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**Silver and Bronze: Cross-Cultural Currencies in Italy and Sicily**

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SILVER AND BRONZE: CROSS-CULTURAL CURRENCIES IN ITALY AND SICILY

by

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Matri et patri
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The monetization of Sicily took the form of an integration of native and Greek traditions of wealth and exchange. The Bronze and Iron Age indigeni of Italy and Sicily used weighed bronze – raw, ingots, and objects – as proto-monetary currency. When the Greeks arrived in the eighth century B.C., they introduced Greek weight standards, and were in turn introduced to native ones. This cultural contact sparked a series of assimilations, adaptations, and adjustments of both the Italic and Greek systems. When silver Greek-style coinage appeared in Sicily in the mid-sixth century B.C., 0.8 grams of silver seems to have equaled one litra of bronze, weighing 315 grams. From the beginning of Sicilian coinage silver litrai were issued alongside traditional Greek obols, even at Greek poleis like Himera. The silver litra and the obol were similar in weight, and either one could have served the same economic need for fractional silver. The litra was preferred, however, and in many places replaced the obol altogether. By the fifth century B.C. the silver litra was fully assimilated into the Greek-style coinage system as a fraction of the drachma, suggesting a strong cultural preference for the native standard. Indigenous communities like Morgantina minted silver litrai in the Greek style, representing a native adoption of Hellenic practice. Greek cities like Acragas and Selinus
recognized the native preference for bronze, and produced cast trade coinage inspired by Italic
tradition. These Sicel silver litrai and Greek bronzes may represent two faces of a mutually
beneficial currency. The Sicilian litra was also present from the 6th century B.C. at the Etruscan
coastal city of Vetulonia, a crucial hub of the metal trade with Southern Italy and Sicily, again
probably for commercial purposes. The earliest Etruscan silver coinage from 5th century
Populonia was based on the Sicilian litra. The Romans, too, adopted silver coinage on the litra
standard from the Greeks, though under different circumstances. No matter the individual
circumstances of these monetary changes, whether born of native identity or Greek
accomodationism (or both), they paint a complex picture of colonial and postcolonial
populations attempting to coexist, cooperate, and prosper.
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I. INTRODUCTION

It has long been accepted that the indigenous inhabitants of Bronze and Iron Age Italy and Sicily exchanged bronze objects as a proto-monetary currency.\(^1\) Ingots, tools, and scrap were hoarded as wealth and traded by weight, eventually coming to be reckoned against a variety of regional standards, including the Sicilian litra and the libra of the mainland.\(^2\) This indigenous bronze system – which persisted in some regions well into the middle Republican period – had a strong influence on the monetization of Italy and Sicily. Greeks and indigenous Italians had been in contact for at least three centuries before the advent of coinage, and so had plenty of time to become accustomed to one another’s weight standards and proto-monetary practice. The earliest evidence for the direct equivalence between the Italic bronze and Greek silver tradition may come in the form of a small hoard at Acragas containing a pellet of silver and a silver figurine on the litra standard, dated to between 750 and 660 B.C.\(^3\) The hybridized currencies which emerged from this intercourse speak to the great diversity of both Greek and native tradition, and to the strong cultural and economic links between Italy, Sicily, and the Aegean from the Bronze Age through to the Roman consolidation of power during the last few centuries B.C.

With the introduction of Greek-style coinage to Sicily in the sixth century B.C. the litra took on new significance as a small silver coin equivalent in value to the native bronze measure.\(^4\) Silver litrai were often issued alongside more traditional Greek fractional denominations such as the obol.\(^5\) Despite variations in weight among obols on the traditional

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\(^1\) Burns (1927: 18; 47); Cocchi (2001: 130).
\(^3\) Seltman (1955: 72).
\(^4\) Burns (1927: 47; 225).
drachma-based systems – a result of differing Greek regional standards\(^6\) – these silver litrai remain fairly consistent. This suggests that they were initially based on another standard, unaffected by the variability among the traditional Greek standards. It seems that in some cases there existed a two-tiered currency: one on the native weight standard and one on any one of a range of imported standards.\(^7\) The Italic bronze tradition was therefore significant enough to entail a widespread native modification of the Greek silver monetary system.\(^8\) Italic bronze was in turn inspired by Greek silver. The continued use of the Italic bronze standard suggests that indigenous identity and proto-monetary practice played an important role in the monetization of Sicily.

In addition to the litrai of the colonial Greek poleis, Sicel centers in the interior issued limited runs of silver litrai during the fifth century.\(^9\) These issues are inspired by Greek coinage, but are minted on the local litra standard and often bear elements of Italic or Sicilian iconography. Such coins represent a nuanced native adoption and adaptation of Hellenic cultural modes, and reflect the indigenous Sicel interest in dealing with the Greeks and perhaps also in representing themselves as Hellenized.

The emergence of Sicilian bronze coinage in the mid-fifth century – the earliest in the Greek world\(^10\) – is remarkable and must be associated with the long regional tradition of bronze currency. Of particular interest are the large cast bronzes of fifth century Acragas, Himera, and Selinus, as well as fourth century examples from indigenous towns in the interior.

\(^7\) Kraay (1976: 230).
\(^8\) Jenkins (1975: 78).
\(^9\) *Ibidem*.
These coins are similar in form to the Italic *aes formatum* and *aes grave*, respectively.\(^{11}\) Though these Sicilian pieces recall the indigenous ingot tradition, they are clearly influenced by Greek coinage, and embody the complex articulations engendered of cultural contact.

Traditional scholarship has fallen short in the interpretation of these early bronzes. Kraay, for example, explains away the remarkable advent of bronze coinage by simply stating that they were more convenient than small silver coins, which were easy to lose.\(^{12}\) This is an unconvincing case. Nor does Finley’s argument that coinage was purely political in motivation sufficiently explain the complex process of the post-colonial monetization of Sicily. The later Sicel and Sicanian coinage in particular has been interpreted as merely a statement of local sovereignty – as with coinage in general\(^ {13}\) – but I shall further argue that they and their predecessors provide evidence for more complex and nuanced cultural, economic, and political interactions.\(^ {14}\)

The cast bronze coins of the fifth century produced in the coastal poleis suggest a Greek attempt to cater to the tastes of indigenous Sicilians. The motivation was probably commercial, perhaps to facilitate trade. It may be that the Sicel litrai and these early cast bronze coins of some Greek cities represent two faces of a mutually beneficial trade currency. Later cast coins from the fourth century indigenous centers represent a strong, self-conscious expression of Sicilian identity and a reappropriation of native tradition through the framework of Greek monetary practice. These large cast pieces can be distinguished from the

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11 Tribulato (2012: 175).
14 Papadopoulos (2002: 23). Papadopoulos presents a novel and important discussion of Achaean colonial identity as constructed and expressed through coinage in South Italy. The theoretical framework of my paper is indebted to Papadopoulos’ article and its appreciation of coins and currency not just as iconographic expressions of sovereignty or autonomy, but also as nuanced and multilayered indicators of cultural identity.
contemporary smaller struck bronze of the more Hellenized poleis, which are clearly fiduciary.¹⁵ Not only are they iconographically and conceptually associated with Italic identity, but they may also represent the persistent cultural preference of hybrid or indigenous Sicilians for a commodity currency on the bronze litra standard. The reduction in bronze standards and the emergence of fiduciary bronze coinage is a complex issue, and beyond the immediate scope of this discussion. Perhaps economic exigencies trumped tradition and precipitated the change. Suffice it to say that despite the increasingly fiduciary nature of bronze issues in general, heavy bronze coins remain a loud assertion of native identity in colonial Sicily.

The Etruscans too modified their traditional metrological systems and assimilated new weight standards in the context of cultural interaction. Weights from the sixth to the first centuries B.C. at Vetulonia indicate the presence of a middle-weight libra that is unique in Etruria but similar to the Sicilian litra, and possibly intended for commerce.¹⁶ Early Etruscan silver coinage was also inspired by Greeks or Hellenized peoples in Sicily and Southern Italy, and it too may have been intended for trade (though it does not seem to have caught on). The earliest Etruscan issues, from fifth century B.C. Vulci and Populonia, are on the same Chalchidian standard in use in Sicily at Naxos, Himera, and Zancle. Naxos and Zancle are on the straits of Messina, the main North-South passage accessing the Tyrrhenian Sea, and Himera is on the north coast of Sicily, with easy access to the metalliferous coasts of Tuscany. All three cities were therefore well-placed for the trade in metals with Vulci and Populonia, which may explain the use of the shared Chalcidian standard. By the fourth century, Etruscans were minting silver litrai which appear to be linked to the native bronze libral standard. This

¹⁵ Tribulato (2012: 175).
further strengthens the argument that such a development – the introduction of a silver coinage associated with the local bronze tradition – would have appealed to native Italians.

The Romans shared the Italic bronze tradition, and only adopted the Greek fiduciary bronze and silver coinage in the late fourth century. The historical and literary narrative firmly places the Roman exposure to Hellenic luxury – and with it, silver coinage – in the context of Rome’s campaigns against Hellenized southern foes, most famously Pyrrhus of Epirus. The archaeological and numismatic record confirm the traditional account. The Roman adoption of coinage is therefore quite different than the adoption of coinage in Sicily, Magna Graecia, and Etruria. In the Romans’ case, Greek-style coinage was not adopted in the face of widespread Greek colonization of their homeland and the emergence of dominant Hellenic cultural centers, as it was in Sicily and Southern Italy. Nor was coinage adopted as part of a local development of currencies for trade with Greeks and Hellenized peoples, as it was in coastal Etruria. Roman coinage began not at home, but rather in Hellenized Campania: it was therefore a pragmatic solution to a local, southern problem, most probably associated with military expenditure during the Roman expansion of the late fourth century B.C. Despite these differences, Roman numismatics provides valuable comparanda for the adoption of Greek-style coinage by an Italic people accustomed to the exchange of bronze ingots and objects by weight against a libral standard.

Early Roman currency was varied and regionally specific: bronze fiduciary struck coinage, silver Greek-style coinage, round cast bronzes (aes grave), and bronze alloy currency (aes signatum) all coexisted during the first half-century of coin production. Rome’s earliest Greek-style issues were ad hoc solutions to regional exigencies in Magna Graecia. The first Roman silver coin, the Mars/horse’s head didrachm, was probably minted in Campania on a
Greek standard that was divisible by the Sicilian litra. This didrachm was accompanied by a small silver fraction which is variously identified as a litra and an obol. Whatever the case may be, it seems that the earliest Roman silver coinage was minted on a flexible, internationally accepted Greek silver standard that could potentially be linked to the native libral tradition.

Aside from the Greek-style silver and fiduciary bronze issues in the south, the Romans also produced cast coinage on the native libral standard. The aes signatum bars ceased in the mid-third century, but the more coin-like aes grave persisted until the late third century and shows a strong local preference for the bronze-based tradition well into the mid-Republican period. These issues end during the Second Punic War, to be replaced by the denarius sometime before 211 B.C. All of these early developments in Roman coinage can be traced to the exigencies of interaction with the Greek world, in particular with the Hellenized and hybridized communities of Sicily and Southern Italy.

During the early stages of the long process by which the Italic peoples of Sicily adopted Greek-style coinage from the fifth to the third centuries B.C., coins reflected an “assimilation of local reckoning in bronze to imported systems of reckoning in silver.”\(^\text{17}\) The pattern varies according to the local conditions of contact between Greeks and native Italians. Colonial encounters often engender changes in economic and cultural practices.\(^\text{18}\) In the case of Sicily and South Italy, the tension between traditional practice and the innovation resulted in new forms of currency suited to particular local exigencies. In general, however, these developments speak to the recognition of the Greek cultural preference for silver coinage on one hand and the Italic preference for bronze on the other, and suggest a significant attempt

\(^{17}\) Crawford (1985: 1).
\(^{18}\) Dietler (1997).
at coexistence and a keen interest in commerce.\textsuperscript{19} These hybrid currencies reflect a complex interaction shaped by economic needs, cultural preferences, and political realities.

\textsuperscript{19} A caveat: much of our evidence lacks good provenance and archaeological context, on account of the primarily antiquarian interests of the early excavators to whose efforts we owe most of our material (Santangelo (2008: 293)). It is therefore difficult to reconstruct the circulation and distribution of these coins and ingots, no doubt necessary for a complete understanding of their economic, political, and social role. I hope to significantly widen the scope of evidence for this project in the future.
II. INGOTS AS CURRENCY IN SICILY AND ITALY

The archaeological record indicates a long regional familiarity with bronze and copper ingots, which are present in many Bronze Age hoards. Among the earliest examples in Sicily are the likely Cypriot ox-hide ingots – or fragments thereof – from Thapsos, Canatello, and Lipari (ancient Lipara). These ingots served as more than just the raw material for metal objects: they were traded across the Mediterranean as currency. These may represent a transitional stage, between a reckoning in livestock and a monetary currency, expressed as a figural representation of an ox-hide in copper.

The archaeological record suggests that the wide-ranging, eastern-oriented sphere of exchange collapsed during the upheavals of the thirteenth and twelfth centuries B.C. It appears that long-distance trade from the Aegean to the Western Mediterranean was interrupted by the complex series of events associated with the fall of the Mycenaean political system, the depredations of the Sea Peoples, and the possible migration of new groups of humans into the Mediterranean basin. These changes were felt as far away as Italy and Sicily, and the latest Bronze Age hoards indicate the emergence of a new, western-oriented metallurgical \textit{koiné}.

The Lipari hoard is the largest Bronze Age hoard yet found in Italy. It was discovered on the eponymous Aeolian island off the northeastern coast of Sicily, in an occupation level associated with an Ausonian village. The Ausonians, an Italic people probably from Campania,

\footnotesize

\begin{itemize}
  \item[\textsuperscript{21}] There is lively scholarly debate as to whether the ox-hide ingots should be considered a form of currency. Whether or not their primary function was as a repository for raw copper, their use as a medium of exchange prefigures the later role of ingots and coinage. Cf. Schaps (2003: 231-232), for a more conservative treatment. Schaps is correct to deny that ox-hide ingots functioned as “early coin[s]” – for coins they are not – but in my view he underestimates their potential as currency. Schaps denies that their shape is related to oxen.
  \item[\textsuperscript{22}] Burns (1927: 15).
  \item[\textsuperscript{23}] Giardino (2000: 102).
\end{itemize}
occupied Lipari following the destruction of the villages of the native Milazzese culture (similar to the Thapsos culture of Sicily). As observed below, the archaeological record appears to corroborate the historical narrative of Bronze Age Italic migrations into the Aeolian islands and Sicily.

The hoard was in a large terracotta vessel buried in the floor of the largest structure of the Late Bronze phase II settlement, suggesting an élite “accumulation of capital” similar to Proto-Villanovan deposits on the mainland. The structure itself is built in the distinctive mainland style, confirming the cultural connection to the Italian peninsula. The hoard represents a significant store of wealth, totalling 75 kilograms of bronze, 77.9 percent of which takes the form of ingots. These include fragments of the abovementioned oxhide ingots and of plano-convex ingots. The latter, so-called “bun” ingots, are hemispherical on one side and flat on the other, and are common among Italian hoards. Cast rejects, slag, and a mold attest to the presence of foundries on the island, and a mix of Italian and Sicilian types among the objects confirm the existence of a koiné of metal circulation and exchange by at least the Late Bronze Age.

The Castelluccio hoard, from the southeastern corner of Sicily near Camarina, also bears evidence of these new ties with the Italian peninsula. The relatively recent discovery (1978) and rapid professional intervention provide a secure provenance. The collection of

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24 Typical of Italic hoards of the period: Piediluco (Umbria), Santa Marinella (Etruria), Monte Sa Idda (Sardinia). See Di Stefano and Giardino (1994: 498); Fugazzola Delpino (1975: 43).
26 Giardino (2000: 100).
28 Giardino (2000: 101). Italy and Sicily were also intimately connected with central Europe and the Aegean through the long-distance metal trade.
29 Di Stefano and Giardino (1994: 496-497). A farmer happened upon the hoard just beneath the ground as he ploughed his field on a low plateau on a bend in the Irminio River, called Castelluccio for its natural rocky defenses. He considered the objects of little importance and continued, unperturbed. Having finished plowing
objects – including ingots, axes, spearheads, blades, utensils, ornaments, and fragments of bronze vessels – was deposited in the ground in a large terracotta vessel. Excavators recovered 30 kilograms of bronze from the site, though the original hoard was probably twice as large: the amateurs who initially dug the site had abandoned a number of ingots as worthless, and despite later attempts these were never located. These may well have included the unremarkable lumps of bronze analogous to *aes rude* which were traded as currency and as raw material by weight.

The stylistic typologies of the weapons and tools suggest a western sphere of exchange and a close connection to the Italian peninsula and to the West. One of three diagnostic sword-handle fragments pertains to an Italian type of *spada a lingua* attested in mainland tombs at Torre Galli and Roccella Ionica in Calabria, in the hoard of Contigliano in central Italy, and in the hoard of Modica in Sicily. The other two sword handles are probably Iberian, of the Huelva type. Parallels in Italy come from Siniscola and the hoard of Monte Sa Idda in Sardinia and the hoard of Santa Marinella in southern Etruria. Among the axe-heads with a single eyelet, we find parallels at Palermo and in the hoard of Tolfa in Lazio. These are just a few examples of objects that suggest a close connection with mainland Italy.

The heterogeneous assemblage of this hoard and the objects’ varying states of preservation – whole objects, broken objects, objects out of use, and scrap – suggests an

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32 Di Stefano and Giardino (1994: 530-531). For Modica, see Orsi (1900: 169); for Contigliano, see Carancini (1979: 639).
33 Di Stefano and Giardino (1994: 531). For Palermo, see Bernabò Brea (1953-54: 213, fig. 31); for Tolfa, see Carancini (1979: 635).
accumulation of items that could serve both as a means of exchange and as raw material for production. The hoard dates to the ninth or tenth century B.C. and is strongly representative of the dynamic cross-cultural contact typical of Sicily in this period.\(^\text{34}\) One full plano-convex ingot and five fragments were recovered; these represent the most common form of raw metal at Castelluccio by weight.\(^\text{35}\)

The plano-convex ingot is common among Sicilian hoards of the period, including that of Adranon, near Mendolito. This hoard is dated sometime between the ninth and the seventh centuries B.C. and presents a similar assemblage.\(^\text{36}\) Like the hoards at Lipari and Castelluccio, the items were deposited in a large terracotta vessel, in this case a *pithos* of considerable size. At 800 kilograms of bronze, it is by far the largest Iron Age hoard ever found in Sicily, with scrap bronze and bun ingots representing 660 kilograms of the total weight.\(^\text{37}\) Many of the ingots incorporate half-melted objects like bracelets and fibulae, and are of fairly standard sizes.\(^\text{38}\) This, along with the strong archaeological evidence for both the hoarding of scrap and the existence of fairly precise scales from at least the Middle Bronze Age, suggests that metalworkers were weighing out objects for re-melting into ingots of roughly standard weight.\(^\text{39}\)

\(^{34}\) Di Stefano and Giardino (1994: 498).


\(^{36}\) Unfortunately, our provenance for this hoard is less than ideal, as it was excavated in 1908 and subsequently dispersed on the market. We are in debt to Paolo Orsi – as indeed we so often are – for the recuperation of the greater part of these objects, as well as their curation at the Museo Paolo Orsi in Syracuse.

\(^{37}\) Bernabò Brea (1958: 194).


\(^{39}\) Paolo Orsi discovered fragments of precision scales in tomb 22 at the necropolis of Castelluccio, which dates from between 2300 and 1500 B.C. Cardarelli *et al.* (2001: 35). For a thorough treatment of weights and weighing in Bronze Age Europe, see Pare (1999).
Luigi Bernabò Brea, in his classic work on pre-Greek Sicily, characterizes these bronze hoards as representative of an age-old system of organized trade in metal, based not only on bronze’s utility as a raw material but also upon its value and convenience as a means of exchange. He suggests that these bronze objects represent a transitional stage between the Neolithic trade in stone tools and later monetization on the Greek model, analogous to the *aes rude* of the Italian peninsula. The mainland comparanda seem to support this interpretation of hoards as multifaceted assemblages of objects which could either be used, hoarded as wealth, or exchanged as a sort of pre-monetary currency by reckoning the weight of the a given object (or group of objects) against a given metrological standard.

Fugazzola Delpino hypothesizes the existence of various types of hoards: metalworkers’ hoards of raw materials, new or unfinished objects, and objects to repair; smelters’ hoards of ingots, rough lumps of metal like *aes rude*, and offcuts and fragmentary objects destined for the kiln; and merchants’ hoards, which might serve the dual purpose of gathering old and broken objects for smelters, as well as distributing new objects into circulation. Some itinerant artisans or merchants may have had networks of hoards located along their habitual paths and circuits. That is not to say that all hoards fall into one of these categories. Some individuals or groups of people may have fulfilled all three roles – smelter, artisan, and “merchant” – and therefore would have deposited rather heterogeneous hoards.

In all of the above cases, the hoards represent a real accumulation of wealth.

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41 Fugazzola Delpino (1975: 44).
In Sicily, bronze ingots are also found among votive deposits both at hybrid/indigenous sites and at sanctuaries associated with Greek cities. A raw ingot of *aes rude* was discovered in the temple structure at the thriving Iron Age Sicel town of Sabucina, overlooking the Himera river near modern Caltanisetta. It was found in a niche, part of a deposit that included native ceramics, an iron knife, and a Greek crater.44 Three discoid fragments dating between 570 and 540 B.C. were found among the offerings at Bitalemi, the extra-urban sanctuary of Demeter east of Gela.45 The context as a sacral offering emphasizes the intrinsic value of the metal and is a further indication of its function as a medium of exchange.46 The dedication of obeloi (in their original form as bronze, copper, or iron spits) in mainland Greek sanctuaries parallels this Sicilian exemplum and further strengthens our interpretation of these objects as an intrinsically valuable form of wealth. Iron obeloi were also included among the grave goods of a tomb at Argos.47

A fragment of a Central Italian *aes signatum* also found at Bitalemi and also dated to the sixth century B.C. seems to support this interpretation. The ingot, roughly half of which is preserved, bears the *ramo secco* motif common among early Italic ferruginous *aes signatum*.48 Such ingots are found throughout Italy, but are concentrated in Etruria and in the Etruscan area of the Po Valley.49 *Ramo secco* fragments have also been found at Teramo in Abruzzo, at Todi in

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46 Sole (2009: 467-468): “Certamente la funzione monetale non può essere attribuita indiscriminatamente ad ogni tipo di materiale metallico messo da parte ed assemblato, ma il contesto di rinvenimento può indirizzare l’interpretazione. Soprattutto nei casi in cui queste riserve metalliche si configurano quali offerte alla divinità… non può non essere evidenziato il valore intrinseco del metallo, quale bene di pregio degno un’offerta votiva, nonché la probabile e conseguente funzione di mezzo di scambio che esso avrebbe potuto ricoprire unitamente alle altre funzioni, anche contemporaneamente all’introduzione della moneta.”
47 Courbin (1956: 167).
Umbria, on the Via Tiberina and at Ardea in Latium, at the Fucine Lake in the territory of the Marsi, and at Pontecagnano and Stabiae in Campania. Another fragment comes from the hoard of Grammichele, in Sicily, excavated by Paolo Orsi.\textsuperscript{50} These early ingots could be broken into sections and traded by weight as \textit{aes rude}.\textsuperscript{51} The trade in \textit{ramo secco} fragments seems to have persisted down to the third century B.C., with examples found among the hoards of Vulci in Etruria, Ariccia in Latium, and La Bruna in Umbria.\textsuperscript{52} Besides emphasizing the strong economic and cultural bond between Sicily and the mainland, they confirm that ingots – and fragments thereof – circulated in both places as a form of currency.\textsuperscript{53} Standards, of course, varied regionally, and fragments of ingots would be weighed at the moment of transaction against a given standard.\textsuperscript{54}

As mentioned above, Etruria provides ample mainland comparanda for the exchange (and hoarding) of bronze ingots as pre-monetary currency. A fragment of bronze ingot, identified as a piece of \textit{aes rude}, was discovered in the ploughsoil at the Etruscan farm at Podere Tartuchino, 50 kilometers west-northwest of Lake Bolsena in southern Tuscany. The presence of such a fragment at an otherwise “austere” farm site might suggest that the ingot had been received as payment for agricultural produce, which if true could confirm its role as a medium of exchange.\textsuperscript{55}

Fragments of \textit{aes rude} have been discovered in all manner of archaeological contexts throughout the Po valley, including tombs, hoards, and urban and rural contexts.\textsuperscript{56} They have

\textsuperscript{50} Crawford (1985: 4-5).
\textsuperscript{51} Tribulato (2012: 173).
\textsuperscript{52} Crawford (1985: 4); for the third century hoards see Crawford (1969: nos. 10, 13, 16).
\textsuperscript{54} Maras (2013: 487).
\textsuperscript{55} Perkins and Attolini (1992: 129; fig. 19.7). For more on their role as pre-monetary exchange, see Cattani (1987).
\textsuperscript{56} Cattani (1987: 208).
also been discovered at sites throughout the Albegna valley in southern Tuscany: at the city of Doganella, in the cemeteries of Pancotta, gli Sterpeti, and Campo delle Caldane near Saturnia, and the third century hoard near Talamonaccio.\textsuperscript{57} Literary evidence and their presence in tombs as offerings to Charon suggest a pre-monetary exchange role, and their presence in hoards suggests that they could function as a store of wealth. They have been interpreted as facilitating “exchange between the city, minor centres and country, as well as ritual obligations and the accumulation of wealth, from at the latest the sixth century through to the third century.”\textsuperscript{58}

Some 183 fragments of \textit{aes rude} were found in phases dating to the fourth century B.C. at the fortified Etruscan settlement of Ghiaccio Forte, near Scansano in southern Tuscany. These include three fragments of plano-convex “bun” ingots similar to those found at Bitalemi, Adranon, and Castellucio, a type popular throughout Italy.\textsuperscript{59} They were fairly uniform in their metallurgical composition, suggesting a deliberately mixed alloy. Researchers have interpreted the addition of lead as way to increase the ductility and malleability and therefore the divisibility of the metal.\textsuperscript{60} A thorough study of their weights has not revealed any clear evidence for the standard against which they were judged, but as mentioned above it is probable that these plentiful lumps of bronze were weighed at the moment of transaction.\textsuperscript{61}

A recently discovered sixth century B.C. shipwreck just off the coast of Gela may provide valuable new evidence for this native liberal standard. Among the cargo were 39 ingots

\textsuperscript{57} Perkins and Attolini (1992: 129); for Doganella, see Perkins and Walker (1990: 51-52, 72); for Saturnia, see Minto (1925: 641, 658, 680); for Talamonaccio, see Michelucci (1985: 141-142).
\textsuperscript{58} Perkins and Attolini (1992: 129).
\textsuperscript{59} Baldassari \textit{et al.} (2010: 2)
\textsuperscript{60} \textit{Ibid.} (4)
\textsuperscript{61} \textit{Ibid.} (5)
of a brass-like alloy of 75-80% copper and 15-20% zinc with traces of nickel, lead, and iron, identified by the excavators as orichalcum, making these extraordinary ingots unique in the archaeological record. Orichalcum is attested in literary sources and was later used during the Roman Imperial period in minting the sestertius and dupondius. According to Sebastiano Tusa, the excavator, orichalcum at the time of the shipwreck is attested archaeologically only in the form of decorative objects; thus he suggests that these ingots were intended as raw material for the workshops of Geloan artisans. The excavators believe that the ship may have been bound for Sicily from Greece or Asia Minor, and suggested that the orichalcum itself is of Cypriot origin.  

Though they remain unpublished, the weight of two of the regular, rod-like ingots are discernible in the press release photographs: 573 and 983 grams. These sums can be divided into two and three units of roughly 300 grams (286.5 and 327.7 grams, respectively). The average weight of the single unit of both ingots, then, is 311.2 g. This is remarkably close to Ridgeway’s hypothetical weight of the “original” Sicilian litra, 317.5 grams, based on a 300:1 value ratio of silver to copper. That said, Ridgeway correctly admits that given the speculative nature of the copper/silver equivalence ratio, any attempt to come to a definitive statement on the matter is problematic.  

Thorough analysis of old and new evidence, however, may change that. Maggiani, in his recent study on the Etruscan libral standard, identifies three different weight measures in

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63 Archaeology (2015). The photograph on the AIA website, containing all 39 ingots, suggests that they are quite regularly shaped and of fairly consistent sizes. Further research and a full range of weighed specimens are required. In any case they suggest the use of seemingly regular ratios/weight standards in the Archaic trade in metals.
64 Ridgeway (1892: 348).
65 Ibid. (347).
use from at least the fifth century B.C. to the third, based on his thorough statistical analysis of stone and metal weights: a heavy libra of 358.125 g., a light libra of 286.5 g., and, at Vetulonia, an additional medium-weight libra of 315.15 g. Archaic evidence for this mid-range libra comes in the form of two ingots found near the ancient site of Vetulonia, northwest of Grosseto among the metalliferous hills, only 13 miles from the sea near the iron-rich island of Elba. Vetulonia was prosperous, important, and ideally placed for the trade in metal between Etruria, Sicily, and Magna Graecia.

The first weight (Maggiani’s no. 8) is a steelyard balance weight with a spheroid body of lead and a bronze suspension ring, weighing 315.41 g. It was discovered in a late sixth-early fifth century B.C. occupation layer at Follonica, in the area of Rondinelli, near an area utilized for smelting iron ore from Elba. The second weight (Maggiani’s no. 9) is similar in shape and design, with a lead spheroid body and a bronze suspension ring, weighing 277.5 g. There are two large holes deliberately gouged from the body in ancient times with a cutting instrument. These may represent an ancient adjustment to recalibrate its weight standard. It comes from the occupation layer of a late Archaic Etruscan farm a few miles away at Pian d’Alma, dated to between the last half of the sixth and first half of the fifth B.C. Maggiani assigns the object two phases of use, with the first phase presenting the original, pre-modification weight of 317.9 g. The presence of a weight in a rural context may confirm the theory that in the Archaic period bronze circulated as a medium of exchange, and that aes rude might be weighed out on a farm at the moment of transaction, perhaps for the purchase of agricultural produce.

In 1893, Isidoro Falchi began excavations of a series of “Hellenistic” habitations in the northwestern area of Vetulonia. Among the finds were 14 stone weights.\textsuperscript{70} Of the six weights attributed to the Etruscan phase of the city, four were on the Vetulonian medium-weight standard of 315.15.\textsuperscript{71} The other two were on a south-central Italic libra standard of about 341 g., not known elsewhere in Etruria but attested at Marzabotto.\textsuperscript{72} The presence of this “Marzabotto” standard at Vetulonia suggests an interregional economic connection.

Most relevant for our purposes are the four weights on the medium standard of 315.15 g. Given the difficulties in reconstructing the stratigraphy, it is impossible to date these weights precisely. No. 1 is a lens-shaped disc of sandstone, somewhat chipped and damaged by fire, with a mark of value (II). It weighs 610.24 g., but Maggiani reconstructs the original weight as 626.06 g. No. 2 is a quadrangular piece of serpentine, weighing 157.84 g.\textsuperscript{73} Maggiani identifies weight no. 2 as “il piccolo cubo di pietra dura levigata” described by Falchi, found at the bottom of a well along with a broken bucchero bowl.\textsuperscript{74} This is the only piece of evidence which may assist in dating these weights.\textsuperscript{75} No. 3 is a cylindrical piece of sandstone, quite chipped, weighing 747.45 g. but reconstructed as 788.046 g. No. 4 is an irregular sandstone quadrangle, weighing 1540.5 g. with a reconstructed original weight of 1569.44 g.

These four weights – 157.85 g., 626.06 g., 788.046 g., and 1569.44 g., – represent denominations of 0.5, 2, 2.5, and 5 units respectively. No. 2 (157.85 g.) therefore represents half of a unit of 315.7 g., no. 1 (626.06 g.) represents two units of 313.03 g. each, no. 3 (788.046

\textsuperscript{70} Maggiani (2009: 137); Falchi (1895: 272 ff.)
\textsuperscript{71} Maggiani (2009: 141).
\textsuperscript{72} \textit{Ibid.} (144).
\textsuperscript{73} \textit{Ibid.} (139). For a detailed description of the method employed to reconstruct the original weights, see Maggiani (2002: 170).
\textsuperscript{74} Falchi (1895: 282).
\textsuperscript{75} Maggiani (2009: 144).
g.) represents two and a half units of 315.22 g. each, and no. 4 (1569.44 g.) represents five units of 313.89 g each. The average of these units is 315.15 g., which corresponds to the Archaic libral standard of the sixth-fifth century weights from Follonica and Pian d’Alma (see Table I for a comparison of all six Vetulonian weights). No. 1 (626.06 g.) is the only one with a marker of value, two parallel lines (II), which in this case confirms the interpretation as a two-libra weight. The unit divisions of these weights are similar to the denominations of Etruscan silver coinage found at nearby Populonia in the late fifth-early fourth centuries, including the unusual 2.5 unit denomination. This shared denomination is further evidence that the Etruscan silver coinage was based on this original native bronze measure as represented by these stone weights, and that, as in Sicily, native reckonings in bronze were being assimilated into Greek-style coinage.

The correspondence in weight and the proximity of their find-spots suggest that all four of these weights should be associated with the Vetulonian central authority. Maggiani suggests that this medium-weight libra may have existed for trade purposes. At 315.15 g. in weight it is very near both Ridgeway’s speculative estimate of the Sicilian litra (317.5 g.) and the average unit of the Gela ingots (311.2 g.). If indeed this mid-weight Vetulonian libra does represent a means of facilitating commerce, it may well be associated with the Sicilian litra standard, given the strong economic ties between the Etruscans and the metal-hungry inhabitants of Sicily and South Italy.

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76 Maggiani (2009: 143).
It stands to reason that those involved in the Etruscan metal production and export would make note of cultural preferences and tailor their trading practices accordingly. It is therefore likely that various foreign standards, like this possibly Sicilian middle-weight litra/libra, would have been used at Vetulonia. The Vetulonians would, after all, have been accustomed to the varied pounds of the mainland, if not an even wider geographical range of weight standards. The other two weights on the “Marzabotto” standard confirm the use at Vetulonia of external weight standards for commercial purposes. The metal trade certainly had a strong influence on the development of Etruscan culture and “its apparent openness to exotic influences and its cultural eclecticism, its tendency towards the creation of industrial-artisan and mercantile society, and its relative adaptability and tolerance of change in legal and intellectual ideas.” The presence of these foreign weight standards at Vetulonia highlights the significance of the metal trade to cultural interactions during this period. Trade attracted foreign technicians, workers, and entrepreneurs, which “must have given rise to a complex network of exchange.” Foreign weight standards must have accompanied this influx of foreign peoples.

Though the Geloan treasure probably represents raw material for production rather than a medium of exchange, the ingots could still potentially function as the latter, particularly in the Sicilian and Italian context where copper alloys were the standard. Whether used as raw material or as currency, these ingots may have been cast in preparation for trade, in such a way as to be easily integrated into the Italic litra/libra standard. The abovementioned presence of a medium-weight libra at Vetulonia, potentially tied to the Sicilian litra, may confirm such

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80 Ibid. (66).
practice. The Geloan orichalcum ingots may provide evidence for the contemporary Sicilian litra in copper or bronze, despite their extraordinary alloy. If this is indeed the situation, it would speak eloquently to the strong influence of regional cultural preferences on the Archaic economy.
III. THE SICULO-ITALIC STANDARD

The Greek word *litra* is of Sicel origin, and represents one of the most important indigenous Sicilian contributions to the Mediterranean world, spreading throughout the Greek-speaking world as a unit of measure and eventually giving rise to the modern liter.\(^{81}\) As we have discussed above, the *litra* was originally the native bronze weight, but is first attested in writing as value markings on silver coins: *AI* (litra) and *ΠΕΝ* (pentalitron). The word is cognate to the Italian *libra*, the indigenous unit of the mainland. Both derive from the proto-Italic form *leithā* or *litrā*, along with perhaps the Umbrian *nejrā*.\(^{82}\) Conceptually, the *litra* finds parallels in other coin names derived from original weight measures, such as the stater. These units take their names from scales or parts thereof: in the case of the *litra*, there is a possible etymological connection with the Greek verb λίθαzetai, the primary sense of which may be “to incline.” The term may have been associated with the slider of a steelyard balance, which are attested from the Bronze Age.\(^{83}\)

Linguistic evidence suggests that the word *litra* came from the mainland to Sicily either as an inherited proto-Italic form or as a later loanword from a peninsular language. The common historical use of the *litra* as a bronze weight unit and as a proto-currency supports this hypothesis.\(^{84}\) A crucial link between the *libra* and *litra* is the shared division – on the Tyrrhenian side at least – into twelve *unciae* or ὀγκεῖα.\(^{85}\) These Latin and Greek terms seem to be derived from the proto-Italic form *oinikiā*. This confirms that the connection was not

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\(^{81}\) Tribulato (2012: 170).

\(^{82}\) Ibid. (171).

\(^{83}\) Ibid. (172); Cardarelli et al. (2001: 35).

\(^{84}\) Tribulato (2012: 173).

\(^{85}\) Cocchi (2001: 130).
simply a lexical loan, but actually a shared weight system. There is a clear parallel between this shared linguistic system and the archaeological evidence for a common weight standard, upon which basis we can assert that the Italic *leiðrā/*oinikiā system dates at least to the beginning of the Iron Age. The historical record and the archaeological evidence of late Bronze/early Iron age Ausonian migrations are consistent with this linguistic connection. It may be that these mainland Italic peoples introduced their bronze tradition – including the ponderal system and associated terminology – to Sicily by at least the beginning of the Iron age.

Archaeological evidence – for example, the Ausonian village on Lipari with its associated bronze hoard – suggests the migration of mainland peoples to Sicily and the Aeolian islands during the late Bronze Age. Together with the linguistic evidence, it may confirm, in broad ethnographic outlines, the traditional ancient accounts of Liparus son of Auson and Aeolus, and their westward journey from Southern Italy to the Aeolian islands and their descendants’ subsequent expansion into Sicily. Indeed, “modern critical scholarship… appears increasingly inclined to accept that the legends may contain echoes of actual events, memory of which may have also been orally transmitted to Classical Greek historiographers and ethnographers.” These Ausonian tribes may be the ancestors of the Sicels, whose arrival in Sicily Thucydides (6.2) places three centuries before the Greeks, so around the eleventh century B.C. This is remarkably close to the date suggested by the archaeological record of the Ausonian settlement of Lipari.

86 Tribulato (2012: 175).
88 Ibid. (42).
IV. THE SILVER LITRAI OF THE GREEK CITIES IN SICILY

From the very beginning of silver coinage in Sicily we find litrai minted alongside the more traditional Greek fraction, the obol. This should not be surprising, as the Greeks had probably been accustomed to the Italian weight systems and vice versa since at least the middle of the eighth century B.C., with the foundation of emporia and apoikiai such as Pithecusae and Naxos and the subsequent settlement of Sicily and Southern Italy. The earliest evidence for a silver equivalent of the native bronze measure may come in the form of a hoard discovered near Acragas in 1913, consisting of a monetiform lump of silver weighing 5.19 g. and “a small silver figurine of “Phoenician” Egyptizing type approximately contemporary with the Fifteenth Dynasty of Egypt (750-660 B.C.)” weighing 15.8 g.\textsuperscript{89} Seltman, taking 0.86 g. as the standard weight of the silver litra, demonstrates that these abovementioned objects appear to be cast on the litra standard, the pellet weighing roughly six litrai and the figurine roughly 18 litrai.

Though many of the fifth century litra issues enumerated below weigh between 0.70 and 0.75 g., the earliest litrai of Himera average between 0.80-0.85 g. This heavier weight ought to be considered more representative of the actual value of the bronze litra in silver during the mid sixth century B.C., when the earliest silver litrai are minted. The reduction of average coin weight during the fifth century may in part be explained by Gresham’s law, i.e. that “bad money will drive out the good.” Accordingly, “good,” heavier litrai were more likely to have been removed from circulation through hoarding. Thus “a decline in the weight of a denomination

\textsuperscript{89} Seltman (1955: 72).
over time is a well-attested phenomenon.” Increasing our sample sizes and a more thorough statistical analysis may elucidate the situation.

Assuming, then, that the pellet and figurine in question adhere to the litra standard, Sydenham cites the tendency of ancient jewelers to make their wares on the local standard. Even if the artisan in question was a western Phoenician, the figurine would probably adhere to the Sicilian standard. Compare the Gela ingots: these were probably manufactured not in Sicily, but for trade with Sicily, and therefore may have been cast on the Sicilian standard.

Eventually, with the widespread adoption of the Attic-Euboic standard toward the end of the first half of the fifth century, the litra came to be worth one-fifth of a drachma while the obol was worth one-sixth of a drachma. This assimilation into a Greek system does not hold true for earlier periods, for example in the earliest coinage at Himera. Syracuse was the first city in Sicily to mint on the Attic-Euboic standard, and so her coinage is the first to integrate the litra as one-fifth of a drachma. It must be stressed that such a minor difference in denomination on this scale results in a weight difference so scant as to be almost negligible.

Indeed, if we follow Pollux’s citation (9.80) of Aristotle’s lost Acragantine Constitution, the litra was considered equivalent to the obol in the payment of fines. Whatever the theoretical or conceptual differences between the two coins, this passage suggests that by the relatively loose standards of the time these two denominations were, at least in some practical cases, essentially interchangeable. With the existence of relatively precise weights, we can assume that coins would often have been weighed, particularly at the moment of exchange or perhaps for

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91 Seltman (1955: 73).
93 Sandys (1910: 444).
separating out and hoarding the heavier coins. Heavier coins were preferable, and given the overlapping weight ranges it was possible that a coin worth less on paper might outweigh a coin different in type and nominally worth more, but practically worth less. This further strengthens the argument that the litra was a response to embedded cultural attitudes – for example the Italic preference for a system based on the native bronze unit – and not to any distinct economic or practical need that the obol could not satisfy.

The difference between the obol and the litra may be analogous to that between the standard U.S. silver dollar and the U.S. trade dollar of the late nineteenth century. At the time, the Spanish silver dollar was still one of the major international trade currencies, particularly in East Asia. Chinese merchants, who often accepted only silver as payment, were used to the Spanish dollars and their Mexican successors, and distrusted American silver dollars in part because they weighed 0.49 g. less than the Spanish or Mexican pieces. In response to this problem the United States began minting a trade dollar in 1873, which at 27.22 g. more closely approximated the weight of the Spanish or Mexican dollar. Leaving aside the vast political and economic differences between these two situations, there may be similar cultural motivations and preferences behind the need for a new or hybrid currency.

The litra therefore represents a minor, regionally specific modification of the Greek monetary system to account for the native reckoning in bronze. How this was done is not clear, but there must have been an important reason to justify the creation of a new coin that differed so slightly (in theory) from the traditional Greek fraction.\footnote{Jenkins (1975: 78).} Jenkins correctly links this to the early emergence of bronze coinage in Sicily as a function of cultural interaction. I argue
that these new currencies represent a clear attempt to facilitate trade and coexistence between fluid populations of Greeks, hybrid peoples, and *indigeni*. That the litra was initially associated with the bronze native unit is clear not only from its name but also from its fairly constant weight in the face of shifting Greek standards, at least down to the early fifth century.

Given that the difference in weight between litrai and obols is so small – indeed, so small that sometimes the ranges overlap – the two denominations were usually distinguished by iconography or marks of value such as pellets or letters. In the absence of definite marks of value, however, iconography alone is not sufficient to distinguish between the litra and the obol: our argument might thereby run the risk of becoming circular. It is therefore necessary to employ a variety of complementary methods by which to differentiate between the two coins. First of all, we must compare the weights and weight ranges of the coins themselves to the “ideal” weight standard, reconstructed from other coins and weights. We must also compare them to the indications of our ancient sources whenever possible.

Silver litrai are among the first silver coins minted in Sicily – at Naxos, Zancle, and Himera – in the mid to late-sixth century B.C., though Himera’s output far exceeded that of the two cities. They were minted on the Chalcidian standard, just like the earliest Etruscan silver coins. These early coins should, in theory, be most closely associated with the Archaic Sicilian bronze standard. These first silver litrai may provide the model and the standard for later issues – hence, perhaps, the litra’s consistency in weight compared to that of the obol, which depended upon the varying Greek regional standards.

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96 For my methodology I am primarily indebted to Maggiani’s treatment of the Etruscan libra (2002; 2009) and Kraay’s study of the Archaic coinage of Himera (1983).
97 Kraay (1983: 1).
The first issues at Naxos include a drachma on the Chalcidian standard weighing between 5.41-5.65 g., an obol valued at one-sixth of a drachma (0.95-0.98 g.), and a silver litra weighing 0.65-0.75 g. Clearly the litra was not yet assimilated into the Greek standard as one-fifth of a drachma; in fact, it is closer to one-eighth. Later, in 461 B.C., Naxos begins to mint on the Attic standard, under Syracusan influence. This issue included drachmas of 3.82-4.32 g. and litrai of 0.66-0.82 g. The situation at Naxos vividly illustrates the consistent weight of the litra in the face of the shifting drachma: the weight range of the drachma is reduced drastically by 26.5 percent while there is very little significant change in the weight range of the litra (from 0.65-0.75 g. to 0.66-0.82 g., negligible by the standards of the day).\(^{98}\)

Himera’s first coinage was also on the Chalcidian standard: a drachma of 5.12-5.99 g., an obol of 0.82-0.86 g., and a litra of 0.78-0.88 g., according to Parise.\(^{99}\) Kraay, writing some seven years later, gives slightly differing weight ranges for the Himeran fractions: 0.86-0.95 g. for the obol, and 0.76-0.92 for early litrai and 0.59-0.82 g. for the later ones (see Table II).\(^{100}\) Note the similarity in weight to the Naxian issues.

At Himera, the two denominations are distinguished by iconography: one has a hen on the reverse and a square incuse pattern on the reverse, while on the other a cock replaces the hen on the reverse. If we consider that at this time an obol was worth 1/6 of a drachma, then with the Chalcidian drachma of roughly 5.80 g. the obol would ideally weigh 0.96 g. Therefore, the heavier hen type must be the obol, given that its weight range is closest to the ideal obol; and the lighter type, with a cock, must be the litra. In short, if we apply Occam’s

\(^{98}\) Parise (1969: 120).
\(^{99}\) Ibid. (112).
\(^{100}\) Kraay (1983: 21).
razor, and take into account the Graeco-Sicilian cultural context, the simplest explanation for this difference in obverse iconography would be to account for two distinct denominations of very similar weight, the obol on one hand and the litra on the other.\footnote{Kraay (1983: 21).} This conclusion is borne out by comparison with the weights of later silver litrai at Himera and elsewhere, and again suggests a relative consistency over time on account of its original equivalence to the native bronze measure.

At Himera the obol is definitely heavier, showing that the litra has not yet been technically integrated into the Greek system as 1/5 of a drachma, which of course would result in a coin weight range exceeding that of the obol at 1/6 of a drachma. This is further evidence that the Himeran silver litra was originally equivalent to the native bronze weight measure. The Archaic coinage ceases with the expulsion of the tyrant Therillus by Theron of Acragas in 484 or 483 B.C.\footnote{Ibid. (3).}

The Himeran obol of the subsequent issue, which began production sometime after 484/483 B.C., bears a bearded and/or helmeted head on the obverse and either an Attic or Corinthian helmet or a pair of Greek-style muscled greaves on the reverse.\footnote{Poole (1963: 80; BMC 45).} The fundamental “Greekness” of the armor depicted is beyond debate, and may be associated with the victory of the Greeks over the Carthaginians at Himera in 480 B.C. The contemporary Himeran litra, however, depicts the foreparts of a monster with bearded human head in profile, a goat’s horns, a lion’s paws and the stylized curled wing of a griffin on the obverse. A naked youth
riding a goat appears on the reverse, with the legend HIMERAION. Such images more readily call to mind the Italic iconographic tradition than the Greek.

Between the last quarter of the sixth century and about 494/493 B.C., Zancle issued a drachma of 5.12-5.99 g., an obol of 0.84 g., and a litra of 0.71-0.76 g., again on the Chalcidian standard. The total range of these earliest litrai is 0.65-0.88 g. Following a brief period of Samian rule between 493 and 488 B.C., during which the city issued coins of a totally Ionian type which are of little relevance to this argument, Zancle was renamed Messana and in 480 began to issue coins on the Attic standard, pegged to a drachma of 4.02-4.07 g. Among these coins was a litra of 0.67-0.89 g. that appears to supplant the obol, and which has almost the exact weight range of pre-Samian litrai (0.65-0.88 g., as above). In all probability the obol and litra were interchangeable on a practical level, on account of their marginally different weights and the significant range of variation both within and between different issues. That a need was felt for both denominations, particularly during the early period, speaks to the importance of Greek identity on one hand and Siculo-Italic identity on the other. Note again the similarity and consistency in weight among the litrai of Naxos, Himera, and Zancle.

Syracuse minted on the Attic standard from its earliest issues, beginning in 530 B.C.: a drachma of 4.00-4.33 g., an obol of 0.60-0.77, and a litra of 0.71-0.89. Again, based on comparison with the “ideal” weight of the Syracusan/Attic obol of roughly 0.69 (1/6 of 4.17, the mean of the range given above) it is clear that the lighter series must be the obol – indeed,

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104 Poole (1963: 80; BMC 41-44).
106 Ibid. (115).
107 Ibid. (116).
108 As mentioned above, wide discrepancies in weight characterize ancient standards of measurement, even of this later period. Again, the scales used were relatively precise.
the ideal weight of 0.69 g. is exactly the mean of the range given above – while the heavier
series must be the litra. At Syracuse the two denominations are differentiated by iconography:
the lighter obol bears a wheel on its obverse, while the heavier litra bears a cuttlefish.\textsuperscript{110} The
identification is further secured by comparison to Archaic Athenian obols, which bear a four-
spoke wheel identical to those on the Syracusan examples on their obverse.

Acragas also minted on the Attic standard from the last decades of the sixth century
B.C. – didrachms of 7.59-8.97 – but only under the democratic government of the fifth century
did they begin to produce silver litrai of 0.47-0.89 g.\textsuperscript{111} We can securely identify the coins by
their legend, with \textit{AI} on the obverse of the litra and \textit{ΠΕΝ} on the obverse of the pentalitron.\textsuperscript{112}
It is possible that the integration of the native weight standard may be associated with the shift
in political power from a tyranny to a democracy. Given the (ideally) more egalitarian nature
of the latter form of government, the introduction of the litra may indicate a wider
involvement in civic life which perhaps included more indigenous or hybridized citizens. At
nearby Selinus they also minted Attic didrachms of 7.39-8.88 g. from the late sixth century to
467 B.C. alongside obols of 0.49-0.82 g. After 467, Selinus begins to mint a wider range of
silver coinage including litrai of 0.61-0.82 g., abandoning the obol altogether.\textsuperscript{113}

Gela’s first issues (group I), also on the Attic standard, date to between 490/485 and
480/475 B.C., and include didrachms of 7.60-8.95 g. and tetradrachms of 17.25-17.50 g. With
group II (480/475-475/470 B.C.) we see the introduction of fractional coinage, represented
by a very small issue of obols comprising only 13 extant examples weighing between 0.45 and

\textsuperscript{110} Seltman (1924: 8).
\textsuperscript{111} Parise (1969: 118).
\textsuperscript{112} Vecchi (2007: 88).
\textsuperscript{113} Parise (1969: 119).
0.75 g. Beginning with group III (465-450 B.C.) the obols are replaced by a much more numerous issue of litrai weighing between 0.40 and 0.90 g., comprising 128 examples (see Table III). At beginning of Geloan coinage we therefore see “a certain vacillation between the obol and the litra system of subdivision - a vacillation which was still in evidence at Syracuse after 474 B.C.”114 These litrai persist as the main fractional coinage of Gela throughout the fifth century.

Just as at Syracuse, the Geloan obol is distinguished by a wheel on the reverse, but with a man-headed bull on the obverse. The Geloan litra retains the iconic man-headed bull but replaces the wheel – iconographically linked to the Attic obol – with a horse.115 The horse is typical of Sicilian and Southern Italian iconography and therefore particularly well-suited to a coinage associated with the native bronze standard. Just as at Selinus, the obol is abandoned forever in favor of the litra during the mid-fifth century, suggesting a stronger demand for the latter. This streamlining further strengthens the argument that for all intents and purposes the obol and the litra were interchangeable in economic terms as fractional silver.

Camarina also minted coins on the Attic standard between 461 and 440/435 B.C.: drachmas of 3.93-3.96 g. and litrai of 0.61-0.89 g.116 Westermark and Jenkins give a wider spread for the weights of the litrai: 0.40-0.95 g. It is possible that Westermark and Jenkins had more specimens at their disposal, but the resolution of this inconsistency requires further research and must await a future iteration of this project. In any case, the similarity in fabric of the coins of Camarina to the litrai of Syracuse and Gela – flat and spread, rather than thick

115 Ibid. (pl. 12, 16-18).
and dumpy like the obols – confirms their identification as litrai. Just as at Gela, the majority of these litrai are between 0.70 and 0.75 g. (see Table IV). These coins bear Nike and a swan on the obverse and Athena on the reverse.\footnote{Westermark and Jenkins (1980: 24-26).}

In general, then, the litrai seem to remain somewhat more consistent in weight than the obol, though further statistical analysis of a significant sample size is required before we are able to make any definitive statement. From the corpus of data collected here, it appears that in the major Greek cities the weight of the litra remains unaffected despite significant changes among denominations issued and regional standards used.\footnote{See Parise (1969: 125-127) for illuminating charts.} This suggests that the litra was originally bound to a distinct local value not associated with any traditional Hellenic standard: the native bronze litra. If we take 315 g. as the Sicilian bronze litra and 0.80-0.85 as the average weight range of the early Himeran fractions, we arrive at a silver/copper ratio of 1:393.75-1:366.28. This averages to a ratio of 1:380, which is well within the realm of possibility. In Archaic Himera, then, it may be that roughly 0.85 g. of silver would have been equivalent to a bronze litra of about 315 g. As noted above, the tendency of the coin-weights of a given issue to reduce over time may help to explain the lower weights of later litrai.
V. THE SILVER LITRAI OF THE SICEL CENTERS

The Sicel adoption of silver coinage represents an important local appropriation of Greek cultural modes. Native identity was still strong enough in the fifth century – and beyond – for indigenous agency to play a major role in Sicilian history, as evidenced by the rebellion of Ducetius in the 450s and 460s (Diod. Sic. 12. 8 ff.) and later Sicel alliances with Athenian invaders (Diod. Sic. 13. 7). The minting of Greek-style silver coinage on a native weight standard suggests a certain level of cross-cultural trade and cooperation, especially when viewed alongside the cast bronze currency of Acragas and Selinus. Low numbers and limited distribution seem to confirm the function of the native silver litrai as a primarily local currency.\textsuperscript{119} Among the native centers to mint silver litrai in the late fifth century were Abakainon, Adranon, Enna, Entella, Eryx, Galaria, Hipana, Cephaloidion, Longane, Morgantina, Panormus, Piakos/Piakinos, and Stiela.\textsuperscript{120}

Morgantina was probably the first Graeco-Sicel city\textsuperscript{121} in central Sicily to strike coinage. The issue of these silver litrai, dated variously between 480 and 460 B.C., constitutes the first of three periods of activity at the Morgantina mint prior to the Roman conquest. A bearded male head with shaggy hair bound by a \textit{taenia} faces right on the obverse, surrounded by a beaded border, while on the reverse there is an ear of grain and the legend MORGANTINA in reverse.\textsuperscript{122} The head probably represents a local river-god, perhaps the patron-deity of the nearby Chrysas river (the modern Dittaino). The ear of grain refers to the famed wealth of Morgantina’s \textit{chora}. Their weight ranges between 0.45 and 0.90 grams with the average among

\begin{footnotesize}
\begin{enumerate}
\item[119] Jenkins (1975: 77-78).
\item[121] Kraay (1976: 238).
\item[122] Buttrey \textit{et al.} (1989: 5).
\end{enumerate}
\end{footnotesize}
22 known specimens being 0.66 grams (see Table V). This fits well within the expected range of silver litrai of the fifth century.

The appearance of this litra confirms both the importance of Morgantina during the first half of the fifth century and the increasing Hellenic influence – as paralleled in other aspects of the city’s material culture – beginning the sixth century. This issue probably antedates Ducetius’ capture of Morgantina in 459 B.C., which in itself is an indicator of the city’s strategic, economic, and political importance. It is unlikely that Morgantina would have produced such coinage in the direct aftermath of the attack.

The striking of Greek style silver coinage at a hybrid site like Morgantina suggests significant involvement within the Gracco-Sicilian economic sphere, in particular with the coastal poleis like Syracuse and Gela: indeed, early didrachms of the latter city, dated between 480 and 460 B.C., provide our closest stylistic comparanda. Of great significance is the stylistic similarity of the Morgantina litrai to the slightly later (possibly overlapping) Geloan litrai of 465-450 B.C.: If the dating is correct, this suggests a dialogue of influence beginning with early didrachms of Gela informing the litra of Morgantina, and the litrai of Morgantina perhaps inspiring the Geloan litrai of the same and slightly later period.

Enna is also among the important Graeco-Sicel centers in the interior that mint a Greek-style silver litra early in the fifth century. These coins, like those of Morgantina, have distinctly Sicilian iconography, in this case associated with the cult of Demeter and Persephone. The countryside of Enna was the traditional location of Persephone’s abduction,

123 Buttrey et al. (1989: 6).
124 Erim (1975: 69); Buttrey et al. (1989: 5).
125 Erim (1975: 70); Jenkins (1970: pls. 1-6).
126 Buttrey et al. (1989: 7); Jenkins (1970: pls. 16-18).
and these litrai confirm the importance of this legendary association. On the obverse Demeter drives a *quadriga* drawn by walking horses, holding ears of wheat, while on the reverse the same goddess stands before an altar with her left arm extended and a torch in her right hand. The legend on the obverse reads HENNAION. Of seven specimens, the weight of five is known, ranging from 0.62 to 0.73 grams. The average weight, therefore, is 0.67: remarkably close to the average litra of Morgantina (0.66 g.). These litrai also share a stylistic similarity to the Geloan litrai of 465-450 B.C.¹²⁷

Piakos/Piakinos, Galaria, Cephaloidion, Longane, and Entella all minted silver litrai as well, and have all been interpreted as strongholds of Sicel identity.¹²⁸ Of particular importance may be Piakos/Piakinos, which Jenkins tentatively identifies as Palike, Ducetius’ fortified capital and the site of an important Sicel sanctuary.¹²⁹ Silver coinage at Piakos is attested by six examples, three litrai and three hemilitrai.¹³⁰ If Piakos/Piakinos is indeed to be identified with Ducetius’ capital at Palike, this silver coinage provides strong evidence for the persistence of cross-cultural influences. This type bears a nymph’s head on the obverse with the legend ΠΙΑΚΙΝΟΣ, and the typical Sicilian butting bull on the obverse, with a fish in exergue and the legend ΑΔΡΑΝ.¹³¹ This would seem to indicate some connection between Piakinos/Palike and Adranon, the site of the aforementioned hoard of Mendolito.¹³² This suggests a longstanding tradition of wealth and importance at both Piakinos/Palike and Adranon beginning at least in the early Iron Age and continuing into the period of Greek colonization.

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¹²⁷ Jenkins (1975: 79).
¹²⁸ *Ibid.* (83-103); Cahn (1937).
¹²⁹ Jenkins (1975: 88); Maniscalco (2008).
¹³² Jenkins (1975: 90).
VI. EARLY BRONZE COINAGE OF SICILY

Let us now return to the first cast bronze coinage of Sicily, and indeed the first bronze issues in the Greek world. These appear at Acragas and Himera around 450 B.C. and at Selinus about a decade later. These bronzes come in a range of shapes – round, conical, tooth-shaped, and almond-shaped – and all bear between one and four pellets as markers of value. Those from Acragas are often unusually shaped, and depict the native river-crab on one side and an eagle on the other. The bronzes from Himera are monetiform, bearing a gorgon’s head on one side and marks of value on the other. Those from Selinus are also coin-shaped and bear various images including gorgoneia, the celery leaf of Selinus, and the heads of nymphs and of Selinus himself.

Kraay attributes the advent of bronze coinage to mere convenience, on account of the ease with which one might lose the tiny silver litrai. But if this were the case, then how are we to account for the persistent popularity and general use of small silver coins throughout the world over the last two and a half millennia? Furthermore, his vague and dismissive argument discounts the subtle social and cultural currents which inform numismatic choices. On the contrary, the introduction of this coinage served to satisfy specific local conditions favoring the native preference for bronze-based currency.

The largest of the Acragantine coins, the trias, is tooth-shaped, with a flat base bearing four dots. On one side there is an eagle facing left, and on the other a crab, beneath which appears the letter “A.” Two examples in the British Museum weigh 15.29 and 14.58 grams;
a specimen in the Yale collection weighs 17.14 grams, typifying latitude constituting weight standards in this period.\(^{137}\) The average weight of this small sample is therefore 15.67 g. The tetras is slightly smaller but of similar shape. The base has three dots; the two smaller sides bear eagles’ heads back to back, with an “A” beneath the left eagle, and the largest side, a crab. Both examples at the British Museum weigh 12.24 grams. The hexas, smaller yet and shaped like the tetras, has two dots, an eagle, and a crab, and weighs 6.8 grams. The smallest, the uncia, is almond-shaped, with an eagle’s head on one side and a crab’s claw on the other. It weighs a mere 4.79 grams.\(^{138}\) The large bronzes of Selinus are generally more coinlike in appearance, tending to be round, though there are triangular examples among the smaller denominations.\(^{139}\)

Bronze coinage took off among the poleis and cities of Sicily, and within half a century Syracuse, Gela, Camarina, Catana, Leontini, Messana, Naxos, Segesta, and more were all minting in bronze. A litra weighing between 70.02 and 108.27 g., the heaviest of all contemporary Sicilian cast bronzes, was produced at Lipara around 425 B.C.\(^{140}\) Over the next two decades, the weight of the Liparan litra coin would plummet to between 27.60 and 29.70g.\(^{141}\) This either represents a significant drop in the weight of the litra or a shift towards a more fiduciary currency and away from the ingot-like larger coins.

If we are to accept the traditional view, the Acragantine uncia, hexas, tetras, and trias represent one, two, three, and four unciae respectively, that is, varying fractions of a litra. The low weight of these coins may be taken to suggest that by 450 B.C. the weight of the bronze

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\(^{137}\) Yale 2004.6.43.
\(^{138}\) Poole (1963: 24).
\(^{139}\) Vecchi (1979: 42).
\(^{140}\) Crawford (1985: 345); see the website Magna Graecia Coins. Incidentally, the wide weight range of this Liparan litra is a good indicator of the relatively loose standards of the day, which must be always kept in mind when dealing with ancient numismatics.
\(^{141}\) Magna Graecia Coins.
litr had already decreased quite significantly.  

If we divide the higher denominations by the number of *unciae* they represent, we arrive at an average weight of four grams to an *uncia* of bronze. Multiplied by 12, this equals a litra of 48.48 g., remarkably close to Ridgeway’s estimate of 48.6 g., and much reduced from his estimated value of 317.5 g. for the original pre-Greek weight. 

Perhaps more plausible is the proposition that the new style of bronze money (as compared with the earlier ingots) is more or less fiduciary from the outset, with these cast bronzes being token representations of the full value of the bronze weight measure and/or of the silver coin. While it is the case that the weight measure itself does gradually decrease from the early fifth century, it seems unlikely that the situation was as drastic as the coinage seems to suggest, particularly the drop of the Liparan litra by almost 200% over only two decades. 

The reduction in weight of the litra was probably due to a complex combination of metrological and economic factors, including changes to the weight standard itself as well as prevalent trends toward a more fiduciary currency. The complex mechanics of changing bronze standards and the introduction of fiduciary coinage is not within the scope of this project.

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142 At some point during the fifth or early fourth century, Parise suggests that the weight of the litra was 109 grams, about one-third of the Roman libra (Parise 1979: 304). Scholars of the past century and more have made valiant attempts to ascertain the “original” weight of the native litra; I dare not try without much more time and a far wider range of weighed specimens at my disposal. See Ridgeway (1892: 347-348), as mentioned above, for informed speculations as to the weight of the litra at various times and in various places. See Parise (1979: 293-304) for a thorough treatment of the weight and subdivision of the bronze litra during the late fifth and early fourth centuries.

143 Ridgeway probably had the same British Museum specimens at his disposal.

144 Parise (1979: 297); See Ridgeway (1892: 347) for (hypothetical) weights of the bronze litra at various cities at various times.

Fluctuations in weight notwithstanding, these coins reflect the influence of Siculo-Italian identity and speak to the continued preference for large bronze among native and hybrid peoples. They were not simply produced because they were more convenient than small silver coins; more complex economic, social, and cultural factors were at work. It is no coincidence that both at Acragas and Selinus these large bronze issues follow closely on the heels of the first silver litrai: taken together they represent a clear push to create a two-tiered trade currency linked to the bronze standard that would appeal to the hybrid/indigenous peoples of Sicily. At Acragas in particular this may be associated with the installation of a democratic government, though more likely it is a function of Acragas’ increased contact and trade with the indigeni following the Greek victory over Carthage at Himera in 480 B.C.

Some have considered these Acragantine cast coins to be weights, but there is little evidence for this. First, our extant examples are uncharacteristically large for weights, though unfortunately most specimens are in private collections or on the market and have no secure provenance or archeological context. Secondly, they resemble contemporary Italic currencies that are certainly not weights, for the same reasons: large numbers and extensive distribution. I suggest that their resemblance to weights is directly linked to their function as a commodity currency. These cast bronzes are similar to the mainland aes formatum, which takes the form of teardrops, cockleshells, astragali, and walnuts, and which appear to correspond to a standardized weight system for each shape. These represent the precursors to the later aes grave, as well as an important connection between Sicily and the mainland. That these coins are isolated in Sicily gives further credence to the theory that they might represent some form of “frontier currency,” cast in a coastal polis for use in trade with the peoples of the interior. Acragas produced these coins only after the Carthaginian defeat at Himera, during a period of
relatively unfettered Greek territorial expansion that necessarily increased contact and interaction with indigenous communities. Alongside earlier silver litrai, these cast coins indicate a mutual recognition of monetary preference.\textsuperscript{146}

\textsuperscript{146} Tribulato (2012: 175).
VII. NATIVE BRONZE THROUGH A GREEK LENS: LATER SICEL AND SICANIAN ISSUES

Greek cities like Acragas, Himera, and Selinus likely produced these bronze issues in order to appeal to the native Sicilians with whom they traded. By the fourth century B.C., however, we see the emergence of a new type of cast bronze at Sicel and Sicanian towns. Though several communities issued these cast bronzes – Abakainon, Aetna, Adranon, Centuripe, and Herbessus –147 the most famous examples come from Agyrion. These heavy issues were influenced by Greek coinage but clearly harked back to the ingots of an earlier age and were linked to the litra standard, albeit a much-diminished one.149 This represents a reassertion of the native bronze ingot tradition within the now-established framework of Greek monetary practice, similar to the aes grave of the Italian peninsula.

Of particular interest are the issues dating to the period of Dionysus I, when many indigenous centers enjoyed a period of relative sovereignty and independence, strengthening the argument that these pieces represent an assertion of Sicilian identity. These bronzes are distinct from the lighter coins generally issued by the more Hellenized cities, which are usually struck rather than cast. Furthermore, they tend to be the only coins issued by the native towns, while in the poleis the more fiduciary Greek fractional currency circulated alongside the traditional silver coinage.150 Their heavy weight and close association with Sicel towns suggest a strong connection with the litra and thus with Siculo-Italic identity.151

The native towns were not the only ones producing such coins, however: similar large bronzes weighing some 35 g., probably litrai, were minted at Syracuse under Dionysius I in

147 Head (1887: 101).
148 Tribulato (2012: 175); Holloway (1975: 142-144).
150 Ibid. (175).
151 Ibid. (176).
the late fifth century, probably as payment for his mercenary forces. They bear the head of Athena on the obverse and two dolphins or hippocamps flanking a star on the reverse. Many were produced, and they were widely overstruck at inland towns during the post-Dionysian period “to provide local currencies.” Half-litrai were also produced, with the same obverse type and a hippocamp on the reverse. Though the production was short-lived, the quantity of the initial production suggests a strong demand, and the re-striking of these coins by communities in the interior confirms it. These coins also reflect the revived prospects of the Sicilian Greeks and in particular the Syracusans in the aftermath Dionysius’ wars of the late fifth century, and may further represent an ideological Syracusan assertion of the city’s bond to the island, a potent combination of Greek iconography and native tradition.

VIII. Etruscan Coinage: The Sicilian Connection

Let us turn now to the mainland, and consider the comparanda among the early Etruscan issues. The first Greek-style coins were minted in Etruria during the fifth century B.C. Of particular interest to us are the late fifth/early fourth century silver issues of Vulci and Populonia, which appear to be based on the Chalcidian drachma of 5.8 g. This was the same standard used at Cumae, the nearest Greek settlement, and at the Sicilian coastal cities of Naxos, Himera, and Zancle, all of which were closely connected with the Etruscans through maritime trade. These coins are rare and do not seem to have been exported, but were limited to local circulation.154

Populonia’s silver coinage is of particular interest as it includes the first Etruscan issues to bear marks of value.155 The practice of marking value was established at Syracuse, Acragas, and other Sicilian mints in the mid-fifth century. This Populonian “First Gorgoneion” or “First Metus” series and its fractions may be based on the Corinthian stater (or the Attic didrachm) of 8.6 g., attested at Cumae from 470-455 B.C. and at Syracuse and other Sicilian cities from the fifth century. At Populonia, the stater was divided into ten, five, and two-and-a-half unit fractions, marked with \textbf{X}, \textbf{V}, and \textbf{IIC}, respectively. The individual units are therefore on the early Sicilian litra standard of about 0.85 g of silver, comparable to the early Himeran litrai of 0.80-0.85 g.156 This Etruscan tenfold division of the stater is an exact parallel of the historically attested Sicilian practice of identifying the Corinthian-style stater or the Attic didrachm (for example at Syracuse) as a decalitron, or ten-litra piece (Pollux, 9.81). The

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156 Vecchi (2007: 88). NB that many litrai, particularly from the fifth century, weigh closer to 0.70-0.75 g.
accepted standard of this stater/didrachm was, as mentioned above, about 8.6 grams. The litra therefore fits perfectly as a fractional coin at 1/10 of the stater or didrachm.
IX. ROMAN COINAGE

Though Latium shared with both Sicily and Etruria the traditional Italic practice of hoarding and exchanging bronze by weight, the process by which the Romans adopted Greek-style coinage was very different. Rome did not adopt coinage as a result of Greek colonial presence and the eventual emergence of Hellenic cities as the dominant cultural forces, as occurred in Sicily. Nor did Romans adopt Greek-style coinage in their home territory in order to facilitate trade, as the Etruscans may have done. Rather, Rome was responding to specific regional conditions in Southern Italy during her period of expansion in the late fourth century B.C. This coinage was initially issued contemporaneously with cast-bronze proto-currencies on the traditional Italic model, the latter being produced in Central Italy itself. Over the course of the next century, the Greek-style bimetallic coinage came to replace the older bronze ingot currencies, part of the wider Hellenization – or rather hybridization – of Rome during this period.

Ramo secco ingots of aes signatum (mentioned above in the Sicilian and Etruscan contexts) circulated as currency in central Italy during the late Archaic and Classical period. ¹⁵⁷ Examples in Latium come from the Via Tiberina and Ardea, as well as the third-century hoard at Ariccia, which confirms the longevity and persistence of this Italic bronze tradition. ¹⁵⁸ The Romans and other Latin peoples, along with the Etruscans and the Sicilians, divided their libra into twelve units, and not decimally like some other Italian communities, particularly on the Adriatic. ¹⁵⁹

¹⁵⁷ Rutter (2001: 45). According to Rutter, the traditional term aes signatum ought to be avoided, as it means “coined bronze” in Latin. I retain the term here on account of the widespread understanding of its definition, and the fact that the term actually means something closer to “stamped bronze.”
¹⁵⁸ Crawford (1985: 5).
¹⁵⁹ Ibid. (15).
Towards the end of the fourth century, the Romans began to produce a coinage of their own, “which… involved the assimilation of local reckoning in bronze to imported systems of reckoning in silver.” ¹⁶⁰ Again coinage appears as a local modification of the traditional bronze-based system of exchange in the face of cultural contact with the Greeks and other “Hellenized” or hybridized peoples. In historical terms, this occurred during Rome’s expansion first in Italy, then in Sicily, and soon after in the greater western koiné, a process which involved a great deal of contact with Hellenic cultural institutions including silver coinage. Apart from the special case of Magna Graecia, the mainland areas involved in this process were Etruria, Latium, Picenum, Umbria, Campania, Apulia, and Bruttium.¹⁶¹ It is not within the scope of this paper to address more than just a few examples of these many coinages, primarily from Campania, Latium, and Etruria.

The first Roman coinage comes from Campania. Rome herself seems to have been late even in the adoption of foreign coinages, unlike her Etruscan neighbors to the north: there are no coins at all at Rome before the third century, reflecting the general isolation of Latium indicated both by the archaeological record and by our historical sources.¹⁶² Rome’s earliest coinage consisted of four categories, which initially existed contemporaneously: bronze-alloy bars (aes signatum), Greek-style struck bronze coinage, silver coinage, and heavy Italic cast bronze coinage (aes grave).¹⁶³ The variety of types and their coexistence reflects the diverse locally distinct conditions which influenced the development of the earliest Roman metallic currencies in particular and the monetization of Italy in general.

¹⁶⁰ Crawford (1985: 1).
¹⁶¹ Ibid. (2).
¹⁶² Ibid. (17).
The bars of *aes signatum* which emerge around 280 B.C., though not the earliest of Roman issues, are the most old-fashioned and therefore represent the strongest link to the native Italic ingot tradition. Though similar in form and general appearance to the older ferruginous *ramo secco*, these later ingots are alloyed with lead rather than with iron and, unlike their forebears, seem to be cast on a regular weight standard of about five Roman pounds. These issues are money in a true sense, being of a standardized weight and bearing a governmental stamp of legitimacy. These were cast at Rome and bear a variety of designs, among which cornucopiae, branches, eagles on thunderbolts, Pegasus, elephants, bulls, sows, grain-ears, shields, tripods, swords, spearheads, amphorae, anchors, tridents, caducei, chickens feeding, and dolphins. Two of the earliest issues are inscribed ROMANOM. The production of these bars ceased in the mid-third century B.C.\footnote{Rutter (2001: 45-6).}

The earliest *aeria grave* were also produced at Rome around 280 B.C. These were round, cast ingots that recalled both the ancient Italic ingot tradition and the imported Greek system of coinage. These coins are similar to some of the earliest Sicilian cast bronzes, both those of the Greek cities in the fifth century and the Sicel centers in the fourth century B.C. The Roman *aes grave* begins with the “Heavy” series, based on the libra of 324 g., with an *as* bearing the janiform Dioscuri on the obverse and the head of Mercury on the reverse. This libra was divided into twelve *unciae*. This first issue of the *as* was accompanied by several fractions: a *semis* bearing Minerva, a *triers* with a thunderbolt and a dolphin, a *quadrans* with a hand and barley-grains, a *sextans* with a scallop shell and a caduceus, an *uncia* with an astragalus, and a *semiuncia* with an acorn. All of these *aeria grave* have clear marks of value that permit
secure identification. Over the next two decades, we see a vacillation in weight among the liberal standards of the *aes grave*, eventually settling on a standard of about 280 g. until the cessation of these cast bronzes around 212 B.C. This variety of weight standards is fairly typical of the *aes grave*, there being as many as six distinct ponderal systems in Central Italy alone.

The first Greek-style coins minted in the name of the Roman state are two small bronze fiduciary issues from the last decades of the fourth century B.C. The first is the Head of Apollo/Forepart of man-headed bull with the Greek inscription ΡΩΜΑΙΩΝ, of 3.3 g., minted at Neapolis sometime after the treaty with Rome in 326 B.C. The second issue, larger and perhaps later than the first, is the Helmed head of Minerva/man-headed bull ROMANO, known from only one specimen of 6.14 g. Though the provenance is uncertain, it may also be from Neapolis. These fall firmly within the Hellenized sphere of fiduciary bronze coinage, and according to Crawford, should really be considered as part of the coinage of Neapolis rather than of Rome herself. There is no evidence that these coins circulated at Rome: they “reinforce the view that the early Roman use of struck coinage consisted in producing it as an isolated act, without impact on practice in Rome.”

Again, these coins represent an *ad hoc*, regionally-specific response to unknown monetary conditions particular to Campania.

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167 Sydenham (1975: 43).
168 Crawford (1991: 30, no. 1.1); Rutter (2001: 46, no. 251).
169 Crawford (1991: 30, no. 2.1); Rutter (2001: 45-46, no. 252).
Crawford states that the earliest Roman silver didrachm – the famous Mars/Horse’s head issue – was minted at Neapolis and should be dated to between 310 and 300 B.C.¹⁷¹ Burnett puts it at 300 B.C., and both scholars suggest that the Mars/Horse’s head silver didrachm is most likely associated with the construction of the Appian Way from Rome to Capua during the last decade of the fourth century B.C.¹⁷² It bears on its obverse a head of Mars left, bearded and wearing a Corinthian helmet, with an oak spray at the right. On the reverse there is a horse’s head right, with a wheat-ear to the left, with the legend ROMANO across the base of the horse’s head. Weights range from 6.9 to 7.6 g.¹⁷³ It seems to have been struck on the 7.3 g. Neapolitan standard, though Metapontum and Tarentum have also been suggested as the mints of origin. In the case of Metapontum, this tentative attribution is iconographically motivated, as the grain-ear is the symbol of the city and the head of Mars bears a marked resemblance to the helmeted head of Leucippus on the Metapontine issues. Though the coinage of Metapontum may well have influenced the Roman didrachm, Naples seems to be the more likely candidate for the mint of origin. This silver issue is isolated, just like the abovementioned bronze issues, which again suggests a one-off regionally-specific motivation.

This coin was issued alongside a small silver fraction, identical in type, which is known only from two citations (possibly of the same specimen) and is unfortunately unavailable for study. There is debate as to whether this mysterious fractional unit should be identified as a litra (1/10 of the didrachm) or an obol (1/12), but Crawford confidently identifies it as the

¹⁷² Ibid. (29); Burnett (1986).
¹⁷³ Sydenham (1952: xvii).
latter, on the basis that the latter was the standard at Neapolis.\textsuperscript{174} Sydenham and Rutter, on the other hand, identify the fraction as a litra.\textsuperscript{175} If we take Crawford’s figure of 7.3 g. for the didrachm, we arrive at a weight of 0.61 for the hypothetical obol and of 0.73 g. for the litra. Whatever the case may be, it is probable that such a coin could have circulated \textit{either} as an obol \textit{or} as a litra depending on context, given the negligible difference in weight and the practical equivalence of these fractions.

This Roman didrachm/litra/obol system is a testament to the flexibility of weight standards during this period and reflects a particular interest in coinages that fit into various regional systems. In the words of Sydenham, they “together make up a complete system modeled on the Italo-Greek coinages of southern Italy, in which district the coins were evidently designed to circulate.”\textsuperscript{176} Such mutual divisibility may explain the success of this widely used denomination, manifest now as the Corinthian stater, now the Attic didrachm; now as the Sicilian decalitron, and now the Populonian “First Metus.” The fact that these coins, depending on their spatial and temporal context, have weights ranging anywhere from 6.9 g. to 8.6 g. should not unduly concern us. The equivalence of these issues was in part facilitated by the relatively loose weight standards of the day, themselves dictated by the limitations of contemporary technology. Wherever multiple currencies are circulating at once, such compromises are necessary. In any case, mutual trust in the various iterations of this flexibly divisible standard would have greatly facilitated international trade, military operations, and cooperation.

\textsuperscript{174} Crawford (1985: 29, no. 13.2).
\textsuperscript{175} Rutter (2001: 46, no. 267); Sydenham (1952: 1).
\textsuperscript{176} Sydenham (1952: xvii).
Following the Pyrrhic War of 280-275 B.C. and the extensive contact with Greek and Hellenized peoples which marked that bitter struggle, we finally see the emergence of a consistent Roman struck silver coinage. This was based on the didrachm, which persisted as the main Roman silver issue until the introduction of the denarius during the late third century.\(^{177}\) The last issue of Roman silver before the denarius is assigned to the period between 225 and 212 B.C., and includes a didrachm (known as a *quadrigatus*), a drachma, and a litra. The two larger denominations share the same type, with the janiform head of the Dioscuri, laureate, on the obverse and Jupiter driving a quadriga on the reverse, with the legend ROMA. The fraction identified as a litra has a similar obverse type, with a galloping horse on the reverse.\(^{178}\)

These silver issues were accompanied by a series of cast bronzes, including an *as* based on a pound of 270 g. with a head of Janus laureate on the obverse, a *semis* with a head of Saturn, a *triens* with a head of Minerva wearing a Corinthian helmet, a *quadrans* with a head of Hercules and sometimes a club, a *sextans* with a head of Mercury, and an *uncia* with a head of Roma wearing an Attic helmet.\(^{179}\) If the associated silver fraction that we possess is indeed a litra, we see an explicit link between the Greek-style silver system and the Italian-style bronze. The Romans may have assimilated this litra into their own libral tradition as equivalent to the bronze *as*.

The litra persisted in Sicily as a unit of reckoning well into the mid-first century B.C., as evidenced by the Tauromenium accounts, again quite possibly with the litra as the equivalent of an *as*. In the words of Crawford, “the evidence of the coins fills out the picture of a

\(^{177}\) Crawford (1985: 30).


\(^{179}\) *Ibid.* (50, nos. 337-342); Crawford (1985: 52-54).
symbiosis between local units and Roman units.\textsuperscript{180} Crawford describes the resultant system as “Romano-Sicilian,” in which the denarius certainly circulated but where native systems of reckoning still survived.

\textsuperscript{180} Crawford (1985: 114-115).
X. FURTHER DIRECTIONS

As mentioned above, further statistical analysis of the weight ranges of both coins and ingots are required for any definitive conclusions. Significant sample sizes of ingots, coins, and weights must therefore be collected. The compilation of these sample sets will require meticulous study of published and unpublished catalogues and collections as well as first-hand research of the materials. This will hopefully increase our understanding of early Sicilian and Italian metrology and may elucidate the development of local ponderal systems. Further research must also be done on the shift in bronze from the commodity currency to the fiduciary, in order to provide a more thorough understanding of the complex social, cultural, and economic factors involved.

The study must also address Siculo-Punic coinage, the legacy of centuries of Carthaginian power and interest in Sicily. In this case, too, we see the introduction of Greek-style coinage – filtered through Phoenician/Carthaginian practice – to a native substrate of bronze exchange systems. A fuller understanding of cultural interaction and the monetization of Sicily and the Western Mediterranean depends upon the inclusion of the Siculo-Punic data. Also crucial is an in-depth study of the Roman coinage of Sicily, with the aim of tracking elements of continuity and change which may shed more light on issues of cultural identity.
XI. CONCLUSION

The monetization of Sicily and Italy during the colonial period unfolds as a cross-cultural conversation, a complex, centuries-long dialogue in metal reaching back to the protohistory of the Bronze Age Mediterranean. Influence and counterinfluence fueled the development of new hybrid currencies that combined elements of native and Greek practice, preference, and iconography. This new system of silver litrai, bronze “trade” coins, and their native adaptations was born of the complex social, political, and economic interactions that distinguished Sicily as a crossroads of cultural contact. The Sicilian developments are analogous to and in some cases related to parallel developments on the mainland, particularly in Etruria and in Latium, though it must be stressed that local conditions heavily shaped the particular conditions in each area.

The emergence of mutually beneficial currencies reflects a deep understanding of cultural preference and traditions in a period marked by strong assertions of Sicilian, Greek, and hybrid identities. The integrative and assimilative monetization of these regions forms part of the “complex and unstable… equilibrium” that promoted “a tradition of ever-growing diplomatic, religious, cultural, artistic and economic relationships… [and] a truly international way of life.”\(^ {181} \) What emerges is a far more nuanced view of Greek colonization than comes down to us through the literary tradition and the old historical narratives of the Doric and Ionic modes: this is not merely a story of the colonizers and the colonized, but of complex colonial and postcolonial populations attempting to coexist, cooperate, and prosper.

\(^ {181} \) Pallottino (1991: 77).
### Tables

#### I. Vetulonian Weights

<table>
<thead>
<tr>
<th>Weights</th>
<th>Original weight in g.</th>
<th>Unit denomination</th>
<th>Unit weight in g.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Follonica (no. 8)</td>
<td>315.41</td>
<td>1</td>
<td>315.41</td>
</tr>
<tr>
<td>Pian d’Alma (no.9)</td>
<td>317.9</td>
<td>1</td>
<td>317.9</td>
</tr>
<tr>
<td>No. 1</td>
<td>626.06</td>
<td>2</td>
<td>313.03</td>
</tr>
<tr>
<td>No. 2</td>
<td>157.85</td>
<td>0.5</td>
<td>315.7</td>
</tr>
<tr>
<td>No. 3</td>
<td>788.046</td>
<td>2.5</td>
<td>315.22</td>
</tr>
<tr>
<td>No. 4</td>
<td>1569.44</td>
<td>5</td>
<td>313.88</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Average: 315.19</td>
</tr>
</tbody>
</table>
II. Archaic Himeran Fractions: Table of Weights$^{182}$

<table>
<thead>
<tr>
<th>Weight in g.</th>
<th>Hen</th>
<th>Cock</th>
<th>Late Cock</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>⬤⬤⬤</td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>0.95</td>
<td>⬤⬤⬤⬤⬤</td>
<td>⬤⬤</td>
<td></td>
<td>7</td>
</tr>
<tr>
<td>0.90</td>
<td>⬤⬤⬤⬤⬤⬤</td>
<td>⬤⬤⬤</td>
<td></td>
<td>11</td>
</tr>
<tr>
<td>0.85</td>
<td>⬤⬤</td>
<td>⬤⬤⬤⬤</td>
<td>⬤</td>
<td>7</td>
</tr>
<tr>
<td>0.80</td>
<td>⬤⬤⬤</td>
<td>⬤⬤⬤⬤</td>
<td>⬤</td>
<td>8</td>
</tr>
<tr>
<td>0.75</td>
<td>⬤⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>4</td>
</tr>
<tr>
<td>0.70</td>
<td>⬤⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>3</td>
</tr>
<tr>
<td>0.65</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>1</td>
</tr>
<tr>
<td>0.60</td>
<td>⬤</td>
<td>⬤⬤</td>
<td>⬤⬤</td>
<td>5</td>
</tr>
</tbody>
</table>

Total: 23  Total: 19  Total: 7  Total: 49

$^{182}$Kraay (1983: 21).
### III. GELOAN FRACTIONS: TABLE OF WEIGHTS, GROUPS II-III (480-450 B.C.)

<table>
<thead>
<tr>
<th>Weight in g.</th>
<th>Obols Group II</th>
<th>Totals (Obols)</th>
<th>Litrai Group III</th>
<th>Totals (Litrai)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.90</td>
<td>⊗</td>
<td>XXX</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>0.85</td>
<td>⊗</td>
<td>XXX</td>
<td></td>
<td>11</td>
</tr>
<tr>
<td>0.80</td>
<td>⊗</td>
<td>XXX</td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>0.75</td>
<td>⊗</td>
<td>2</td>
<td>XXX</td>
<td>28</td>
</tr>
<tr>
<td>0.70</td>
<td>⊗</td>
<td>6</td>
<td>XXX</td>
<td>13</td>
</tr>
<tr>
<td>0.65</td>
<td></td>
<td></td>
<td>XXX</td>
<td>18</td>
</tr>
<tr>
<td>0.60</td>
<td></td>
<td></td>
<td>XXX</td>
<td>14</td>
</tr>
<tr>
<td>0.55</td>
<td>⊗</td>
<td>4</td>
<td>XXX</td>
<td>10</td>
</tr>
<tr>
<td>0.50</td>
<td></td>
<td></td>
<td>XXX</td>
<td>9</td>
</tr>
<tr>
<td>0.45</td>
<td>⊗</td>
<td>1</td>
<td>XXX</td>
<td>3</td>
</tr>
<tr>
<td>0.40</td>
<td></td>
<td></td>
<td>XXX</td>
<td>4</td>
</tr>
</tbody>
</table>

Total: 13  
Total: 128

---

183 Jenkins (1970: 132-133)
IV. Litrai of Camarina: Table of Weights

<table>
<thead>
<tr>
<th>Weight in g.</th>
<th>Litrai (Period 2)</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Above</td>
<td>✖</td>
<td>1</td>
</tr>
<tr>
<td>0.95</td>
<td>✖✖</td>
<td>2</td>
</tr>
<tr>
<td>0.90</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>0.85</td>
<td>✖✖✖</td>
<td>4</td>
</tr>
<tr>
<td>0.80</td>
<td>✖✖✖✖</td>
<td>5</td>
</tr>
<tr>
<td>0.75</td>
<td>✖✖✖✖✖✖✖✖✖✖✖✖✖✖✖✖</td>
<td>45</td>
</tr>
<tr>
<td>0.70</td>
<td>✖✖✖✖✖✖✖✖✖✖✖✖✖✖✖</td>
<td>50</td>
</tr>
<tr>
<td>0.65</td>
<td>✖✖✖✖✖✖✖✖✖✖✖✖✖✖</td>
<td>31</td>
</tr>
<tr>
<td>0.60</td>
<td>✖✖✖✖✖✖✖✖✖✖✖✖✖</td>
<td>26</td>
</tr>
<tr>
<td>0.55</td>
<td>✖✖✖✖✖✖✖✖✖✖</td>
<td>19</td>
</tr>
<tr>
<td>0.50</td>
<td>✖✖✖✖✖✖xad</td>
<td>16</td>
</tr>
<tr>
<td>0.45</td>
<td>✖✖✖✖ad</td>
<td>10</td>
</tr>
<tr>
<td>0.40</td>
<td>✖✖ad</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total: 215</td>
</tr>
</tbody>
</table>

### V. Litrai of Morgantina: Table of Weights

<table>
<thead>
<tr>
<th>Weigh in g.</th>
<th>Litrai (Group I, 465-459 B.C.)</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.90</td>
<td>⊘</td>
<td>1</td>
</tr>
<tr>
<td>0.85</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>0.80</td>
<td>⊘</td>
<td>1</td>
</tr>
<tr>
<td>0.75</td>
<td>⊘⊘</td>
<td>2</td>
</tr>
<tr>
<td>0.70</td>
<td>⊘⊘⊘⊘</td>
<td>4</td>
</tr>
<tr>
<td>0.65</td>
<td>⊘⊘⊘⊘</td>
<td>4</td>
</tr>
<tr>
<td>0.60</td>
<td>⊘⊘⊘</td>
<td>3</td>
</tr>
<tr>
<td>0.55</td>
<td>⊘⊘</td>
<td>2</td>
</tr>
<tr>
<td>0.50</td>
<td>⊘</td>
<td>1</td>
</tr>
<tr>
<td>0.45</td>
<td>⊘</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>19</strong></td>
</tr>
</tbody>
</table>
BIBLIOGRAPHY


Giuseppe Carlo Castellano II was born in Orlando, Florida. He graduated from St. Stephen’s School in Rome in 2005. In May 2009 he received his B.A. in Classics from Columbia University in the City of New York. He dug at Volubilis in Morocco in the summer of 2004, at Villa Magna near Rome every summer from 2007 to 2010, and at Morgantina in Sicily in the summer of 2014, serving as assistant trench supervisor at the latter two excavations. In the fall of 2014, he enrolled in the graduate program at the University of Texas at Austin on the Classical Archaeology track.

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This manuscript was typed by the author.