 1992.
Papadopoulos, J. "Minting identity: coinage, ideology and the economics of colonization in Akhaian Magna Graecia." *Cambridge Archaeological Journal* (2002) 12: 21–55.
Parise, N. "Struttura e funzione delle monetazioni arcaiche di Magna Grecia. Appunti per un riesame dei dati e degli orientamenti attuali." In *Economia e società nella Magna Grecia*, 87–129. Napoli: ISAMG, 1973.
Parise, N. "Le emissioni monetarie di Magna Grecia fra VI e V sec. a.C." In Settis 1987, 305–321.
Parise, N. "Modi e mezzi dello scambio. La moneta." In *Confini e frontiera nella Grecità d'Occidente*, 465–473. Taranto: ISAMG, 1999.
Parise, N. Monetazione incusa e identità politica nelle colonie achee d'Occidente." In *Gli Achei e l'identità etnica degli Achei d'Occidente,* edited by E. Greco, 389–396. Paestum: Pandemos, 2002.
Parise, N. *Monete Greche d' Italia meridionale*. Roma: Istituto Italiano di Numismatica, 2014.
Polosa, A. *Museo Archeologico Nazionale della Sibaritide. Il medagliere*. Paestum: Pandemos, 2009.
Price, M. "Thoughts on the beginnings of coinage." In *Studies in Numismatic Method Presented to Philip Grierson*, edited by C. Brooke, et al., 1–10. Cambridge: Cambridge U. P., 1983.
Price, M. and N. Waggoner. *Archaic Greek Coinage: the Asyut hoard*. London: V. C. Vecchi, 1975.
Psoma, S. "Choosing and changing monetary standards in the Greek world during the Archaic and Classical periods." In *The Ancient Greek Economy*, edited by E. Harris, D. Lewis and M. Woolmer, 90–115. N. York: Cambridge U. P., 2016.
Pugliese Carratelli, G. "Le vicende di Sibari e Thurii." *ASMG* 13–14 (1972–1973): 17–33.
Puglisi, M. "Monetazione corinzia: le frazioni argentee." In *XII International Numismatic Congress*, edited by B. Kluge and B. Weisser, 203–211. Berlin: Staatliche Museen zu Berlin, 2000.
Raviola, F. "Erodoto e la xenia fra Sibari e Mileto." *Anemos* 3 (2005): 101–112.
Rutter, N. "Sybaris. Legend and reality." *G&R* 17 (1970): 168–176.
Rutter, N. *The Greek Coinages of Southern Italy and Sicily*. London: Spink & Son Ltd., 1997.
Rutter, N. *Historia Numorum. Italy*. London: British Museum, 2001.
Sacchetti, F. *Les amphores grecques dans le Nord de l'Italie*. Aix-en Provence: Errance, 2012.
Salmon, J. "Trade and Corinthian coins in the west." In *La monetazione corinzia in Occidente*, 3–17. Roma: Istituto italiano di numismatica, 1993.
Savelli, S. "Anfore greco-occidentali in Magna Grecia: un aggiornamento sul tipo 'corinzio B arcaico' e 'ionico massaliota.'" In *Obeloi, Contatti, scambi e valori nel Mediterraneo antico*, edited by F. Camia and S. Privitera, 105–130. Paestum: Pandemos, 2009.
Scacchi, D. "Statere incuso della zecca di Sybaris riconiato sur un stater incuso di Kaulonia (?)." *AnnNum* 8 (1998): 691–692.
Scavino, R. "Monetazione incusa Magnogrea: Destinazioni e funzioni." In *Proceedings of the XVIth International Numismatic Congress, Vol. 1*, edited by N. Holmes, 382–390. Glasgow: International Numismatic Council, 2011.
Schaps, D. *The Invention of Coinage and the Monetization of Ancient Greece*. Michigan: University of Michigan, 2004.
Seaford, R. *Reciprocity and Ritual.* Oxford: Clarendon, 1994.
Seaford, R. *Money and the Early Greek Mind*. Cambridge: Cambridge U. P., 2004.
Seltman, C. *Greek Coins*. London: Methuen, 1933.

Settis, S., editor. *Storia della Calabria*. Roma: Gangemi, 1987.
Sibari e la Sibaritide. Napoli: ISAMG, 1994.
Siciliano, A. "La circolazione monetale." In *Taranto e il Mediterraneo*, 485-517. Taranto: ISAMG, 2002.
Siciliano, A. and G. Sarcinelli. "Metaponto-Siris/Herakleia: La documentazione numismática." In *Presenza e funzioni della moneta nelle chorai delle colonie greche dall' Iberia al Mar Nero*, 53–80. Roma: Istituto italiano di numismatica, 2004.
Skele, M. *The Poseidonian Chora*. Oxford: Archaeopress, 2002.
Snodgrass, A. *Archaic Greece*. London: J. M. Dent & Sons, 1980.
Sourisseau, J. "Les importations d'amphores grecques à Marseilles aux VI^{e} et V^{e} s. av. J.-C.: Bilan quantitative." In *Céramiques jònies d'època arcaica*, 137–146. Barcelona: Generalitat de Catalunya, 2000.
Sourisseau, J. "La diffusion des vins grecs d'Occident du VIIIe au IVe s. av. J.-C., sources Écrites et documents archéologiques." In *La vigna di Dioniso*, 143–252. Taranto: ISAMG, 2011.
Spagnoli, E. "La moneta di Sibari: struttura e metrología." In *Proceedings of the XVIth International Numismatic Congress, Vol. 1*, edited by N. Holmes, 405–416. Glasgow: International Numismatic Council, 2011.
Spagnoli, E. *La prima moneta in Magna Grecia*. Napoli: Diogene, 2013.
Spagnoli, E. and M. Taliercio Mensitieri. *Rispotigli della piana lametina*. Napoli: Rubbettino, 2004.
Sternbeg, H. "Die Silberprägung von Siris und Pyxus." In *Siris e l'influenza ionica in Occidente*, 123–140. Taranto: ISAMG, 1987.
Starr, C. *The Economic and Social Growth of Early Greece, 800–500 B.C.* New York: Oxford U. P., 1977.
Stazio, A. "Osservazioni sulla monetazione di Metaponto." In *Metaponto*, 67–106. Napoli: ISAMG, 1974.
Stazio, A. "Considerazioni sulle prime forme di tesaurizzazione monetaria nell'Italia meridionale." In *Actes du 9ème Congrès International de Numismatique, vol. I*, 53–69. Louvain la Neuve: Association internationale des numismates professionnels, 1982.
Stazio, A. "Monetazione greca e indigena nella Magna Grecia." In *Modes de Contacts et Processus de Transformation dans les Sociétés Anciennes*, 963–978. Pisa: Scuola Normale Superiore, 1983.
Stazio, A. "Moneta e scambi in Magna Grecia." In *Megale Hellas*, edited by G. Pugliese Carratelli, 105–169. Milano: Libri Scheiwiller, 1983.
Stazio, A. "Qualche osservazione su origine e funzioni della piu antica monetazione delle colonie achee in Occidente." In *Helike II*, edited by D. Katsonopoulou, S. Soter and D. Schilardi, 371–380. Athena: Etaireia Philon ths Archaias Elikes, 1998.
Stazio, A. and E. Spagnoli. "La moneta." In *Sibari e la Sibaritide* 1994, 597–632.
Stella, L. *Italia antica sul mare*. Roma: Hoepli, 1930.
Sutherland, C. "Overstrikes and hoards." *NC* 6 (1942): 1–18.
Tempesta, A. "Commercio e artigianto." In de Siena 2001, 89–102.
Travaglini, A. "Presenza e funzioni della moneta nella chora di Taranto." In *Presenza e funzioni della moneta nelle chorai delle colonie greche dall' Iberia al Mar Nero*, 305–332. Bari: Istituto italiano di numismatica, 2004.
Van Alfen, P. "Problems in the political economy of archaic Greek coinage." *Notae Numismaticae / Zapiski Numizmatyczne* 7 (2012): 13–36.

Van de Mersch, C. "Vigne, vin et economie dans l'Italie du Sud grecque d'époque archaique." *Ostraka* 5 (1996): 155–185.

van Wees, H. "The economy." in *Blackwell Companion to Archaic Greece*, edited by K. Raaflaub and H. van Wees, 444–467. Oxford: Blackwell, 2009.

Vickers, M. "Early Greek coinage, a reassessment." *NC* 145 (1985):1–44.

Von Reden, S. "Money in Classical Antiquity: a survey of recent research." *Klio* 84 (2002): 141–174.

Will, E. "La Grande Grèce, milieu d'échanges. Réflexions méthodologiques." In *Economia e Società nella Magna Grecia*, 21–66. Napoli: ISAMG, 1973.

Will, E. "Les sources des métaux monnayés dans le monde grec." In *Numismatique Antique, Problèmes et Méthodes*, edited by J. Dentzer, P. Gautier and T. Hackens, 97–102. Nancy-Louvain: Peeters, 1975.