# Bronze - Silber - Gold: Überlegungen zu den Nominalen einiger sizilianischer Goldmünzen*

Bronze - Silver - Gold. Considerations on the denominations of some sicilian gold coins

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(Pl. VI-VII)

In dialogue and in several languages, developing a thought early — who did it here like Tony Hackens? As the writer has learned, particularly from his students and friends and many colleagues, especially on the occasion of a Sicilian journey in distant 1977, when we three — T. Hackens, Ross Holloway and I — studied problems of early Sicilian bronze coinage. His important and impulse-giving article in the Neapler Atti 1977 on *Les équivalences des métaux monétaires argent et bronze en Sicile au V^e s. av. J.-C.* bears witness to this[1]. The following considerations[2], which are dedicated to the memory of Tony Hackens, build the bridge to what was once begun. I must ask for indulgence if I thereby first repeat familiar things, in order to make some presuppositions of my thought process clear.

## 1 Bronze and Silver

That the pre-monetary 'currency' of the indigenous inhabitants of Sicily was based on the base metal bronze is generally recognized. In it the litra was the unit of account, the bronze pound, even when one paid the equivalent value in silver. Its age can be derived from the designations of several interconnected coin values that were foreign to mainland Greek usage: the litra, its fractional values, its multiple values, finally the type of their division. The Greeks obviously adapted to it, they obviously did not invent it, as has not been doubted since Mommsen at the latest[3].

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[1] T. Hackens, *Les équivalences des métaux monétaires argent et bronze en Sicile au V^e av. J.-C. Plaidoyer pour une métrochronologie*, in *Le Origini della Monetazione di Bronzo in Sicilia e in Magna Grecia. Atti del VI Convegno del Centro Internazionale di Studi Numismatici - Napoli 17-22 Aprile 1977* (Supplemento al volume 25 degli *Annali*, AIIN) Neapel, 1980, pp. 309-340.

[2] This contribution was presented for discussion at the XII. International Numismatic Congress in Berlin in September 1997, where I saw Tony Hackens for the last time.

[3] Th. Mommsen, *Geschichte des römischen Münzwesens*, Berlin, 1860, p. 81 — On the problem further E. Gabrici, *La monetazione del bronzo nella Sicilia antica*, Palermo, 1927, p. 3 ff.; H. Chantraine, *Bemerkungen zum ältesten sizilischen und römischen Münzwesen*, in *JNG*, 12, 1962, pp. 51-64 with the correction of the nomenclature; N. Parise, *Il sistema della litra nella Sicilia antica fra V e IV secolo A.C.*, in *Le origini* (Ann. I), pp. 293-304.

The earliest literary sources for the nomenclature (litra, hemilitron, pentonkion, trias, tetras, hexas, onkia) are above all the quotations of verses by Sicilian comedy poets, such as by Epicharmus (around 540 - 450 B.C.?)[4] and by Sophron (2nd half of the 5th century)[5]. Further linguistic evidence is found, for example, in the designations 'Pentekontalitron' for the Attic dekadrachmon[6] or 'Dekalitron' resp. 'Dekalitros Stater' for the Corinthian stater (actually a tridrachmon)[7]. In Akragas stands on rare drachmas ΠΕΝ, to be completed as 'Pentalitron'[8], from silver litrae with ΛΙ[9] to be silent.

Through the last-mentioned evidence, the weight of the silver litra is simultaneously fixed at one-fifth of the Attic drachma. It is to be distinguished from the obolos, the sixth part of the drachma. The obolos is the sixth part in all Greek currencies, whether these are now heavier or lighter. The obolos thus fluctuates in weight like the drachma according to the currency. The silver litra does not do this, since it is indeed the equivalent of a Sicilian bronze pound in silver. It weighs only one-fifth of the Attic drachma. One cannot therefore, as has repeatedly happened, take another drachma than the Attic as a fifth and then assume that this fifth is likewise a silver litra. The standard weight of the silver litra amounts to 0.872 grams, nothing else. Many small silver coins addressed as litrae before all early times are, in my opinion, obols or other denominations, unless the value relationship between the metals was different at their minting time. But then the silver litra would have possessed no fixed relation to the Attic drachma at the time in question.

Bronze was probably weighed out in early times, similar to how in Rome. As long as the (silver) coins were issued or weighed at full weight, there was no need for bronze coins. Only when the small silver coins had become consistently underweight compared to their target weight and had been standardized in their denominations across the entire island[10], did it become sensible (soon after the middle of the 5th century) to also experiment with bronze coins. The silver litra as a coin denomination seems to have been introduced around 465[11]. From the period before 480, only fractional values of the litra are attested with certainty: pentonkion (= Attic hemiobol) and tetras, characterized by pellets[12]. Whether the silver litra as an individual piece already existed at that time is disputed and seems doubtful to me. In order to eliminate any misunderstanding from the outset: When 'litra' is spoken of in the following without further specification, the weight litra in bronze or its equivalent in silver or gold is meant, not any (becoming ever lighter in the course

[4]Epich. Frr. 9-10 Kaibel = J.R. Melville Jones, *Testimonia Numaria*, I, London, 1993 (hereafter abbreviated TN), pp. 448-451, Nr. 656 = F. Hultsch, *Metrologicorum scriptorum reliquiae*, I, Leipzig, 1864, p. 292, 21 ff., from Pollux IX, 81-2; see also Fr. 8; 40; 203 Kaibel.

[5]Sophron Fr. 37. 72 Kaibel = TN Nr. 651 = *Metrol. script.* I, p. 297, 20-24 from Pollux IV, 174. - Further sources in TN and in N. Parise (Anm. 3).

[6]Diod., XI, 26, 3 = TN Nr. 389, probably according to Timaios, transmitted for the 'Damareteion' (around 465 B.C.).

[7]Aristot. Fr. 510 Rose = TN Nr. 651, from the *Politeia Himeraion*, according to Pollux, IV, 174.

[8]*BMC Sicily*, London, 1876, p. 9, Nr. 47 = G.F. Hill, *Coins of Ancient Sicily*, London, 1903, p. 65, Taf. 3, 16.

[9]*BMC Sicily*, p. 9, Nr. 50.

[10]Until the beginning of the classical period this posed no problem, since they were mostly weighed in my opinion, cf. C.M. Kraay, *Hoards, Small Change and the Origin of Coinage*, in *JHS*, 84, 1964, p. 90 f. — C. Boehringer, *Ein Lot kleiner Silbermünzen von Zankle-Messana*, in *Italiam Falo Profugi*, Louvain-la-Neuve, 1996, p. 56 ff.

[11]Cf. E. Clain-Stefanelli, *On Some Fractional Silver Coinages of Sicily and Magna Graecia during the Fifth Century BC*, in *RBN*, 133, 1987, pp. 39-65.

[12]Pentonkion in Rhegion: M. Caccamo Caltabiano, *La monetazione di Messana*, Berlin-New York, 1993, p. 341, Nr. 43-47, Taf. 60. Tetras among the Samians in Zankle: C. Boehringer, (Anm. 10), 1996, p. 53, Nr. D; The remark there on p. 57 with Anm. 17 about the possibility of a tetras (albeit of an Attic standard) should probably be corrected. The hexas in Selinus (A. Tusa Cutroni, *Kokalos*, 21, 1975, 164 p., Taf. 37, 1-6; *Kokalos*, 30-1, 1984-5, Band 1 [1987], Taf. 12. 11 and *The ANS Annual Report*, 1997, p. 17, Abb. 3) seems to have been minted only after 480 (for this information I thank C. Arnold Biucchi).





of years) bronze coins.

From the onomastikon of Pollux[13] we learn, with reference to Aristoteles, the number of nomoi that went to a (presumably Attic) talent: There were originally 24, which were 'later' reduced to 12. Harold Mattingly was the first to conclude that the older talent according to the nomenclature of the time also contained 12 nomoi, only these 12 were tetradrachms (the older main denomination), while the younger talent contained 12 Corinthian staters (main denomination of Aristoteles' time)[14]. 12 tetradrachms were, however, equal to 24 Corinthian staters, hence Aristoteles' calculation for his contemporaries. We must admit that it was a clever maneuver to change not the number of the nomoi with the reduction of their weights, but rather to halve the number of litrae. These for their part retained their individual weight as a Sicilian unit of account.

The 'older talent' had thus weighed 240 litrae. When the transmitted reform actually took place can only be conjectured. Rightly, one connects it with the financial crisis at the time of Dionysios I. (405-367 B.C.) and the cessation of tetradrachm minting in Syracuse soon after 400. From the number of 240 litrae per talent I therefore want to proceed for the 5th century[15]. If we calculate 1 Attic talent at 26.196 kilograms, then one litra came to 109.15 grams, which should be approximately correct[16].

Next we need the value relationship of bronze to silver. Fortunately, we possess an inscription from Athens that gives us prices, a settlement of expenses for the Hephaisteion from the years 421/20 - 416/5[17]. According to this, the talent of copper then cost 35 drachmas in Athens (value ratio = 1: 171), the talent of tin 230 drachmas (= 1: 26)[18]. Ten talents of bronze, which were mixed from 9 parts copper and 1 part tin, would accordingly have cost 545 drachmas, which corresponds quite precisely to a value ratio of 1: 110. Naturally, the value ratio fluctuated - quite apart from place and time - according to the amount of the alloy's proportion of copper and tin. With a lower proportion of tin, one part tin to 14 parts copper, it would have been at 1: 125.

With such a relation, one has obviously also calculated for Sicily, for the mentioned litra weight of 109.15 grams, divided by 125, yields 0.832, which corresponds almost exactly to the transmitted standard weight of the silver litra, thus one-tenth of the Corinthian stater = one-fifth of the Attic drachma = 0.872 grams.

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[13]Aristot. Fr. 589 Rose = TN Nr. 656 = *Metrol script.* I, p. 294 f., from Pollux IX, 87.

[14]H. Mattingly, *The « Little » Talents of Sicily and the West*, in *NC*, s. 6, 3, 1943, pp. 14-20. Cf. N. Parise, in *Le Origini* (here Anm. 3), p. 301 ff.

[15]As counter-argument, the well-known epigram of Simonides (AP VI, 214) cannot be cited, which gives the value of the tripod dedicated by the Deinomenids to Delphi at 50 talents and 100 litrae (in pure gold, δαρεικοῦ χρυσοῦ): It can only testify that the talent contained over 100 litrae, whether 120 or 240, remains open. - Important is the inscription of one from the 2nd half of the 5th century belonging lead tablet (SEG 27 (1977), Nr. 657) and the work M.H. Crawford, *Coinage and Money under the Roman Republic*, Cambridge, 1985, p. 344 f., Anm. L, however in it a debt amount of 301 (presumably Sicilian) talents and 141 unspecified units are named, which can be nothing other than litrae. The view of the meritorious first editor (G. Manganaro, *Tavolette di piombo inscritte della Sicilia greca*, in *ASNP*, 7, 1977, Heft 4, pp. 1329-35), that it concerns the next smaller denomination, namely onkiai, goes astray in view of the date of the inscription.

[16]So first H. Willers, *Geschichte der römischen Kupferprägung*, Leipzig-Berlin, 1909, p. 14 - Numismatic example are the bronze heavy litrae of Lipara from the end of the 5th / beginning of the 4th century, cf. G. Manganaro, *Una vittoria navale dei Liparatoi sui Tyrrheni e l'inizio della monetazione bronzea a Lipara*, in *Le Origini* (Anm. 1) pp. 91-112, Taf. 12, 1-3; Taf. 14.

[17]IG I³ Nr. 472, Z. 139-141 = IG I² Nr. 371, Z. 2-8 = TN, pp. 106-7, Nr. 156.

[18]The inscription is often treated in our context, to be mentioned are K. Regling in F. von Schrötter, *Wörterbuch der Münzkunde*, Berlin, 1930, p. 744 s.v. 'Wertverhältnis'. - F.M. Heichelheim, *Wirtschaftsgeschichte des Altertums: vom Paläolithikum bis zur Völkerwanderung der Germanen, Slaven und Araber*, Leiden, 1938, p. 308 f.; M.J. Price, *Early Greek Bronze Coinage*, in *Essays Stanley Robinson*, Oxford, 1968, p. 103; G. Le Rider, *Antiochos IV (175-164) et le monnayage de bronze séleucide*, in *BCH*, 118 (1), 1994, p. 29 f.





## 2 Gold and the Gold Coins

Let us now consider gold as a coinage metal. Until Philip II, all non-Asian Greek currencies were, as is well known, silver currencies. Gold was only minted in exceptional situations, when for some reason, mostly military, temple treasures or other reserves had to be quickly drawn upon and there was no time or possibility to buy silver for the available gold. This also applies to Sicily, whereby Syracuse (perhaps for the first time already around 400 B.C.) forms an exception.

About the value relationship of silver to gold we are best informed from Athens: There it sank during the Peloponnesian War under fluctuations from approximately 15: 1 to ca. 11: 1 in the year 402, to then slowly rise again, though no longer to the old level[19]. From place to place it could certainly also vary a little. For Sicily we are dependent on conjectures, but one will not err in the assumption that at least the tendency was comparable. It lies in the character of an emergency coinage in gold that its value levels orient themselves to the locally usual silver denominations and, taking into account the gold-to-silver value ratio prevailing at the moment of emission, stand in a clear relation to those silver denominations. This has recently been disputed[20]. In my opinion, however, it is necessary and also possible, because the Sicilian gold coins — apart from the 'Messenion d'oro' — were issued in a short time span and in rapid succession and their weights cannot hang in the air without relationship. The problems connected with this I want to briefly examine once more and specify older results[21]. A table conveys an overview beyond the illustrations.

| **Fig.** | **Messana** | **Akragas** | **Gela** | **Kamarina** | **Syracuse** | **Ratio AV : AR** | **Fraction of a AV-Talent at 1 : 12** | **Equivalent in AR-Drachmas** |
|---|---|---|---|---|---|---|---|---|
| A 1 | 1.45g | | | | | 1 : 12 | 12 | = 4 |
| B 2-3 | | 1.34g | | | 1.34g | 1 : 13 | 13 | = 4 |
| B 4 | | | 0.67g | | | 1 : 13 | 26 | = 2 |
| B 5 | | | 0.30g | | | 1 : 13 | 52 | = 1 |
| C 6-8 | | | 1.16g | 1.16g | 1.16g | 1 : 15 | 15 | = 4 |
| C 9 | | | | 0.58g | | 1 : 15 | 30 | = 2 |
| D 10 | | | | | 5.82g | 1 : 15 | 3 | = 20 |
| D 11 | | | | | 2.91g | 1 : 15 | 6 | = 10 |
| E 12 | | | | | 3.48g | | 5 | |
| E 13-16 | 1.74g | 1.74g | 1.74g | | 1.74g | | 10 | |
| E 17 | | | 0.84g | | | | 20 | |

Table 1: Sicilian Gold Emissions of the 5th and Early 4th Centuries B.C.

The earliest example on the island is the one minted around 450 BC, now known in 3 specimens called 'Messenion d'oro' (Taf. VI, Abb. A 1), which weighs 1.45 grams[22]. If one assumes a weight

[19] Convenient compilation of the epigraphic evidence in D.M. Lewis, *New Evidence for the Gold-Silver Ratio*, in *Essays Stanley Robinson*, Oxford, 1968, pp. 105-110. Cf. the more recent presentations by Th. Reden, *De la valeur proportionelle de l'or et de l'argent dans l'Antiquité grecque*, in *RN*, s. 3, 11, 1893, pp. 1-26; 141-166; Id., *Sur la valeur relative des métaux monétaires dans la Sicile grecque*, in *RN*, s. 3, 13, 1895, pp. 489-511, again reprinted in his book *L'histoire par les Monnaies*, Paris, 1902, pp. 41-88.

[20] G. Manganaro, *Darici in Sicilia e le emissioni auree delle poleis siceliote e di Cartagine nel V-III sec. a.C.*, in *L'or perse et l'histoire grecque*, REA, 91, 1989, Heft 1-2, pp. 299-315 seeks the reference size in the daily wage of a mercenary, which as the only relation for a monetary economy is insufficient.

[21] Cf. C. Boehringer, *Zu Finanzpolitik und Münzprägung des Dionysos von Syrakus*, in *Essays Margaret Thompson*, Wetteren, 1979, p. 15 ff.

[22] M. Caccamo Caltabiano, (Ann. 12), 1993, S. 73 ff., Nr. 321; Taf. 20; 79; C. Arnold-Biucchi, *Appunti sulla zecca di Messana del 480 al 450 a.C.*, in *NumAntClas*, 12, 1983, S. 60 mit Abb. 25-26 - Due to the style and the presumed weight of the legend, my belief that the dating of the coin should be from 396 (so G. Manganaro, (Ann. 20), 1989, S. 306 f.) is not justified, even if the weight relation could speak for it.





relation of 12:1, it corresponds to a tetradrachm in silver, the common principal denomination of this mint[23]. What situation led to its minting remains unclear.

A first series of gold coins, which were issued in Akragas and Syracuse about 40 years later with a weight of 1.34g (Taf. VI, Abb. B 2-3), corresponds at a relation of 1:13 likewise to a tetradrachm of 17.44 grams. In Syracuse it was accompanied by half-nominals with a weight of 0.67g and by quarter-nominals (Taf. VI, Abb. B 4-5, of the latter only a single specimen is preserved), thus didrachms and drachms in gold. Insofar as we find ourselves in clear and plausible relations, insofar as there also exists agreement regarding the guild concerning the determination of these coins, we see once more from their dating.

We know another series of gold coins from Gela, Kamarina and Syracuse (Taf. VI, Abb: C 6-8). Their basic denomination weighs 1.16 grams. In Syracuse there also exists the half-piece with 0.58 grams (Taf. VI, Abb. C 9). To these gold coins are joined two very heavy denominations, which exist only in Syracuse, the 'Cavallini' with 2.91 and the 'Ercolini' with 5.82 grams weight (Taf. VII, Abb. D 10-11). Only if we assume a value ratio of gold to silver like 1:15, can the two smaller denominations be integrated as tetradrachm and didrachm into the existing monetary system, and the two large ones complement it with the equivalent of dekadrachms in silver as well as the denomination of a double dekadrachm not existing in silver at all. For the moment I leave it with these determinations and will return to them later.

Once again there are other gold denominations in Syracuse, in Akragas and in Gela as well as in a single specimen so far in Messana (Taf. VII, Abb. E 13-16)[24]. The coins weigh 1.74 grams. In Gela the half-denomination with 0.87g is also documented (Taf. VII, Abb. E 17), in Syracuse the double denomination with 3.48 grams (Taf. VII, Abb. E 12)[25].

These weights correspond, as one believes, to exactly two litrae, one litra or 4 litrae. As litrae they are therefore repeatedly designated in the literature, I myself had once called them "litrae in gold"[26], but this is certainly not correct. We must seek a better designation.

If we look at the last-mentioned series first according to the value in silver. In calculating possible relations comes — apart from an improbable 10:1 — likewise only 15:1 into question. This remains however a makeshift, for the resulting denominations would correspond to 12, 6 or 3 silver drachms of Attic weight, the only standard that was customary around 400 BC in Sicily. That such a division was not intended from the outset is immediately evident, for these units do not exist in Sicily. The division stands furthermore in opposition to the "dekadrachms" and "double dekadrachms" in gold of the heavy series existing only in Syracuse (Taf. VII, Abb. D 10-11), and their weights are not relatable to them without fractional values. In the gold coins of the 1.74

[23]Since 1.45 grams corresponds neither to the weight of two litrae in silver nor to that of two litrae in gold, it is incomprehensible why the coin was recently addressed as a dilitron (M. Caccamo Caltabiano, (Ann. 12), 1993, S. 242). Its correct designation must be: tetradrachm in gold. I cannot truly regard the 1.49 gram heavy gold piece from Akragas (G. Manganaro, (Ann. 20), 1989, S. 305, Taf. 4, Nr. 10) as authentic, which has nothing to do with 'SNG Lloyd 816' and which appeared multiple times in trade (recently Sternberg, 20, 29. 4. 1988, Nr. 182): its stamps are improperly designed, not documented, and presumably counterfeit both front and back. I thank U. Westermark for the friendly communication.

[24]Incomprehensible is the designation "Trilitron" for the last-mentioned piece in M. Caccamo Caltabiano, (Ann. 12), 1993, S. 306, Nr. 64; G. Manganaro, (Ann. 20), 1989, S. 310, Anm. 62 conjecturally assigns it to Hippon, tyrant in Messana in the Timoleontic period.

[25]The last-mentioned coin has been considered false by J. Friedländer (as far as I see, a brief notice in the posthumously appeared, edited by R. Weil 1885 *Repertorium zur antiken Numismatik*, S. 100), a judgment that has since often and wrongly been repeated without citation of the source, most recently by G. Manganaro, (Ann. 20), 1989, S. 306: Vgl. C. Boehringer, *Ehrenrettung einer syrakusanischen Goldmünze*, in *Florilegium Numismaticum. Studia in honorem U. Westermark edita*, Stockholm, 1992, S. 73-80.

[26]C. Boehringer, in *Essays Margaret Thompson*, Wetteren, 1979, S. 17.

gram standard (Taf. VII, Abb. E 12-17) it must therefore concern another gold denomination, and indeed one that was not attached to a common silver coin from the outset.

Denyse Bérend has in her important essay on the heavy Syracusan gold series pointed to the often overlooked fact that a value ratio of 1:15 for gold to silver around 400 BC represents a clear overvaluation in favor of gold[27]. The ratio lay rather between 1:13 and 1:12. A valuation 1:15 could not be maintained on the free market, hence a fixed exchange rate, which was only enforceable in a closed currency area, for example in that of the 'Empire' of Dionysios. Now the denominations in question have indeed so far been found only in Sicily[28], so it may well be that they were overvalued in the mentioned way, because they were worth so much more in Syracusan state territory that one was reluctant to take them out. Their beginning lies indeed before the beginning of the silver dekadrachms, as the writing of the ethnikon shows, which is first given with omicron and only after some time with omega, while in the dekadrachms the omega rules from the beginning. Three die-linkages of the 'Ercolini' even show two legends: The (earlier cut) obverse die still has the omicron, the (chronologically younger) reverse die the omega[29].

But how does it stand then with that series, whose weights at a gold-silver relation of 1:15 would correspond to theoretical silver coins of 12, 6 and 3 drachms? That they fit nowhere and therefore cannot be conceived from silver values, we have already seen.

# 3 The Reference to the Talent

The answer to the question of what denominations they are must be sought from another side. We must proceed directly from the gold, which in its turn depends on the silver from the bronze. A table can show this. To proceed from is the old, mostly called 'pre-Dionysiac' talent, whose weight corresponds to the Attic and with which our written sources commonly reckon.

| **Talent in:** | **Bronze** | **Silver at AE : AR = 125 : 1** | **Gold at AR : AE = 12 : 1** | **Number of Units per Talent** | **Number of Units per Nommos (Tetradr.)** | **Number of Units per Litra** |
|---|---|---|---|---|---|---|
| Talent (att.) | 26.160 g | 209.28 g | 17.44 g | 1 | | |
| Nommos (Tetradr.) | 2.180 g | 17.44 g | 1.453 g | 12 | 1 | |
| Litra | 109 g | 0.872 g | 0.0726 g | 240 | 20 | 1 |

Table 2: Table 2: Computational Units in Bronze - Silver - Gold

The most valuable output metal is bronze. To a talent of 26,160g bronze corresponds, at a ratio of 125:1, around 209 grams of silver, these in turn correspond at a ratio of 12 to 1 of silver to gold, as it is to be assumed around 400 BC[30], 17.44 grams of gold. Not approximately is this also the weight of an Attic tetradrachm. Our gold coins with a weight of 1.74g (Tab. VII, Fig. E 13-16) are therefore exactly one tenth of this Sicilian gold talent. I therefore propose to call them tenth-talents. The Syracusan double value (3.48g; Tab. VII, Fig. E 12) is then a fifth talent, the Geloese half value (0.87g; Tab. VII, Fig. E 17) a twentieth. These weights offer logical

[27]D. Bérend, *Le monnayage d'or de Syracuse sous Denys I*, in *La Monetazione dell' Età Dionigiana, Atti dell' VIII Convegno del Centro Internazionale di Studi Numismatici - Napoli 29 Maggio-1 Giugno 1983*, Rome, 1993, S. 91-143, hier S. 106 f.

[28]Most recently treated by G. Manganaro, (Ann. 20), 1989.

[29]D. Bérend, l.c. 1993, S. 115 f., Nr. 3-5.

[30]This ratio holds rather as a 10:1, as D. Bérend suggests (*l.c.* 1993, p. 106), and the 12:1 applies to Sicily not first since Timoleon. 12:1 also takes E.S.G. Robinson, *Some Problems in the Later Fifth Century Coinage of Athens*, in *ANSMN*, 9, 1960, p. 10) for the Athenian emergency coinage in the year 407/406, which fits with the courses that can be epigraphically established for Athens in these years (D.M. Lewis, (*Anm.* 19), 1968).





denominations, whose (fluctuating) value could be converted according to need into silver of the current exchange rate, not much different from a gold coin brought out today in troy weight, for example the Krugerrand.

That this connection is no coincidence and does not rest on an arbitrary calculation[31], we can verify from the 'Ercolini' and 'Cavallini': They correspond with their 5.82 or 2.91 grams exactly to a third (80 liters) respectively a sixth (40) of the talent in gold (240 liters). When a recipient, perhaps a soldier, should receive a Sicilian talent, one could pay him with 3 heavy gold pieces, without being forced to give a Syracusan citizen the same amount of gold for the same sum.

Here is to be noted a statement transmitted without source by Pollux, that the (Sicilian) talent weighed three χρυσοῖ, whereby it is presupposed that a gold stater weighed 2 Attic drachmas[32]. As in other places, this perhaps concerns an unreflected statement in the terminology of a source by Pollux, because when one calculates 3 Attic staters to a Sicilian talent, one would already arrive at the older gold-silver relation of 1:8.1 and thus to a value that never existed in the Greek world, not to mention the younger talent. Do we have here a memory of the 'Ercolini', the largest Sicilian gold nominal until Agathocles, a memory that was later no longer correctly understood?

Coming back once more to the 1.74-gram nominal, the tenth-talents. Important is the determination that we now no longer need to assume that all gold coins bound in their weight in a smooth fractional value to the Sicilian talent in the four poleis Akragas, Gela, Syracuse and Messana were issued at a single point in time, at a point in time that is fixed by a possibly temporary exchange rate from silver to gold, as this was apparently the case with the 'Tetradrachms in Gold' at the rate of 1 to 13 (Tab. VI, Fig. B 2-3). Thus that chronology of the Sicilian gold values is correctly established, which Maria Caccamo Caltabiano offers in her book on the coins of Messana and which does violence to a meaningful sequence[33].

Nothing also speaks against the emissions of the 1.34-gram as well as the 1.74-gram gold nominals in Akragas, Gela, Kamarina and Syracuse having all arisen under the threat by Carthage in the year 406/5, as Kenneth Jenkins had first concluded for the Geloese gold emissions[34]. The Syracusan values of 3.48 and 1.74 grams, of which the heavier leads the Omikron in the Ethnikon and the lighter the Omega, need not be absolutely contemporaneous, even if they also do not lie far apart from one another. And the Akragantine gold piece with the thick fish could even have arisen as the earliest example of this weight.

On the other hand, we may furthermore set the late gold unikum of Messana, as assumed by almost the entire research up to now, in the time shortly before the conquest of the city by the Carthaginians 396 BC, after the end of the great precious metal coinage of the city[35]. Its adoption of the types from Syracuse shows what was current in 396: the horse from the gold pieces, the head of the Pelorias from the dekadrachms of Euainetos. The history of Sicilian coinage around and about 400 BC need not be newly written, the dekadrachms remain under Dionysios, and the heavy Syracusan gold nominals likewise.

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[31] Against our calculations one could object that no ancient designations are transmitted for such nominals. This is however weakened by the fact that the phenomenon of small Sicilian gold coins was quite short-lived and therefore left no traces in our sources.

[32] "Ὁ δὲ χρυσοῦς στατὴρ δύο ἦγε δραξμὰς Ἀττικάς, τὸ δὲ τάλαντον τρεῖς χρυσοῦς", Pollux IV, 173 = TN, Nr. 651 = F. Hultsch, *Metrol. script.*, S. 297.

[33] M. Caccamo Caltabiano, (*Anm.* 12), 1993, S. 128 f.

[34] G.K. Jenkins, *The Coinage of Gela*, Berlin, 1970, S. 99 f.

[35] Cf. C. Boehringer, *SNR*, 78, 1999 (im Druck).

# Illustration References*

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|---|---|---|
| A 1 | 1.45g | NAC 9 (16. April 1996), 173 = Caccamo Caltabiano Nr. 321, 1 |
| B 2 | 1.35g | (with indication of 2 value balls on V) NAC 9 (16. April 1996), 137 |
| B 3 | 1.35g | Berlin, ex Löbbecke |
| B 4 | 0.665g | London, *BMC Sicily* 138 |
| B 5 | 0.30g | Berlin, ex Imhoof-Blumer |
| C 6 | 1.15g | London, *SNG Lloyd* 981 = Jenkins Nr. 492, 6 |
| C 7 | 1.17g | London, *PCG* Taf. 14, 27 = Westermark-Jenkins Nr. 206, 5 |
| C 8 | 1.15g | Stuttgart |
| C 9 | 0.56g | London, *BMC Sicily* 139 |
| D 10 | 2.90g | G. Hirsch 17 (München 12.-13. Juni 1958), 10 (weight erroneously given as "2.85g") = Bére |
| D 11 | 5.78g | Lissabon, Gulbenkian 320 = Bérend Nr. 1, 4 |
| E 12 | 3.48g | Gipsabguss London (1926) |
| E 13 | 1.74g | Hess-Leu 3 (Zürich 27. März 1956), 210 |
| E 14 | 1.74g | London, ex Hess-Leu 3 (Zürich 27. März 1956), 66 |
| E 15 | 1.75g | London, *BMC Sicily* 1 = Jenkins Nr. 490, 1 |
| E 16 | 1.77g | NAC 9 (16. April 1996), 178 = Caccamo Caltabiano Nr. 641 |
| E 17 | 0.88g | London, *SNG Lloyd* 980 = Jenkins Nr. 491, 2 |

*I thank St. Eckardt, Göttingen, for the photos. - The following abbreviations are used: NAC = *Numismatica Ars Classica* Auctions, Zurich; Caccamo Caltabiano = see note 12; Jenkins = see note 33; Westermark-Jenkins = U. Westermark - K. Jenkins, *The Coinage of Kamarina*, London, 1980; Bérend = see note 27.



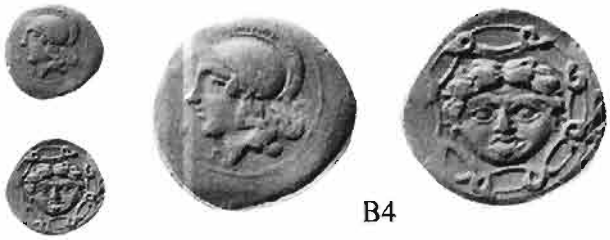
A1



B2



B3



B4



B5



C6

C7



C8

C9

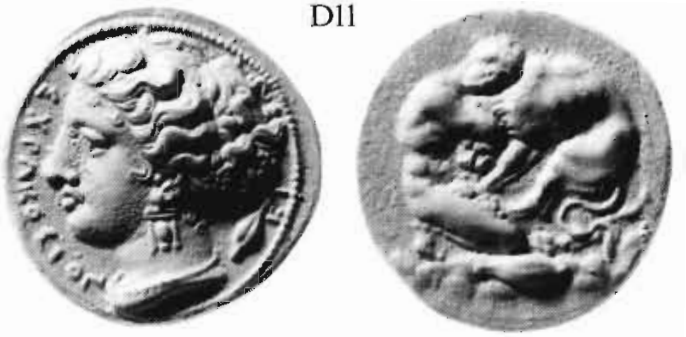


D10



D11







E12



E13







E14



E15







E16



E17