Styles for Miles: *A Regional Analysis of Ceramic Design Elements*

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Introduction & Background

Variation in ceramic design elements often informs two different kinds of stories - first, about the intentional and conscious displays on the part of the potters, and second, about the habits and unintended consequences of learned traditions in communities of practice (Lemonnier 1986, Stark et al. 1998). In this study, we investigated both these dimensions in Bronze Age potting communities in the Körös Region of Eastern Hungary. We documented less visible variations, such as width and depth, which could indicate how vessels were made and what kind of tools were used—likely elements of passive style. We also looked at conspicuous choices, the types of elements potters included in their designs, certainly identifiable by potters from different communities—, or active style. Previous work suggests there were clear differences in the designs used by potters in different valleys of the Körös region during the Bronze Age (Barlow et al. 2017).

Our study focused on four Bronze Age sites dating to the Ottomány, Gyulavarsánd and Hajdúbagos phase, which are generally described as sequential traditions (c. 2150-1250 calBC). Common decorative elements at this time are shown on Fig. 1 & 2. The largest assemblage is from the Békés 103 cemetery, currently undergoing systematic excavation and recovering complete ceramic vessels, whose period of most intensive use was from 1600 to 1280 calBC (Duffy et al. 2019, 69-70). For comparison, we collected data from three other Bronze Age sites in the region known only from systematic surface collection, within 15 km of Békés 103: Okány 20, Sarkadkeresztúr 90 and Tarhos 1 (see Fig. 3).

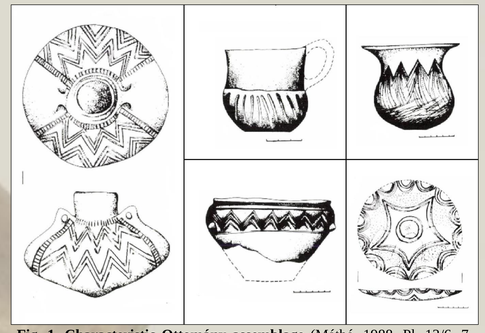

Fig. 1. Characteristic Ottomány assemblage (Máthé. 1988, Pl. 13/6, 7, 14/1, 5, 8.)

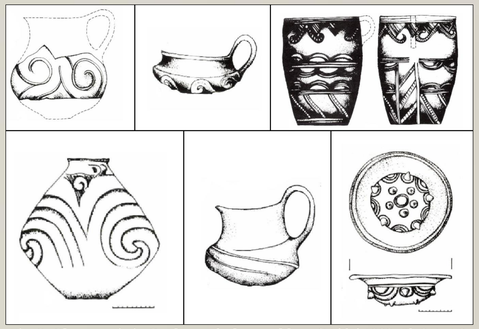

Fig. 2. Characteristic Gyulavarsánd assemblage (Máthé 1988, Pl. 2/4, 4/2, 7, 25/3, 36/9, 38/7.)

Our Questions

1. Did different communities have different technological styles, visible in the execution of common Bronze Age designs?
2. Is there variation in the use of design elements on ceramics suggestive of group identity or chronological differences?

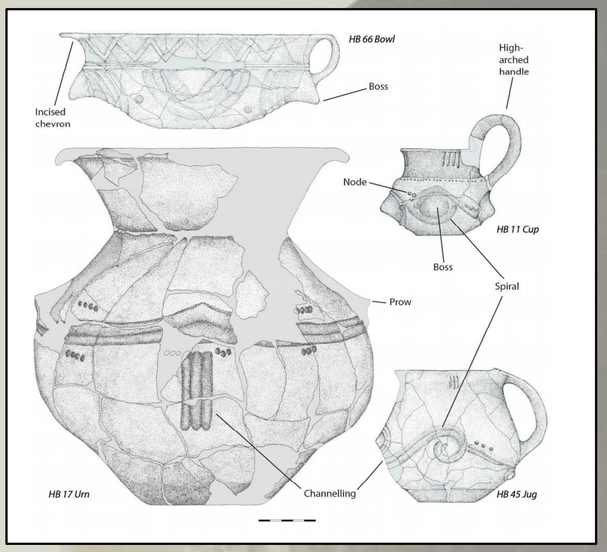

Fig. 4. Vessel types and design elements (Duffy et al. 2019, Fig. 3.)

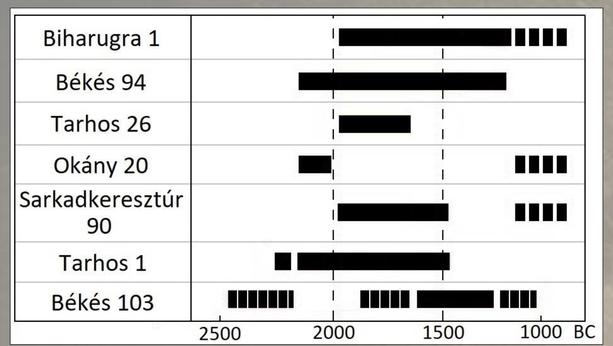

Fig. 5. The investigated sites' chronological position. We have absolute dates from Békés 103 and Tarhos 26. The other sites' dates are based on ceramic styles and relative chronology.

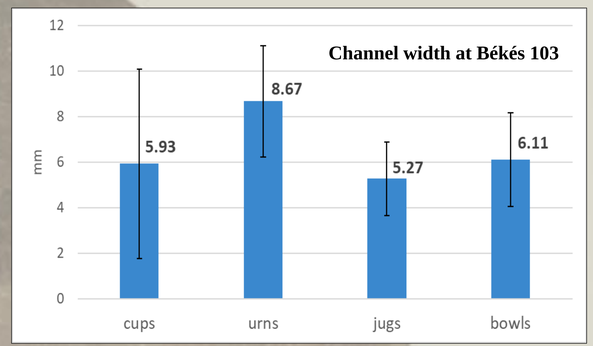

Fig. 6. Channel width (in mm) by vessel type at Békés 103. Sample size for cups: 12 elements, urns: 83 elements, jugs: 17 elements, bowls: 10 elements. The standard deviation marked in black.

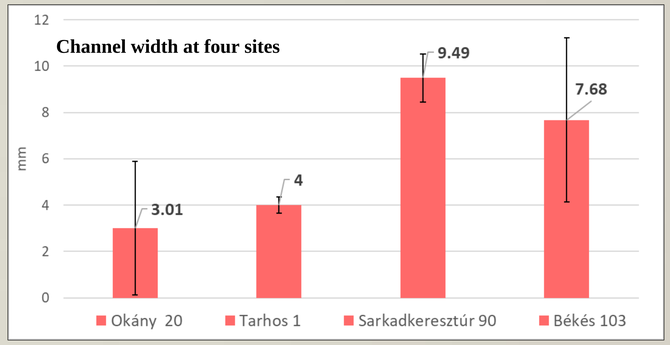

Fig. 7. Channel width (in mm) between four sites. Sample size for Békés 103: 124 elements, Okány 20: 3 elements, Sarkadkeresztúr 90: 12 elements and Tarhos 1: 12 elements. The standard deviation is marked in black.

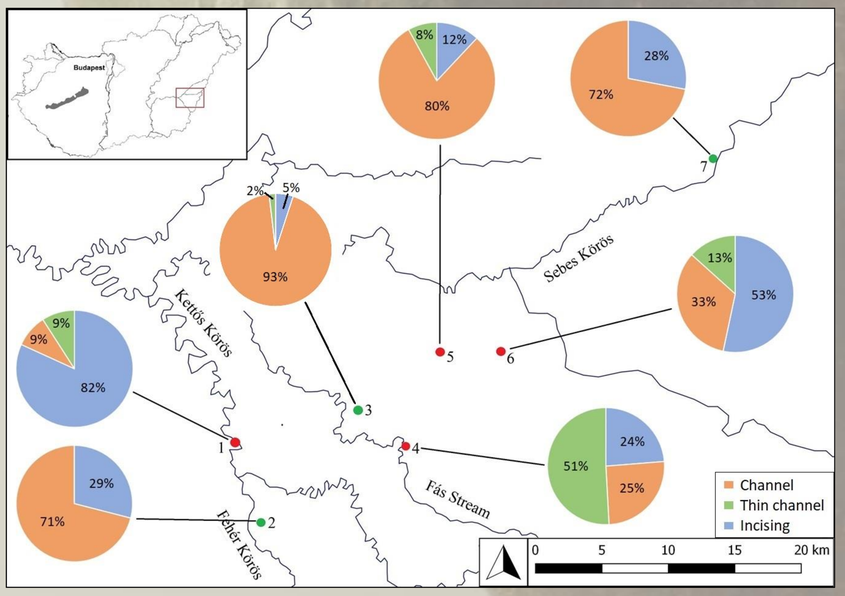

Fig. 3. The location of the investigated sites: (1): Békés 103, (2): Békés 94, (3): Tarhos 26, (4): Tarhos 1, (5): Okány 20, (6): Sarkadkeresztúr 90, (7): Biharugra 1.

Results & Discussion

Of all the measurements attempted, channeling, thin channeling, and incising were the most revealing. Channel widths (in mm) on different vessel types from Békés 103 (Fig. 6) indicate that the urns has the most channel decorations and the channels are significantly wider on urns than on other vessel types (one-way ANOVA $p < 0.001$, post hoc Tukey test results: urns vs jugs p: 0.001, urn vs bowls p: 0.024, urn vs cups p: 0.001). Urns are the most common vessel type at the site—not surprising given Békés 103 is a cremation urn cemetery. Given that urns are less common at settlements, the correlation between vessel size and channel width at Békés 103 creates some cause for concern that the dataset is not comparable with the surface collections in this study.

The means and restricted S.D. of the other sites in the dataset, and differences from Békés 103, suggest that there are differences in channel widths between site assemblages not related to vessel form (see Fig. 6 & 7). It is observable that the channel widths in Sarkadkeresztúr 90 and Békés 103 are significantly wider then in Okány 20 and Tarhos 1 (one-way ANOVA $p < 0.001$, post hoc Tukey test results: Békés 103 vs Okány 20 p: 0.027, Békés 103 vs Tarhos 1 p: 0.001, Okány 20 vs Sarkadkeresztúr 90 p: 0.003, Sarkadkeresztúr 90 vs Tarhos 1 p: 0.001). What accounts for this difference? One possibility is that we are seeing differences in communities of practice—people make wide channels on one site, and narrower channels on another. Another possibility is chronological. At earlier sites (Okány and Tarhos), channeling was narrower and got wider over time. If we consider incising, thin channeling, and channeling on a spectrum that might relate to chronological patterning, the result is clear. The proportion of these elements is displayed in Fig. 8.

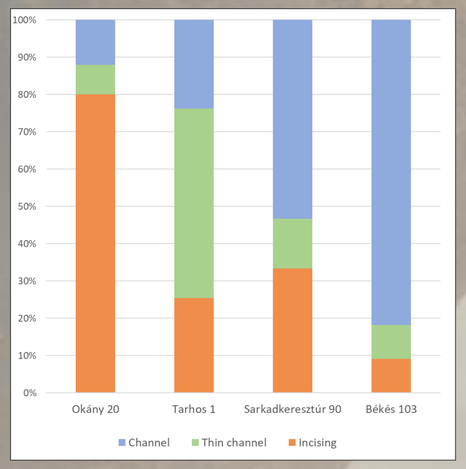

Fig. 8. The proportion of the channels, thin channels and incisions at the four sites.

There is a high percentage of incisions at Okány 20, a higher percentage of the thin channels at Tarhos 1 and the high presence of the channels at Békés 103 and Sarkadkeresztúr 90. These match fairly closely the chronological expectations of our sites, and the proportions of these categories probably help inform archaeological impressions about whether assemblages are 'Ottomány' or 'Late Gyulavarsánd'.

When our results are compared to a larger regional dataset, other potential explanations appear. Some sites indicate that in certain communities the preference of incised decoration over channeling persisted for a longer time period. This is supported for example by data from Tarhos 26 (1950-1600 BC), which despite its late chronological position in the Ottomány sequence, shows a strong preference to incised decorations. Sites such as Biharugra 1 and Békés 94, which chronologically believed to closer relate to Békés 103 also represent a much higher percentage of incision (see Fig. 3).

Methodology

Previous work by the BAKOTA project coded vessel type (urn, jug, cup, bowl) and the presence of various elements and patterns which appear on them (Duffy et al. 2019). We began by measuring width, depth, and height of common Bronze Age elements such as channels, thin channels, incisions, nodes, bosses and prows (see Fig. 4) on whole vessels from Békés 103, whose vessel types were known.

First, it was important to see if width, depth and height of elements varied systematically by vessel type—if it did, differences between assemblages at the regional level could plausibly be attributed to function and vessel type, rather than technological style.

Second, we measured the presence and variation in these features at the other three sites, whose assemblages were known only from sherds collected from the surface by the Körös Regional Archaeological Project in 2016. We then compared the whole vessel data from Békés 103 to the ceramic sherd assemblages from Tarhos 1, Sarkadkeresztúr 90 and Okány 20. All three of these sites date to the Early-Middle Bronze Age, but impressionistically come from different parts of the chronology (see Fig. 5). Finally, we compare the proportions of incising, thin channeling and channeling to sites studied in previous analyses (Barlow et al. 2017). We collected data only for incising and channeling at for Békés 94 and Biharugra 1, but include them for comparison anyway. We aim for our studies to inform us about the stylistic composition and differences between these site assemblages.

Conclusion

Our results indicate that while preferences between incising and channeling could very well represent chronological differences, rather than active signaling, sites such as Tarhos 26 and Biharugra 1 may represent the presence of potter groups who continued with traditional styles far longer than their neighbours. Our research underlines the possibility of how larger, similar studies of this kind might contribute to our understanding of technological changes at both local and regional scales.

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