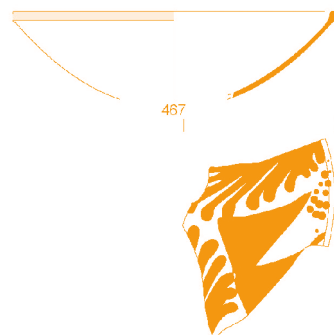


# Response to Erickson-Gini’s “Problems and solutions in dating Nabataean pottery in the post-annexation period”



**Abstract:** In the late 1990s, Stephan G. Schmid published a chronological typology of Nabataean Painted Fine Ware (NPFW) that was widely accepted by scholars of Nabataea and Roman Arabia. Tali Erickson-Gini has since raised concerns about parts of his NPFW typology, specifically related to two decoration types dating to the end of the 1st century and the beginning of the 2nd century CE (Dekorphases 3b and 3c). This article is a response to Erickson-Gini’s critique, published in this volume. We find that there is sufficient evidence to broadly validate Schmid’s proposed dating for the beginning of production of Dekorphases 3b and 3c to the late 1st century and early 2nd century CE, respectively.

**Keywords:** pottery, Nabataean chronology, Nabataean Painted Fine Ware

When Stephan Schmid published his Nabataean Painted Fine Ware (hereafter NPFW) chronological typology in the late 1990s/early 2000s, Nabataean and Roman Arabian archaeologists embraced it as the “most comprehensive presentation of Nabataean Fine Ware (both painted and plain)” (Fiema 2004: 230) and “an invaluable contribution that will undoubtedly constitute a standard paradigm” (Oleson 1999: 87). Schmid’s typology not only addressed a long-pondered question about the

**Sarah Wenner<sup>1</sup>**  
**S. Thomas Parker<sup>2</sup>**

<sup>1</sup> University of Cincinnati

<sup>2</sup> North Carolina State University

### **Acknowledgments**

The very first paper I wrote as a new graduate student for Tom Parker was a test of the NPFW chronology at Aila. That paper later became my first two conference presentations and, I believe, served as my entrance to numerous excavations and projects over the years. It is devastating but perhaps only fitting that this review of the NPFW chronological typology was the last project Tom and I worked on together.

With sincere thanks foremost to Tali Erickson-Gini, who has so generously shared her work, time, and most of all her thoughts as we have engaged in this debate. Notably, she most helpfully toured me around the relevant sites in the Negev and hosted me at her home a few months before the Amman workshop. Thanks also go out to Craig Harvey, Yvonne Gerber, Iwona Zych and the team at *PAM*, Tiffany Key, Pamela Koulianos, and numerous other colleagues who variously provided feedback, support, references, and resources; ACOR for a fellowship that supported this research; the North Carolina State University History Department and the University of Cincinnati Classics Department; and my husband, Andrew Maximiuk, who didn't blink an eye when, four weeks post-partum, I threw myself back into this article.

Tom surely would have wished to name additional individuals who have assisted in this research and work over the years. My sincere apologies that they may not be listed here.

Sarah

dating of the distinctive material, but it essentially validated already established pottery chronologies and the phasing of many of Petra's architectural structures, specifically Judith McKenzie's 1990 summary of urban development (McKenzie 1990: 105–112).

Schmid's NPFW chronological typology was established using materials from the Zantur villas in Petra, excavated in the 1990s. It established four "Dekorphases", several of which also had subphases, that dated the distinctive pottery from the 2nd century BCE through to the 2nd century CE and further (see below, *Table 1*; Schmid 1996; 2000). In the beginning of the 2nd century CE, however, the Zantur villas were destroyed, and occupation did not return until about 300 (Kolb 1996: 51). This break in occupation meant that Schmid did not have the data to determine the transition between Dekorphases 3c and 4. He theorized that the transition may have occurred about 150 CE, but left the actual date unresolved (Schmid 2000: 87–88). As a result, it appears that there is a gap in the distinctive NPFW tradition, between the first half of the 2nd century CE, when the painted decoration was applied to delicate, fine ware vessels, and the 4th century, when the painted decoration appears on more coarsely made ceramic objects.

In 2004, Tali Erickson-Gini's doctoral dissertation evaluated a collection of materials from a pantry at Avdat/Oboda that called into question Schmid's typology, specifically his proposed dating for the transition between Dekorphases 3c and 4. Erickson-Gini had excavated the Roman army camp and the nearby residential quarter there, along with

Peter Fabian, in 1999 on behalf of the Israel Antiquities Authority (Erickson-Gini 2002: 114; 2010: 88, 91). The final report of this project has yet to be published to the knowledge of this paper's authors, though the initial results appeared in a handful of different sources, including Erickson-Gini's doctoral dissertation and the subsequent publication, Fabian's unpublished 2005 dissertation, and a handful of articles (Erickson-Gini 2002; 2004; 2010; 2014; Fabian 2001; 2005; Goren and Fabian 2008).

Notably, Oboda's excavators disagreed about the dating of the Roman camp. According to Erickson-Gini, Fabian argued that the Roman army constructed the camp after the annexation, and it remained occupied until the Bar Kochba revolt (Erickson-Gini 2010: 89 citing Fabian 2001; 2005). His proposed dating of the residential quarter is unclear. Erickson-Gini, in turn, dated the construction of the camp to the late 3rd or early 4th century, arguing that builders had pulled the abundance of earlier Hellenistic and Nabataean material from middens to use as construction fill (Erickson-Gini 2010: 91). She dates the residential quarter that housed the pantry to three periods: the 1st century CE, the 2nd century, and the late 3rd or early 4th century—the last suggesting that occupation of the army camp and the residential quarter coincided (Erickson-Gini 2010: 91).

According to Erickson-Gini's phasing, the abandonment of the small pantry, measuring approximately 1.50 m by 2.00 m and containing almost 80 complete or nearly complete vessels, must have occurred at the end of the second phase, in the first half of the 3rd century

and before the construction activity of the third phase (Erickson-Gini 2010: 93–94). Appendix II of the published dissertation, *Nabataean settlement and self-organized economy in the Central Negev*, indicates that there was only one locus associated with the Pantry (1122), from which all the finds originated (Erickson-Gini 2010: 229).<sup>1</sup> Other finds, such as camel bones with Greek and Nabataean inscriptions, imported glass vessels, and a sealed jug possibly containing wine, suggest that the pantry had been fully stocked before it was abandoned. Before reoccupation occurred in the late 3rd century, the pantry was covered with a layer of soil. Noting other abandonments with similar deposits further east on the Incense Road, as well as a handful from Petra discussed in greater depth below, Erickson-Gini theorized that there was an epidemic that struck the region in the first half of the 3rd century (Erickson-Gini 2014: 95–97; see below, Note 27).

The Oboda pantry contained a variety of ceramic materials, including those produced more locally (from Petra and Aqaba, primarily) and imported ones. Specifically, the pantry yielded a complete example of a Hayes ESA Form 50 (dated to the 1st century CE; Erickson-Gini 2010: 234, Fig. 4); sherds of several additional ESA forms dating to the 2nd century CE (Erickson-Gini 2010: 234, Figs 5–7); an unguentarium identified

as Johnson's Type XII and dated to about 225–250 CE (Erickson-Gini 2010: 236, Fig. 21); a rim of a Benghazi/Berenice amphora dated to the early 3rd century (Erickson-Gini 2010: 241, Fig. 65); a casserole (dated initially to the 2nd century in Erickson-Gini's dissertation and redated to the 4th century in the later publication and subsequent work; Erickson-Gini 2004: 295–296; 2010: 106, 242; 2021: 698); and three NPFW bowls (Erickson-Gini 2010: 234, Figs 1–3). The majority of the other dateable pottery is most commonly dated to the 1st and 2nd centuries. The NPFW bowls are of interest because, according to Schmid's dates, they date to the late 1st and first half of the 2nd century CE. In light of some of the other finds from the pantry, however, Erickson-Gini suggested that the bowls dated later, to the second half of the 2nd or the first half of the 3rd century (Erickson-Gini 2010: 101–102).

At a 2014 conference held in Amman, Jordan, titled "Roman Pottery in the Near East: Where, Whence, Whither? Second Round Table", Erickson-Gini presented a list of potential issues with Schmid's NPFW typology, initially inspired by her work with the Oboda pantry. Using evidence from Oboda and other sites, she again argued that NPFW Dekorforms 3b and 3c may date as much as a full century later than their traditional dates of about 70/80–100 and about 100–150, respective-

1 The Locus note states: "Room 6 (Staircase tower and pantry; approx. 60 complete and intact ceramic and glass vessels found *in situ* in a small space, which may have contained wooden shelves; photos of *in situ* pottery finds; pottery ranges from late 1st and 2nd century CE (heirlooms?) and mainly 3rd century wares (ETS; NFPW [NPFW]; NFW; numerous cooking pots; cups; jugs; jars (including imported jars and jugs with plaster and cloth stopper intact); unguentaria; wood fragments; bronze; iron" (Erickson-Gini 2010: 229). As the note classifies the terra sigillata as a 3rd century ware, it is unclear what material she considered an heirloom.

ly. Such revised dating would, in effect, push the period of peak NPFW production into the 3rd century and significantly alter the dates of a great number of Nabataean and Roman sites. The finalized critique is now published in this volume (Erickson-Gini 2021).

In the years since Schmid's initial publication of the NPFW typology, a great number of structures in Petra alone have now been dated at least partly through Schmid's Dekorphases—including but not limited to the Petra Garden and Pool Complex (Bedal 2003: 72–76; Bedal et al. 2007: 162; Bedal, Gleason, and Schryver 2011: 320), Qasr al-Bint (Renel and Mouton 2013), the Khazneh (Farajat and Nawafleh 2005), Khirbet el-Tannur (McKenzie et al. 2013), the Great Temple (Saunders 2017: 215–216), and the Oboda Chapel (Tholbecq and Durand 2013: 212–220)—in addition to numerous more from elsewhere in the Nabataean kingdom.<sup>2</sup> It is also perhaps the most useful tool for the dating of

survey sites in the Negev and southern Jordan (e.g., Kouki 2012: 28; Abudanah et al. 2015: 159; Wenner 2018: 697). As a result, a review of the NPFW typology is especially warranted. We find that, in agreement with Erickson-Gini and not contra Schmid, Dekorphase 3c may have continued to be produced later than the mid-2nd century CE. There does appear to be sufficient evidence, however, to broadly validate Schmid's proposed dating for the beginning of production of Dekorphases 3b and 3c to the late 1st century and early 2nd century CE, respectively. The start of Dekorphase 4 production remains frustratingly unclear. What follows is a detailed discussion of Erickson-Gini's critique, generally following the sequencing of her argument. It examines the Zantur excavation and the specific issues Erickson-Gini raises about Dekorphases 3 and 4, comparanda from several sites in the Nabataean kingdom, and the (re)dating of other Petra-made ceramics.

## NPFW AND ZANTUR

Erickson-Gini levels several broad critiques against the NPFW typology: that the typology implies that Petra lost financial and cultural importance after the Roman annexation of Nabataea; that the typology created an “artificial gap” in the material culture at the turn of the 2nd century; and that the comparanda used to establish the typology mostly originated from secondary sites or otherwise problematic excavations. More specifically,

she notes that the Zantur typology—established in the first few years of excavation—was never re-evaluated, even after the 1998 recovery of a group of lamps and coins from Area EZ III, including a coin of Commodus (about 181–190 CE; Kolb, Gorgerat, and Grawehr 1999: 272–273).

Erickson-Gini's introductory points, that Schmid's typology “reflects a compulsion to compress the dates of Nabataean

2 E.g., Khirbet edh-Dharih (Durand 2017: Fig. 10); Wadi Sabrah (Tholbecq et al. 2016: 285); Hegra (Durand and Gerber 2014: 159–160; Charloux et al. 2016: Fig. 6; Durand 2017: Fig. 8); Dumat (Durand 2017: Fig. 7). This list is certainly not meant to be comprehensive.

material culture into a narrow historical framework that effectively ends with the Roman annexation of Nabataea in the early 2nd century" (Erickson-Gini 2021: 683), are evaluated throughout the discussion due to the enormity of the assertion, but the critique is largely found unproven. The argument, however, that Schmid did not use all available excavation material, specifically from Area EZ III, in the development of the typology appears untrue. Schmid's initial publication first appeared in 1996 (Schmid 1996). As the Area EZ III material was only excavated in 1998, it may not have been analyzed in time for the publication of the second volume in 2000, which offered a more detailed account of the chronology (Schmid 2000). In addition, no NPFW is mentioned in the 1999 *ADAJ* publication of the lamps and coins from EZ III, possibly suggesting that no painted material was recovered or that the sherds were so small as to be thought residual (Kolb, Gorgerat, and Grawehr 1999). The final analysis of areas EZ III and IV<sup>3</sup> is still forthcoming, but the publication may further clarify the materials recovered from this particular context. It thus appears that all evidence available to Schmid at the time was used to establish the typology.

The majority of Erickson-Gini's specific critiques are directed at Dekorphase 3, which Schmid divided into three subphases: 3a, 3b, and 3c. As Erickson-Gini notes, not all the contexts Schmid used to develop his typology contained abundant datable material; in particular, there were no coins used in the dating of

Dekorphases 3a and 3c, and only a handful of imported fine ware sherds (Erickson-Gini 2021: 687). Dekorphase 3a, Erickson-Gini argues, is too long of a time range given the general paucity of "homogeneous loci". In contrast, she suggests Schmid's time range for Dekorphase 3b is entirely too short with an abrupt termination, as is that of Dekorphase 3c in the middle of the 2nd century CE. Additionally, Erickson-Gini raises concerns over the number of contexts that contained both 3b and 3c sherds and/or the lack of sealed contexts, as well as how few imported fine ware sherds were used for the dating of both forms (Erickson-Gini 2021: 687).

Regarding the length of Dekorphase 3b, Erickson-Gini compresses the subtype into only 20 years, while Schmid himself originally proposed an approximately 20–30-year range (notably, Dekorphases 2a, 2b, and 2c are of similarly short duration; see *Table 1*). As all pottery dating has a margin of error, even this range is an estimate, which the *circa* before each range indicates. Thus, it is perhaps more reasonable to date 3b simply as "late 1st century" or the "last quarter of the 1st century" (McKenzie et al. 2013/II: 208). It is also incorrect to view the introduction of Dekorphase 3c as divorced from Dekorphase 3b. The two decoration types are undoubtedly related; Dekorphase 3c is, in essence, the same as the Dekorphase that preceded it without the fine lines covering the body of the vessel (the majority of the motifs that decorated the vessels under-

3 Not to be confused with volume III of ez-Zantur, which appeared in 2006. Notably, Grawehr does include some lamps from areas EZ III and IV in his discussion of relative chronology regarding lamps, but it helps little in this discussion.

neath the lines continued to appear on 3c). Because the two decoration types were so similar, and the main difference between the two was the disappearance of what may have been tedious details to paint, it is reasonable to suggest that the introduction of Dekorphase 3c would have rather quickly followed that of 3b.

The termination of Dekorphase 3c is of critical importance to Nabataean and Roman Arabian archaeology. As noted earlier, the dating of the termination of 3c to about 150 CE was merely a guess—as Schmid himself admitted—since the Zantur sequence ended in the early 2nd century (whether by Roman conquest/destruction in 106 or an otherwise unattested seismic event about 113/114; Schmid 2000: 38). This made the *terminus* of Dekorphase 3c challenging to ascertain, though other research has since allowed Schmid to extend the *terminus* possibly into the 4th century

if need be [see *Table 1*].<sup>4</sup> At this point, we simply lack the contexts needed to determine anything akin to an endpoint. As is so often the refrain, more excavation is needed.

In the same vein, Erickson-Gini expresses frustration at the presence of Dekorphase 3b sherds in contexts used to date Dekorphase 3c, noting, as the Zantur publication did, that there were few “clean” contexts (Stucky et al. 1994: 284). The presence of these earlier sherds in later contexts can easily be explained by residuality. NPFW sherds still litter the ground at Petra, suggesting that they had been produced in overwhelming numbers at their peak. Their ubiquity means that they continue to appear in contexts to which they cannot possibly date, such as a post-Byzantine context from Petra’s North Ridge, discussed below (for example, as discussed in Wenner 2021: 604, in this volume). Furthermore, it must have

Table 1. Dating of Schmid’s Dekorphases

Dekorphase	Zantur II date	Khirbet el-Tannur date (McKenzie et al. 2013/II: 208, Table 18.1)
1	about 150–50 BCE	End of the 2nd and the first half of the 1st century BCE
2a	about 50–30/20 BCE	Third quarter of the 1st century BCE
2b	about 30/20 BCE–1 CE	Last quarter of the 1st century BCE
2c	about 1–20 CE	First quarter of the 1st century CE
3a	about 20–70/80 CE	Second and third quarters of the 1st century CE
3b	about 70/80–100 CE	Last quarter of the 1st century CE with decreasing continuation
3c	about 100–? CE	Starts about 100 CE and continues into the 4th century CE
4	Present in the 4th century CE	Present in contexts dated to 363 CE

4 This proposal seems quite late given that it extends into the production period of Dekorphase 4.

taken a period of time, however long or short that may have been, for new Dekorphases to fully penetrate the ancient market before eventually making their way

into the archaeological record.<sup>5</sup> While this occurred, the previous Dekorphases continued to circulate until the vessels were ultimately discarded.

## IMPORTED FINE WARE AND THE NPFW ZANTUR TYPOLOGY

Erickson-Gini takes issue with the small number of imported fine ware sherds used to date the Dekorphase 3 subphases. She notes that, in Subphase 3a, dating was based on a single sherd of Western Terra Sigillata (WTS), *Conspectus* 20,4 (Erickson-Gini 2021: 687). Alternatively, in Schmid's discussion of the material used to date each phase, he notes that, especially in comparison with earlier phases, Phase 3 is rich in datable material (Schmid 2000: 25). The earliest Phase 3 deposits contained a Hayes Form 22b (about the end of the 2nd century BCE to about 10 CE), coins of Aretas IV (reigned 9 BCE–40 CE), and "einer pompejanischroten WTS" (late 1st century BCE–early 1st century CE; Schmid 2000: 25, Figs 420, 421, No. 43). At least three further Eastern Sigillata sherds were also used to date Dekorphase 3a (Schmid 2000: Fig. 420, Nos 42, 44–45).<sup>6</sup> While these additional ceramic finds do not provide as accurate a date for the Dekorphase as the WTS sherd does, they also do not contradict the dating. Taken together as a group, it is difficult to propose a date range better suited than that of approximately 20–70/80 CE or, more broadly, the second and third quarters

of the 1st century CE, with the available evidence.

For Subphases 3b and 3c, Erickson-Gini notes that ESA form 56 is used to substantiate both dates. Specifically, she notes that "Regarding Subphases 3b and 3c, covering the period between 80 and 150 CE, the ESA form used in their dating, Hayes 56, is listed in both subphases, 3b and 3c. However, according to Frederick O. Waagé, Form 56 was found at Antioch in Antonine deposits (138–192 CE)" (Erickson-Gini 2021: 687). This may be a slight misinterpretation of the stratigraphy, though, and the rather confusing nature of one of the published lists in volume II. Schmid's text indicates that two coins from 76 and 85 CE were the latest datable materials for the contexts containing the earliest Dekorphase 3b. The earliest Dekorphase 3c was recovered from the destruction horizons dating to the turn of the 2nd century (Schmid 1996: 161, 163–164, 168). If Schmid is correct that the Zantur destruction layers date to either 106 or 113/114 (Schmid 1996: 168), then a *terminus* slightly before those events is entirely fitting.

The Hayes Form 56 sherds from Schmid's Fig. 420, reprinted as Erickson-

5 For a discussion of the lifecycles of ceramics and the numerous paths that an object might follow before its deposition in the archaeological record, see Peña 2007; Dicus 2014.

6 The ESA finds include an ESA form 36/37 (about 60–100 CE), Form 40a (about 80–120 CE), and Form 22b (approximately the end of the 2nd century BCE to about 10 CE) (Hayes 1985: 23, 30–32). Again, it is important here to note that all dates are estimates, not absolute.

Gini's Fig. 5, may seem to show that the form was used to date Dekorphase 3b, but the figure is a bit misleading. It does not show the strata containing NPFW and other datable material from earliest to latest. Instead, it is perhaps better understood simply as a list of contexts containing NPFW and other datable materials, grouped by the Dekorphases but otherwise not representing earliest to latest loci. According to the relevant Harris matrices, all the strata that contained both 3b and Hayes Form 56 came from contexts that were above earlier ones containing Dekorphase 3c (Schmid 2000: Figs 406, 413, 414; see also Schmid 1996: 135, 161). In other words, the ESA form was never used to justify the introduction of Dekorphase 3b; the Hayes 56 sherds only confirm that both Dekorphases 3b and 3c had been in production before the mid-2nd century.

Of course, this still leaves unresolved how long Dekorphase 3c was in produc-

tion. As Erickson-Gini notes, production of Dekorphase 3b could have continued after the introduction of Dekorphase 3c. Circumstantial evidence suggests that was not the case, however. As of yet, archaeologists have only excavated one NPFW production site ('Amr 1991; 'Amr and Al-Momani 1999). If all NPFW were produced at one location, it is reasonable to suggest that once workers in the facility began production of 3c, they ceased to produce 3b, as they had done with the earlier Dekorphases upon the introduction of a new one. The matter is certainly not set as it is significantly more difficult to date the end of a form's production than its introduction, but as it is practice to use the introductory date to establish a *terminus post quem*, the end date is perhaps less important. Dekorphases 3b and 3c must offer a *terminus* of the last quarter of the 1st century and the start of the 2nd century, respectively, nothing later.

## COMPARANDA FROM OTHER SITES

After describing the perceived issues with the evidence used to substantiate the dating of Dekorphase 3, Erickson-Gini turns to examples from sites other than Zantur, primarily outside of Petra as well. This turn reflects one of her earlier critiques of the Zantur typology—that it was based upon sites with secondary contexts (that is to say, the vast majority of archaeological sites) or funerary contexts. To circumvent these issues, she relies heavily on sites significantly further from the ceramics' production site, mainly in the Negev.

Primary contexts are always desirable, but archaeologists are rarely privileged to work on sites with numerous examples. Funerary contexts often provide more primary or "clean" contexts, but the author is correct to note that the formation processes responsible for the deposition of material culture in burials are usually quite different from those of a house or shop. In Petra, however, burials from within the city walls are incredibly useful for the dating of NPFW as there is a well-established *terminus* of about 106 CE—the Roman annexation of Nabataea—for their use. Both sites in Petra and those

from elsewhere in the Nabataean kingdom are vital to the chronological question, though it should be assumed that NPFW was consumed and deposited into the archaeological record more quickly and routinely at the site where the material was made.

A quick note before exploring the specific examples. In addition to the Dekorphases, which divide the painted motifs into chronological groupings, Schmid also created a typology of bowl shapes. The separation of vessel shape ("Type") and decoration allows different bowl profiles to exist within a Dekorphase, and all painted Dekorphases except Subphase 2c can appear on multiple vessel shapes. Schmid notes, however, that, unlike the unpainted fine wares from Petra, painted body and base sherds are better classified by their decoration because the vessel shapes are often challenging to determine (Schmid 2000: 27). Thus, painted decoration should be viewed as more diagnostic than vessel shape.

### **TYPE E 2A 378**

In Erickson-Gini's review of NPFW from sites outside of Petra, she begins with bowl types of Dekorphase 3a. She notes that one of the best chronological markers for Type E 2a 378 (lattice-work motif), assigned to Dekorphase 3a, are the sherds recovered from Masada, in particular those from the Roman army camp (Camp F), which dates to about 72/73 or 73/74 CE (Magness 2009: Figs 3:1–5, 6:11, 9:9, 10:5, 11; Erickson-Gini 2021: 690). In addition, the type was associated with coins of 68 CE at the Oboda Roman army camp and early 2nd century earthquake destruction contexts at Yotvata (Erickson-Gini

2012: Fig. 5:7–8), Horvat Dafit (Dolinka 2006: 123, 126, cited in Erickson-Gini 2021: 690), Horvat Hazaza (Erickson-Gini 2019), and the Nabataean fort at 'En Rahel (Erickson-Gini 2021: 691). Together, these examples suggest to Erickson-Gini that the form may have extended to the end of the 1st century CE. Rather than conflicting with Schmid's proposed end date for the phase, though, these examples fit well within it. According to Schmid, Type E 2a 378 was in production until the last quarter of the 1st century. One could reasonably expect to find residual examples of the type, especially a popular one produced in significant amounts, in contexts dating to the early 2nd century. The publication of 'En Rahel is still forthcoming, and the dissertation discussing Horvat Dafit could not be obtained in time for this review, but notably, the referenced sherds from Yotvata and Horvat Hazaza are small and likely residual, which makes their presence in destruction contexts unproblematic. The Yotvata collection even includes earlier Dekorphase sherds of relatively similar size (Erickson-Gini 2012: Fig. 5:1–6), making it even more difficult to argue that the corpus contradicts the dating of Dekorphase 3a.

### **TYPE E 1B 10**

Unlike Type E 2a 378, which only appears with Dekorphase 3a, Type E 1b 10 is listed as appearing with Dekorphases 3a–3c (Erickson-Gini 2021: 691). The critique is that the bowl shape seemingly exists for longer than believable, and Erickson-Gini is correct. Schmid published a single example of a Dekorphase 3a motif on an Type E 1b 10 bowl—a flat, "eggshell thin" shell with slightly curved

walls and a stepped lip with a thickened, oval-shaped rim (Schmid 2000: 28). Upon further review, the single example of Dekorphase 3a on a bowl of Type E 1b 10 is actually an example of Dekorphase 3b decoration on a Type E 1b 10 bowl. In a review of other published examples of NPFW sherds, we could not find examples of Dekorphase 3a on this type of bowl. It seems more likely that Dekorphase 3a does not appear on Type E 1b 10 bowls and that the single published example is a mistake. This is a small but potentially confusing error in the Zanbur publication, though in Schmid's later publications, he rightly considers this motif to be Dekorphase 3b, not 3a (e.g., Schmid 2007: 318, Figs 8–9; McKenzie et al. 2013/II: 239, Figs 11–13). In sum, it is unlikely that Dekorphase 3a appears on bowl Type E 1b 10. Instead, it is expected that the type began in the last quarter of the 1st century CE and in association with Dekorphase 3b.<sup>7</sup>

Erickson-Gini notes that Type E 1b 10 was missing at a handful of sites with 2nd-century destruction layers. At the same time, the form was recovered from the Oboda pantry dating to the late 2nd or early 3rd century (Erickson-Gini 2010:

Fig. 2:2), from a Mamphis tomb with material dating to the 2nd and 3rd century (Negev and Sivan 1977: 126, Fig. 7; Negev 1986: 79, Note 19), and from a “Middle Roman” context in the Temple of the Winged Lions in Petra (Erickson-Gini and Tuttle 2017: Figs 8:20; 10:1–2) as well as Tomb 2 on Petra's North Ridge (Bikai and Perry 2001: Figs. 7:7–8). All examples are worth discussing individually. To start, the absence of the form in destruction levels of two Negev structures does not preclude the form's existence at the time of the destruction event, no matter how common or uncommon it is thought to be. While the 'En Rahel material is not yet out, the published material from Yotvata is limited and, as already noted, appears to be a mixed context with a significant amount of earlier material. Quite simply, the absence of the form from these two sites should in no way be considered sufficient evidence to disprove the type's 1st century production date. Additionally, Erickson-Gini explained the presence of ESA vessels in the Oboda pantry as heirlooms (Erickson-Gini 2010: 103). This is certainly possible, but, if so, could the NPFW examples not also be considered as such (i.e., heirlooms)?<sup>8</sup>

7 Erickson-Gini noted that the bowl type did not appear at Masada (Erickson-Gini 2021: 691). As the form was likely not in production yet, the absence is not surprising. But it is also worth noting that Masada lay outside of the boundaries of the Nabataean kingdom. Analysis of the geographic distribution of Nabataean pottery reveals that little Nabataean pottery is recovered from beyond its political borders. For example, consider the pottery from Hesban/Esbu, a city whose southern border lay just north of Madaba but yet within Nabataea. Extensive excavations of Esbu yielded very little Nabataean pottery despite its proximity to the kingdom (Sauer and Herr 2012). Even if Dekorphase 3a appeared on Type E 1b 10 bowls, it should not necessarily be expected at the Roman siege camps at Masada or from mid-1st century sites outside of the Nabataean kingdom.

8 While Erickson-Gini offers the possibility that the ESA from the Oboda pantry may have been heirlooms, she also suggests that the ware might have been produced as late as the late 2nd or early 3rd century. Specifically, she states that the material from the Oboda pantry and

The Mamphis example is an interesting one. According to the original excavator, Mamphis tomb 108 was used as a burial site during two distinct periods. The later burial of six individuals contained coins of about 300 CE. Below these burials, the team recovered material of the 1st century CE, including painted pottery, a coin of Rabbel II dating to about 74 CE, and a lamp of the same period (Negev 1971: 121; Negev and Sivan 1977: 113). The remarkably complete Dekorphase 3b painted motif on a Type E 1b 10 bowl came not from a burial but from a funerary meal at S.147, one of the largest in the necropolis (Negev and Sivan 1977: 115). It was recovered along with several ESA bowls of Hayes Forms 56 or 57, dating to the 2nd century CE (Negev and Sivan 1977: Fig. 6.39–41). The ESA vessels are presumably the 2nd century material that allows Erickson-Gini to postulate a 2nd or 3rd century date. This classification, however, ignores the rest of the material from the collection. The 1977 publication also includes an unpainted fine ware bowl of the mid to late 1st century BCE (Group 5; Schmid 1996: Figs 642–645); a cooking bowl that,

depending on the handle shape (not included in the 1977 publication), could date either to the late 1st century BCE or the 4th century CE (Gerber 1997: 408, Fig. 1; Bignasca et al. 1996: Figs 742–745 Töpfe Type A5a); and a cup of the 3rd century (Parker et al. forthcoming). The wide range of dates supports Negev's original claim that the funerary meal pottery had come from three distinct periods, not one, between the 1st and 3rd centuries (Negev 1971: 128). Rather than a collection of pottery from a sealed context, the Mamphis Dekorphase 3b example originated from an area that remained open and in use for an extended period.

Erickson-Gini also noted that a handful of Dekorphases 3b and 3c on Type E 1b 10 sherds was recovered by the American Expedition to Petra, both from the so-called "Lower Floor" of the Early House and a marble workshop. The first, a "Middle Roman" context, contained six unguentaria, identified as Johnson's Type XII, and coins of the 2nd and 3rd centuries, in addition to the NPFW (Erickson-Gini and Tuttle 2017: Figs 8:20; 10:1–2). The published Dekorphase 3b sherds from the Early House's Lower Floor were small,

Shiqmona supports the "Middle Roman" date proposed by Waagé in his mid-20th century publication for ESA from Antioch (Erickson-Gini 2010: 103). Alternatively, most scholars accept that the ware's peak production occurred in the early–mid-1st century CE and had almost entirely disappeared from the Levant's interior, or the portions of the southern Levant that are not close to the coast (see Bes 2015: Fig. 4), by the end of the 2nd century (Bes 2015: 53–55, Figs 41–42). Given the paucity of evidence, there is no reason to suggest that certain ESA forms continued so late. Even if ESA continued to be produced and sold in the region during the early 3rd century, it is unlikely that the ware made it further than the major urban centers with easy access to the eastern Mediterranean, like Antioch, to the smaller sites in the central Negev. Such a pattern has been established regarding other wares. For example, Italian Terra Sigillata has been recovered almost exclusively from eastern Mediterranean cities with roles in provincial administration. While ITS has also been recovered from the southern Arabian peninsula and India (e.g., Begley and De Puma 1991; Sedov 1992; primarily during the early 1st century CE), it rarely penetrated further east than the Levantine coast (Bes 2015: 83).

suggesting that they were residual. The other painted fine wares—Dekorphase 3c/4 and a painted juglet—fit well within the proposed date of a 2nd or 3rd century context. Alternatively, the marble workshop likely dates to the 1st or early 2nd century, not the 2nd or 3rd centuries. The excavator, Philip C. Hammond, had initially dated the context to the 1st century CE on the basis of 1st century coins.<sup>9</sup> The other ceramics recovered from this context included a hemispherical bowl and a lantern. While Erickson-Gini dates these to the 2nd and 3rd centuries, both forms were in production in the 1st and 2nd centuries, as was the complete jug.<sup>10</sup>

The final example of Dekorphase 3b on the bowl Type E 1b 10 given by Erickson-Gini in later contexts is from Tomb 2 on Petra's North Ridge, where the decorated vessels were recovered along with Dekorphase 3c vessels and others dating to the "Middle Roman" period.<sup>11</sup> Here, the tomb appears to have been misdated. Erickson-Gini claims that the tomb dated to 80–100 CE, but the 2020 final publication of the North Ridge excavations suggests that Tomb 2 may have come into use in the middle of the 1st

century CE and likely remained so until the Roman annexation. The numerous coins recovered from Tomb 2, dating from about 9 BCE–40 CE (Aretas IV, *n*=5) to about 70–106 CE (Rabbel II, *n*=54), support the longer period of use (Bikai, Perry, and Kanellopoulos 2020: 162).

There were ceramic and coin finds from later periods in Tomb 2, as Erickson-Gini noted, but these were likely deposited sometime between the 6th and 8th centuries CE and do not reflect continued use from the 2nd and 3rd centuries. Late finds included coins of Valens (about 364–367), Theodosius II (about 406–408), and Justin II (about 518–527), sherds with wavy line decorations, likely of the late 4th century (Gerber and Fellmann Brogli 1995: Figs 8.1, 9.4; Bikai, Perry, and Kanellopoulos 2020: 166), and numerous imported Late Roman fine ware, including African Red Slip, Cypriot Sigillata, and Egyptian Red Slip (Parker 2020: 293). As the excavation team noted, the post-Byzantine occupants left behind:

... thick layers of occupational debris ... Additionally, they [the later occupants] explored the hillside for

- 9 Erickson-Gini and Tuttle's 2017 reevaluation of the excavation contests that "at least three other coins of the Early Byzantine period were discovered in the debris of the room (C#4, 11, 13), some of which were found together with Nabataean coins in loci both in the upper and lower layers" (Erickson-Gini and Tuttle 2017: 128). It seems most likely that the early Byzantine coins entered the context when the room collapsed, perhaps during the 363 earthquake.
- 10 E.g., Khairy 1985: Type I; McKenzie et al. 2013/II: 222; Saunders 2017: Fig. 11.2.7–8; Bikai, Perry, and Kanellopoulos 2020: 180–185, 209–210. The published example of a lantern may be an incense burner, an object commonly mistaken for lanterns (Taxel and Iserlis 2014).
- 11 Erickson-Gini's use of the term Middle Roman is unclear as it is not commonly used in Jordan. Presumably, the author means that the context is dated to the 2nd or 3rd centuries (Bikai and Perry 2001: Fig. 7:7–10; Erickson-Gini 2021: 692). The other excavated tomb on the North Ridge, Tomb 1, dates to the first half of the 1st century CE (Bikai, Perry, and Kanellopoulos 2020: 162). A review of the published NPFW suggests that Dekorphase 3a was the latest fineware from use-phases.

tombs to loot, even pulling up the floor slabs within the Byzantine period structures in their search. Tombs opened by this population soon filled with occupational debris and architectural fragments from the nearby structures" (Bikai, Perry, and Kanellopoulos 2020: 66).

Table 2. Loci with Dekorphases 3c and 4 from the North Ridge tombs at Petra and phasing (except for I – Nabataean [1st c. BCE–1st c. CE]):  
 II – Late Roman (1st–mid-4th c. CE)  
 III – Early Byzantine (mid-4th–mid-5th c. CE)  
 IV – Late Byzantine (mid-5th–6th c. CE)  
 V.1–V.2 – 6th–8th c. CE

NPFW page and #	Stratum/a	Period(s)
240, #1	950	V.2
240, #2	956	II–V.2
240, #3	908, 922, 950C, 951, 951B–C, 952, 955, 959	V.1–V.2
241, #2	908, 951	V.2
241, #214	916, 952, 952D	II–V.2

The NPFW pottery that seems to challenge the tomb's date originated from purely post-Byzantine strata or strata with post-Byzantine activity [Table 2].

The North Ridge tombs must have ceased functioning as such around the turn of the 2nd century CE, when Rome annexed the Nabataean Kingdom and created the province of Arabia, and when production of Dekorphase 3c had just started. Excavation elsewhere on the North Ridge has suggested that shaft-cut tombs went out of use then, around the period of the city wall's construction.<sup>12</sup> At that time, Petra fell under Roman law, which prohibited burial inside the *pomerium*, making it unlikely for the intramural tombs to remain in use into the 3rd century.<sup>13</sup> The Dekorphases 3a and 3b sherds within a 1st and early 2nd century context do not conflict with this proposed timeline. Nor would Dekorphase 3c sherds; use contexts from other North Ridge tombs include a handful of examples of the decoration, suggesting that potters had only just begun production of the pattern (Wenner 2016).

12 The latest datable pottery recovered from underneath the wall dated to the early 2nd century (Parker and Perry 2013: 402; Parker 2016: 592–594).

13 While intramural burial was more common in the Roman East than it was in the West, it nevertheless remained relatively atypical. In Asia Minor, those granted burial within the *pomerium* were individuals of high status, and as they were often elevated to the level of a regional hero, their burials were seen to exercise a talismanic function or carry an apotropaic quality (Cormack 2004: 37–49). Rare was the less exceptional burial within city walls, like the pit graves attested on the citadel of Dura-Europos. Here, though, it must be noted that the citadel was abandoned at the time of their interment (about 1st century CE; Matheson 1992: 125–127; de Jong 2017: 29). As of now, only one tomb in Petra, that of T. Aninius Sextius Florentinus, governor of the province, has been dated to the period following the annexation. With a burial after 127–130 CE (his term according to the Greek Papyri from the Cave of Letters), the façade tomb was carved at the base of al-Khubtha, outside of the city wall and a few hundred meters around the hill from the so-called Royal Tombs. The situation is an unusual one. Perhaps the governor was granted a traditional Nabataean-style burial because he had been living in Petra at the time of his death, in addition to his high rank (CIL III 14148; Browning 1973: 223–224; McKenzie 1990: 33; Wadson 2011: 4).

## VESSELS AND MOTIFS FROM THE 2ND–EARLY 3RD CENTURY

### UNGUENTARIA

Erickson-Gini bases many of her redating arguments on the presence of unguentaria, particularly those classified as Johnson's Type XII, in contexts containing Dekor-phases 3b and 3c sherds. The most obvious example is the unguentarium from the Oboda pantry, which she dates to about 225–250 (Erickson-Gini 2010: 236, Fig. 21). As one of only a handful of vessels from the pantry dated to the 3rd century, the unguentarium's identification is of critical importance to maintain the deposit's later date. In this case, however, the unguentarium seems to be misidentified; what Erickson-Gini classifies as Johnson's Type XII could perhaps be better classified as a Type III. Johnson's published example of Type III is quite large, but his text notes that there are two ranges, roughly 8–10 cm and 12–18 cm, the former of which is represented here.<sup>14</sup> Type III was also recovered from burials on Petra's North Ridge, which supports the dating of the Oboda vessel to the 1st century.

Erickson-Gini also notes the presence of unguentaria, Johnson's Type XII, in the North Ridge's Tomb 2 (Erickson-Gini 2021: 692). Here again, she uses this form to argue that the contexts best date to the early 3rd century. However, as was the case with the Dekorphases 3c and 4

vessels discussed above, all published unguentaria from the North Ridge's Tomb 2 originated from either post-Byzantine strata or strata disturbed during the post-Byzantine reoccupation (Bikai, Perry, and Kanellopoulos 2020: 213). The appearance of unguentaria with NPFW in contexts dating to the Islamic period cannot support Erickson-Gini's proposed redating of the tomb and the vessels within it. It is also worth noting that, while David Johnson's 1987 dissertation was critical to the study of the Nabataean incense trade and the perfume industry, he, unfortunately, lacked some of the stratigraphic contexts needed for the dating of his vessel classes.<sup>15</sup> Johnson repeatedly cited an inscription from 27 CE from the Temple of the Winged Lions that was not found *in situ*. Instead (and as Johnson readily admitted), it was merely stored within a room in the temple complex (Johnson 1987: 65). That Forms V–VII (about 27–100 CE) are dependent on the date of the inscription alone should give one considerable pause before using an unguentarium alone to justify a proposed date/redate.

While Johnson's chronology may require further refinement, Erickson-Gini has good evidence to suggest that several of Johnson's Type XII vessels were deposited in early 3rd century contexts.

14 The type was dated based on construction fills underneath the Temple of the Winged Lions. The latest coins were those of Aretas IV and Shaqilat, providing a *terminus ante quem* of about 18 CE (Johnson 1990: 237).

15 For instance, a literal reading of Johnson's dates implies that no unguentaria were produced between 200–225 CE. Forms I–IV date pre-27 CE, Forms V–VII date about 27 to 100 CE, Forms VIII–XI date from about 100 CE to “earlier than the beginning of the third [century]”, and Form XII dates post 225 CE (Johnson 1990: 237–238).

However, these examples merely provide a *terminus ante quem* for the vessels' production, and the date of the vessel's initial appearance remains unclear. In addition, all the unguentaria referenced as Type XII may not be of the same type. The Type XII examples recovered from Tomb 2 commonly have ribbing.<sup>16</sup> While difficult to discern from the quality of the image, none of those referenced from the Temple of the Winged Lions publication are ribbed (Erickson-Gini and Tuttle 2017: 113, Fig. 13:7–12), a difference that should at least suggest that they might not be of the same type. As little else from Tomb 2 dates to the 3rd century (according to the standard dating of the imported fine wares and the locally produced coarse wares), one might reasonably suppose that the presumed Type XII unguentaria may have appeared as early as the 1st or 2nd century, especially given the flaws so evident in the unguentaria typology.

### BOWLS AND CUPS

In addition to the dating of Dekorphases 3b and 3c, Erickson-Gini also challenges the date of other fine ware vessels from Petra, particularly those from Schmid's Groups 7–9. Like most Petra excavators, Schmid and Erickson-Gini both note that these are produced in massive amounts in comparison with some of the earlier examples (Schmid 2000: 10, 21; Erickson-Gini 2021: 692–693). How-

ever, Erickson-Gini goes on to state that "Schmid's ceramic chronology confines them largely to Subphase 3b, an extremely short span of only 20 years(!). Moreover, while Groups 7, 8 and 9 are assigned to Subphase 3b, they were also present in Subphase 3c" (Erickson-Gini 2021: 693). Her critique is that there is simply no way that Group 7 can be restricted to the same timeframe as Dekorphase 3b.

She is correct that Group 7 (as well as 8 and 9) does not date strictly to about 70/80–100 CE. But Schmid does not appear to make such a claim on the page cited or elsewhere for that matter. Schmid's Group 7 refers explicitly to the fine ware version of the carinated bowl with "ausserordentliche Dünnwandigkeit (1 bis 2 mm) [extraordinarily thin walls (1–2 mm)]" (Schmid 2000: 9), rather than all versions of the carinated bowl, especially those in semi-fine or even coarse ware. Schmid did equate Groups 7 and 8 with Phase 3 broadly (Dekorphases 3a–3c; Schmid 2000: 37, Plan 10),<sup>17</sup> but again, it must be remembered that occupation ceased at Zantur in the early 2nd century. When occupation began again about 300 CE, the incredibly thin Group 7 bowls were no longer in production. Like Dekorphase 3c, it is not entirely clear when Group 7 ceased to be produced. Group 7 examples can occasionally be found with late 2nd or even 3rd century material,<sup>18</sup> but all examples

16 Indeed, of the ten examples published with drawings of the body, six are ribbed (Bikai, Perry, and Kanellopoulos 2020: 213).

17 He clearly states that Group 7 existed while Dekorphase 3a was in production, saying "daneben sind in beiden Fällen auch schon einige Vertreter der Gruppen 7 und 8 beziehungsweise der Dekorgruppe 3a vorhanden" (Schmid 2000: Note 169).

18 Erickson-Gini notes that Type E1 c 8 was recovered from 3rd-century contexts along the Incense Road, but the publication she cited is forthcoming and not available for review.

mentioned by Erickson-Gini appear to be residual, and there is little to suggest that the fine ware version, with a thickness of only 1–2 mm, continued to be made during those periods. Groups 8 and 9, fine ware bowls that are not nearly of the same thinness, do continue later and are more likely to survive in the archaeological record due to their larger size.

Excavations at Petra, Aqaba, and elsewhere in the Nabataean kingdom have shown that the coarse ware carinated bowl, a ubiquitous find at most Nabataean sites, enjoyed a long life from the 1st through 4th centuries (Erickson-Gini 2021: 693–694).<sup>19</sup> Its presence in association with Dekorphases 3b or 3c is not problematic in much the same way that an Aqaba Ware carinated bowl, made in the 2nd and 3rd centuries, is not.<sup>20</sup> Additionally, while the author notes that the specific fine ware versions of the carinated bowl were not found in certain 1st century CE contexts in the Negev (Erickson-Gini 2021: 693, citing Erickson-Gini and Hirschfeld forthcoming), the absence of a form from a handful of sites cannot be taken to mean that the form was not in production.

In the same vein, despite the author's assertion otherwise,<sup>21</sup> rouletted vessels are common finds from 1st century CE contexts. It is not the place here to discuss the myriad of examples that prove that rouletted fine ware of the type she described existed in the 1st century CE. It is perhaps enough to note that there were several examples of rouletted pottery including a NPFW cup with rouletting, from the North Ridge's Tomb 1, the 1st century date of which the author does not dispute (Bikai, Perry, and Kanellopoulos 2020: 222, 230). As a result, the rouletted bowl recovered along with a Dekorphase 3c bowl from the Upper Market in Petra is also unproblematic (both could easily date to the early-to-mid-2nd century), though the context in which they were found is not given. The 3rd century Qasr al-Bint bowl Erickson-Gini attests to have rouletting is only published as a photograph, and no rouletting is visible (Augé et al. 2014: 24, Fig. 1.6; 2016: 262, Fig. 1.5; Erickson-Gini 2021: 695). As the coarse ware version of the bowl, of which this example appears to be, is one known to be produced from the 1st century into the 4th century, this exam-

19 E.g., Dolinka 2003: 66; Retzleff 2003: Fig. 14; Bedal et al. 2007: Fig. 18; Graf, Schmid, and Ronza 2007; Schmid 2007: Fig. 17; Charlux et al. 2016: Fig. 6; Durand et al. 2018: Fig. 13.

20 Erickson-Gini (2021: 693) states that "Dolinka has demonstrated ... that the Aqaba Ware form of this bowl (his Form B2) continues to occur frequently throughout the 2nd and early 3rd century CE". Her citation is for an unpublished dissertation that could not be obtained, but a later imitation of a Petra vessel does not require the Petra vessel also to date later. In addition, excavations at Aqaba have produced no examples of carinated bowls as thin as Schmid's Group 7, making it unlikely that the cited example from Horvat Dafit is a true parallel (Dolinka 2003; Parker et al. forthcoming).

21 She argues specifically that "[r]ouletted decoration, which rarely appears in contexts of the 1st century CE, becomes a dominant form of decoration, even on closed forms such as barrel-shaped jugs and decanters, towards the end of the fineware tradition in the early 3rd century CE, as is made apparent at sites along the Petra–Gaza Incense Road" (Erickson-Gini 2021: 695).

ple certainly cannot be used as evidence that rouletting occurred only after the 1st century CE, let alone that the decoration type continued into the 4th century.

Painted and unpainted cups share a similarly long production range as the Qasr al-Bint bowl example shows. Few dispute that cups, mostly in coarse ware, continue to feature painted decoration after the 2nd century CE; Erickson-Gini provides several examples and many more could be added. Here, though, the issue is not in the dating of the cups or their decoration. Instead, Erickson-Gini seems to have conflated fine ware and coarse ware cups, the latter of which were produced for a significantly longer period of time than the former. In addition, the cited examples are of the Dekorphase 3c painted decoration on fine ware cups (Schmid 2000: 62, Figs 212–214, 227–229; Erickson-Gini 2021: 696). The Zantur typology publication does not include cup examples with every painted decoration type, but it does include painted fine ware cups with Dekorphases 1 and 2a decoration (Schmid 2000: 57, Figs 201–204).<sup>22</sup> Fine ware cups certainly could feature a range of decoration types, and the Zantur team cannot be faulted for not recovering or publishing examples of each painted decoration on every vessel. Many of the same decanter types cited as problems similarly appear without issue. Zantur did not have contexts of the 3rd century and therefore could not provide examples of types from these periods, but Erickson-Gini's own

examples (from the North Ridge's Tomb 1) indicate that the form began in the 1st century (Bikai and Perry 2001: Figs 5:19–20; 8:8, 14; Erickson-Gini 2021: 696); nowhere in the publication is the claim made that the form dates exclusively to the late 1st and 2nd centuries.

### CASSEROLES

Erickson-Gini's remaining examples also do not conflict with Schmid's NPFW typology, although sometimes it is unclear precisely what the proffered conflict is. She notes that casseroles with horizontal handles, as well as several other forms, appear in "Middle Roman" to early Byzantine contexts in Nabataea. As the Oboda pantry had such a casserole, the context that contained examples of Dekorphases 3b and 3c must date to the 3rd or 4th century, according to her (Erickson-Gini 2021: 698–699).

Casseroles with horizontal handles from Petra and Aqaba do date to the early Byzantine period. At al-Zantur, they appear only after the *circa* 300 reoccupation (Fellmann Brogli 1996: 257, Figs 772, 775–776). The example from the Temple of the Winged Lions originated from a context that contained Dekorphase 4 sherds along with what appears to be residual sherds of Dekorphases 3b and 3c, suggesting that the context dates to the 4th century (Erickson-Gini and Tuttle 2017: Fig. 8:24–25; Erickson-Gini 2021: 699). But the casserole recovered from the Oboda pantry does not seem to have been produced in

22 To be clear, the Zantur publication does not make the claim that only painted fineware cups have Dekorphases 1, 2a, and 3c motifs. Instead, these are simply the only illustrated examples as is explained in a later discussion; "Die Tatsache, dass die Anzahl bemalter geschlossener Formen in allen Phasen im Vergleich zu den bemalten offenen Gefässtypen äusserst gering ist, weist den Weg für eine Erklärung dieses vermeintlichen Widerspruchs" (Schmid 2000: 82).

either Petra or Aila ware; Erickson-Gini, who had originally dated the vessel to the 2nd century CE, described the fabric as “dark brown (7.5 YR3/2); numerous tiny cream and occasional medium to very large cream inclusions” (Erickson-Gini 2010: 242). This description of the color does not match either the Petra or Aqaba fabric. In addition, the Dor parallel she cited appears to be a good match (Guz-Zilberstein 1995: Fig. 6.49.9), and there are other examples of casseroles of this type in 2nd century contexts from Israel (e.g., Elgavish 1977: Pl. IV:21; Negev and Sivan 1977: Figs 5:37–38, 8:57; Bar-Nathan and Adato 1986: 172, Fig. 2:15; Guz-Zilberstein 1995: 322, Fig. 6.49.9; Calderon 2000: 96–97, Pl. III:53; Silberstein 2000: 437, Pl. VII:3, 4; Gendelman 2018: 124, Fig. 6.14; Gendelman 2020: 170, Fig. 5:14).<sup>23</sup> If the Oboda casserole was not produced in Petra or Aqaba, both places where the form dates to the 4th century, and the Oboda example has 2nd century parallels from elsewhere, its presence with Dekorphases 3b and 3c vessels does not necessitate the fine ware sherds to be dated to a significantly later period.

### LAMPS

Concerning lamps, contrary to Erickson-Gini's claim, Grawehr's Type I.1 (circular lamp with a small filler hole and ovoli motif) was not suggested to have a 300 year lifespan (Grawehr 2006: 310–314). Although residual examples were recovered from later contexts, dating as late as 363 CE, Grawehr does not claim that

production continued until that point as evidenced by the dates for the subtypes (about 80–120, about 120–150, and about 150–220 respectively; Grawehr 2006: 310–314). The majority of examples cited by Erickson-Gini do not conflict either with the proposed dating of the lamp type or the painted fine ware chronology (it is possible that the form may even date slightly earlier than about 80 CE as it was recovered from the Masada camps of about 72/73 or 73/74; Magness 2009: Fig. 9:7–8). The single example that might suggest extending the date of the first subtype originated from Tomb 64b, Loculus 5 in Petra, where it was associated with a Severan coin. The tomb is unusual, however, because the excavators postulate that it remained in use from the 1st through the 4th centuries, based on the dating of the coin and a variety of lamps (Zayadine 1982: 371). No other tombs in Petra have such a long period of use and as the tomb was sealed with roughly 2.50 m of wadi debris (Zayadine 1982: 366), the context was most likely mixed.

The other lamp Erickson-Gini references, the so-called “Silenus lamp,” has been misdated. At Orhan, the lamp was recovered from a late 2nd or early 3rd context, and an example from Qasr al-Bint seemingly originated from a 3rd century context. At Aqaba, an example was mistakenly dated to the late 1st century CE, and the excavators now attest that the 2nd century certainly seems preferable (Dolinka 2003: 133, No. 29).<sup>24</sup> The lamp

23 Erickson-Gini herself noted that “[I]n the Negev sites, these casseroles begin to appear primarily from the 2nd century onward” (Erickson-Gini 2010: 106).

24 Notably, when the lamp was first published, it was dated to “probably the first or second century A.D.” (Parker 1997: 30, Fig. 8; Lapp forthcoming).

type is undoubtedly interesting, but its relevance to the argument here is unclear. Other material reportedly from the same assemblage dates to the first half of the 3rd century, and no examples of Dekorphases 3b or 3c were included (Augé et al. 2014: 24, Figs 1.4–1.6; Erickson-Gini 2021: 701). Thus, the lamp is not helpful in challenging the dating of Dekorphases 3b and 3c.

### MOTIFS

Finally, Erickson-Gini notes the longevity of the birds-eating-grapes motif, which, she argues, should be dated from the late 2nd century rather than the late 1st (the continuation of the form into the early Byzantine period is well documented, as she notes; Erickson-Gini 2021: 701–702). The bird decoration, while not uncommon, is recovered far less often than other decorative motifs, perhaps because the NPFW tradition (and its later continuation on coarse ware vessels) generally favored non-figurative decoration. As a result, it is unclear when the motif may have been introduced. An example from an alternative typology appears on a thinner bowl than typical for Dekorphase 4. The publication does not include contextual information, and the wide variety of vessels it is published with is dated to the 3rd through 6th centuries (‘Amr, Akasheh, and Na’es n.d.: Fig. 6; Petra Museum No. JP4747). Notably, the authors of this alternative typology attest that the bird motif began to appear

in the late 1st and into the 2nd centuries, which they note is equivalent to Schmid’s Dekorphases 3b and 3c (‘Amr, Akasheh, and Na’es n.d.: 5).

Again, Erickson-Gini’s critique regarding the bird motif is unclear. She notes that one of the Zantur lamps, published in 2006 and dated mainly by the pottery, features a rooster pecking at grapes on the discus (Grawehr 2006: 319, No. 310). As it was recovered from the same context as two fine ware cups dated to the turn of the 2nd century (Schmid 2000: Figs 213–214), she suggests that the fine ware cups should date at least to the late 2nd century. This seems to be an error; the published example of the rooster lamp came from FK 167 while the examples of the cup came from FKs 322, 347, 351, 359, 361, and 373 (Schmid 2000: 59; Grawehr 2006: 319). In addition, the appearance of a similar animal, depicted performing roughly the same action, does not necessitate that the lamp dates to the same period as the painted birds on fine wares. As Erickson-Gini notes, the motif is not exclusive to Petra, and her own examples date to the end of the 1st through at least the 4th century. Therefore, it seems probable, if not likely, that various artisans chose to depict birds independent of the painted ceramic tradition.<sup>25</sup> The renderings of the birds on the different vessel types are also remarkably different and do not appear related in any way.

25 For example, the birds from the Painted Biclinium in Little Petra, a dining space dated to the late 1st century BCE or the early 1st century CE (Al-Bashaireh 2013: 345), are likely unconnected to the birds on the painted pots, though they do suggest that the Nabataeans were depicting birds in the 1st century.

## CONCLUSION

It is always valuable to reevaluate chronological typologies 20 years after their original publication, especially ones of such importance. Erickson-Gini offers a detailed critique with numerous examples that investigate the dating of Nabataean painted fine ware from various contexts and locations within the Nabataean kingdom and outside of it. There is sufficient evidence to suggest that Nabataean potters began producing Dekorphase 3b during the last quarter of the 1st century CE and Dekorphase 3c around the 2nd century. There is less clarity as to when the motifs ended. As of now, there is no compelling evidence to suggest that Dekorphase 3b continued for any length of time, if at all, past the introduction of the next Dekorphase. The cessation of Dekorphase 3c is much harder to mark. Not only did Zantur lack the necessary contexts to date such a transition, but the main differences between Dekorphases 3c and 4 are regard the vessel's shape, not the motif. Additionally, while Dekorphase 3b was produced in great numbers, as was Dekorphase 3c initially, there are significantly fewer Dekorphase 4 examples from stratified contexts. Erickson-Gini's suggestion that Dekorphase 3c continues later than 150 is possibly correct but must remain unconfirmed.

The Oboda deposit that triggered the initial debate is a curious one. The majority of the corpus is pottery that often can be dated to the 2nd century CE—roughly the same period to which her co-excavator dated the Roman camp. As Dekorphase 3c was in production at this point, and Dekorphase 3b perhaps just

out of production but still circulating quite widely, the traditional dating of the Oboda pantry's NPFW is unproblematic. Perhaps the Dekorphase 3b bowl was an heirloom, as Erickson-Gini suggests the ESA sherds were in the 2nd century? The material dated to the 3rd and even 4th century from the pantry upon which she based the entire corpus's date, primarily the unguentarium and the casserole with horizontal handles, may also date to the 2nd century. What was identified as a 3rd century unguentarium is likely instead a 1st-century form, and the casserole has 2nd-century parallels from Israel.

Alternatively, if some of the Oboda vessels indeed date to the 3rd and 4th centuries, the pantry context may be mixed. Only a handful of photos have been published, and the final publication remains forthcoming. As noted above, the original excavators—Erickson-Gini and Fabian—disagreed on the dating of the camp. While Fabian did not excavate the portion of the residential quarter where the pantry lay, the different interpretations of other parts of the excavation are notable. Erickson-Gini herself stated that there were three phases of construction in the residential quarter—the 1st century CE, the 2nd century, and the late 3rd or early fourth century (Erickson-Gini 2010: 91). If, as she attests, the pantry was abandoned with the contents in place, only for the rooms to be “filled to nearly their height sometime after the abandonment of the house” (Erickson-Gini 2010: 93), the pantry corpus may represent two periods of activity that were not differentiated

during the initial excavation.<sup>26</sup> This possibility would explain how the 2nd-century material, including the NPFW and ESA, came to be grouped with later material, primarily if the fill was deposited immediately before reoccupation (Erickson-Gini 2014: 95).<sup>27</sup>

Erickson-Gini concludes her review by noting that, contra the current, linear model of Nabataean ceramics, "[a]s late as the early 3rd century CE, the production of painted-ware bowls bifurcated, with differ-

ent workshops producing different quality and decoration, some superior and others inferior. The simultaneous production of different qualities of painted-ware bowls underlies the confusion encountered by those who profess a linear model of painted fine ware development" (Erickson-Gini 2021: 701). This theory is interesting, one certainly worth consideration, and in the future, additional fabric analysis of NPFW might demonstrate production sites outside of Petra in the 2nd and 3rd centuries CE.<sup>28</sup>

26 Again, the stratigraphy is not entirely clear. In the Oboda locus list, only two loci are associated with the room: 1121 (starting 656.87 m asl, ending 656.49 m asl) and 1122 (starting 656.49 m asl, ending 655.42 m asl) (Erickson-Gini 2010: 228–229). Together, the two loci are just under 1.50 m in depth, but the strata with the whole vessels (1122) represents over a meter of this depth, while the overlying layer (1121) was less than half of that. These measurements seemingly contradict what the text claims, primarily that "[W]hen the immediate area was re-occupied in the late 3rd century, the pantry appears to have been deliberately covered with a thick layer of soil, while the two main rooms of the structure were completely filled. The intentional fills in these rooms resulted in the preservation of the walls to nearly their full height" (Erickson-Gini 2014: 95; see also 2010: 93). The summary of the sequence of events implies that most of the pantry's fill occurred immediately before the reoccupation. Additionally, locus 1121 contained a 4th- or 5th-century coin (Erickson-Gini 2010: 228). Together, the various datings and inconsistencies support the theory that this is a mixed context.

27 Based on her 3rd-century date of the pantry, Erickson-Gini theorizes that a pandemic may have struck the region, causing sites along the Incense Road to be abandoned wholesale. She notes that there are similar assemblages to the pantry at Moyat 'Awad and Sha'ar Ramon, that there are mostly complete ceramic assemblages recovered from certain contexts from the Temple of the Winged Lions in Petra (which she dates to the 3rd century, in opposition to the original excavator's date of the 1st and early 2nd century) painter's workshop, and that one of the tombs on the North Ridge may have been abandoned before being completed due to a plague (Erickson-Gini 2014: 95). The final publication of the North Ridge material makes no mention of a plague, perhaps because the excavation of additional tombs has clarified the idea that the intramural burial tradition was abandoned at the time of the Roman annexation (Bikai, Perry, and Kanellopoulos 2020: 459).

It is possible that there was a 3rd-century plague, but there seems to be little additional evidence (documentary or otherwise) for an epidemic in the late Severan era. Epidemics are attested under Marcus Aurelius (about 165–180) and the mid-3rd century (about 249–262, the so-called "Cyprian Plague"). Many other factors could have caused the site-wide abandonments in the Negev, and the mid-3rd century is notorious for its instability, marked by civil war and external invasion. Nevertheless, the cause(s) of the abandonment at Oboda, Moyat 'Awad, and Sha'ar Ramon appear(s) unrelated to the Temple of the Winged Lions deposits.

28 A number of studies have already established that much of the locally produced pottery originated from clay found in the Petra region (e.g., 'Amr 1987; Gunneweg, Perlman, and Asaro 1988; Bedal 1998).

Madaba is known to have produced its own version of NPFW, but it dates to the late 1st century BCE and was a response to local demand for NPFW on the northern border of Nabataea. This local production quickly ceased in the 1st century CE, apparently because Petra NPFW was by then available at Madaba (Ferguson 2013: 440–441). Chemical analyses of the “two red-line” bowls, NPFW recovered from Hegra excavations, suggests that painted fine-ware vessels were not produced at Petra. While it yet remains unconfirmed if they represent local production of NPFW at Hegra itself, bowls with this decoration pattern are believed to date to the last third of the 1st century BC, not the period in question here (Durand and Gerber forthcoming). Similarly, it is now known that Oboda did not have its own ceramic workshop (Goren and Fabian 2008), and while ‘Amr’s work has shown that there were two clay fabrics, both were presumably made in the Petra region, and the distinctive chalky white fabric was never used in the production of NPFW (‘Amr 1992). That no evidence has been found for alternative production sites dating to the 2nd and 3rd centuries CE perhaps makes sense when considering the cultural implications of the material type. As Sidoroff and Ownby (2016: 198) reflect in their study of Wadi Thamad’s Nabataean pottery, “the Nabataean Kingdom held tight control over the production of NPFW [... and Nabataean Painted Fine Wares] were likely part of an identity that tied disparate groups in the Nabataean Kingdom”, the results from a study of Wadi Thamad’s Nabataean pottery suggest that “the Nabataean Kingdom held tight control over the production of NPFW

[... and Nabataean Painted Finewares] were likely part of an identity that tied disparate groups into the Nabataean Kingdom” (Sidoroff and Ownby 2016: 198). If a centralized authority in Petra indeed intended NPFW to serve as a signal of shared heritage among intra-kingdom groups with differing cultural practices, it seems unlikely that production of the NPFW was so high in the early 3rd century to require additional workshops when Petra alone in the 1st century CE could meet the extraordinarily high demand for the ware across the kingdom. Without a centralized Nabataean form of control, could the high production of the pottery in the 1st century have continued to the same degree in the two centuries after the Roman annexation?

Ceramics are dated to their periods of production, not their periods of consumption, breakage, or deposition in the archaeological record. Because it can be shown that Dekorphase 3b was in production in the late 1st century CE and Dekorphase 3c in the early 2nd century, those NPFW Dekorphases must be dated to those periods. There is, as of yet, no compelling evidence to suggest that production of either motif, but especially that of Dekorphase 3b, continued into the 3rd century. And even if evidence suggests that there were alternative NPFW production centers in the 3rd century CE, one must assume that the vast majority of the NPFW found in Petra was also produced there and date it accordingly. In sum, Dekorphase 3b still provides a *terminus post quem* of approximately the last quarter of the 1st century CE and 3c of the start of the 2nd century.

**Sarah Wenner**

<https://orcid.org/0000-0002-2461-4758>

Ph.D. Candidate

University of Cincinnati

wennerse@mail.uc.edu

**S. Thomas Parker**

North Carolina State University

**How to cite this article:** Wenner, S. and Parker, S.T. (2021). Response to Erickson-Gini's "Problems and solutions in dating Nabataean pottery in the post-annexation period". *Polish Archaeology in the Mediterranean*, 30/2, 707–736. <https://doi.org/10.31338/uw.2083-537X.pam30.2.07>

**References**

- Abudanah, F., Twaissi, S., Wenner, S.E., Tarawneh, M.B., and Al-Salameen, A. (2015). The legend of the "King's Highway": The archaeological evidence. *Zeitschrift für Orient-Archäologie*, 8, 156–187
- Al-Bashairh, K. (2013). Plaster and mortar radiocarbon dating of Nabatean and Islamic structures, South Jordan. *Archaeometry*, 55(2), 329–354
- ‘Amr, K. (1987). *The pottery from Petra: A neutron activation analysis study* (=BAR International Series 324). Oxford: B.A.R.
- ‘Amr, K. (1991). The Petra National Trust Site projects: Preliminary report on the 1991 season at Zurrabah. *Annual of the Department of Antiquities of Jordan*, 35, 313–323
- ‘Amr, K. (1992). Islamic or Nabataean? The case of a first to early second century A.D. cream ware. In *Studies in the history and archaeology of Jordan IV* (pp. 221–225). Amman: Department of Antiquities of Jordan
- ‘Amr, K., Akasheh, T., and Na'es, M. (n.d.). *Recovery and reproduction technology of Nabataean painted fine ware*. Retrieved from <https://cultech.net/sites/default/files/Amr.pdf> (accessed: 29.07.2021)
- ‘Amr, K., and Al-Momani, A. (1999). The discovery of two additional pottery kilns at az-Zurrabeh/Wadi Musa. *Annual of the Department of Antiquities of Jordan*, 43, 175–194
- Augé, C., Borel, L., Dentzer-Feydy, J., March, C., Renel, F., and Tolbecq, L. (2014). *Pétra – Le sanctuaire du Qasr al-Bint et ses abords: un état des lieux des travaux de la Mission archéologique française à Pétra, Jordanie*. Retrieved from <https://hal.archives-ouvertes.fr/hal-01448229> (accessed: 19.05.2021)
- Augé, C., Borel, L., Dentzer-Feydy, J., March, C., Renel, F., and Tholbecq, L. (2016). Le sanctuaire du Qasr al-Bint et ses abords. *Syria*, 93, 255–310
- Bar-Nathan, R. and Adato, M. (1986). Promontory Palace: The pottery. In L.I. Levine and E. Netzer, *Excavations at Caesarea Maritima 1975, 1976, 1979: Final report* (=Qedem 21) (pp. 160–175). Jerusalem: Institute of Archaeology, The Hebrew University of Jerusalem
- Bedal, L.-A. (1998). Neutron activation analysis of pottery. In M.S. Joukowsky (ed.), *Petra Great Temple I. Brown University excavations 1993–1997* (pp. 346–367). Providence, RI: M. Joukowsky

- Bedal, L.-A. (2003). *The Petra pool-complex: A Hellenistic paradeisos in the Nabataean capital. Results from the Petra "Lower Market" survey and excavation, 1998*. Piscataway, NJ: Gorgias Press
- Bedal, L.-A., Gleason, K.L., and Schryver, J.G. (2011). The Petra Garden and Pool Complex, 2007 and 2009. *Annual of the Department of Antiquities of Jordan*, 55, 313–328
- Bedal, L.-A., Gleason, K.L., Schryver, J.G., Ramsay, J., and Bowsher, J. (2007). The Petra Garden and Pool Complex, 2003–2005. *Annual of the Department of Antiquities of Jordan*, 51, 151–176
- Begley, V. and De Puma, R.D. (eds). (1991). *Rome and India: The ancient sea trade*. Madison, WI: University of Wisconsin Press
- Bes, P. (2015). *Once upon a time in the East: The chronological and geographical distribution of terra sigillata and Red Slip Ware in the Roman East*. Oxford: Archaeopress
- Bignasca, A., Desse-Berset, N., Fellmann Brogli, R., Glutz, R., Karg, S., Keller, D., Kolb, B., Kramar, Ch., Peter, M., Schmid, S.G., Schneider, Ch., Stucky, R.A., Studer, J., and Zaononi, I. (1996). *Petra, Ez Zantur I. Ergebnisse der schweizerisch-lichtensteinischen Ausgrabungen 1988–1992*. Mainz am Rhein: Philipp von Zabern
- Bikai, P.M. and Perry, M.A. (2001). Petra North Ridge Tombs 1 and 2: Preliminary report. *Bulletin of the American Schools of Oriental Research*, 324, 59–78
- Bikai, P.M., Perry, M.A., and Kanellopoulos, C. (2020). *Petra: The North Ridge*. Amman: American Center of Oriental Research
- Browning, I. (1973). *Petra*. s. l.: Noyes Press
- Calderon, R. (2000). Roman and Byzantine pottery. In Y. Hirschfeld, *Ramat Hanadiv excavations: Final report of the 1984–1998 seasons* (pp. 91–165). Jerusalem: Israel Exploration Society
- Charloux, G., Bouchaud, C., Durand, C., Monchot, H., and Thomas, A. (2016). Banqueting in a Northern Arabian oasis: A Nabataean triclinium at Dumat al-Jandal, Saudi Arabia. *Bulletin of the American Schools of Oriental Research*, 375, 13–34
- Cormack, S.H. (2004). *The space of death in Roman Asia Minor*. Vienna: Phoibos
- de Jong, L. (2017). *The archaeology of death in Roman Syria: Burial, commemoration, and empire*. Cambridge: Cambridge University Press
- Dicus, K. (2014). Resurrecting refuse at Pompeii: The use-value of urban refuse and its implications for interpreting archaeological assemblages. In H. Platts, J. Pearce, C. Barron, J. Lundock, and J. Yoo (eds), *TRAC 2013: Proceedings of the Twenty-third Annual Theoretical Roman Archaeology Conference, which took place at King's College London, 4–6 April 2013* (pp. 65–78). Oxford: Oxbow Books
- Dolinka, B.J. (2003). *Nabataean Aila (Aqaba, Jordan) from a ceramic perspective: Local and intra-regional trade in Aqaba ware during the first and second centuries AD. Evidence from the Roman Aqaba Project (=BAR International Series 1116)*. Oxford: Archaeopress
- Dolinka, B.J. (2006). *ARABIA ADQUISITA? Ceramic evidence for Nabataean cultural continuity during the Antonine and Severan periods: The Aqaba Ware from Horvat Dafit* (Ph.D. diss.). University of Liverpool

- Durand, C. (2017). Banqueter pour mieux régner ? À propos de quelques assemblages céramiques provenant de Pétra et du territoire nabateen. *Syria*, 94, 85–98
- Durand, C., Al Muheisen, Z., Piraud-Fournet, P., and Tholbecq, L. (2018). A public bath-house, a caravanserai and a luxurious villa in Khirbat adh-Dharih (Tafilah, Jordan): Report on the 2013 excavation season. *Annual of the Department of Antiquities of Jordan*, 59, 607–622
- Durand, C. and Gerber, Y. (2014). The pottery production from Hegra/Madā'in Salih (Saudi Arabia) during the Nabataean period. Preliminary results, 2008–2011. *Proceedings of the Seminar for Arabian Studies*, 44, 153–167
- Durand, C. and Gerber, Y. (forthcoming). When the Nabataeans settled in Hejaz: New data from the Nabataean painted fine ware found in Hegra/Madā'in Sālih (Northwest Arabia). *Studies in the history and archaeology of Jordan* 14. Retrieved from [https://www.academia.edu/53396998/PRE\\_PRINT\\_When\\_the\\_Nabataeans\\_settled\\_in\\_Hejaz\\_New\\_data\\_from\\_the\\_Nabataean\\_painted\\_fine\\_ware\\_found\\_in\\_Hegra\\_Mad%C4%81in\\_S%C4%81lih\\_Northwest\\_Arabia\\_](https://www.academia.edu/53396998/PRE_PRINT_When_the_Nabataeans_settled_in_Hejaz_New_data_from_the_Nabataean_painted_fine_ware_found_in_Hegra_Mad%C4%81in_S%C4%81lih_Northwest_Arabia_) (accessed: 20.10.2021)
- Elgavish, J. (1977). *Archaeological excavations at Shiqmona. The pottery of the Roman period*. Haifa: The City Museum of Ancient Art
- Erickson-Gini, T. (2002). Nabataean or Roman? Reconsidering the date of the camp at Avdat in light of recent excavations. In P. Freeman, J. Bennett, Z.T. Fiema, and B. Hoffmann (eds), *Limes XVIII: Proceedings of the XVIIIth International Congress of Roman Frontier Studies, held in Amman, Jordan (September 2000) I* (=BAR International Series 1084) (pp. 113–130). Oxford: Archaeopress
- Erickson-Gini, T. (2004). *Crisis and renewal—Settlement in the Central Negev in the third and fourth centuries C.E.* (Ph.D. diss.). Hebrew University of Jerusalem
- Erickson-Gini, T. (2010). *Nabataean settlement and self-organized economy in the Central Negev: Crisis and renewal* (=BAR International Series 2054). Oxford: Archaeopress
- Erickson-Gini, T. (2012). 'En Yotvata. *Hadashot Arkheologiyot*, 124. Retrieved from [http://www.hadashot-esi.org.il/report\\_detail\\_eng.aspx?id=1960&mag\\_id=119](http://www.hadashot-esi.org.il/report_detail_eng.aspx?id=1960&mag_id=119) (accessed: 17.09.2021)
- Erickson-Gini, T. (2014). Oboda and the Nabateans. *Strata: Bulletin of the Anglo-Israel Archaeological Society*, 32, 81–108
- Erickson-Gini, T. (2019). A Nabataean roadside temple at Ḥorbat Ḥaḏaḏa in the Negev Highlands. *'Atiqot*, 95, 145–172
- Erickson-Gini, T. (2021). Problems and solutions in dating Nabataean pottery in the post-annexation period. *Polish Archaeology in the Mediterranean*, 30/2, 681–706
- Erickson-Gini, T. and Hirschfeld, Y. (forthcoming). *Rudolph Cohen's excavations in the Nabataean-Roman sites along the incense road in the Negev Desert, 1978–1988. Final report*. Jerusalem: Israel Antiquities Authority
- Erickson-Gini, T. and Tuttle, C.A. (2017). An assessment and re-examination of the American Expedition in Petra excavation in the residential area (Area I), 1974–1977: The Early House and related ceramic assemblage. In W.D. Ward (ed.),

- The socio-economic history and material culture of the Roman and Byzantine Near East: Essays in honor of S. Thomas Parker (=Gorgias Studies in Classical and Late Antiquity 22)* (pp. 91–150). Piscataway, NJ: Gorgias Press
- Fabian, P. (2001). New excavations in the Roman army camp at Avdat. In *Proceedings of the 27th Israel Archaeological Congress, April 2–3, 2001* (p. 18). Jerusalem: Bar Ilan University (in Hebrew)
- Fabian, P. (2005). *Avdat during the establishment of Provincia Arabia: The Roman military camp and its position in the Eastern defense system of the Empire* (Ph.D. diss.). Ben Gurion University of the Negev (in Hebrew with English summary)
- Farajat, S. and Nawafleh, S. (2005). Report on the Al-Khazna courtyard excavation at Petra (2003 season). *Annual of the Department of Antiquities of Jordan*, 49, 373–393
- Ferguson, J. (2013). Pottery, chronology and cultural succession at Tall Mādabā in the Late Hellenistic and Early Roman periods. In *Studies in the history and archaeology of Jordan XI* (pp. 431–445). Amman: Department of Antiquities
- Fiema, Z.T. (2004). Review of “Petra, Ez Zantur II” by Stephan G. Schmid and Bernhard Kolb. Mainz: Philipp von Zabern, 2000. *Journal of Near Eastern Studies*, 63(3), 230–232
- Gendelman, P. (2018). A chronological revision of the date of the pottery finds from the Eastern Circus at Caesarea Maritima. *Atiqot*, 92, 105–136
- Gendelman, P. (2020). Pottery vessels and stone artifacts from the Persian, Roman and Byzantine periods at the French Hospital Compound, Yafo (Jaffa). *Atiqot*, 100, 157–188
- Gerber, Y. (1997). The Nabataean coarse ware pottery: A sequence from the end of the second century BC to the beginning of the second century AD. In *Studies in the history and archaeology of Jordan VI* (pp. 407–411). Amman: Department of Antiquities of Jordan
- Gerber, Y. and Fellmann Brogli, R. (1995). Late Roman pottery from az-Zantur, Petra. In *Studies in the history and archaeology of Jordan V* (pp. 649–655). Amman: Department of Antiquities of Jordan
- Goren, Y. and Fabian, P. (2008). The Oboda potter’s workshop reconsidered. *Journal of Roman Archaeology*, 21, 340–351
- Graf, D.F., Schmid, S.G., and Ronza, E. (2007). The Hellenistic Petra Project: Excavations in the Qasr al-Bint temenos area. Preliminary report of the second season, 2005. *Annual of the Department of Antiquities of Jordan*, 51, 223–238
- Grawehr, M. (2006). Die Lampen der Grabungen auf ez Zantur in Petra. In D. Keller and M. Grawehr, *Petra, Ez Zantur III. Ergebnisse der Schweizerisch-Liechtensteinischen Ausgrabungen (=Terra Archaeologica 5)* (pp. 259–398). Mainz am Rhein: Philipp von Zabern
- Gunnweg, J., Perlman, I., and Asaro, F. (1988). The origin, classification and chronology of Nabataean Painted Fine Ware. *Jahrbuch des Römisch-Germanischen Zentralmuseums Mainz*, 35, 315–345

- Guz-Zilberstein, B. (1995). The typology of the Hellenistic coarse ware and selected loci of the Hellenistic and Roman periods. In E. Stern (ed.), *Excavations at Dor, final report IB. Areas A and C. The finds (=Qedem Reports 2)* (pp. 289–433). Jerusalem: Institute of Archaeology, the Hebrew University of Jerusalem
- Hayes, J.W. (1985). Sigillate orientali. In *Ceramica fine romana nel bacino mediterraneo (tardo ellenismo e imo impero)* (pp. 1–96). Rome: Istituto della Enciclopedia Italiana
- Johnson, D.J. (1987). *Nabataean trade: Intensification and culture change* (Ph.D. diss.). University of Utah
- Johnson, D.J. (1990). Nabataean piriform unguentaria. *ARAM*, 2, 235–248
- Khairy, N.I. (1985). Drinking pottery vessels from the 1981 Petra excavations. *Zeitschrift des Deutschen Palästina-Vereins*, 101(1), 32–42
- Kolb, B. (1996). Die spätrömischen Bauten. In A. Bignasca, *Petra, Ez Zantur I. Ergebnisse der schweizerisch-lichtensteinischen Ausgrabungen 1988–1992* (pp. 51–89). Mainz am Rhein: Philipp von Zabern
- Kolb, B., Gorgerat, L., and Grawehr, M. (1999). Swiss-Liechtenstein excavations on az-Zantur in Petra, 1998. *Annual of the Department of Antiquities of Jordan*, 43, 261–277
- Kouki, P. (2012). *The hinterland of a city: Rural settlement and land use in the Petra region from the Nabataean-Roman to the Early Islamic period* (Ph.D. diss.). University of Helsinki
- Lapp, E.C. (forthcoming). The clay oil lamps of the Red Sea port of Roman Aila: Origins and trade connections. In S.T. Parker (ed.), *The Roman Aqaba Project final report II. Excavation areas and material culture*
- Magness, J. (2009). The pottery from the 1995 excavations in Camp F at Masada. *Bulletin of the American Schools of Oriental Research*, 353, 75–107
- Matheson, S.B. (1992). The tenth season at Dura-Europos 1936–1937. *Syria*, 69(1–2), 121–140
- McKenzie, J. (1990). *The architecture of Petra*. Oxford–New York: Oxford University Press
- McKenzie, J. et al. (2013). *The Nabataean temple at Khirbet et-Tannur, Jordan: Final report on Nelson Glueck's 1937 excavation I–II*. Boston: American Schools of Oriental Research
- Negev, A. (1971). The Nabatean necropolis of Mampsis (Kurnub). *Israel Exploration Journal*, 21(2/3), 110–129
- Negev, A. (1986). *The late Hellenistic and early Roman pottery of Nabatean Oboda: Final report (=Qedem 22)*. Jerusalem: Institute of Archaeology, Hebrew University of Jerusalem
- Negev, A. and Sivan, R. (1977). The pottery of the Nabatean necropolis at Mampsis. *Rei Cretariae Romanae Fautorum Acta*, 17–18, 109–131
- Oleson, J.P. (1999). Review of "Petra. Ez Zantur I: Ergebnisse der Schweizerisch-Liechtensteinischen Ausgrabungen 1988–1992" by A. Bignasca et al. *Bulletin of the American Schools of Oriental Research*, 315, 85–87
- Parker, S.T. (1997). Preliminary report on the 1994 season of the Roman Aqaba Project. *Bulletin of the American Schools of Oriental Research*, 305, 19–44

- Parker, S.T. (2016). The Petra North Ridge Project: Domestic structures and the city wall. In *Studies in the history and archaeology of Jordan XII* (pp. 587–596). Amman: Department of Antiquities of Jordan
- Parker, S.T. (2020). The imported pottery. In P.M. Bikai, M.A. Perry, and C. Kanellopoulos, *Petra: The North Ridge* (pp. 294–302). Amman: American Center of Oriental Research
- Parker, S.T. and Perry, M.A. (2013). Petra North Ridge Project: The 2012 season. *Annual of the Department of Antiquities of Jordan*, 57, 399–408
- Parker, S.T., Wenner, S.E., Key, T., and Koulianos, P.K. (forthcoming). The pottery from the excavation. In S.T. Parker (ed.), *The Roman Aqaba Project final report II. Excavation areas and material culture*
- Peña, J.T. (2007). *Roman pottery in the archaeological record*. Cambridge: Cambridge University Press
- Renel, F. and Mouton, M. (2013). The architectural remains and pottery assemblage from the early phases at the Qasr al-Bint. In M. Mouton and S.G. Schmid (eds), *Men on the rocks: The formation of Nabataean Petra. Proceedings of a conference held in Berlin, 2–4 December 2011* (pp. 57–78). Berlin: Logos
- Retzleff, A. (2003). A Nabataean and Roman domestic area at the Red Sea port of Aila. *Bulletin of the American Schools of Oriental Research*, 331, 45–65
- Sauer, J.A. and Herr, L.G. (eds). (2012). *Ceramic finds: Typological and technological studies of the pottery remains from Tell Hesban and vicinity (=Hesban 11)*. Berrien Springs, MI: Institute of Archaeology and Andrews University
- Saunders, S.L. (2017). An overview of the ceramic assemblage from the Residential Quarter. In M.S. Joukowsky (ed.), *Petra Great Temple III* (pp. 207–217). Oxford: Oxbow books
- Schmid, S.G. (1996). Die Feinkeramik. In A. Bignasca, *Petra, Ez Zantur I. Ergebnisse der schweizerisch-liechtensteinischen Ausgrabungen 1988–1992* (pp. 151–172). Mainz am Rhein: Philipp von Zabern
- Schmid, S.G. (2000). *Petra, Ez Zantur II.1. Ergebnisse der schweizerisch-liechtensteinischen Ausgrabungen. Die Feinkeramik der Nabatäer: Typologie, Chronologie und kulturhistorische Hintergründe (=Terra Archaeologica 4)*. Mainz am Rhein: Philipp von Zabern
- Schmid, S.G. (2007). Nabataean fine-ware pottery. In K.D. Politis (ed.), *The world of the Nabataeans (=Oriens et Occidens 15)* (pp. 309–326). Stuttgart: Franz Steiner Verlag
- Sedov, A.V. 1992. New archaeological and epigraphical material from Qana (South Arabia). *Arabian Archaeology and Epigraphy*, 3, 110–137
- Sidoroff, M.-L. and Ownby, M.F. (2016). Preliminary petrographic study of Nabataean painted and unpainted fine ware bowls from Mudayna Thamad. In N.I. Khairy (ed.), *Studies on the Nabataean culture II. Refereed bulletin of the International Conference on the Nabataean Culture* (pp. 197–214). Amman: University of Jordan
- Silberstein, N. (2000). Hellenistic and Roman pottery. In Y. Hirschfeld, *Ramat Hanadiv excavations: Final report of the 1984–1998 seasons* (pp. 420–469). Jerusalem: Israel Exploration Society

- Stucky, R.A., Gerber, Y., Kolb, B., and Schmid, S.G. (1994). Swiss-Liechtenstein excavations at ez-Zantur in Petra 1993: The fifth campaign. *Annual of the Department of Antiquities of Jordan*, 38, 271–292
- Taxel, I. and Iserlis, M. (2014). Two-part ceramic incense burners in Late Roman and Byzantine Palestine: Technological, regional and ethno-religious aspects. In B. Fischer-Genz, Y. Gerber, and H. Hamel (eds), *Roman pottery in the Near East: Local production and regional trade. Proceedings of the round table held in Berlin, 19–20 February 2010* (=Roman and Late Antique Mediterranean Pottery 3) (pp. 159–170). Oxford: Archaeopress
- Tholbecq, L. and Durand, C. (2013). A late second century BC Nabataean occupation at Jabal Numayr: The earliest phase of the “Obodas Chapel” sanctuary. In M. Mouton and S.G. Schmid (eds), *Men on the rocks: The formation of Nabataean Petra. Proceedings of a conference held in Berlin, 2–4 December 2011* (pp. 205–222). Berlin: Logos
- Tholbecq, L., Fournet, T., Paridaens, N., Delcros, S., and Durand, C. (2016). Şabrah, a satellite hamlet of Petra. *Proceedings of the Seminar for Arabian Studies*, 46, 277–297
- Wadeson, L. (2011). Nabataean tomb complexes at Petra: New insights in the light of recent fieldwork. *Proceedings of the Australasian Society for Classical Studies*, 32, 1–24
- Wenner, S.E. (2016). *The ceramic corpora of Petra North Ridge's nonelite tombs*. ASOR Annual Meeting. Retrieved from <https://www.youtube.com/watch?v=dyBD4ClQzjg> (accessed: 17.09.2021)
- Wenner, S.E. (2018). Petra's relationship with its hinterland from the Nabataean to the Early Byzantine period. In S. Sommer and S. Matešić (eds), *Limes XXIII. Proceedings of the 23rd International Congress of Roman Frontier Studies, Ingolstadt 2015*, II (=Beiträge zum Welterbe Limes. Sonderband 4) (pp. 696–701). Mainz: Nünnerich-Asmus Verlag
- Zayadine, F. (1982). Recent excavations at Petra (1979–81). *Annual of the Department of Antiquities of Jordan*, 26, 365–393