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Different mint, same engraver: engraver-sharing at Caracalla tetradrachm mints in the southern Levant

Andreas Kropp 

This article looks at the work of die engravers who worked for multiple mints of Roman tetradrachms, a phenomenon known as engraver-sharing. Building on art-historical methods developed in other areas of ancient art and adapting them to suit this particular genre, the hands of individual engravers are, for the first time, identified and their work is traced across different mints in the southern Levant. These identifications provide important evidence for mint attributions and elucidate how engravers organized their work at the mints, thus providing a first glimpse of the tetradrachm manufacturing process.

Keywords numismatics, tetradrachms, Roman Near East, Gaza, Berytus

Introduction

The so-called Syro-Phoenician tetradrachms, large silver coins of typically 11–15 gm weight, were a key regional currency in the Levant from the beginning of Roman rule in the 1st century BC until the end of production in the mid-3rd century AD (standard references: Bellinger 1940; Prieur 2000). Throughout these three centuries, Antioch was by far the most prolific and at times the only tetradrachm mint, but in the reign of Caracalla (212–17 AD) production took off on a massive scale, and some two dozen mints in Syria, Phoenicia and Palestine started churning out tetradrachms (Butcher 2012: 474). This explosion of silver coinage was likely connected with the emperor's military campaigns in the region in 215–17 AD.

These Caracalla tetradrachms are the subject of the present study. Of all Syro-Phoenician tetradrachms, this corpus of coins is particularly suited for in-depth research, as it is, by far, the largest in terms of sheer numbers, as well as the most diverse in terms of variety of styles and engravers, but its entire production can, at the same time, be precisely dated to a short time window of only 2–3 years.

The focus of this paper is specifically on stylistic and iconographic aspects of these coins. The study of Roman tetradrachms from an art-historical angle is a research niche that has yet to be built, let alone inhabited. But a closer scrutiny and stylistic analysis of these coins offers tangible benefits that go beyond narrow art-historical interests. This study shows how the identification of individual artists can help address some of the many questions and uncertainties surrounding Roman tetradrachms:

- 1) Mint attributions. For reasons too numerous to discuss here, many Caracalla tetradrachms are notoriously difficult to attribute to mints (on methodological problems in tetradrachm studies, see, Amandry 2016; Butcher 2004: 109–16; Kropp 2021a); current attributions are often tenuous, and the debate had, until recently, been dormant for decades (for new attributions of three groups of Caracalla tetradrachms, see Kropp (2021a; 2021b). As one of the case studies in this paper shows, the identification of an individual engraver's hand in a coin group of uncertain attribution provides fresh evidence to help identify the mint.
- 2) Co-operation between mints. This study presents, for the first time, evidence for collaboration between tetradrachm mints. Tracing engravers' handiwork across different mints opens a new avenue of

- investigation into the logistics surrounding the massive joint effort associated with the simultaneous production of tetradrachms across dozens of cities in the Levant.
- 3) Work methods and processes. The identification of an individual engraver is a key to the workshop's door. Once it is possible to spot and isolate the work of one engraver, it becomes possible to identify the contribution made by his colleagues on the same coins (e.g., reverse designs, inscriptions). This division and organization of labour among craftsmen at tetradrachm mints is a barely touched upon subject.

Stylistic variety: large vs small mints

Roman tetradrachms may, at first glance, seem a singularly unsuitable genre of ancient coinage for art-historical research. Flicking through auction or collection catalogues, one is struck by the extremely repetitive and monotonous design of these coins (Figs 3–12). They always show the emperor's bust on the obverse and list his name and titles in Greek on both sides. The reverse is, regardless of the mint, almost invariably taken up by a large Roman eagle in frontal view, with outstretched wings, head to one side, and a wreath in its beak. The only reference to the mint's identity is usually a tiny symbol (the so-called mintmark) between the eagle's talons. Often these symbols are indistinct and generic (e.g., star, crescent, altar) and give rise to endless debates about possible attributions to mints.

This is not a medium in which great artists flourish. The coins were, of course, mass produced, in a rationalized production process geared towards maximum efficiency. Die engravers may have been artists, but their job was replication. They had to produce one item, a coin die, quickly and to very precise specifications, and then repeat the same process over and over. This is how the major mints of the ancient world operated. The most productive tetradrachm mints, Antioch, Laodicea and Tyre had large teams of engravers working at any one time, churning out vast quantities of dies of astonishing uniformity, each one a replica of the other. The process leaves little room for flair or originality.

Major mints like Antioch, Laodicea and Tyre, thanks to their scale of production, were in a position to perpetuate high standards of quality and uniformity. It made economical and logistical sense for these mints to train and employ new apprentices to the same standards. In this system, new engravers would pick up not only technical skills, but would also,

potentially, adopt their masters' style, and in replicating it, perpetuate the mint's 'brand'.

The situation was different for smaller mints. Despite the comparatively small number of coins produced, coins made at mints like Gaza and Askalon, while abiding by the tetradrachm design formula, are stylistically less streamlined and less homogeneous. These mints employed engravers from diverse backgrounds and artistic traditions. Here the individual engraver's hand does stand out with distinct details and mannerisms. These mints, with their modest outputs, were unlikely to be able to offer full-time employment to their engravers and probably hired their personnel on an ad-hoc basis. As a consequence, at smaller mints one finds engravers who also plied their trade at other mints. Whether these engravers had to physically relocate from one mint to the other, or whether they made the dies in one place and then forwarded them to the respective mints has yet to be determined.

The latter is perhaps the more likely option, considering that some of the coins discussed here show certain characteristics (e.g., peculiar flan shapes at Gaza, see below) that are specific to their mints and not found in coins from other mints, even in cases where the dies are made by the same engravers.

The coin corpus discussed in this article covers the mints of Gaza, Berytus(?) (Dolphin mint), Askalon and Neapolis in Palestine. It includes all the specimens published or available online from the following collections: British Museum, Hunterian Museum (Glasgow), Bibliothèque Nationale (Paris), Münzkabinett Berlin, American Numismatic Society (New York), Museum of Fine Arts (Boston), Harvard Art Museum, Yale University Art Gallery, as well as coins from public coin auction websites.

Gaza: 36 coins, 17 obverse dies. Berytus(?) (Dolphin mint): 10 coins, 4 obverse dies. Askalon: 19 coins, 10 obverse dies. Neapolis: 101 coins, 32 obverse dies.

Methodological premises

Die-sharing and engraver-sharing are two phenomena that have long been observed in Roman provincial coinage but received uneven scholarly attention. Die-sharing (the use of the same obverse die in the coinage of two or more cities) is especially well documented for Asia Minor in the 2nd and 3rd centuries AD. In the wake of K. Kraft's pioneering work (Kraft 1972), numismatists have explored the mechanisms and ramifications of interconnected local coinages in this region (Johnston 1982–83; Watson 2019). The case is very different with Caracalla's

Levantine tetradrachms, the subject of this article. There are no known cases where any of the two dozen mints shared dies; nor are there die links between tetradrachms and local civic bronze coinage. Regarding die usage, it appears that each tetradrachm mint was hermetically sealed.

What some tetradrachm groups did share, however, was engravers. The phenomenon of engraver-sharing, that is the employment of the same engraver at two or more mints, has been observed in Roman provincial coinage from Asia Minor and beyond (see especially Flament 2007 for the Peloponnese), but has never been researched in any depth with Caracalla tetradrachms.

The methodology used here to identify individual engravers' hands is taken from the work of pioneers in the study of ancient artists, in particular J. Beazley. The work of J. Beazley on Greek vase painting is still the most extensive and systematic analysis of individual artists in the ancient world. Beazley famously developed a method that allowed him to isolate the individual hands of painters on Greek vases (Beazley 1922 is the fullest account of his method). During his career, Beazley attributed about one third of all known Attic vases (of which there are tens of thousands) to particular hands or workshops. Beazley drew inspiration from the work of Giovanni Morelli, an expert on Italian Renaissance paintings, who argued that it is possible to identify the work of an individual painter by isolating that painter's style. His method is summarized by J. Whitley: 'individual style is apparent most clearly in those apparently unconscious tricks of draughtsmanship used in the rendering of the smaller parts of the human anatomy, that is in the drawing of eyes, noses, ears, hands and feet. It is on the attention to

such apparently insignificant details that the isolation of individual style depends' (Whitley 2001: 37). Beazley himself speaks of identifying each individual artist's 'system of forms' — forms in shape, design, patterns, figures and execution of technique.

Beazley's criteria are admirably suited to vase painting with its relatively creative freedom of form, style and composition. By contrast, imperial portraits on coins are a strictly regimented art form which strives for uniformity and serial replication. The criteria used here for identifying individual artists therefore deviate, by necessity, from Beazley's. This uniformity can be turned to the researcher's advantage: where there is a norm, any deviation can be spotted, measured and classified. The starting point is the observation of significant details in the rendering of imperial portraits, with the aim of defining the key characteristics of an individual engraver's hand. Here the focus is on the heads only, not the busts, loops or ribbons, since the latter elements are often made in a more cursory manner and possibly from the hands of other, less accomplished craftsmen. When comparing coin portraits, I first examine the portrait as a whole: the size, shape and proportions of the head, and facial expression. Then individual features: size, shape and position of eye, brow, nose, mouth, locks, beard, leaves of wreath. The more correspondences there are between portraits, and the closer these similarities, the more likely it is that they were made by the same engraver.

The eye is the most complex and detailed element of the portrait, and hence a technical challenge to which engravers responded in different ways, with considerable variations in size, shape and position of brows, lids, eyeballs and pupils (Fig. 2). The complexity and variability of the eye makes it the single



Figure 1 Selection of Caracalla portraits on tetradrachms from various Levantine mints (actual sizes): Orthosia, Tripolis, Berytus, Tyre, Heliopolis, Damascus, Caesarea. Author's collection.

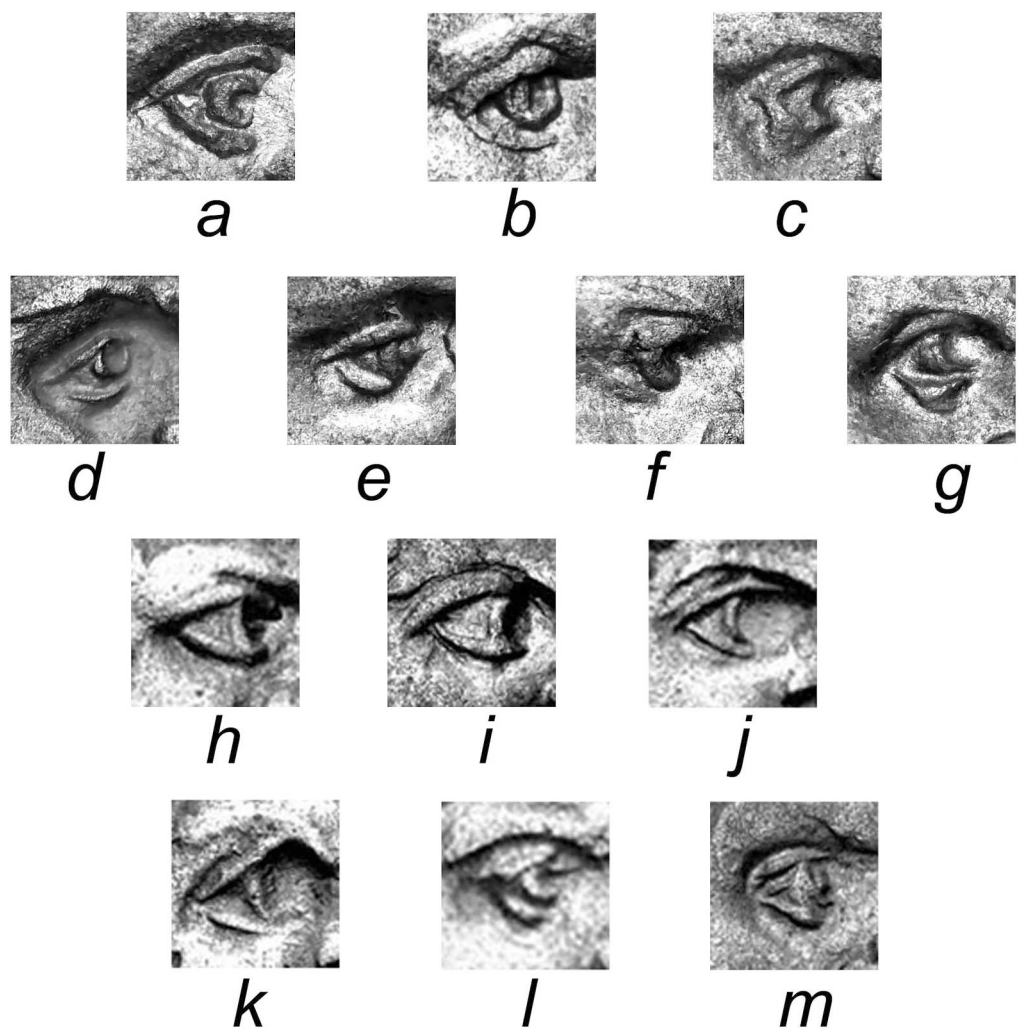


Figure 2 Comparative close-ups of the coin portraits depicted in this article: a) Orthosia; b) Tripolis; c) Berytus; d) Tyre; e) Heliopolis; f) Damascus; g) Caesarea; h) Gaza; i) Berytus (?); j–k) Askalon; l) Neapolis; m) Gaza.

most important diagnostic marker in identifying individual artists. Near-identical eyes are a good indicator of the same engraver’s hand at work, especially if the characteristics they share are untypical or idiosyncratic.

If eye shapes tend to be standardized, then similarities between coins cannot be taken as evidence of the same engraver’s hand. By contrast, if coins show an eye shape that is very *distinct* and rare among Caracalla tetradrachm, the likelihood that this is the same engraver’s work rises exponentially. Such examples are both morphologically and typologically distinct, and indicative of an individual engraver’s hand.

In order to assess what is ‘typical’ or ‘normal’ regarding the shape of an eye, comparanda is required. The individual specimen needs to be viewed against the backdrop of Caracalla portraits on tetradrachms in its entirety, with its many thousands of extant specimens. Close scrutiny and

familiarity with the visual evidence are required in order to provide a meaningful evaluation of individual specimens under study. In brief, *idiosyncrasies* stand out in coin portraiture, more so than in vase paintings or other genres of ancient art. Recurrent quirks and personal mannerisms in coin portraits are the clearest ways in which an artist reveals his hand.

Gaza and dolphin

The best examples of idiosyncratic features of an individual engraver working for multiple mints can be seen in coins from Gaza (Figs 3–4) (Prieur 2000: nos 1689–91) and a series of coins, generally attributed to Berytus, with a mintmark in the shape of a dolphin twisted around a trident (Fig. 5) (Prieur 2000: nos 1294–95). All three portraits match each other closely in key parameters. The stand-out feature and tell-tale sign of this particular engraver is the enormous eye. In the sample of coins from

these two mints used in this study (36 coins, 17 O dies; 10 coins, 4 O dies), these appear to be the only specimens made by this particular engraver.

Head: roundish, slightly elongated skull shape. Hairstyle: locks rendered as short coils running in parallel lines. Unusually, the locks above the forehead are combed downwards in parallel diagonal lines. Wreath: the leaves of the wreath are consistently large and fleshy, and form tripartite tips with fleshy central leaf.

Face: pronounced frown, with arched eyebrow and bulging brow, topped by a horizontal line on the forehead; straight nose (slightly more articulated and pointy in the dolphin coin); small, fleshy lips (dot-shaped lower lip).

Eye (Fig. 2h–i): fleshy eyelids rendered as thick ridges in strong relief. Very distinct eye shape in terms of size and technique. Usually in coin portraits the pupils are indicated with a small hole in the eyeball (Fig. 2). Here, by contrast, the engraver has carved out the whole front tip of the eyeball, from top to bottom, leaving only a sliver of the iris to the left of this hole, thus creating a deep shadow effect that makes for an intense gaze directed forwards. This rendering of the eyes is virtually unparalleled and easy to spot even at a cursory glance.



Figure 3 Tetradrachm of Caracalla minted at Gaza, AD 215–217 (25 mm, 12.9 g), actual size. Bust/Eagle standing facing, Marnas symbol between talons. Courtesy of Classical Numismatic Group, Inc., www.cngcoins.com. Auction 100 lot 1769 sold 7 Oct 2019.



Figure 4 Tetradrachm of Caracalla minted at Gaza, AD 215–217 (27 mm, 12.2 g), actual size. Bust/Eagle standing facing, Marnas symbol between talons. Courtesy of Classical Numismatic Group, Inc., www.cngcoins.com. Auction 99 lot 524 sold 13 May 2015.

These matches between the three specimens are close enough, and some of the features (eyes and hair) are distinct enough, to warrant an attribution to the same engraver.

One comparable example comes from Askalon, Gaza's neighbour on the Palestinian coast (Fig. 6) (Prieur 2000: nos 1654–55). In this coin the eye is of similar shape and size, and the portrait corresponds with the other examples in overall stylistic terms; but the execution is more sketchy and cursory, and there are discrepancies in some details. The eye, for instance, is rendered slightly differently (Fig. 2j): in the Gazan coins the gaze of the eye is clearly directed forward, with the deeply carved pupil at the right edge of the eye; by contrast, the engraver of the Askalon portrait has carved out almost the entire eyeball with a massive round hole. Still, the correspondances appears to be numerous and close enough to attribute this portrait to the same engraver.

Askalon has further examples of coins with the pupil carved out in a similar way to the Gazan coins (Figs 7–8), and with portrait features that are similar (hair, wreath), but these appear to have been made



Figure 5 Tetradrachm of Caracalla minted at Berytus(?), AD 215–217 (24 mm, 15.4 g), actual size. Bust/Eagle standing facing, grain ears between talons, dolphin twisted around trident in exergue. Courtesy of Classical Numismatic Group, Inc., www.cngcoins.com. Triton XXII lot 711 sold 8 Jan 2019.



Figure 6 Tetradrachm of Caracalla minted at Askalon, AD 215–217 (27 mm, 12.3 g), actual size. Bust/Eagle standing facing on palm branch; in exergue, dove with olive branch in beak. Courtesy of Classical Numismatic Group, Inc., www.cngcoins.com. Auction 99 lot 511 sold 13 May 2015.



Figure 7 Tetradrachm of Caracalla minted at Askalon, AD 215–217 (27 mm, 12.3 g), actual size. Bust/Eagle standing facing on palm branch; in exergue, dove with olive branch in beak. From the Sofaer Collection. Photo © American Numismatic Society. Reprinted with permission.



Figure 8 Tetradrachm of Caracalla minted at Askalon, AD 215–217 (24 mm, 15.9 g), actual size. Bust/Eagle standing facing on palm branch; in exergue, dove with olive branch in beak. Courtesy of Classical Numismatic Group, Inc., www.cngcoins.com. Auction 112 lot 450 sold 11 Sep 2019.

by a different hand (e.g., different shape of the head, nose and eye; Fig. 2k) (Prieur 2000: nos 1654–55).

Correlations: portrait — inscription — eagle

As discussed above, the identification of an engraver's hand can shed some light on the manufacturing process of these coins. Once it has been determined that multiple portraits were made by the same engraver, it raises the question, to what extent other elements of the coin design can, likewise, be ascribed to the same hand.

Bust and loops at the back of the head: having reviewed many hundreds of Caracalla tetradrachms from mints across the Levant, I have often observed dichotomies between the portrait heads and the paraphernalia, i.e., busts, wreath loops and ribbons. The portraits are often made diligently by competent engravers, whereas busts, loops and ribbons are routinely of cursory or negligent manufacture, made perhaps by other, less accomplished craftsmen (see, for instance, evidence for such teamwork on Roman imperial coin portraits in Woytek [2012]).

This dichotomy, however, is not universally apparent across all mints. It is especially pronounced at very prolific mints, such as Antioch and Tyre, where

production was geared to maximum efficiency, but much less apparent in the smaller mints; the subject of this study. In the dolphin and Gaza coins shown here (Figs 3–5), loops and busts are stylistically and typologically very similar. Loops: one large loop in the shape of an elongated triangle; on top, one small loop rendered as a mere line (the loops are also clumsily appended to the back of the head, especially on the dolphin coin). The draped and cuirassed busts are very close, almost down to each fold. The loops on the Askalon coins (Figs 6–8) are also similar, whereas the busts are nude and hence not comparable.

Inscriptions: the lettering is almost identical on the dolphin and Gaza coins, with one important exception, namely the shape of the omega: the dolphin coin has W, whereas Gaza coins normally have Ω (see below). Even so, the letter engraver is probably the same, since the letter shapes are almost identical. Note, for example, the E with a large vertical serif going below the line. On the reverse of the dolphin coin (Fig. 5), the text is abbreviated, no doubt due to constraints of space. On the Askalon coins (Figs 6–8), the inscriptions are made by a different engraver, as shown by the different letter shapes.

Eagles: the eagles on the Gaza and dolphin coins appear to be made by the same engraver. They share a number of idiosyncrasies which are both distinct and unusual enough to suggest they are products of the same artist. The short feathers of the wings are rendered as separate solid lumps; the long feathers are covered in diagonal hatching. The tail feathers are shown as spirals, an unusual formula. The talons are each rendered as three large dots side by side, connected with a thin horizontal line, again an uncommon choice.

On the Askalon coins the eagles are similar, with the only real difference being the tail feathers which are rendered as dotted lines. As with the portraits, it is conceivable that this is the same engraver delivering a work of inferior quality, or perhaps the portraits and eagles at Askalon are derivative work, made by a less skilled imitator.

What is notable is the stylistic consistency on each coin between obverse and reverse. The high-quality portraits on the Gaza and dolphin series are coupled with eagles all made by one engraver. For the Askalon coins, the similar, but less accomplished portraits on the obverse are combined with eagles of similar quality. It seems likely, therefore, that in each case it is the same engraver who made the obverse and reverse die.

For the inscriptions, too, the engraver of the Gaza and dolphin coins collaborated with the same

engraver (presuming these are two different persons), and the same is true for Askalon.

The assumption that each obverse portrait engraver also made the respective reverse dies makes sense in terms of scale and economy. The Gaza mint produced small quantities of tetradrachms, while the dolphin series are also very few in number. In the sample of coins examined for this study (36 coins, 17 O dies; 10 coins, 4 O dies), our engraver made one out of the four obverse dies for the dolphin series, and equally perhaps one quarter of the obverses at Gaza; at both mints, our engraver's portraits stand out from the rest for their quality. Both the Gaza and the dolphin mint had at most, a handful of engravers each. Mints with such small outputs would not hire engravers for the sole purpose of engraving eagles for reverse dies.

Attribution of the dolphin group

What does the identification of this engraver's hand on coins of the dolphin group indicate re the identity of the issuing mint? The attribution to Berytus goes back to Bellinger (Bellinger 1940: 82–83) and is based on a comparison between the mintmark, a dolphin twisted around a trident, and civic coins of Berytus under Augustus with the same motif (RPC 1.4537; Sawaya 2009: séries 12–13). The latter coins are anonymous: Octavian CAESAR/dolphin without legend (on attribution and chronology, see Sawaya 2009: 182–86). The dolphin twisted around the trident is already shown on late Hellenistic coins of Berytus, both royal and civic (SC 1827; Lindgren 1993: nos 1351–52), as well as on lead weights (Augé and Sawaya 2002). A new specimen was sold at auction: CNG electronic auction 476, lot 291, sold 9 September 2020). Although this combination of dolphin + trident appears only under Augustus, later on the dolphin is frequently shown together with the patron deities of the Roman colony, Poseidon and Tyche. The attribution of the dolphin-mintmark tetradrachms is hence plausible.

Beside the dolphin + trident group, there is a further group of tetradrachms attributed to Berytus, a series bearing a prow mintmark. These coins are far more numerous and stylistically quite homogeneous. The prow fits well with local bronze coinage from Roman Berytus. There are, of course, other coastal cities showing the prow motif on their coins, but at Berytus it is especially conspicuous, since it is a key attribute of the two deities most prominent on local coins, Poseidon and Tyche (Kropp 2011). The attribution of the prow group of tetradrachms to Berytus is strengthened

by the fact that its contemporary bronze coinage has portraits of Caracalla that match the style of those on the tetradrachms quite closely (compare Bellinger 1940: pl. 20.5 with pl. 20.11). This is a rare case of stylistic correspondence between bronze and silver, and a strong indicator that the attribution to Berytus is correct for the prow mint-mark group.

The dolphin group, on the other hand, is stylistically heterogeneous despite its much smaller number of specimens (in the sample for this study 10 coins: 4 obverse dies by 3 different engravers, each one in a different style) and shows no obvious stylistic parallels with either the prow group or the civic coins of Berytus. This does not necessarily invalidate the attribution, but it does leave open the realistic alternative possibility, that the dolphin group tetradrachms were produced at a separate mint.

Some distinct features of our tetradrachm would seem to confirm this hypothesis. First, the fact that the portrait is made by the Gaza engraver. Second, the legend on the obverse has a spelling variant not attested for any other type attributed to Berytus, or indeed any other Phoenician mint: ANTΩNEINOC is spelt with an E, and the omega is given as W rather than Ω. Legends on other Phoenician tetradrachms do either one or the other, but not both at once (see Fig. 1a–d for examples from Orthosia, Tripolis, Berytus and Tyre).

Nevertheless, while the lettering is unusual for Phoenician tetradrachms, neither does it match Gaza tetradrachms. The comparison with our two Gaza coins shows a number of differences: the dolphin coin has the formula AVT KAI ANTΩNEINOC, while the two Gaza coins read AVT K M AV ANTΩNEINOC. Hence, both the formula and the lettering (W vs Ω) are different. The other tetradrachms from Gaza use neither, and instead mostly read AVT KAI ANTΩNINOC (or, on a handful of curiously crude dies, W for Ω). So, neither the dolphin coin nor our two Gaza coins quite match the typical formulas at Gaza. Askalon has its own distinct formula variants. The most popular version is AVT K M ANTΩNEINOC, while some other examples read AVT KAI ANTΩNEINOC.

Looking further afield, the spelling ANTΩNEINOC is not common on Caracalla tetradrachms as a whole; few mints, Emesa among them, use this spelling. The whole formula on the dolphin coin, AVT KAI ANTΩNEINOC, is quite rare. It is only attested at three mints, and even then only on a select few dies: Neapolis (Prieur

2000: nos 1704–5, 1709–10), ‘Aelia Capitolina’ (thyrus mintmark) (Prieur 2000: no. 1615) and Heliopolis (grain ear mintmark) (Prieur 2000: nos 1581–83).

In sum, none of the mints in question, that is, in Phoenicia and on the Palestinian coast, has a precise match for the peculiar mixed formula AVT KAI ANTWNEINOC found on our dolphin coin. Of all the different variants, it is closest to the standard formula of Phoenician tetradrachms, the only difference being the insertion of the E.

This evidence strongly suggests that the production of our dolphin tetradrachm was a one-off commission. The portrait engraver, who produced a number of dies for the Gaza mint, only contributed this one obverse to the dolphin group, and the inscription engraver (assuming he was a different person) also made a one-off contribution, as indicated via the odd compromise spelling ANTWNEINOC.

As discussed above, this inscription engraver is, however, the same as on our two Gaza coins. But on the latter, this engraver wrote omega as Ω, in keeping with Gaza standards; only for the dolphin die did he change his spelling and write W. One plausible explanation for this one-off change of the omega shape is that the engraver adapted his spelling and formula to the in-house standard of his employer, that is, a Phoenician mint, where W was the standard omega shape.

Taken together, the dolphin group has a peculiar combination of characteristics in both text and image that does not fit neatly in the production of either Gaza or Berytus; but, given the above observations it should probably be attributed to Berytus.

Double mintmark: dolphin + grain ears

The attribution of the dolphin coins to Berytus can be strengthened further. In addition to the dolphin + trident symbol, these coins all bear one additional small symbol on the reverse that is easily overlooked, and has, so far, remained unexplained: a bundle of three grain ears placed between the eagle’s talons, usually separated by a horizontal line from the dolphin + trident symbol below (Fig. 5). Even though it appears on all dolphin coins and its position, between the eagle’s talons, is precisely where most Caracalla tetradrachms display their mintmarks, the significance of this grain ear symbol is not discussed in any of the standard references (Bellinger 1940: 82–83; Prieur 2000: 152), nor, to my knowledge, commented on anywhere else.

I interpret this grain ear symbol as a mintmark and connect it with the group of tetradrachms that bear a

grain ear as their sole mintmark (Bellinger 1940: 104–05 nos 382–85; Prieur 2000: nos 1578–83). These coins have traditionally been attributed to Cyprus, but as shown in a recent study, the grain ear is the symbol of choice for Jupiter Heliopolitanus; these coins can now be firmly assigned to Heliopolis (Kropp [Forthcoming](#)). With this new attribution of the grain ear tetradrachms to Heliopolis, the grain ear symbol on the dolphin tetradrachms can also be interpreted as a symbol of that city, an additional mintmark alongside the dolphin + trident that stands for Berytus. Berytus and Heliopolis were two very closely connected cities. Both were populated by the same stock of Roman settlers, veterans of Augustus’ Legio V Macedonica and Legio VIII Gallica; together they formed a rare ‘island of Romanitas’ within the Roman Near East (on the history, see, Millar 1993: 281–85; Sawaya 2009). Heliopolis was at first a settlement within the extended territory of Berytus but rose to colonial status under Septimius Severus around AD 200, taking on titles identical to its mother city, Colonia Iulia Augusta Felix.

The combination of the two symbols, dolphin + grain ears, side by side on the same coins is, in my view, a double mintmark jointly representing Berytus and Heliopolis. These coins are designated as a ‘joint issue’ of these two cities. What such a joint enterprise may have entailed in practical terms (e.g., shared finances, logistics, procurement, staffing etc.), or whether it was merely a symbolic nod towards Jupiter Heliopolitanus (Berytus was a major centre of the cult of Jupiter Heliopolitanus, second only to Heliopolis itself), can only be guessed at for now but will merit further consideration. In this context it may be significant that the Heliopolis tetradrachms (grain ear mintmark) are among the very few that use the same peculiar formula, AVT KAI ANTWNEINOC, also found on dolphin coins, as discussed above (Prieur 2000: nos 1581–83). For the present discussion, the identification of this double mintmark further strengthens the attribution of the dolphin mintmark to Berytus.

Gaza and Neapolis

Tetradrachms from Gaza and Neapolis in Palestine (modern Nablus in the West Bank) show many stylistic parallels and in some cases even share engravers. Unlike the previous examples, the coins shown here (Figs 9–10) have portraits that do not catch the eye with striking and unusual features that facilitate an attribution to the same engraver, but the similarities are sufficiently close and consistent to suggest that

this is, in fact, the case (Prieur 2000: nos 1685–88, 1701).

Heads: round skulls on top of fleshy necks; hair-styles almost identical, especially at the back of the head — drop-like curls of the same shape and size, arranged in same pattern; wreath with leaf sequence 2-2-2-3 (from back to front), narrow straight leaves, fork-like tip.

Faces: almost identical, with same mis-proportions (nose too short, chin too long — possibly a stylistic legacy of Ptolemaic royal portrait traditions); bulging brow with one horizontal line to indicate a frown; short pointy nose; small fleshy lips; elongated chin; at the corner of the mouth, a peculiar vertical coil (meant to indicate moustache) at a right angle to the upper lip.

Eyes (Fig. 21): short rounded lower eyelid; eyelids do not meet at the corner of the eye; pupil carved as a round hole at the top right of the eyeball, with a crescent-shaped iris below.

The same engraver also produced another pair of dies for Gaza and Neapolis (Figs 11–12) (Neapolis: Bellinger 1940: no. 339 pl. 23.11 = Meshorer 1981: no. 990 (this coin); not in Prieur. Gaza: Bellinger 1940: no. 379 pl. 26.3; Prieur 2000: nos 1693–94).



Figure 9 Tetradrachm of Caracalla minted at Gaza, AD 215–217 (25 mm, 12.7 g), actual size. Bust/Eagle standing facing, Marnas symbol between talons. From the Sofaer Collection. Photo © American Numismatic Society. Reprinted with permission.



Figure 10 Tetradrachm of Caracalla minted at Neapolis, AD 215–217 (25 mm, 14.3 g), actual size. Bust/Eagle standing facing, altar between talons. Courtesy of Classical Numismatic Group, Inc., www.cngcoins.com. Mail bid sale 79 lot 692 sold 17 Sep 2008.

Heads and facial features correspond very closely and are very similar to our previous examples, for example, the same frown with a bulging brow topped by a horizontal line, the same nose shape. Once again, these two portraits show the same peculiar feature at the corner of the mouth, a vertical ‘moustache’ line jutting against the upper lip at a right angle; perhaps the best indicator that this is, indeed, the same engraver.

The Neapolis coin is too worn to discern the hair clearly, but it seems similar to its counterpart; at the front are circular curls, at the back it is less curled than on the Gaza coin. This difference can be explained by a closer look at the radiate crown on the Neapolis coin: this was originally a regular laurel wreath with the standard leaf sequence 2-2-2-3; but was then turned into a radiate crown by carving the rays into the die! It would be interesting to know why this curious change was considered necessary.

How was engraver-sharing organized?

The engraver-sharing that is documented in this study speaks of close links and exchange between the mints of Gaza and Neapolis (and the dolphin mint). It is



Figure 11 Tetradrachm of Caracalla minted at Neapolis, AD 215–217 (25 mm, 12.7 g), actual size. Bust/Eagle standing facing, altar between talons. American Numismatic Society 1944.200.69116. © ANS, reprinted with permission.



Figure 12 Tetradrachm of Caracalla minted at Gaza, AD 215–217 (25 mm, 12.7 g), actual size. Bust/Eagle standing facing, wreath between talons; two Marnas symbols in field. Courtesy of Classical Numismatic Group, Inc., www.cngcoins.com. Triton XXII lot 739 sold 8 Jan 2019.

possible that the engravers travelled physically between these mints. Alternatively, they could have produced the dies in one location, then shipped them off to their respective destinations. Either way, it seems likely that the coins were not produced at centralized collective mints, but rather at their respective mint-cities. The mintmark-groups of Caracalla tetradrachms are sufficiently distinct to suggest that generally each mintmark belonged to a separate mint (with the notable exception of the cities that employed multiple mintmarks side by side, for example, Sidon with Europa/baetyl cart): there are hardly any known die links between groups, and often there is also a sharp difference in style, fabric and technical manufacture. For the coins discussed here, some engravers demonstrably worked for multiple mints, and yet these mints did not share dies. The *absence* of shared dies, in spite of the presence of shared engravers, is a strong indicator that the coins were indeed produced at separate mints.

These conclusions may be further substantiated by future research into various mintmark groups, for example by comparing die axes, flan shapes and sizes, weight standards, fabrics and silver purity, etc., which will necessitate autopsies of the respective coins. In as far as one can trust the evidence of photographs, it does appear that different groups have different flan shapes: for example, Gaza coins often seem to have oval or irregular flan shapes, whereas coins from Neapolis do not. In sum, all the indicators thus far strongly suggest that the coins come from separate mints, with each probably situated in the respective city.

For the engravers discussed here, plying their trade at or for multiple tetradrachm mints in the region made perfect sense. The output at, say, Gaza was too small to provide permanent employment for an engraver, and opportunities beckoned concurrently at various other nearby mints. It is important to keep in mind that tetradrachm production happened simultaneously in Palestine, Phoenicia and Syria, over a very short period, 215–217 AD.

These tetradrachm mints were set up quickly and from scratch. Even in cities that already had long-established coin mints of their own, tetradrachm mints were apparently set up as an entirely new and separate operation. The requirements and specifications for this silver currency were quite different to traditional local bronze production. Caracalla tetradrachms had to be produced to precisely regimented specifications, which required different tools and different skillsets (e.g., for the coin legends, the distinct letter shapes with serifs required punches that were not in use for bronze coins). Hence it cannot

be assumed that engravers from a bronze mint could be seamlessly transferred to work in a tetradrachm mint (the production process of tetradrachms has, to my knowledge, never been studied in depth. Butcher [2004: 127–33] provides an outline for both silver and bronze).

In such circumstances Levantine mints, large and small, were no doubt hard pressed to find qualified engravers. Hence, when the tetradrachm boom took off under Caracalla, skilled die engravers must have been in high demand, meaning that they could pick and choose from a whole spate of new mints offering employment, all opening up at the same time and commissioned to churn out coins quickly. These conditions favoured engraver employment and facilitated engraver-sharing. More evidence for this phenomenon will no doubt come to light as more tetradrachms are systematically examined and evaluated.

Conclusion

This study demonstrates the benefits of paying attention to stylistic details in the iconography of Roman tetradrachms. Through close examination of Caracalla's portraits on Levantine tetradrachms, this study has identified the hands of individual die engravers and documented, for the first time, the phenomenon of engraver-sharing between tetradrachm mints of Roman Palestine and Phoenicia. These insights provide an initial glimpse of the manufacturing processes at Caracalla tetradrachm mints, and pave the way for future research into the organization of labour and specialization of tasks that went into the making of coin dies.

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No potential conflict of interest was reported by the author(s).

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