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Contents

5 Paolo Visonà: A Missing Link in the Last Carthaginian Gold Series

9 Eric A. Carlen and Catharine C. Lorber: A Die Shared by the Ptolemaic Mints at Sidon and ʻAkko-Ptolemais

37 Haim Gitler and Gérald Finkielsztejn: An Official Hellenistic Inscribed Disk from Ascalon (with an appendix by Naama Yahalom-Mack, Haim Gitler, Ofir Tirosh and Yigal Erel: Bulk Chemical Composition of the Disk Naming Ascalon; and an appendix by Dana Ashkenazi and Haim Gitler: Metallurgical SEM-EDS Characterization of the Disk Naming Ascalon)

55 Gérald Finkielsztejn: The Weight Standards of the Hellenistic Levant, Part Two: The Evidence of the Phoenician Scale Weights

105 Oliver D. Hoover: A Clashed Seleucid Obverse Die of Philip I Philadelphus

111 Aaron J. Kogon: Greek Letter Forms on Judean Coins

129 Jean-Philippe Fontanille and Aaron J. Kogon: Two New Symbols on a Coin of Herod Antipas

137 Yoav Farhi: Die Sharing and Other Numismatic Connections in Southern Roman Palestine (Second–Third Centuries CE)

155 Achim Lichtenberger: Orientation Matters: The Obverse Portrait of Elagabalus on Some Civic Coins of Abila and Other Syrian Coins

169 David Woods: Muʿawiya, Constans II and Coins without Crosses

183 Nikolaus Schindel: The Umayyad *Fulūs* of Gaza

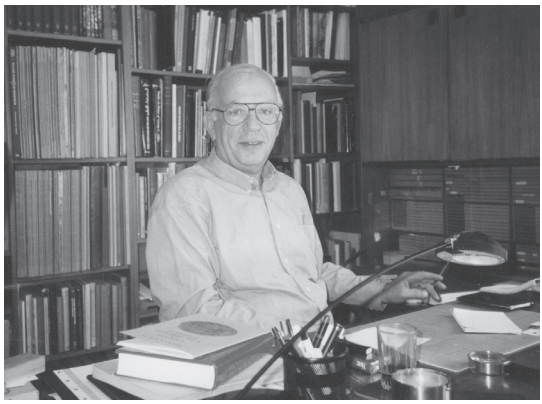
191 Nitzan Amitai-Preiss and Oren Tal: A Lead Bulla from Apollonia-Arsūf with the Place Name Arsūf (with an appendix by Dana Ashkenazi and Oren Tal: Archaeometallurgical Characteristics of the Bulla)

207 Stefan Heidemann and Robert Kool: A Bedouin *Amīr* in Fāṭimid Ṭabariyya: The Earliest Numayrid Coin Excavated in Tiberias

215 Robert Kool and Oren Tal: ʻUndergroundʼ Money in an *Outremer* Estate: Token Molds and Lead Tokens from Crusader Arsur

229 REVIEW: Yaʿakov Meshorer, with Gabriela Bijovsky and Wolfgang Fischer-Bossert. *Coins of the Holy Land. The Abraham and Marian Sofaer Collection at the American Numismatic Society and the Israel Museum*. Edited by David Hendin and Andrew Meadows (Ancient Coins in North American Collections 8). The American Numismatic Society, New York 2013 **(**Danny Syon**)**

235 Abbreviations



Don Simon

Shraga Qedar

1933–2015

Shraga Qedar died this year on September 23. Shraga was born in 1933 in Kraków. His father, Meir, was a dry goods merchant and Naava his mother had a degree in German culture and literature from the University of Kraków (now Jagiellonian University). Both parents had graduated from the Hebrew gymnasium there and spoke Hebrew at home.

With the outbreak of the Second World War, six-year-old Shraga found himself with his family in a concentration camp. In 1942, Shraga managed to escape from the inferno and made his way to Slovakia and from there to Hungary where he remained for two years and was one of those saved by the celebrated efforts of Raoul Wallenberg. In late 1945, under the auspices of Youth Aliyah, Shraga emigrated from an Italian DP camp to Palestine, aged only 12.

Shraga studied at the Rosa Cohen School of Agriculture in Petah Tikva and between 1951 and 1953, he served in the army. Afterwards he lived in Ḥazor Haglilit. Shraga fought as a reservist in the 1956 Sinai Campaign, during which he sustained a head injury. Around that time he became active in the Labor Party. In 1962–1966 Shraga served as Secretary of the Worker's Committee for Afula and the Jezreel Valley. As the youngest Labor Committee secretary at the time a political career for Shraga appeared promising. However, around age 30, Shraga was bitten by the archaeology bug. Upon a visit to Haluza, Shraga found some ancient coins, and this piqued his curiosity. Through his work at identifying the coins, he added Arabic to the five other languages in which he was fluent. Around this time, Shraga spent a period in Iran.

Shraga's first numismatic discovery was a coin of Darʿā, the Islamic mint at the former polis of Adraʿa in southwestern Syria, which was his first publication (1967). Shraga went on to publish many other numismatic discoveries. His primary

fields of interest spanned well over a millennium of the numismatics of the southern Levant: Samarian, Jewish, Nabatean, Roman provincial and Early Islamic coins but of these, he was proudest of his work on early Islamic coins. His two books on numismatics were on Samarian coins, written together with his close friend Ya'akov Meshorer (1991; 1999). Before that, in the 1970s, he had expanded his interests to the study of scale weights, and wrote the texts for four sales catalogues of scale weights (*Münz Zentrum* 1978; 1979; 1981; 1983), although his name appeared nowhere in them.

Shraga was one of the last of a generation of Israeli autodidacts in the field of numismatics, who excelled despite their very limited formal education. Early on, Shraga turned his interest in ancient coins into his livelihood, and became a member of the International Association of Professional Numismatists (IAPN). Nevertheless, he always described himself as a scholar. His intense curiosity, his generous spirit and his amiable personality won him friends among a number of the best numismatists of his generation. Some of them contributed to volume 16 of the *Israel Numismatic Journal* (2007–2008) published in his honor.[1]

1 Yosef Weiss contributed to this tribute.

A Missing Link in the Last Carthaginian Gold Series

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Abstract
Carthage minted its final series of gold coins during the Third Punic War. G.K. Jenkins and J. Alexandropoulos described them as a unit and a fraction, identified as a 2/5 *sheqel* and a 1/5 *sheqel* because the larger coin weighs about 3 g. However, the existence of a *sheqel* bearing the same types as those of the 2/5 *sheqels* suggests that this coinage had at least three denominations. The earliest 2/5 *sheqels* have either no control marks or single Punic letters, representing an alphabetical sequence, of which a coin with the letter *gimel*, in the Kadman Numismatic Pavilion, provides a missing link.

Exceedingly few examples of the last group of gold coins minted at Carthage between 149 and 146 BCE have become known after Jenkins and Lewis' 1963 study of these issues.[1] Their catalogue included two denominations bearing the head of a goddess facing left on the obverse and a horse with a halter stepping right on a base line, or a horse's head r. on the reverse, respectively.[2] All of them have upright die axes. Since the larger denomination was struck at approximately 3 g, Jenkins and Lewis suggested that its weight could be regarded as 4/5 of a Phoenician *drachm*, and labeled it a unit; Jenkins subsequently described it as a 2/5 *sheqel*.[3] In 2007 Alexandropoulos identified the fraction as a 1/5 *sheqel*, claiming that these gold coins had a "diffusion régionale" and that the fraction was an "émission secondaire" (Alexandropoulos 2007:387, Nos. 97–98). However, both their metrological relationship and their similar fabric and style indicate that they were issued concurrently. Their typological and stylistic affinities with the reduced silver *sheqels* and double *sheqels* minted at Carthage during the Third Punic War (*SNG Denmark* [Fascicle 42]: Pl. 15:403–408) show that they were interchangeable with them. Each gold piece weighing around 3 g would have been equivalent to six silver *sheqels* of roughly 6.5 g or three double *sheqels* of around 13 g, as Jenkins

1 I gratefully acknowledge the assistance of Paul Beliën, Françoise Berthelot-Vinchon, Cecilia Meir, and Douglas Mudd, who have kindly provided information for this note.
2 Jenkins and Lewis 1963:53–54 and 122–123 (Group XVIII). The obverse is within a dotted border; the reverse is within a linear border.
3 Jenkins and Lewis 1963:54; cf. *SNG Denmark* [Fascicle 42]: Pl. 15:401–402. Baldus 2004:306, No. 31 followed Jenkins' identification.

and Lewis pointed out. A high gold to silver ratio of 1:13 is consistent with a rise in the value of gold at a time of crisis for the Carthaginians, who were under attack in their homeland (Jenkins and Lewis 1963:54; Visonà 2007:50). By striking gold coins at this juncture they seemingly followed precedent: Their previous issues of gold in the First and Second Punic Wars were also probably related to the landing of Roman armies in North Africa in 256 and 204 BCE.[4] Jenkins and Lewis' catalogue lists 19 specimens of the larger denomination (including five in Lewis' collection) and seven examples of the fraction (Jenkins and Lewis 1963:122–123). According to Jenkins and Lewis, a single obverse die was used for each denomination.

The 2/5 *shekels* in the earliest subgroup and the fractions have a plain edge, whereas a separate subgroup of coins of the larger denomination has a serrated edge. No serrated fractions are known. "That the serrated coins are subsequent to the plain-edge pieces is clear from the increasing wear of this obverse die" (Jenkins and Lewis 1963:53). Baldus suggested that two workshops of the Carthaginian mint shared the same obverse die, but this is hard to prove (Baldus 2003:199; see Visonà 2007:51). The 2/5 *sheqels* with a plain edge bear either no control marks or single Punic letters, representing an alphabetical sequence. Jenkins and Lewis listed three specimens without control marks, three specimens with *alef*, and single examples with *bet* and *dalet* (Jenkins and Lewis 1963:122, Nos. 496–499). In contrast, those with a serrated edge bear a single pellet on the reverse and comprise at least five varieties (Jenkins and Lewis 1963:123, Nos. 501–506).

Jenkins and Lewis' catalogue does not include two coins that could have been known to them before 1963. One is a serrated coin (now presumed stolen) in the Musée National de Carthage (formerly known as the Musée Lavigerie), whose reverse was sketched by Edward Stanley Gotch Robinson in 1935 and illustrated by Gabriel-Guillaume Lapeyre and Arthur Pellegrin in 1942.[5] There is also a different specimen in the collection of Naples' Museo Archeologico Nazionale, catalogued in 1870, but only fully published in 2002.[6] Some details of Jenkins and Lewis' data

4 Cf. Jenkins and Lewis 1963:37–39 (Group IX); Baldus 1982:186–188; Baldus 1988:173–176. Crawford 2012:214 dates the gold quarter *sheqels* of Jenkins and Lewis 1963, Group XIV, to "perhaps 208–203 BC" because some of these coins are presumed to have been among the contents of a hoard found at Tiriolo (Calabria, southern Italy) in 1788. The state of emergency caused by P. Cornelius Scipio's invasion of Africa in 204 BCE could have prompted this issue of gold.

5 A copy of Robinson's unpublished field notebook, in which this coin was listed, was made available to me by the late Gilbert Kenneth Jenkins. For this specimen (similar to Jenkins and Lewis:123, No. 505), see Jenkins and Lewis 1963:61 and Lapeyre and Pellegrin 1942, plate opposite p. 81 (Cliché Lehnert). For thefts of coins from the Musée de Carthage prior to 2004 see Visonà 2007:39 n. 33.

6 Viola 2002:98, No. 521 and Pls. 29–30 (enlargements). Inv. 32710=Fiorelli 1870: No. 4845 (3.02 g), cf. Jenkins and Lewis 1963:123, No. 501. According to Visonà (2007:50 n. 43) the coin in Naples may have been struck by a new obverse die.

also require correction. Their No. 503–1 comes from Arthur Sambon and César and E. Canessa's sale on 19–21.12.1907, Lot 525 (not from Sambon's sale on 10.12.1907, Lot 525) and its weight is 3.02 g (not 3.04 g). Although the drawing of the reverse of Jenkins and Lewis' No. 505 shows a small pellet near the base of the horse's neck, this variety has a large pellet placed above the center of the horse's back.[7] Jenkins and Lewis did not mention the fact that at least two coins (Nos. 501 and 505-2) have suspension holes. More significantly, the existence of a serrated gold *sheqel* with a pellet on the reverse, a denomination not known to Jenkins and Lewis,[8] suggests that Carthage had a larger stock of gold during the Third Punic War, and that this coinage was more complex than previously thought. Since this *sheqel* was struck at full weight, five gold coins weighing about 3 g would have been needed to make two gold *sheqels*, thus proving that they are 2/5 fractions of a *sheqel*.

At least seven additional gold 2/5 *sheqels* have been recorded since 1963. They include two coins with a plain edge without control marks[9], four serrated coins with a pellet on the reverse,[10] and a specimen with a plain edge of a new variety bearing the Punic letter *gimel* below the horse, in the Kadman Numismatic Pavilion of the Eretz Israel Museum collection (Fig. 1).[11] This unique coin was struck with the same obverse die used for all the 2/5 *sheqels* listed by Jenkins and Lewis, and its reverse provides a missing link in the letter sequence of one of the earliest issues. The serration of the flan in the later subgroup of 2/5 *sheqels* may have been aimed

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7 Cf. Utrecht Geldmuseum 09916 and *SNG Denmark* [Fascicle 42]: Pl. 15:402 (=Jenkins and Lewis 1963:123, Nos. 505-1 and 505-2); Berthelot-Vinchon 2014:15, Lot 21, bottom row, next to last coin (described as silver; possibly a modern forgery?); CNG, Auction 100, October 7, 2015, Lot 37.

8 CNG, Auction 100, October 7, 2015, Lot 36 (↑, 7.59 g, 17 mm). The reverse type is similar to that of Jenkins and Lewis 1963:123, No. 503 (not illustrated), but the far hind leg of the horse is raised.

9 Triton, Auction XIII, January 5, 2010, Lot 81 (3.00 g); CNG, Auction 100, October 7, 2015, Lot 35 (3.00 g). I have reservations about the authenticity of a similar specimen illustrated in Forum Ancient Coins (WR 58690; 3.017 g, http://www.forumancientcoins.com/catalog/roman-and-greek-coins.asp?param=58690q00.jpg&vpar=2046&zpg=70885&fld=http://www.forumancientcoins.com/Coins2, said to have been struck with the same dies as Jenkins and Lewis 1963:122, No. 496), because of its unusually smooth surfaces.

10 Triton, Auction XIV, January 4–5, 2011, Lot 41 (3.03 g); Goldberg, Auction 72, February 5–6, 2013, Lot 4038 (3.00 g); Berthelot-Vinchon 2014:16, Lot 33 (3.04 g; =Künker, Auction 270, October 2, 2015, Lot 8448); CNG, Auction 100, October 7, 2015, Lot 37 (3.04 g).

11 The coin's weight and module are 3.05 g, 13.5×14.5 mm. I am very grateful to Cecilia Meir for sending me casts and digital images of this coin, and for her permission to publish it.

at conforming their appearance to that of the reduced silver *sheqels* and double *sheqels*, but its purpose remains elusive.



Fig. 1. Plain-edged gold 2/5 *sheqel* from the Kadman Numismatic Pavilion in Tel Aviv (KNP 9076) (1:1 and 3:1 scale)

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A DIE SHARED BY THE PTOLEMAIC MINTS AT SIDON AND ʻAKKO-PTOLEMAIS

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Abstract
This article presents the study of a group of Ptolemaic *tetradrachms* struck from a single obverse die that was first used at Sidon in regnal year 23 of Ptolemy III, and after two varieties were produced there, was transferred to ʻAkko-Ptolemais where it was used for at least another seven varieties continuing into the reign of Ptolemy IV. The obverse die was recut several times over its unusually long career, and at Ptolemais was paired with reverse dies that were also recut, and which display an exceptional alternating pattern of controls. The chronology, circumstances and sizes of these issues are examined.

INTRODUCTION

We trace the career of an obverse die that was first used at Sidon, under Ptolemy III in 225/4 BCE, and was later transferred to ʻAkko-Ptolemais where it was used under Ptolemy IV.[1] In fact, all known silver coined at ʻAkko-Ptolemais under Ptolemy IV was struck from this one die which was recut several times. The die was retired sometime during or shortly after the Fourth Syrian War, but exactly when is not certain. In fact, it is not clear how many distinct issues of coinage were struck using this die. While it is generally a simple matter to partition a group of coins into varieties simply by observing changes in controls and their placement, it is not a simple matter to partition this group of undated coins into separate issues.[2] Therefore, we focus first on the nine varieties we identify here, and by studying the progression of die states, order these chronologically. We then return to the

1 We are grateful to Robert Bracey and François de Callataÿ, who read earlier drafts of this paper and made valuable suggestions for its improvement.

2 By an *issue* of coinage, we mean a production of coins minted in the same year as part of an annual program, or a group of coins struck in response to an administrative order to meet some specific fiscal need; e.g., the Raphia donative. An issue may consist of several *varieties*. Any two coins from one issue that have different controls, or controls arranged differently on the coin, are distinct varieties. We reserve the term *type* to refer to the subject of the coin design, as for example the portrait of a particular king. Note that in general, neither types nor varieties are subcategories of an issue; both might well persist across a number of issues, this being especially true of types.

problem of identifying and dating separate issues, seeking to learn as much as possible about a particularly interesting period of Ptolemaic coinage.

In the last quarter of the third century, the minting of *tetradrachms* in Ptolemaic Syria and Phoenicia was episodic, and usually involved the collaboration of several mints. The best known of these regional issues comprised gold *mnaieia* and silver *tetradrachms* signed with the monogram 𐤔, and also with the mintmarks of the five major precious metal mints of Syria and Phoenicia — Sidon, Tyre, ʻAkko-Ptolemais, Ioppe, and Gaza. The two latter mints placed a regnal date, year 23, on their products.

Newell attributed the coinage to Ptolemy III and Mørkholm developed this with a stylistic argument supporting the attribution, noting that regnal year 23 was equivalent to 225/4 BCE (Newell 1941:5; Mørkholm 1980:4).[3] Mørkholm also undertook a die study for the *tetradrachms* of this regional issue (Mørkholm 1980). The portion struck by Ptolemais has received more recent attention from Aumaître, who assembled a die study covering the entire silver production of Ptolemais as a Lagid mint (Aumaître 2014).

A second regional issue of gold and silver coins bearing the control ΣΩ was mint-marked by Sidon, Tyre and Ptolemais, and appears to celebrate the Ptolemaic victory in the Battle of Raphia which climaxed the Fourth Syrian War in 217 BCE. The Fifth Syrian War elicited another such regional issue, whose ʻMain Seriesʼ (the portion lacking mintmarks) was the subject of another die study by Mørkholm (1979).

Reuse of older dies is another typical practice of Syro-Phoenician monetary production in this period.[4]

Our die began its career at Sidon as part of the regional issue of 225/4, marked with the monogram 𐤔. It was used to strike the two varieties of Sidonian *tetradrachms* belonging to the regional issue of that year (Mørkholm 1980:7, citing four specimens). The remaining issues using this die were struck at Ptolemais.[5] Several of these are marked with ΣΩ. Some or all of these may have been part of the regional issue celebrating the victory at Raphia. If even the final issue dates to 217, as we discuss

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3 Svoronos (1904, 1908) had previously attributed this group of coins to Ptolemy II.

4 At least two examples from the time of Ptolemy IV can be cited. The obverse die of Svoronos 1186 (Sidon, ΣΩ issue, Serapis and Isis type) was reused for two later issues (Landvatter 2012:84–85 [Sidon mintmark only] and 86–93 [unmarked]). One of the obverse dies of Svoronos 1180 (Tyre, ΣΩ issue) was reused for a *tetradrachm* offered in CNG, Auction 78, May 14, 2008, Lot 997 (unmarked), with a later style eagle. An obverse die of Svoronos 786 (Ptolemais, issue of 225/4) was also used for the *tetradrachm* in *SNG Copenhagen Suppl.* 1285 (Ptolemais mintmark only); there is a chance, however, that the latter coin represents a mint error omitting the control 𐤔, rather than a later issue.

5 A preliminary review of this portion of our die's history was presented in Carlen 2014:52–56.

below, the die saw use over a period of nearly a decade in a number of distinct issues. Use of a die over so many years, for so many issues, and at two mints, is quite unusual, not only for coinage of the region and period, but also more generally.[6]

The career of our die shows that surprising patterns of usage were possible at 'permanent' mints that were only sporadically active, such as the Ptolemais mint in the final quarter of the third century. The contribution of Ptolemais to the regional issue of 225/4 involved two varieties of *mnaieia*, and previous die studies record two *tetradrachm* varieties using at least two artistically refined obverse dies and at least 11 reverse dies.[7] At this time, the mint was served by a capable master engraver. However, sometime after 225/4 something remarkable happened: A small issue of tetradrachms was made at Ptolemais using the obverse die employed by Sidon in 225/4, already quite worn. This issue is known by three specimens, all from the same reverse die, and this reverse die shows a partially erased monogram ϻ. Evidently, not only could the Ptolemais mint not produce its own new obverse die, but it was forced to scavenge for a reverse die as well. The attempted erasure of the control monogram was done rather crudely, by very roughly planing the surface of the die, as explained below. Our obverse die was then nursed along through several more issues, ending with a ΣΩ issue that may date to after the Battle of Raphia. During this process, the die was recut at least three times. Moreover, another reverse die that was first used with a ΔΗ monogram in the right field was recut, this time with a thorough erasure of the monogram, which is then replaced with a ΣΩ monogram in a slightly different position.

The only example among dies used for Ptolemaic *tetradrachms* that may be comparable to our case is an obverse die bearing a portrait of Ptolemy IV that first saw use in the ΣΩ series at Sidon. Svoronos[8] 1185α, conserved in the British Museum, was struck from this die (Mørkholm 1979:206), before it was

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6 Reuse at different mints and over a range of years is most readily documented when the coins are both mintmarked and dated, as in the coinage of Cyprus starting *c*. 193 in the reign of Ptolemy V. Mørkholm 1983 investigated the life of 390 dies used at the Cypriot mints of Paphos, Salamis and Kition, and noted that of them, only 27 were used in three or more years. Only one of these dies was used in five consecutive years, and Mørkholm states that to his knowledge, this is the record for the lifetime of a Hellenistic die in continuous usage. It is in fact doubtful that the usage was continuous; more likely the die was employed to strike a small issue of coinage each year, then put away until needed in the following year.

7 *Mnaieia*: Svoronos 785; Troxell 1983:67, No. 3. For *tetradrachms*, Mørkholm (1980:6) listed one obverse and four reverse dies. The more recent study by Héloïse Aumaître, discussed in the final section of this paper, enlarged the die count to 10. To her corpus, we can add an additional coin, Sternberg, Sale XXVI, November 16, 1992, Lot 168, 14.20 g, which is stuck from an eleventh reverse die.

8 The word Svoronos followed by a numeral indicates a catalogue listing in Svoronos 1904.

used again during the Fifth Syrian War to strike at least six varieties of the 'Main Series' coinage of Ptolemy V.[9] However, this die seems not to have been recut and repaired as our die was.

The motivation for some of the recuttings of our die is puzzling. Naturally, since the die was used over an extended period, producing all the silver coinage struck at 'Akko-Ptolemais during the reign of Ptolemy IV,[10] some recutting was done to repair it. However, in one early instance the profile of the royal portrait is altered without any attempt being made to deal with emerging die flaws. The repeated recutting resulted in a final die state, represented by the final three coins in our study (Nos. 18–20), that is not immediately recognizable as a state of the same die that started out in Sidon, whose initial state is represented by the first six coins (Nos. 1–6). Therefore, we will carefully trace the path from the initial to the final state, tracking changes as they emerge. Die flaws provide critical clues that our coins were actually struck from different states of the same die, and not from different dies.

USE AT SIDON

All issues at both mints are of the same basic type:

Obv. Diademed head of Ptolemy I r., with aegis tied around neck, dotted border
Rev. ΠΤΟΛΕΜΑΙΟΥ on l., ΣΩΤΗΡΟΣ on r., eagle with closed wings stg. l. on thunderbolt, dotted border

Variety I: Svoronos 757: ⅃Ʒ in l. field, 𐤑 in r. field

Six examples of this issue at Sidon, struck from three reverse dies, were available for die study:

1.[11] R1 Athens, Svoronos 757α. Mørkholm 1980:7, No. 1. 14.10 g.
2. R2 Paris, Svoronos 757β. Mørkholm 1980:7, No. 2. 14.08 g.

9 Mørkholm 1979: The Ptolemy IV portrait type was employed in issues XI, XII, XIII, XIV, and XV, which were known to Mørkholm, and also in issue IX, which was not known to him, but is represented by several specimens in the Syria 1981 hoard (*CH* VII:22, No. 90 = *CH* VIII:40, No. 339), see, e.g., NFA, Auction XVIII, March 31, 1987, Lot 266, 13.92 g.

10 A gold *mnaeion* issue, Svoronos 1187 is known by one example, and is discussed below. This is the only other precious metal coinage known to be struck at Ptolemais during the reign of Ptolemy IV, and its obverse die, with a portrait of Philopator, has a very different style, as does it reverse.

11 All 20 coins in the nine varieties are illustrated on Pls. 1–2 at 1:1 scale. Examples of each variety are found in Figs. 1–3, 5, 8–10, 12 and 14, at 1.5:1 scale.

3. R2 CNG, Auction 64, May 7, 2003, Lot 187. 13.98 g.
4.* R3 Paris, ex Dattari, Svoronos 757γ. Mørkholm 1980:7, No. 3. 14.16 g (Fig. 1).
5. R3 New York, ANS 1986.78.1045, ex Jonathan Rosen coll. Alex Malloy FPL Winter 1983, No. H59, Ex Syria 1981 hoard (*CH* VII:22, No. 90 = *CH* VIII:40, No. 339 = *EH* I, No. 105), Meadows *forthcoming,* No. 760. 13.84 g.
6. R4 *NCirc*. LXXXIX, No. 12, December 1981, Lot 8343.



Fig. 1. No. 4 (Variety I) (1.5:1 scale)

The Khan el-Abde hoard of 1938 (*IGCH*:220, No. 1597) contained a specimen of this variety (Seyrig 1950:5, No.74), but it was not illustrated, nor is its weight listed.

Our obverse die suffered visible damage at a fairly early stage, a small die crack on the jaw in the coin pictured above (No. 4).

Although only four reverse dies are known to us, the issue may have been larger, using more reverse dies. If eight reverse dies saw roughly equal use, a random sample of six coins from the production would show four or fewer reverse dies with at least 50% probability. More details on the probable number of reverse dies associated with this initial variety are given below.

The next variety, II, still minted at Sidon, is known by one specimen.

Variety II: 𐌉𐌆 above 𐌀𐌐 in l. field, 𐌌 in r. field, 𐌍 between eagle’s legs

7.* R5 *SNG Copenhagen* 518, ex Numismatic Fine Arts, October 1975. Found in Israel. Mørkholm 1980:7, No. 4. 13.57 g (Fig. 2).



Fig. 2. No. 7 (Variety II) (1.5:1 scale)

While this variety is known by only one specimen, there was very likely another in the Khan el-Abde hoard. For the Ptolemaic component of the hoard Seyrig 1950 provides only an abbreviated table with Svoronos numbers (when applicable), control marks to left, to right, and below (the last a somewhat ambiguous description), the legend, and the mint (when known). No. 88 is listed as having ΙΣ 𐤀 in left field, 𐤌 in right field, 𐤍 (?) below, and a Soter legend. These elements are quite similar to those of variety II and we can easily imagine that the second and third controls were misread because they were damaged by inexpert removal of the thick layer of hornsilver described by Seyrig (Seyrig 1950:1–2). The only element inconsistent with variety II is the configuration of the mintmark, which is retrograde in terms of the order of the letters, though the letters themselves are not retrograde. We cannot attribute this discrepancy to limits of the typesetter, because the mintmark of No. 74 of the Khan el-Abde hoard is in fact reproduced correctly. The discrepancy may be due to a transcription error by Seyrig or it may reflect an otherwise unknown reverse die with an anomalous mintmark. Since Seyrig did not illustrate the Ptolemaic coins of Khan el-Abde, it is impossible to confirm whether No. 88 was struck from our obverse die.

With variety II the obverse die shows more damage, most notably two conspicuous flaws in the hair, one on the bulge of hair above and forward of the king's ear, the other an enlargement of the tip of the lock that just touches the diadem behind the ear in the first state of the die, but now begins to overlap the diadem. The die flaw on the jaw has grown more noticeable. The wear on the die indicates that quite likely the first issue was minted using more than four reverse dies.

USE AT 'AKKO-PTOLEMAIS

Our die next saw use at 'Akko-Ptolemais where it remained for the rest of its service. All of the varieties struck at Ptolemais are from small issues, and only variety VIII is certain to have involved more than one reverse die.

Variety III: ʻAkko-Ptolemais monogram 𐤀𐤒 in l. field, 𐤑 between eagle's legs. Partially erased 𐤐 in r. field

8. R6 Paris, ex Dattari, Z.2884.239. 13.99 g.
9.* R6 Philippidis coll., Hicksville N.Y. 14.11 g (Fig. 3).
10. R6 London, BM 1908. Mørkholm 1979: Pl. 23:18. 13.03 g.



Fig. 3. No. 9 (Variety III) (1.5:1 scale)

All three specimens show the same enlarged die flaw on the jaw. The teardrop-shaped flaw behind the ear, which had already reached a significant size on No. 7, is now slightly larger.

In addition to these changes in die state that are due to use, the die was reworked sometime prior to this first Ptolemais issue, but after No. 7 was struck. A digital overlay technique developed by Stannard and Fischer-Bossert 2011 is very useful for bringing this clearly into view. We have taken superimposed images of Nos. 4 and 9 and rescaled, shifted and rotated the top image so that identical features on the two coins match up as closely as possible (Fig. 4). A perfect match is only possible if the photos are taken in the exact same manner, with the same alignment of the focal plane of the image and the 'plane' of the coin, and beyond this, differences in lighting may exaggerate or obscure differences in the die as captured by the hand-struck coins.

In any case, once an optimal match is achieved, a 'masking pattern' is used to determine which of the two layers is visible in the image. Here, as in Stannard and Fischer-Bossert 2011, we use vertical stripes. Shifting and changing the widths of the stripes gives different comparisons. Generally two such views suffice to put in clear view both what has changed in the die and what has remained the same. The only change between views is the position of the mask; the relative positions of the coin images are kept fixed.

Being unable to bring the whole corpus together for photography, we must compromise, and make use of photographs taken under different conditions. No. 4 was chosen as the 'original state' reference photo not only because this coin is in

an excellent state of preservation, but also because it was photographed by Thomas Faucher using a ring-flash on a macro lens which gives illumination that is relatively free of shadows. We are grateful to Adam Philippidis for his high resolution image of No. 9. It is in much better condition than No. 8, also photographed by Faucher, and the condition of the obverse of this coin is such that No. 9 proves the better representative of the first Ptolemais issue for our purposes.

However, lighting from the top left produces shadows that must be taken into account.



Fig. 4. Two digital superpositions of the obverses of Nos. 4 and 9 showing recutting in the area of the nose

Clearly the nose has been recut, but there is no evidence that the die has been reworked in other areas. It is not entirely clear how the nose was made finer and shifted to the left. This change is stable through the rest of the life of the die. Most likely, the die was planed or polished, somewhat more strongly to the right. This would have the same effect on the contours of the profile as would a rise in water level on the contours of an island. After a surface layer was removed, the die was recut to give the nose a natural, but new, profile. In fact, it is possible that the effects of removal of a surface layer are visible, though less pronounced, on the left.

It is remarkable that the royal portrait was altered in this manner. Since the flaw on the chin was left in place, it does seem likely that the change in profile was intentional, and possibly the main purpose of the work. Perhaps a new official portrait was introduced at the start of Philopator's reign, and the die was recut to conform to this. However, so little Ptolemy I portrait coinage was issued early in the reign of Ptolemy IV that we cannot point to supporting examples of such a change elsewhere.[12]

The reverse die from which these three specimens were struck also shows very interesting evidence of reworking. There are clear traces of a partially erased control ΠΤΟ in the right field. Evidently, this issue was struck from an altered reverse die originally prepared for the regional issue of 225/4. However, it is not one of the ten reverse dies recorded by Aumaître, nor the eleventh die listed in n. 7. Indeed,

12 However, in the reign of Ptolemy II, specifically in 261/0, the introduction of the *epiklesis* Soter in coin legends was accompanied by a new, idealizing portrait type.

it attests a previously unknown variety of the regional emission of 225/4, one in which the Ptolemais mintmark takes an unprecedented form, with the *omicron* offset from the center of the monogram to the left. The reverse fields of the three specimens of variety II all show long parallel lines cut into the surface of the die, running nearly vertically, with a slight slant. These appear to be the result of a somewhat crude planing of the surface of the die to erase the control in the right field. The planing also removed most of the tail feathers and left a light outline around the near wing of the eagle. While the reworking of the obverse die for this variety was skillfully done, the partial erasure is somewhat crude. Later in this series, we encounter a clean erasure of a reverse control, indicating that better results were in principle possible.

Variety IV: ‘Akko-Ptolemais monogram 𐤀𐤒 in l. field, 𐤐 in r. field, tiny 𐤑 between eagle’s legs

11.* R7 Carlen coll., Princeton, N.J., ex Stack’s, April 14, 1999, Lot 59. 14.14 g (Fig 5).
12. R7 Rosenblum Rare Coins Mail Bid Sale 35D, November 2005, Lot 13. 14.11 g.



Fig. 5. No. 11 (Variety IV) (1.5:1 scale)

Our obverse die was reworked again for this issue. Once more, there are changes in the profile, and especially around the eye. Fig. 6 shows two digital superpositions of Nos. 4 and 11. In addition to the previously noted changes around the nose, the ridge around the eye has been recut and shifted to the left, the cheekbone below the eye has been lowered, and the mouth has been recut as well.



Fig. 6. Digital superposition of the obverses of Nos. 4 and 11 showing further recutting around the eye, nose, and mouth

The progressive recutting revealed in the overlays leaves no doubt that variety IV did indeed come after variety III.

In addition to this reworking of the mouth and eye, other details were reworked at this time. Fig. 7 shows the bulging curl of hair in front of the ear. On No. 4, the hair curls in a natural circular way. On No. 11, after the flaw in this area became enlarged, the hair now seems to hang more vertically from below the flaw, in lines that are quite sharp relative to other curls that are by now well smoothed by wear on the die.

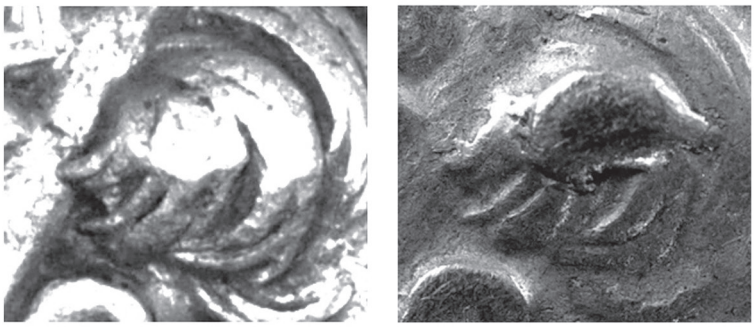

Fig. 7. Detail (×4) near the temples from the obverses of Nos. 4 and 11 (Carlen 2014:55, Fig. 2)

Curiously, the recutting of our die did not involve an attempt to repair the die flaw on the jaw, which continues to enlarge. We can offer no explanation for the focus on seemingly minor aesthetic aspects of the royal portrait while a flaw that disfigured it was ignored.

The reverse die used for this issue is again a die retained from the issue of 225/4, recut to add a discreet 𐤑 monogram between the eagle's legs. Unlike the reverse die of variety III, it shows no signs of attempted erasure around the 𐤌 in the right field. Again, this reverse die matches none of the 11 known to us for the 225/4 regional issue, but this time the mintmark matches the form on the known dies.

Variety V: ʻAkko-Ptolemais monogram 𐤀𐤌 in l. field, 𐤄 between eagle's legs

13.* R8 Balatah (ancient Shechem) hoard, 1960 (*IGCH*:219, No. 1588), Carlen 2014:45, No. 19. 14.15 g (Fig. 8).



Fig. 8. No. 13 (Variety V) (1.5:1 scale)

Between the production of varieties IV and V, the obverse die was significantly recut; no digital superposition is required as evidence. The recutting is most noticeable in the hair above the diadem and behind the king's ear, as well as on the bulge of hair above and to the right of the king's ear. In particular, the unusual fringe has been eliminated, and the entire bulge made more uniformly prominent.

The recut die was used to strike both ΣΩ coins and ΔΗ coins. The ΔΗ coins come in two varieties: One with the control between the legs of the eagle (variety V), and one with the control in the right field (variety VI). Both of these varieties show a very similar obverse die state. There is another ΣΩ variety (variety VII) that was struck from the die, in later state, before it was recut yet again. The main point, however, is that the ΔΗ and the ΣΩ issues were interspersed as proved by both controls being used before and after the first major recutting. This confirms and refines an earlier conjecture of Lorber that the two series were to some degree contemporary (Lorber 1995–1996:262).

The controls of variety V are identical to those of variety III, including the unusual form of the mintmark. Ordinarily this would imply that the two varieties should be classified together, i.e., as part of a single issue, but it is very difficult to reconcile such a classification with the evidence that our obverse die was reengraved after being used for variety IV. In addition to the extensive recutting of the hair, the large flaw on the jaw has almost been eliminated. The die may have been planed again, though more carefully this time, leaving no marks. Low-relief design elements, including most of the diadem and diadem ends, are faint. This may simply be the result of a weak strike; the tail feathers on the eagle are missing. However, the reverse die shows no sign of the erased monogram that was present on the previous ΔΗ variety III, and the reverse die is definitely different. It is, in fact, the first reverse die used at Ptolemais under Ptolemy IV that was not cut for an earlier

issue. The same is true for the next four reverse dies of the series. Apparently the mint now had access to a die cutter who was competent to produce reverse dies.

Variety VI: Svoronos 787: ‘Akko-Ptolemais monogram 𐤀𐤊 in l. field, 𐤇 in r. field

14. R9 London, BM 1906. 13.22 g.
15.* R9 London, BM 1907. 12.75 g (Fig. 9).
16. R9 Svoronos 787α. Cast from Six coll.



Fig. 9. No. 15 (Variety VI) (1.5:1 scale)

With this issue the flaw on the bulge of hair above the ear opened up again, and the flaw on the jaw reappeared.

Variety VII: ‘Akko-Ptolemais monogram 𐤀𐤊 in l. field, tiny 𐤇 in r. field

17.* R9' Carlen coll., Princeton N.J., ex. Forum Ancient Coins on VCoins, September 26, 2013, SKU SH64462. 13.79 g (Fig. 10).



Fig. 10. No. 17 (Variety VII) (1.5:1 scale)

This coin was struck from the same dies as the three specimens of variety VI. The reverse die has been recut to erase (very effectively) the ΔΗ monogram that was in the right field, and then the new retrograde ΣΩ monogram has been cut in somewhat higher and to the left. The far wing has also been recut, extending it somewhat further to the left. Fig. 11 shows digital superpositions of the reverses of Nos. 14 and 17.



Fig. 11. Superposition of the reverses of Nos. 14 and 17

Despite the worn condition of No. 17, it seems certain that the obverse flaw on the bulge of hair above the ear had enlarged considerably and a crack began to form from this flaw toward the eyebrow. The flaw on the jaw probably deteriorated as well. Thus the deterioration of our obverse die seems to assure a second alternation of the ΔH and ΣΩ controls.

There followed a second major recutting of the die prior to its final use for varieties VIII and IX. This operation is especially baffling because these varieties employed what were apparently new reverse dies. The engraver of these dies should have been capable of producing a fresh obverse die, yet he did not. Possibly the ideological importance of the royal image was in some way an obstacle — but if so, it was an obstacle that did not preclude making alterations to the royal image, and an obstacle that other mints routinely overcame.

Variety VIII: ‘Akko-Ptolemais monogram 𐤀𐤋 in l. field, 𐤑 between eagle’s legs

18 R10 Balatah (ancient Shechem) hoard, 1960 (*IGCH*:219, No. 1588), Sellers 1962:91, No. 47, reverse image only; Carlen 2014:45, No. 20. 14.00 g.

19. R11 New York, ANS 1986.78.1050, ex Jonathan Rosen coll. Ex Phoenicia, 1983 hoard (*CH* VIII:41, No. 344), now recognized as a portion of the Syria, 1981 hoard (*CH* VII:22, No. 90 = *CH* VIII:40, No. 339 = *EH* I, No. 105), Meadows *forthcoming,* No. 777. 14.03 g (Fig. 12).



Fig. 12. No. 19 (Variety VIII) (1.5:1 scale)

The hair was extensively recut before the striking of this penultimate issue. The diadem, which had been nearly invisible on preceding issues, was reinforced. Also, it appears that the jaw may have been recut with the aim of (largely) eliminating the flaw that had been opening since the first issues. The recutting is extensive enough that one might question whether the die used for Nos. 18, 19 (and 20) is still our die. Fig. 13 shows a digital superposition of No. 19 with No. 17 which confirms the die identity, which we discuss below, after tracking the die flaws that develop and emerge with this variety.



Fig. 13. Digital superposition of the obverses of Nos. 17 and 19 (Carlen 2014:56, Fig. 3, but at 1.5:1 scale)

On No. 18 we observe a new, narrow die crack on the neck below the jawline. Two horizontal die cracks appear on the face. The flaw on the bulge of hair above the ear now grew into a crack extending to the eyebrow in front and crossing the diadem in back. The teardrop-shaped flaw in the hair behind the ear also grew into a die crack, extending across the diadem and the ear onto the cheek. Both of these latter flaws are more clearly visible on No. 19.

The die shows significant new flaws on No. 19 which show our die as it approached its demise. The die crack on the neck widened unevenly, and there is an irregular flaw on the neck below it, evidently the result of a large pit in the die. Another such pit left a raised blob of metal on the cheekbone. The upper of the two horizontal die cracks now can be seen to cross the bridge of the nose and to extend out into the field, where it makes contact with a flaw spreading inward from the edge of the coin. The lower of the two horizontal die cracks is now terribly disfiguring. It reaches as far as the lower lip, and below it is a curious depression near the mouth, crossed by new die cracks that form something like a letter Z suspended from the lower lip. Apparently the cracking of the die was also accompanied by a deposit of metal in this area that created the depression on the coin. The crack that forms the bottom of the Z extends into the field, and the field before the face generally shows signs of die erosion.

Returning to the issue of die identity, the link through characteristic flaws and the exact match of a number of details provide strong evidence for a single die

rather than two or more dies produced by closely imitating a model. The presence of many differences — in the hair above the diadem for example — which do not suggest copying, but are consistent with recutting further strengthens the case for a single die instead of copying. Furthermore, extensive earlier use of the obverse die is consistent with the die state of Nos. 19 and 20 in particular, where the rough obverse field, together with the flaws, implies significant use by this point. This late die state can hardly have been the result of any other activity than producing the previous varieties listed here.

Given all the recutting that has been documented in the production of these varieties, and especially given the continuity of the two signature flaws, it seems safe to conclude that only a single obverse die was used for production of all 20 of these coins, and in particular, only a single die, repeatedly recut, was used to strike all of the silver *tetradrachms* known to have been struck under Ptolemy IV at Ptolemais. Other possible explanations, such as expert reproduction of similar images, or the use of hubs, are excluded by the alterations to the royal portrait documented here.

This Ptolemais variety is the first one since the initial Sidon variety that was demonstrably struck from more than a single reverse die.

Variety IX: ‘Akko-Ptolemais monogram ⲡ̅ⲟ̅ in l. field, ⲝ̅ between eagle’s legs

20.* R12 Rosenblum Rare Coins Mail Bid Sale 37D, November 15, 2007, Lot 154. 14.08 g (Fig. 14).



Fig. 14. No. 20 (Variety IX) (1.5:1 scale)

This final variety differs from the previous one only in that the control between the eagle’s legs is Ω over Σ instead of Σ over Ω as on variety VIII.

No. 20 shows our die very close to its demise. The neck has no flaws, which would seem to suggest that variety IX preceded variety VIII. Yet some of the remaining flaws are more developed. The lower of the two horizontal cracks appears larger behind the ear, and the depression around the mouth is definitely larger. The flaw in the field between 2 and 3 o’clock is also larger and more conspicuous than on No. 19. If we are correct in identifying this as the final state of our obverse die,