Bemerkungen zum ältesten sizilischen und römischen Münzwesen

Remarks on the Earliest Sicilian and Roman Coinage

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1 Τριᾶς

The coinage of most Sicilian cities exhibits even in the earliest times a peculiarity which, while still encountered in some South Italian communities, is not found in the Greek mother country or in the other parts of the ancient world colonized by the Greeks: alongside the native division of the drachma into 6 obols, which in turn were equal to 8 (or 12 or 16) chalkoi, there existed a subdivision of the drachma into 5 litrai of 12 onkiai each. These units of value are best known from elsewhere: in Latin they are called *libra* and *uncia*. The kinship cannot be doubted, yet the degree and nature of this relationship require closer definition. The result and course of this investigation will prove in many points not to be new: as the author had to realize in the final stages of the work, the fundamental insights were already obtained more than 260 years ago. Since, however, they have fallen completely into oblivion, a more detailed treatment of the subject will appear justified.

We owe the most detailed accounts of the monetary system of the Sicilian Greeks to Aristotle. They derive from the constitutional histories (Politeiai) of Akragas and Himera and are preserved in fragmentary form in Pollux. It reads there: "In the *Constitution of the Akragantines* Aristotle says that some are fined 30 litrai, but that the litra is worth an Aeginetan obol. Yet one finds in him in the *Constitution of the Himeraians* still further names of Sicilian coins, such as onkia, which is worth a chalkus, and hexas, which is two chalkoi, and trias, which is three, and hemilitron, which is six, and litra, which is said to be an (Aeginetan) obol" etc.[1]. Roughly one and a half centuries earlier, onkia, hexas (in its diminutive form hexantion) and hemilitr(i)on already appear in the Syracusan comic poet Epicharmus, who adds to Aristotle's table of values the pentonkion, the five-ounce piece, and also mentions, in a context not further specifiable, the hemionkion, the half-ounce[2]. Something similar is found in the second half of the fifth century in Sophron[3]. Possibly these and other comic poets were the source of Aristotle[4]. Hexas and trias, augmented by the

[1] Aristotle frg. 510 Rose = Pollux 9, 80 f. = metr. script. I, 292, 6 ff.: ... ἐν Ἀκραγαντίνων πολιτείᾳ φησὶν Ἀριστοτέλης ζημιοῦσθαί τινας τριάκοντα λίτρας· δύνασθαι δὲ τὴν λίτραν ὀβολὸν Αἰγιναῖον. ἀλλὰ μέντοι παρ' αὐτῷ τις ἂν ἐν τῇ Ἱμεραίων πολιτείᾳ καὶ ἄλλα εὕροι Σικελικῶν νομισμάτων ὀνόματα, οἷον οὐγκίαν, ὅπερ δύναται χαλκοῦν ἕνα, καὶ ἑξάντα, ὅπερ ἐστὶ δύο χαλκοῖ, καὶ τριᾶντα, ὅπερ τρεῖς, καὶ ἡμίλιτρον, ὅπερ ἕξ, καὶ λίτραν, ἣν εἶναι ὀβολόν ... cf. Pollux 4, 174 f. = metr. script. 297, 26 ff. On the constitution of the text see below n. 10.

[2] Frg. 8 Kaibel, from Anecd. Bekk. p. 98, 33: ἡμιόγκιον; frg. 9, 10, from Pollux 9, 82 = metr. script. I 292, 24 ff.: ἑξάντιον, πεντόγκιον, ἡμιλίτριον, λίτρα; frg. 203, from Photius = metr. script. 330, 18: ὀγκία.

[3] Frg. 151 Kaibel, from Photius = metr. script. I 330, 18: ὀγκία.

[4] K. O. Müller, *Die Dorier* 2^2, Breslau 1844, 210.

tetras, then appear once again in late antiquity in Hesychius, who gives hexas without indication of value[5], the trias as a three-ounce piece[6], the tetras correspondingly understood as a four-unit piece[7].

Alongside the literary sources stand the coins themselves. There are Himeran coins from the middle of the 5th century with Rv.: H and two value dots, thus hexantes, others with Rv.: three dots connected by thin lines in the shape of a T — these pieces are therefore interpreted as triantes —[8], further Crotoniate coins with the inscription TPI, which is usually resolved as τρι(ᾶς)[9], and finally those from Eryx, which bear the value designation HEIAΣ (retrograde) and two dots, or ONKIA without further value mark[10]. While according to the texts the mentioned denominational

[5]Hesychius s. ἑξᾶς (cod. ἕξας) = metr. script. I 317, 26: εἶδος ⟨νομίσματος⟩ παρὰ Συρακοσίοις. Since Latte's edition has only reached Δ, Schmidt's editio minor altera, Jena 1867, was used as the basis for the later letters. Without indication of meaning, but with the accent, ἑξᾶς also appears in Herodian, *Epitome* p. 22, 12 Schmidt.

[6]Hesychius s. τριᾶντος πόρνη (= metr. script. I 327, 6 f.): λαμβάνουσα τριᾶντα (cod.: τριάκοντα, corr. Salmasius), ὅ ἐστι λεπτὰ εἴκοσι. That Hesychius here means a three-ounce piece has been more asserted than proven. Thus R. Bentley, *A Dissertation upon the Epistles of Phalaris* (here used in the edition of W. Wagner, Berlin 1874; the page numbers in parentheses indicate the pagination of the London 1699 edition noted there in the margin) 453 (470), explains: "one Chalkous containing VII lepta", whereby, following Aristotle, he equates chalkus and onkia. Müller 2, 210 n. 2 holds that 20 was placed as a round number instead of 21, likewise in Stephanus. Already before Bentley, Salmasius had conjectured κα' instead of εἴκοσι. That 7 lepta went to the onkia is nowhere attested. Admittedly there is said to have been a chalkus of 7 lepta in Athens, but this is very questionable, see Svoronos *JIntArchNum* 14, 1912, 129; Regling in the *Wörterb. d. Münzk.* s. Lepton, cf. Tod *NC* 1945, 112 f. with further literature; moreover, Aristotle compares the onkia with the A e g i n e t a n chalkus. In short: all conjectures ultimately rest on the fact that 3 times 7 = 21. The conjecture is not justified, the transmitted number is to be retained, and nevertheless three ounces, or in good Roman terms the quadrans, are meant. The equation 1 τριᾶς = 20 λεπτά belongs to the realm of biblical metrology. Leviticus 27, 25 reads: εἴκοσι ὀβολοί ἔσται τὸ δίδραχμον. Hesychius knows this passage; for s. δραχμή (= metr. script. I 316, 25 ff.) he offers: τὸ ὄγδοον ἐστιν τῆς οὐγγίας ἐν χαλκῷ καὶ σιδήρῳ, ἐν δὲ χρυσῷ καὶ ἀργύρῳ ὀγδοηκοστόν ἐστιν οὐγγίας· οὕτω γάρ εὑρίσκονται οἱ εἴκοσι ὀβολοί δίδραχμον ἐν τῷ Λευιτικῷ. This explanation further appears metr. script. I 278, 11 ff., cf. II 104, 25 ff., where to ὀβολοί the addition λεπτοί is made. Metr. script. I 305, 16 ff. has simply λεπτά instead of ὀ. λ. Thus we have the equation: 1 ounce = 80 lepta. Metr. script. I 253, 11 f. we find: ὁ κοδράντης καλεῖται σίκλον, ἔστι δὲ τὸ τέταρτον τῆς οὐγγίας, and analogously 303, 9 f.: ὁ στατήρ νομίσματα τρία, ὅ ἐστι δραχμαί δύο, ὃ καὶ καλεῖται κοδράντης. Isidore *orig.* 16, 25, 17 = metr. script. II 114, 3 ff. writes: *quadrantem Hebraei similiter codrantem vocant; et vocatur quadrans, quod unciae quartam partem adpendeat*, cf. II 104, 11 ff.; 132, 18 f.; 139, 10, where the same appears. A quadrans is thus, according to the passages mentioned, = $\frac{1}{4}$ ounce or 1 didrachmon and thus = 20 lepta. The lexicographer or his source went a step further by equating the Sicilian trias with the Roman quadrans (here, however, understood as a quarter-ounce), and thus arrived at the explanation: 1 τριᾶς equals 20 λεπτά. — On the matter see *RE* 9 A, 1, 622 with further literature. How far the case presented says something about the problem of interpolation in Hesychius, others may decide.

[7]Hesychius s. τετρᾶντα (cod. τετράντα; according to Stephanus, τετράνθα is said to be transmitted) = metr. script. I 327, 1 f.: τετραγωνόν τι σχῆμα. δηλοῖ δὲ καὶ τοὺς τέσσαρας χαλκοῦς. Since an onkia was equated by Aristotle with a chalkus, a tetras is consequently equal to four ounces or a triens. On the accentuation see Herodian, *Epitome* p. 23, 10 Schmidt.

[8]F. Imhoof-Blumer, *NumZ.* 18, 1886, 243 Nos. 8, 9.

[9]Head *HN²* 99; W. Giesecke, *Sicilia numismatica*, Leipzig 1923, 71 f.; *Italia numismatica*, Leipzig 1928, 127, 132; Regling, *RE* 13, 785, 35 ff.

[10]Imhoof-Blumer 238 No. 5 with pl. VI 4, No. 6 (without illustration). Reference should also be made to the countermark ΟΓϗΙ on a Syracusan copper coin of the 4th century, Macdonald, *Catalogue Hunterian Collection* I 223 No. 105. — Now that all the relevant material has been presented, a position should also be taken on the text of Pollux 4, 175 and 9, 81. Bekker prints 4, 175: ἑξάντα and τριάντα, 9, 81: διξάντα and τριξάντα (following Jungermann; the latter still haunts Schwyzer, *Griechische Grammatik* I, Munich 1939, 599 as a Sikel gloss). Bethe sets διξάντα and τριάντα at both passages, shaping 9, 81 according to 4, 175, since Pollux expressly makes a cross-reference. Transmitted (according to Bethe) in 4, 175 is: διξαντα FS: διξαντα C: ἑξάντα B: ἑξάλιτρα A, and τρια$^{\kappa\tau}$ A: τριάκοντα BC: τριανίαν FS; in 9, 81: ἐξ (α add. S) τάλαντα FSCL and τρία τάλαντα FSCL (the other manuscripts do not have the passage). Bethe is undoubtedly right as against Bekker in the uniform treatment of the two passages,

names occur only in Sicily, the coins attest to their use also among the Greeks of South Italy[11].

The accounts presented can be combined without contradiction into the following system: litra = 12 onkiai, hemilitron = 6 onkiai, pentonkion = 5, tetras = 4, trias = 3, hexas = 2, onkia, hemionkion. Striking and therefore often treated is, in this series, the statement that hexas means "sixth", thus sextans, while trias and tetras, formed in the same way, are said to designate three onkiai = quadrans and four onkiai = triens respectively; for if the ending -ᾶς in hexas expresses the partial amount of the larger whole more closely specified by a numeral, the same suffix cannot in trias and tetras indicate the multiple of the smaller unit more precisely characterized by a number.

Mommsen bases his presentation of these Sicilian units of value on Aristotle and Hesychius and declares: "Es ist nicht abzusehen, warum diese Zeugnisse nicht gelten sollen; selbst in den römischen Namen findet sich die multiplare Bezeichnung in *quincunx, septunx* und dem ganz irrationalen *dextans* neben der älteren nach Quoten und bei Lehnwörtern der Art wie τριᾶς und τετρᾶς würde selbst eine ärgere Verwirrung erklärlich sein"[12]. Regling remarks on the Crotoniate coins with TPI: "Unter einem τριᾶς müßte man sprachlich doch den Triens, d. h. 1/3 der großen Einheit verstehen", yet Aristotle, according to the text of Pollux, had thereby designated the quadrans. "Nur dazu passen auch jene Bronzemünzen von Kroton"[13]. While Mommsen would rather believe that the Sicilian Greeks had taken over the expressions in question — though admittedly in an incorrect manner — "from the indigenous peoples of Italic stock on the Sicilian east coast", Regling does not express himself clearly on this point; individual linguists derive the words concerned from Latin. Thus Goidànich and Leumann, for example, are of the opinion that "τετρᾶς - ᾶντος, obgleich sachlich als 4/12 = lat. *triens* 1/3 des As, eine Lehnsumsetzung aus lat. *quadrans* ... sei"[14].

In the lexica a different position is mostly taken: the linguistic objection emphasized by Regling prevails and, against the tradition, the τριᾶς is equated with the *triens*, the τετρᾶς with the *quadrans*[15]. A justification or reference to the problem is throughout lacking; indeed, often, faithful to the tradition, the trias = triens is given 3 chalkoi, the tetras = quadrans 4[16]. The opinion of the

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but his text in general is worse. What is the sense of διξάντα, which is otherwise nowhere encountered, alongside τριάντα conjectured surely correctly by Salmasius? Apart from the fact that B offers ἑξάντα, A and the entire transmission of 9, 81 show that the word in question in Pollux or in the archetype of the epitome preserved to us must begin with ἑξ. Further: the context of 9, 80—82 leads compellingly to: ἑξάς. In the verse of Epicharmus (frg. 10 Kaibel) cited at 9, 82, ἑξάντιον appears (thus CL; S has ἑξάγγιον, F ἑξ οὐννίον). Now these as well as the preceding verses are cited as evidence for the statements of Aristotle communicated in §§ 80 f., and perhaps even derive from him. They can and must therefore be adduced for the constitution of the text of the preceding paragraphs. But there is more. No notice is taken at all of knowledge of the word elsewhere in literature and in coin inscriptions. That apart from Salmasius scholars such as Scaliger, Bentley, K. O. Müller have treated the text in detail seems to be unknown, and in any case is not mentioned. That the passages of Pollux concerning measures, weights and coinage were edited by Hultsch in the *metr. script.* with independent judgment and not unimportant introduction is passed over in silence by the preface and apparatus. There one would have found the correct reading. In all this one will always do well, in metrological questions, to consult alongside Bethe's edition also that of Hultsch.

[11] The texts speak of the Σικελοί or Σικελιῶται, and name Sicilian cities. Or should one understand under Σικελιῶται also the Greeks in South Italy? That is, however, not really plausible.

[12] *Geschichte des römischen Münzwesens*, Berlin 1860, 82, cf. *Hermes* 22, 1887, 486, 608.

[13] *RE* 13, 1, 785, cf. *Wörterbuch d. Münzk.* s. Tetras and Trias.

[14] P. G. Goidànich, *I rapporti culturali e linguistici fra Roma e gli Italici*, *Rendic. Accad. Bologna*, cl. sc.-m. ser. III vol. 4, 1931, 20 ff.; M. Leumann, *Glotta* 23, 1935, 124, from which the quotation is taken. Dependence on Italic or Latin is also asserted by Schwyzer I p. 528: "... sind dem Italischen nachgebildet", p. 599: "... dem lat. triens quadrans sextans nachgebildet". The second version also in H. Frisk, *Griechisches etymologisches Wörterbuch*, Heidelberg 1960, s. ἑξ.

[15] See e.g. Stephanus, Pape, Jacobitz-Seiler, Passow, Liddell-Scott in their respectively latest editions.

[16] By the aforementioned Pape, Jacobitz-Seiler, Passow.

lexica is represented, for example, also by the Indo-Europeanist Schwyzer[17]. Further investigation eventually led to Bentley and Scaliger. Going far beyond the latter, Bentley established: trias, tetras, hexas must denote partial amounts of the litra and not multiples of the onkia, as Salmasius had assumed; for hexas is indisputably the sixth or the "two-unit", since 6 onkiai were called hemilitron. Moreover, if trias and tetras meant the "three-unit" and "four-unit", the "five-unit" would have to be called πεντᾶς and not πεντόνκιον. The latter formation is explained inevitably by the fact that $^5/_{12}$ cannot be expressed as a simple fraction with numerator 1, and for this reason there was also never a heptas, enneas, etc. Finally, tetrans in Vitruvius 10, 6, 1 and elsewhere is undoubtedly the quarter. Rome thus owed the designation of the pound and its parts to the Sicilian Greeks[18].

What Salmasius had once maintained was defended in this century, without knowing his predecessor, by the Indo-Europeanist Whatmough[19]. New arguments are lacking, and so it should suffice to refer to Bentley. Nevertheless, it should be noted in addition that the Himeran and Erycine coins, through their inscriptions, value designations, and weights, place the hexas as $^1/_6$ litra beyond any doubt[20].

Of the three opinions sketched here, it is well known that the first has found the approval of the numismatists. Thus in works on Sicilian numismatics, in collection catalogues, and elsewhere, the pieces with 3 value pellets — thus the three-ounce pieces — are designated as triantes, the four-ounce pieces as tetrantes. That this is done wrongly and that Bentley had already seen the correct view will now be explained in more detail in what follows.

Since we need not concern ourselves further with the solution of Salmasius, we can turn immediately to the refutation of the view represented above all by Mommsen. It has the testimony of Aristotle in its favor and can further appeal to the identical statements of Hesychius. The latter, however, says practically nothing, since probably the late-antique compiler — or rather excerptor — drew his information, like Pollux, from Aristotle or rather from an intermediate source dependent on him (probably a lexicon)[21]. We cannot in any case credit him with personal observation or sufficient subject knowledge[22].

This observation does not, however, alter the state of affairs all that much. Let us therefore examine the conjecture that the terms in question were taken over from Latin or from Sikel, and that the undeniable inconsistency is to be traced back to this circumstance. Considerable objections immediately arise. Even if, with Mommsen, one ascribes the beginning of Roman coinage to the decemvirs (451 B.C.), one is compelled to explain how, about 20 years earlier in Epicharmus, for example, πεντόνκιον and ἑξάντιον appear, and how these denominations can also be demonstrated in the contemporary coinage of Syracuse, Akragas, and Himera[23]. Now that we know today that the Romans and the peoples of Central Italy began to coin at the earliest around 300 B.C., it

[17] I p. 528, 599.

[18] Bentley 450 ff. (466 ff.).

[19] *The Prae-Italic Dialects* II, Cambridge Mass. 1933, 460, cf. also *The Foundation of Roman Italy*, London 1937, 366.

[20] Imhoof-Blumer 238—44. Himera: hemilitron: 34.80 g, 30.70 g; pentonkion: 26.52 g; four-ounce piece: 21.30 g, 20.20 g, 19.92 g, 19.14 g, 17.75 g; three-ounce piece: 16.40 g, 14.85 g, 14.68 g; hexas: 12.05 g. Eryx: hexas: 3.56 g, 3.14 g, 3.0 g; onkia: 2.72 g, 2.50 g, 1.93 g.

[21] On the question of sources see H. Schultz, *RE* 8, 2, 1317 ff.; Schmid-Stählin, *Griech. Literaturgeschichte* II 2, Munich 1924, 1083, and the preface of Latte to his edition.

[22] An example above n. 10; further ones may easily be supplied.

[23] Individual references *RE* 9 A, 1, 641 ff. — Mommsen tried to take account of these facts and therefore gave preference to adoption from the Sikels. Whatmough 460 has misunderstood him, and probably others as well.

is still harder to find a derivation from Latin credible[24]. To be sure, trias and tetras are first attested literarily in Aristotle and Hesychius, and perhaps also, as the coins themselves seem to indicate, were taken up into the denominational series somewhat later. But from the middle of the 5th century they are certainly present. Finally, let it be noted that trias stands in the Ἱμεραίων πολιτεία of Aristotle. Since this city, however, was already destroyed in 409 B.C., it must have been a denomination in use there in the 5th century. Further: that the culturally superior Sicilian Greeks modeled the standard of their **silver** coinage[25] and of their copper coins — which probably already represented **credit** money — on some **Central Italian** weight norms used in the weighing of **raw copper** is simply unthinkable[26]. Moreover, the litra and its partial pieces are "small change", i.e., not coins of long-distance trade, but those intended for the needs of retail trade in the city and the associated territory. The weight system and its designations would therefore have had to have been introduced from Central Italy already in the premonetary phase. That too is by no means plausible. The trade to be presupposed as intermediary was, after all, almost exclusively in the hands of the Greeks. Even if it had not been so, the Siceliote Greeks, living far away, still had no occasion to introduce for their own domestic needs, alongside their own highly developed weight system, a foreign, more primitive one. Nor, from the metrological findings, can any connection of the supposed kind be discerned for this period. Under these circumstances it is out of the question that the Sicilian Greeks derived the coin- and weight-designations here in question from Italy and specifically from Rome. But they are not Greek from the mother country either. Thus all considerations and facts lead to the conclusion that the litra-onkia system was already formed in Sicily when the Greeks immigrated, and that its use there and its great importance for trade caused the colonists to take it into account. Since, therefore, direct adoption from the surrounding inhabitants and, as we may further say, unforced incorporation into their own system are present[27], the misunderstanding presupposed by Mommsen finds no support. For it is simply not credible that the most intelligent people of antiquity, from practical motives, took over the weight system of their neighboring trading partners without however noticing that from then on they agreed with their counterparts in terminology but not in substance. Very little flattering for the Greeks is also the poor linguistic understanding presupposed on their part. The transmitted inconsistency in the designations cannot therefore be justified in the hitherto customary way[28].

The coins of Croton with the inscription TPI adduced in this connection can likewise be granted no evidential force. Supposing that TPI really means τριάς, it is indeed remarkable that for each four of these (not mint-fresh!) coins a mean total weight of 109.52 g is computed, thus the approximate amount of the Sicilian litra of "109.15" g[29] or of 1/3 of the Roman pound. But 1. the equation is only approximate, and 2. it must be considered that we neither know the South Italian coin standard nor have the certainty that we are dealing here with token money. To think of Roman influence, namely the highly dubious so-called "trientine standard", is forbidden by chronology: the coins belong to the 4th century B.C.

Thus only the possibility remains that an error of Aristotle, of his source, or of the tradition

[24] On the beginning of Roman coinage see the research report in R. Thomsen, *Early Roman Coinage* I, Copenhagen 1957, 210 ff.

[25] Hemilitron, pentonkion, hexas of the earliest period are, if not all, then predominantly struck in silver. Cf. also Epicharmus fr. 9 Kaibel.

[26] See the poor adjustment of the Himeran denominations listed above n. 20. Noteworthy in this connection seems also the fact that in Himera the same obverse die was used for six-, four-, and three-ounce pieces: Imhoof-Blumer 241 ff. Nos. 4–8.

[27] In that, as was said at the outset, 5 litrai were equal to 6 obols.

[28] This corrects not only Goidànich and Leumann but also Schwyzer and Frisk, see above n. 14.

[29] On the size of the Sicilian litra see *RE* 9 A, 1, 614 ff. with literature.

dependent on him is present[30]. What further can now be adduced for this, besides the age and the manner of word formation? First, the important linguistic observation already made by Bentley, that the Latin *tetrans*, which indisputably derives from the Greek τετράς, indisputably designates $^1/_4$[31]. That the same word should elsewhere mean "quarter", but in coinage "fourfold" (of a twelve-part whole, thus "third"), would be exceedingly strange. And a second observation, likewise of a linguistic nature, leads to the same result. Mommsen and Regling occasionally speak of the old Roman custom of designating the partial amounts of the as (the libra) by fractions ($^1/_3$, $^1/_4$, etc. = *triens*, *quadrans* etc.), and draw conclusions from this. That is strange. This way of reckoning is namely good Greek, and can be demonstrated epigraphically in Greek coinage already before the middle of the 5th century[32]. That it is considerably older is proven by the subdivision of the early Ionian electrum and gold staters which results from their weights[33]. If now already in the early 6th century B.C. τρίται, ἕκται etc. appear in East Greek coinage, and the same terminology also appears in liquid measures and weights[34], one may without hesitation regard trias, tetras, hexas as Sicilian-Greek variants of this way of designating and reckoning.

There remains to explain the suffix -ᾶς, -ᾶντος. It is not Greek, nor is it to be regarded as a Doric form. As is assumed throughout, there seems to be closest kinship with Latin *-ens, -entis* or *-ans, -antis*. Now, however, adoption from Latin is unthinkable. Thus the conclusion gains high probability that here a Greek numeral was combined with a Sikel ending, as Whatmough and others have already conjectured[35]. With Greek origin it also accords that πεντόνκιον represents a type of formation, the multiplicative, which indicates the multiple of the basic unit. For this apparent deviation — though one clearly marked by the word form — Bentley already gave the only possible and moreover compelling justification: $^5/_{12}$ could not be expressed as a simple fraction in ancient fractional arithmetic[36]. Therefore in the Roman system, analogously, quincunx and septunx are encountered. The value of $^5/_{12}$, intrinsically foreign to Greek coinage, forms an exception to be met with only in Sicily (and South Italy); it is grounded in the fact that $^5/_{12}$ litra was at the same time $^1/_2$ obol[37]. From this arises the further conclusion that pentonkion as a fixed term was only

[30]Since the error already appears in Hesychius, it must be old. If we assume with Müller (above n. 4) that the knowledge of the numismatic terms in question comes from the reading of Sicilian comic poets, a misunderstanding is easily conceivable. Moreover, it is by no means certain that Aristotle himself composed the Ἱμεραίων πολιτεία.

[31]Bentley, loc. cit., esp. 455 (473).

[32]Ἕκται as a coin denomination *SIG*^{3} 45 = Tod 25 from Halicarnassus, ca. 460 B.C. Phocaean and Cyzicene hektai in *IG* I^2 339, 33; 352, 16; 310 passim; 301, 100 and elsewhere. Hemihekton also appears in the 5th century in the Attic comic poet Crates: p. 137 frg. 20 Kock (from Pollux 9, 62).

[33]Head *HN*^{2} p. XL and 523, 558 f., 564, 567, 572, 584, 588, 591, 602, 644 ff.

[34]Liquid measure: ἕκτη, ἑκτεύς, ἡμίεκτον: *Milet* III, Berlin 1914, No. 31a = Schwyzer, *Dialect. Graec. exempla potiora*, Leipzig 1923, No. 725, before 500 B.C. τετάρτη in Herodotus 6, 57, 2. Weights: *Hesperia* 7, 1938, 362: τετάρτη, ἐμίεκτον (= ἕκτη), 6th/5th century. E. Pernice, *Griechische Gewichte*, Berlin 1894, Nos. 20 ff.

[35]Whatmough, *Prae-Italic Dialects* II 460 with further literature. On Sikel and its relationship to Greek and Latin see *RE* 9 A, 1, 607 f. — In favor of a narrow local significance of the formations trias etc. also speaks the fact that the Greeks called the Roman quadrans τριούνκιον or κοδράντης; cf. also n. 60.

[36]Bentley 453 f. (470 ff.). Ancient fractional arithmetic knows almost exclusively fractions with the numerator 1. Instead of $^5/_{12}$ one therefore said and wrote $^1/_3 + ^1/_{12}$, correspondingly for $^5/_7$: $^1/_2 + ^1/_7 + ^1/_{14}$. On this manner of reckoning with so-called unit fractions cf. L. Hoppe, *Mathematik und Astronomie im Altertum*, Heidelberg 1911, 35 ff., 49, 57. It already appears in ancient Egypt. But apart from that, we too would probably say five ounces rather than the quite unvivid $^5/_{12}$; after all, we do not buy $^3/_5$ pound but 300 g. Indeed, even more, one does buy $^1/_8$ of a cheese, but not $^1/_5$, rather 100 g, since the fractional arithmetic of everyday life with us is built up according to the binary principle. Let it finally be noted that in Attica too, for instance, dividing and counting modes of designation appear side by side; one said hemidrachmon and triobolon; a further parallel is offered by πεντώβολος, which already occurs in Aristophanes, *Equites* v. 798.

[37]See Mommsen 82 f. For analogous reasons the quincunx was introduced into Roman coinage. — In favor of

introduced by the Greeks; that is, originally dividing and counting modes of designation did not at all stand side by side, and thus also the uniform formations in -ᾶς, even if they were Sikel, could not be understood in different senses.

The preceding remarks have shown that the value of the specifically Sicilian-Greek coin designations trias, tetras, hexas has partly been transmitted incorrectly. It has been shown further that this terminology does not go back to Roman influence but was determined by the pre-Greek money and weight system of Sicily. While the suffix -ᾶς, which expresses a partial amount, seems to be pre-Greek, numeral and manner of reckoning are of Greek origin. Accordingly, trias means: third = Lat. triens, tetras: quarter = quadrans, hexas: sixth = sextans. The previous numismatic designation is thus false.

The consequence arising from this would be to call the coins hitherto known as triantes "tetrantes", and those hitherto called tetrantes "triantes". Correctness would thereby be served, but hopeless confusion would be the result. It therefore seems advisable to leave matters with the old terminology, but to indicate the deviation from ancient usage by the spelling in quotation marks: "trias" and "tetras".

2 Terruncius

The question now arises as to what effect the preceding result has on our knowledge of the earliest Roman coinage. One might be tempted to derive, following Bentley, the entire Roman coinage and weight nomenclature from the Siculo-Greek. That, however, would be overshooting the mark by far.

Λίτρα and ὀγκία, Lat. *libra* and *uncia*, the basic elements of the system, are, as already stated, undoubtedly related to one another. But the Latin expressions are by no means formed after the Greek ones. Reckoning by ounces existed in Rome early on; it is already attested for the Twelve Tables Law[38]. Furthermore, Livy reports a law from the year 357 B.C. in which it likewise appears[39]. Plautus uses *uncia* in a figurative sense for a small quantity[40]. *Libra* is likewise already found in Plautus[41]. These testimonies may be set aside as unreliable or too late. Yet the following consideration should clarify the matter. If one assumes that the Romans took over the Libra-Onkia system from the Sicilian Greeks, one must presuppose that the Greeks transmitted precisely the system foreign to them — which they used alongside their actual system because of local conditions — to the other peoples[42]. That is improbable. The absence of clear metrological parallels as well as other testimonies points in the same direction. It is therefore as good as certain that Litra—Libra and Onkia—Uncia are loanwords from Sicul in both languages[43].

But let us now ask about the fractional amounts of the Libra or the As. The Roman system, as is well known, has the following names: *libra (as), deunx, dextans (decunx), dodrans, bes, septunx, semis, quincunx, triens, quadrans, sextans, uncia.* That the Siculo-Greek Hemilitron, Pentonkion,

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the Greek origin of the dividing principle, it speaks further, in my view, that one said half-pound, third, etc., but designated the denominations concerned in the great majority of, and above all earliest, cases by a corresponding number of value dots as six-ounce pieces etc.; cf. below pp. 61 f.

[38] Tab. 7, 1, from Volus. Maecian. distrib. 46 = metr. script. II 67, 7 ff. and tab. 8, 18, from Tacitus, ann. 6, 16.

[39] Livy 7, 16, 1.

[40] Plautus, Menaechmi v. 526; Rudens v. 913.

[41] Pseudolus v. 816.

[42] See above p. 55 f.

[43] See RE 9 A, 1, 607 f. and the literature cited there.

Trias, Tetras, Hexas, Onkia show entirely corresponding modes of formation is obvious. This, for the moment, says nothing about their mutual relationship. If we now disregard the basic terms *libra* and *uncia*, *as*, and the *semis* formed from it, the following "age" emerges for the remaining words or the derivatives stemming from them: *deunx, dextans*: Varro (*decunx*: Persius), *dodrans, bes, septunx, quincunx, triens*: likewise Varro[44], *quadrans*: Lucilius[45], *sextans*: Varro or Laberius[46]. That is: only *quadrans* can be attested at the end of the 2nd century B.C., the other attestations stem from the early 1st century B.C., *decunx* even from the first post-Christian century. That is rather late. Now, *deunx*, *dextans*, *dodrans* do indeed give the impression of later formation, but with the other values one might think of a chance of transmission. In favor of this one could adduce that *as* does not occur in Plautus but is first attested in Cato, while *semis* first appears in Varro[47]. This word, however, is said to have stood in the Twelve Tables Law, and, what is more important, it seems already to have been in common use in the early 3rd century, since the half-pieces of the earliest Roman Aes grave already bear the value mark S[48]. That a very early attestation for *as* is also gained thereby need hardly be further elaborated. It thus emerges: the basic designations that must be presupposed as old, above all the *libra* and *uncia* of interest to us here, can be clearly attested early on, whereas the classical fractional amounts of the *libra* cannot. Thus the custom of expressing "two ounces", "three ounces", "four ounces" not by multiples of *uncia* but as fractions of the *libra* could stem from Sicily; Sextans, Quadrans, Triens would thus be formed after Hexas, Tetras, Trias. If this is correct, one must have had another mode of designation before the adoption of the aforementioned one, something like *duae* etc. *unciae* or similar.

In fact there is such a synonym: instead of *quadrans* one said *terruncius*. In Varro L.L. 5, 174 it reads: *terruncius a tribus unciis, quod libellae ut haec quarta pars, sic quadrans assis*. Since according to the context *libella* is a silver coin of the value of an As, one would like to understand *terruncius* as a quarter, if not of this silver coin, then at least of its silver value, while *quadrans* designates the equivalent in copper or bronze. Thus it is probable that Varro was thinking of the small-change reckoning, in which the *terruncius* represents $^1/_{40}$ of the denarius forming the unit[49]. For us, this yields nothing at first. More unambiguously, however, Pliny expresses himself in n. h. 33, 45: *quadrans antea terruncius vocatus a tribus unciis*. Since it is not difficult to demonstrate errors in Pliny elsewhere as well, one is at first tempted to set this statement aside as incorrect and

[44]Varro L.L. 5, 171 and elsewhere; Persius 5, 150 (though there a conjecture of Bücheler for deunces and mostly rejected). In the Puteolan lex parieti faciundo CIL I² 698 = Dessau 5317 the sigla $S{=}{=}$, $S{=}$, $=\,=$ appear; however, it does not follow from this that one said *dodrans, bes, triens* at that time. The "dating" according to Walde-Hofmann, Etymologisches Wörterbuch der lateinischen Sprache; they were checked as far as possible.

[45]Lucilius v. 1272 Marx. The sigla $=\!=$ already in Cato, agr. 84: *mellis p(ondo)* $=\!=$, and in the lex parieti faciundo, but see previous note. — According to Walde-Hofmann II 395, *quadrantalis* in the sense "costing a fourth part, costing a quarter As" is said to be attested since Cato. That is an error. Neither Krumbiegel's index to "de agricultura" nor that of Jordan's collection of fragments contains the word; it is likewise not encountered in Peter HRF and Malcovati ORF². On the other hand, *quadrantal* = cubic foot occurs repeatedly in "de agr." and also in the speech contra Oppium frg. 106 Malcovati².

[46]Varro a. o.; Laberius v. 31 CRF³. Outside Rome the word is encountered in the tabulae Iguvinae III 2: *sestentasiaru* = *sextantariarum*. It seems to stem from Latin and could lead to considerably earlier times. However, the most recent parts of the tab. Iguv. were composed in the period shortly before the Social War; indeed an even later composition cannot be excluded, so that this attestation does not contradict the rest of the findings. On this cf. Whatmough, Foundation 198; G. Devoto, Tabulae Iguvinae², Rome 1940, 51 ff.; E. Vetter, Handbuch der italischen Dialekte, Heidelberg 1953, 211; V. Pisani, Le lingue dell' Italia antica oltre il latino, Turin 1953, 123 f.

[47]As: Cato, agr. 132, 2: assarius, and in Seneca, epist. 94, 27. Semis: Varro L.L. 5, 171.

[48]Tab. 7, 1 (cf. note 38). On the coins see e.g. E. A. Sydenham, The Coinage of the Roman Republic, London 1952, 2 Nos. 9. 16. A reference to such coins is missing in Walde-Hofmann.

[49]Cf. Volus. Maec. § 65 ff. and A. Nagl, RE 11, 1, 612 ff.; Regling, RE 13, 1, 14 f. with further literature.

perhaps spun out from the reports of predecessors. It is a fact, however, that *terruncius* already occurs in Plautus, Captivi v. 477: *neque ... iam terrunci faciunt*: "and do not consider it worth even a penny". It thus meant a very small sum. Since such a figurative usage presupposes great familiarity on the part of the audience, the word must have belonged to the stock of the Roman language for a longer time already. Its archaic linguistic form points in the same direction[50].

To see here in Terruncius the term of Roman small-change reckoning has far-reaching consequences. The Captivi are, at the latest dating, written around 191[51], thus before 187, the date advocated by Mattingly-Robinson[52] for the introduction of the denarius. Even if with Thomsen[53] we assume the beginning of denarius coinage around 210/9, scarcely 20 years appears rather tight for the establishment of this mode of reckoning and the general knowledge of its special terminology. The possibility, admittedly, cannot be denied, but just as little the fact that then a relatively young and rarely encountered special expression would have to be attested far earlier than a term already in general use long before[54].

There is all the less pressing occasion for this assumption, as we are able to explain *terruncius* = three ounces = small amount satisfactorily in another way. When Plautus wrote his verses, the post-semilibral (also so-called trientale or quadrantale) standard was current in Rome, if not already the sextantal. A three-ounce piece thus represents by no means a great value and could therefore without further ado be used in the aforementioned figurative sense. In Catullus and in the Priapea it reads in the same sense: *non assis facere*. The monetary standard had simply fallen from the post-semilibral (or sextantal) to the semi-uncial standard[55].

If, on the basis of the preceding remarks, we hold Terruncius to be the older designation of the three-ounce piece preceding the Quadrans, we must conclude that in Rome reckoning was originally done not by parts of the pound but by multiples of the ounce. And for this there is a further piece of evidence. Festus-Paulus offer: *nonuncium et teruncium dicitur, quod novem unciarum sit sive trium*[56]. The neuter need not disturb us here; it is of course to be laid at the door of the late excerptor. Festus drew his material from "de verborum significatu" of Verrius Flaccus, with which we come into the Augustan period[57]. This work contained above all old words, no longer in common use and therefore requiring explanation. *Nonuncius* must have been such a

[50] With *terruncius* Plautus can of course have rendered a Greek word, e.g. τρίχαλκον, but the rendering must likewise designate a small coin. Rather, however, the passage seems, judging from the context, to be an insertion by the Roman poet; see Ed. Fränkel, Plautinisches im Plautus, Berlin 1922, 246. — On the spelling terruncius see Mommsen, Hermes 22, 1887, 486 and esp. F. Bücheler, Rhein. Museum 46, 1891, 236 ff.

[51] Schanz-Hosius, Römische Literaturgeschichte I, Munich 1927, 60.

[52] Proceed. Brit. Acad. 18, 1932 = Welt als Geschichte 3, 1937, 69 ff. 300 ff. In the 2nd edition of his Roman Coins (London 1960) Mattingly even argues for the year 169, a. O. 17; cf. already the same in Sydenham p. 221 and Proceed. Brit. Acad. 39, 1954, 283.

[53] Actes Int. num. Congr. Paris 1953 II (1957) 193 ff.

[54] References in Regling, RE 5 A, 1, 820, cf. the same RE 13, 1, 15, 25 ff.

[55] Catullus 42, 13, cf. 5, 2 f. 33, 8; Priapea 8, 3. Petronius sat. 58, 4 reads: *dupondii non facio*, cf. J. Süß, Catulliana, Erlangen 1876, 4. To be added is Persius 5, 76: *hic Dama non est tressis agaso*. The monetary value thus sank further. As Quadrans = 1/4 As the commentators also interpret Terruncius, see Brix-Niemeyer-Köhler[7], Leipzig 1930, and W. M. Lindsay, London 1900 (the 2nd edition of 1924 is not accessible to me). Bücheler 237 f. decided otherwise, probably on the basis of the Mommsen denarius chronology. — The adduced testimonies about the low esteem of the As, then Dupondius and 3 Asses in the late Republic and early Imperial period are already illustrated by the fact that imperial-period copper and brass coinage comes to light so numerously as stray or settlement finds, while silver coinage appears quite sparsely. If one lost the latter, one took the trouble to search, see Luke 15, 8 f.

[56] Festus-Paulus p. 172 f. M. = p. 178 L. The context in Festus cannot be reconstructed.

[57] See A. Diehle, RE 8 A, 2, 1636 ff.

word, especially since it does not occur anywhere else either[58].

Observations about a counting mode of reckoning can, it seems to me, also be made elsewhere. Quincunx and Septunx in their deviating mode of formation are unproductive[59]. Very striking, on the other hand, is that Triens, Quadrans, Sextans never appear on the coins with their name or corresponding abbreviations, sigla or the like as third, quarter, sixth, but are always characterized by four, three, two dots as four-, three-, two-ounce pieces[60]. They are therein more consistent than the Greek-Sicilian and South Italian coins, where H appears for Hexas (or Hemilitron), T for Trias or Tetras, Δ for "Tetras" (4 ounces!) or Dekonkion, or the respective words appear abbreviated (ΤΡΙ, ΟΓΚΙ) and fully written out (Hexas, Onkia)[61]. If we consider in parallel the Greek and Roman numerals for 1–10, the former are entirely non-illustrative, the latter with their one, two, three, four, indeed six strokes seem virtually to immortalize finger-reckoning[62].

The preceding remarks lead to the conclusion that in Rome originally the multiplying, i.e. the ounce-counting, mode of reckoning and designation prevailed, and that — perhaps beginning in the 3rd century — in the 2nd century the Siculo-Greek principle, naming the parts of the pound, became generally customary[63].

Thereby we come to a point whose discussion has been left aside until now. The Roman six-ounce piece is called *semis*, thus half-as, and therefore represents the dividing and not the counting principle. That it was always so called, however, cannot be said without further ado. For *S* on the early half-pieces can equally well be resolved as *sexuncius* or similar. *Sexuncius* would fit the counting system traced out here, but would also entail the assumption that As and Semis originally need not be connected with the Libra-Uncia system and can have been introduced there later. That does not disturb us; on the contrary, it only yields a simpler picture. Yet let us remain with the position initially taken and regard *S* as a sigla for Semis. The word must then have been in common use in Rome at the latest around or shortly after 300 B.C.[64]. That is far earlier than was assumed for the other denominations likewise giving the quotas. Nevertheless, in my view, the chronology advocated above requires no correction. First of all: a half is by far a more illustrative concept than a quarter, which presupposes a twofold halving. Then: the beginning of coinage in Rome lies relatively late. The older marking for the half-pound, both in Sicily and, for example, in Etruria, consisted of six dots; only later does a halving sign appear[65]. Further: indicating the

[58] Thus it is missing in Varro L. L. 5, 172, who knows only *dodrans* etc. As a technical term of small-change reckoning it is likewise not encountered.

[59] See above note 36.

[60] An exception to this rule is made only by late antique weights. Characteristic is also that the Greek-inscribed weights designate the Quadrans throughout as τριούνκιον Ἰταλικόν: IG XIV 2417, 20 (more precise find-spot unknown); Pernice, Griech. Gewichte No. 638 (FS. Athens). 712 (FS. ?). 712a (FS. Constanța). E. Michon, RevNum 1913, 314 No. 5 (FS. Ionopolis on the Black Sea). In the 4th century A.D. there are Quadrans weights that bear the value mark *VNCI III* or *VN III*. Such pieces by no means come only from the East.

[61] Cf. above p. 52 f.; Regling in Wörterb. d. Münzk. s. Wertbezeichnung. Among the other Greeks, coins with value indications are quite rare. Where they appear, they are mostly abbreviations.

[62] Admittedly, there was also in Greece in some places — thus in Athens — a numeral system related to the Roman one. It is incidentally encountered already on the Minoan clay tablets of Crete, and is therefore, as is only to be expected, the original procedure. Characteristically, variously constructed numerical alphabets appear alongside it already in early times, until sooner or later the so-called Milesian numerical alphabet prevailed everywhere. On this see W. Larfeld, Griechische Epigraphik[3], Munich 1913, 194 ff. 290 ff.; F. Bilabel, RE 2 A, 2, 2288 ff. The writing IIIII instead of VI is found not infrequently in inscriptions of the Seviri Augustales.

[63] With such a time of origin it would also be reconcilable that Varro 5, 172 calls the formations *bes, dodrans, dextans, deunx*, which incidentally make no old impression but rather seem artificial, *obscuriora*.

[64] On the beginning of Roman coinage, see the literature overview already cited in Thomsen, Early Roman Coinage I 210 ff. — It may nevertheless be mentioned that *S* can also be resolved as *selibra*.

[65] See e.g. Head 118 ff. The halving sign, however, does not by any means prevail everywhere, so that we still

number of ounces by dots was still practical up to the six-ounce piece, i.e., the value could be read off at a glance. If one wanted to remain illustrative beyond that, one had to introduce a halving sign, to which the number of ounces exceeding six was added by a corresponding number of dots[66]. That this likewise "six"-meaning simpler halving sign rapidly displaced the old more cumbersome designation is understandable. Finally, let it be pointed out that the Roman — probably Etruscan-derived — numerals are constructed on exactly the same principle: the numerals 1–4 are indicated by a corresponding number of strokes, there follows a halving sign, the sigla V, 6–9 are then formed by the halving sign plus the required number of strokes. Formulated differently, this means: the modes of designation of the Roman numeral and Libra-Uncia systems differ only in that the former is constructed decimally, the latter duodecimally[67]. The special position of the concept "half" should thus be proven. Therefore one will not be allowed, from the — as stated, not even quite certain — early occurrence of the Semis to infer a general use of the dividing principle in this period.

The conclusions drawn above can thus stand. As the result of the investigation the following can be formulated: the custom of designating two, three, four ounces as a sixth, quarter, third is encountered in Sicily already in the 5th century B.C., whereas in Rome it can be securely attested only at the end of the 2nd century. On the other hand, Pliny reports that for *quadrans* = quarter, thus three ounces, one formerly said *terruncius*. In fact, this word is already attested around 200 B.C. *Nonuncius*, formed on the same, ounce-counting principle, must likewise be old. Likewise, the value indications on coins, weights etc. always show the additive and not dividing mode of designation. The same illustrative trait is betrayed by the Roman numerals. In the course of the 2nd century, coming from Sicily, the dividing principle largely displaced the counting one. The Semis, formed according to the former, however, has been native in Rome for considerably longer. The consequent inconsistency in the early terminology owes its origin to practical considerations. Here too, beside other things, the numerals above all offer an exact analogy.

find late Hemilitra with six dots as value mark. For Etruria see E. J. Haeberlin, Aes grave, Frankfurt 1910, 252 ff. 271. There, there are very different principles of arrangement for the value-globules. As halving signs appear), (, ⌣, ⌢, see Haeberlin 243. 246. 250 ff. The observations noted in text and footnotes are also to hold for the weight system. Since, however, we have no inscribed weights unambiguously assignable to the Republic, the coins are here given precedence.

[66] This necessity, admittedly, did not exist for the coins — *bes, dodrans, dextans* (and also *quincunx*) notoriously appear only late and only sporadically in Roman coinage — but for the weights and length measures designated in the same way. Bookkeeping will also have played a role. Outside Rome the Etruscan asses of the series Wheel — Wheel and Wheel — three crescents (Haeberlin 254. 271) form an exception, since they bear 12 dots as value mark. However, no *septunces, besses* etc. were issued, so that one would not all too lightly infer everyday practice. Striking, however, is the fact that the As is there understood as a unit of 12 smaller units, thus from the ounce.

[67] If the sigla V actually represents, as is often assumed, the spread fingers of a hand, the illustrative trait emphasized several times would be even better preserved. That the underlying principle presents nothing new has already been indicated in note 62. Thus in Athens one used instead of V: Π, that is, the initial letter of the corresponding numeral word. If S were an abbreviation of Sexuncius or similar, there would lie herein an immediate parallel.

