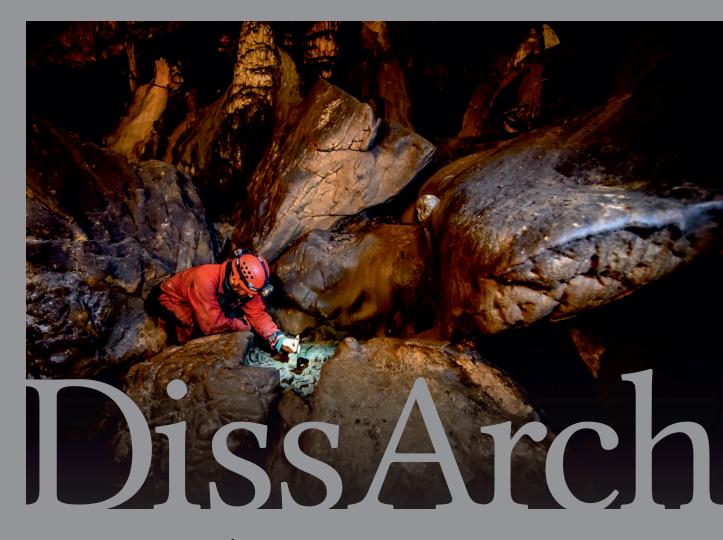
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Yellow Pottery in the Late Avar Period

Yellow Pottery in the Late Avar Period

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Abstract: Review article of PhD thesis submitted in 2022 to the Archaeological Doctoral Programme, Doctoral School of History, Eötvös Loránd University, Budapest under the supervision of Takács Miklós.

In her PhD dissertation, the author surveyed the yellow pottery finds of the Late Avar Period, collecting 1,032 fragments and complete vessels from 232 archaeological features. The term *yellow pottery* as a terminus technique refers to a pottery type characterised by a very diverse material composition, production method, shape, and decoration set.

The related find material was classified into the following 'functional' types: 1. mug with a handle, 2. mug without a handle, 3. bottle, 4. kettle (spouted jug), 5. jug, 6. beaker, 7. bowl, 8. pot, 9. pitcher, 10. flat bottle (flask), and 11. amphora-like vessel.

Workshops producing yellow pottery could be located in the close surroundings of Szekszárd (so-called Danube workshop circle), at the estuary of the Körös River, and in the outskirts of Hódmezővásárhely (so-called Tisza workshop circle). Yellow pottery from these workshops was (probably) transported on roads, the lines of which mostly matched the Roman and medieval ones.

The Danube workshop circle started to produce yellow pottery at the start of the Late Avar Period. The Tisza workshop circle most likely started to operate in the third phase of the Late Avar Period (second part of the 8th century AD). Both workshops remained in business until the first half or the second third of the 9th century AD.

Keywords: yellow pottery, Late Avar Period, chaîne opératoire, workshop

Aims of the dissertation

The doctoral dissertation¹ aimed at a comprehensive survey and evaluation of Late Avar Period yellow pottery finds. The topic is even more timely as more than half a century has passed since the first systematic surveys of the related record in the late 1960s, carried out independently by Éva Garam² and Darina Bialeková.³ Not just a large quantity of yellow pottery has been recovered from cemeteries and settlements since then, but new research fields have also emerged, calling for new and comprehensive research on yellow pottery.

The related analyses required comprehensive data collecting. Therefore, the work started with visiting fifty-six museums and exhibitions in the Carpathian Basin, followed by a meticulous collection and study of all available information on published and unpublished yellow pottery finds. Data

- 1 DOI: 10.15476/ELTE.2021.099
- 2 GARAM 1968; GARAM 1969.
- 3 Bialeková 1967; Bialeková 1968.

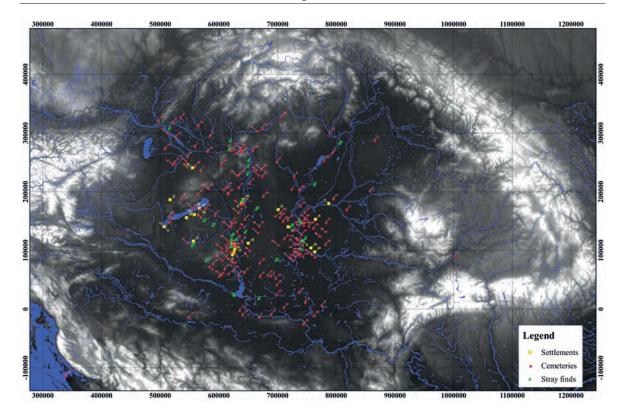


Fig. 1. Distribution of Late Avar yellow pottery

collecting also comprised a clarification of find contexts (to the greatest extent possible); as a result of this preparatory work, a dataset comprising 1,032 yellow pottery finds from 232 archaeological sites was compiled.

The geographical and temporal limits of yellow pottery were easy to determine as the type is characteristic of the Late Avar Carpathian Basin; consequently, the current study also focuses exclusively on this area and era. The type's distribution seems to have been restricted to areas inhabited by Avars in the Late Avar Period (the territory of today's Hungary, Southern Slovakia, and the northern part of Croatia and Serbia); thus, the survey does not cover the whole Carpathian Basin either (Fig. 1).

Pottery production

Yellow pottery was always made of well-processed clay; the preparation of the material was such meticulous that the naked eye cannot determine whether the non-plastic components in the clay had been in the raw material to begin with or were only added by the potter. Petrographic analyses helped us out in this, revealing that particles of uniform size distribute evenly in the substance that is the fabric of yellow pottery; conclusively, most were made of untempered clay.⁴ Occasionally, the clay was tempered; non-plastic components may include grains, clay grains, lime grains, mica, or even gravel, which might be present in very different combinations in the material of vessels.

Several technical marks hint at the shaping technique, including wall thickness and the degree of the wall's uniformity along a horizontal axis,⁵ the degree of symmetry, the spiral-, lump- or stair-

- 4 Kreiter –Skoda 2017.
- 5 Masek Véninger 2017, 62; Roux 2019, 179; Rye 1981, 64; Véninger 2018, 402.

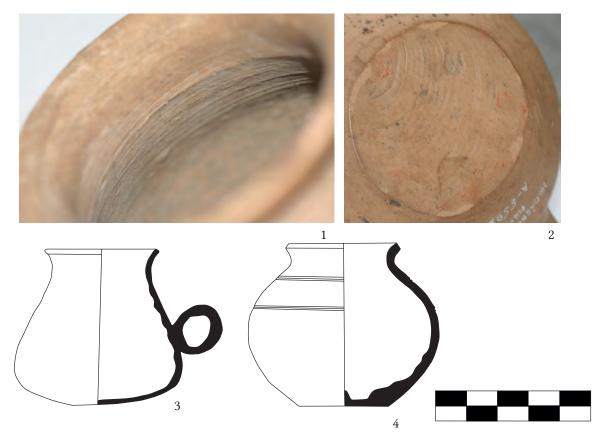


Fig. 2. Technical marks on yellow pottery. 1 – Szebény, Grave 39, 2 – Komárom-Hajógyár, Grave 79, 3 – Dunaszekcső-Téglagyár, stray find, 4 – Bölcske-Kömlődre vezető út



Fig. 3. Trimming marks. 1 – Vertical trimming (Felsőnyék, stray find), 2 – Oblique trimming (Jánoshida, Grave 108), 3 – Deformation of the original shape (Szebény, Grave 70)

like patterns on the bottom of the vessel, and the dense⁶ spiral lines on the outer and inner surfaces (Fig. 2).⁷ These marks on the analysed pieces indicate that yellow pottery vessels were fast-wheeled.⁸

In most cases, the walls had become significantly thicker at the base during wheel-shaping, thus making the vessel bottom-heavy; it was corrected later by trimming the base in the leather-hard stage (Fig. 3).⁹

Often, but not always, the original vessel surface was covered with a simple or glossy clay coating (self-slip, *Eigen-Engobe*),¹⁰ a fine-grained clay wash of a material similar to the vessel's. By coating the entire outer surface, potters could create a better, more uniform surface covering most imperfections and defects (Fig. 4; Fig. 5).¹¹

Rarely vessels were painted after firing (Fig. 6). That the paint was only added post-firing is confirmed, besides the very poor condition of known specimens, 12 by two independent non-destructive tests that could even identify the white paint as lime (CaCO₃)-based. 13 Unfortunately, the black paint substance could not be identified due to the accumulated phosphorus, but by analogy, one might assume it has been of organic origin (bitumen or wood tar). 14

Raw material types

The financial support of the *Römisch-Germanisches Zentralmuseum*, *Mainz* (Germany) enabled us to conduct a petrographic analysis on fifty samples. The work was carried out in the



Fig. 4. Clay coating. Komárom-Hajógyár, Grave 11



Fig. 5. Glossy clay coating. Szebény, Grave 329

- 6 VÉNINGER 2018, 408-409.
- 7 Hofer 2010, 19, and Abb. 43–44; Masek Véninger 2017, 61; Orton Hughes 2013, 146; Roux 2019, 143–144, 178; Rice 1987, 129, Fig. 5,8; Rye 1981, 64; Véninger 2018, 404.
- 8 Orton Hughes 2013; Roux 2019, 42, 125; Thér 2020, 4.
- 9 Rye 1981, 87, Fig. 73.
- 10 Hofer 2010, 20; Bauer et al. 1986, 78-79.
- 11 Roux 2019, 99-100, 202-203.
- 12 Orton Hughes 2013, 89.
- The analyses were carried out at the University of Szeged by Ákos Kukovecz with Gábor Kozma, Dániel Madarász, and Péter Véninger.
- 14 CSIFFÁRY 2000, 124.



Fig. 6. Painted yellow vessels. 1 - Csenej, Grave 160, Csenej, Grave 269

Laboratory for Applied Natural Sciences of the Hungarian National Museum by Attila Kreiter and Péter Skoda. Samples were selected with consideration to the set to represent the whole distribution area of yellow pottery and include every distinct raw material group, ceramic type, and as many sites as possible. In the case of sites with a cemetery and a settlement part (Szekszárd-Bogyiszlói út, Őcsény), samples were taken from both.

The samples could be classified into fifteen petrographic groups based on non-plastic component content and type and the amount of added ingredients (Fig. 7). An overall lack of additives, however, made it impossible to link any petrographic group to a geographical place. The analyses revealed that the vessels were made of carefully selected, well-prepared, untempered clay; conclusively, yellow pottery was probably produced by specialised workshops.¹⁵

Set of Definitions¹⁶

Technological investigations revealed that yellow pottery, as a *terminus technicus*, comprises types with very diverse material compositions, production methods, shapes, and decoration. These make it impossible to describe yellow pottery with a single definition, and a set of definitions should be applied instead.

The set of definitions consists of constant and variable criteria. Constant criteria apply for all known yellow pottery findings; these include the careful selection and preparation of raw materials, fast wheeling, and high-quality oxidative firing.

Variable criteria may apply (both jointly and separately) to the related specimens but are not necessarily valid for all findings specified as yellow pottery. The interior of the vessel can feature a spiral-, a lump-, a disc- or stair-like motif, or a combination of these. The marks on the bottom, related

- 15 Kreiter Skoda 2017.
- 16 Hereby I would like to express my gratitude to Péter Véninger for calling my attention to the concept of 'a set of definitions'.

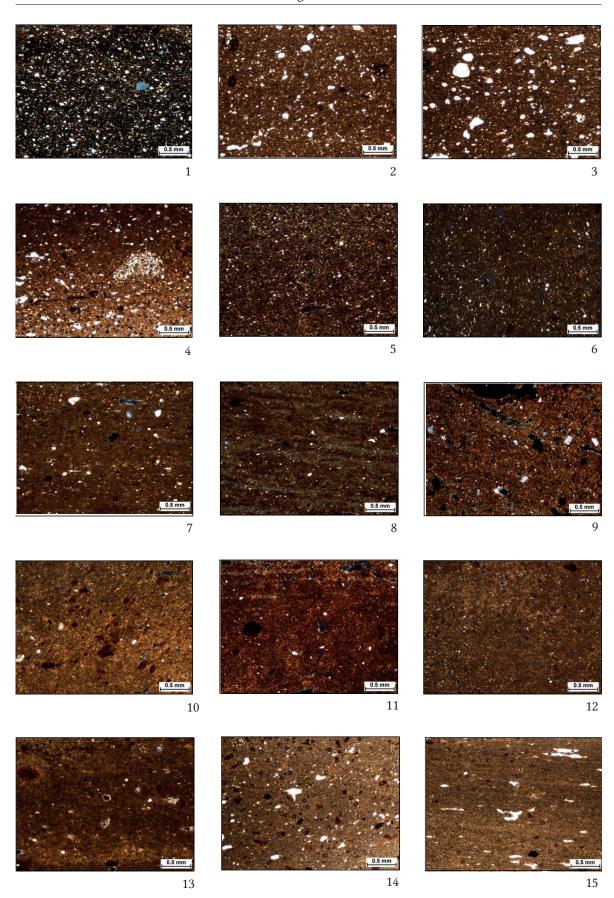


Fig. 7. Petrographic groups

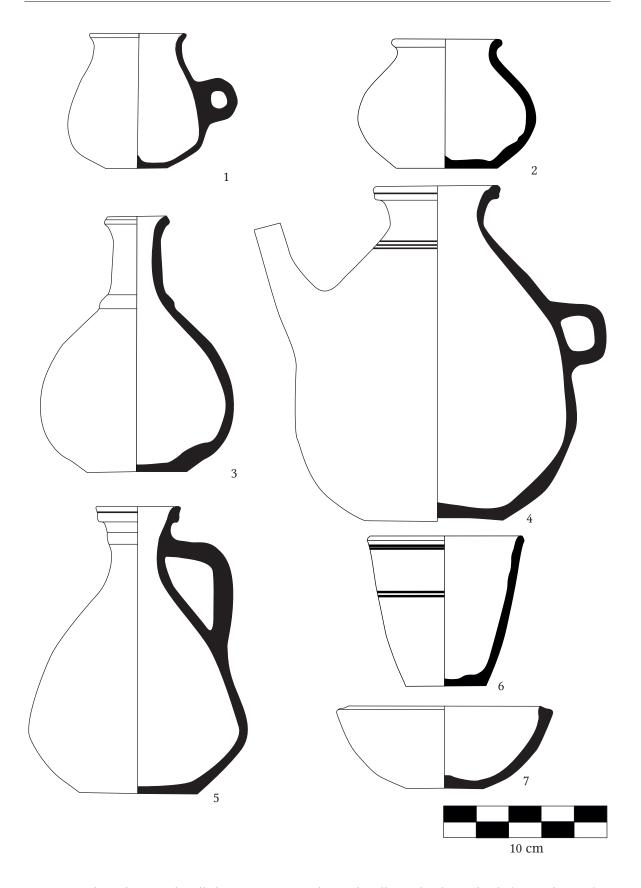


Fig. 8. Vessel typology. 1 – handled mug, 2 – mug without a handle, 3 – bottle, 4 – kettle (jug with spout), 5 – jug, 6 – beaker, 7 – bowl

to the cutting off of the vessel from the wheel, can be circular (the wheel was still revolving when the vessel was cut off) or consist of parallel lines (the wheel was already still when the vessel was cut off). Vessels can be trimmed (in some cases, wall thickness was reduced by trimming to make the pot less bottom-heavy) and often received a matte or glossy clay coating in a leather-hard state.

Based on all this, the potter's skills who produced yellow pottery comprised a relatively large know-how, and it was up to the particular potter, workshop, or group of workshops to decide which technique (or *chaîne opératoire*, operation sequence) to use. All this was determined directly by the existing pool of professional skills and the traditions of the workshops and indirectly by the social structure, economic situation, and pottery-related specialisation in Late Avar society.¹⁷

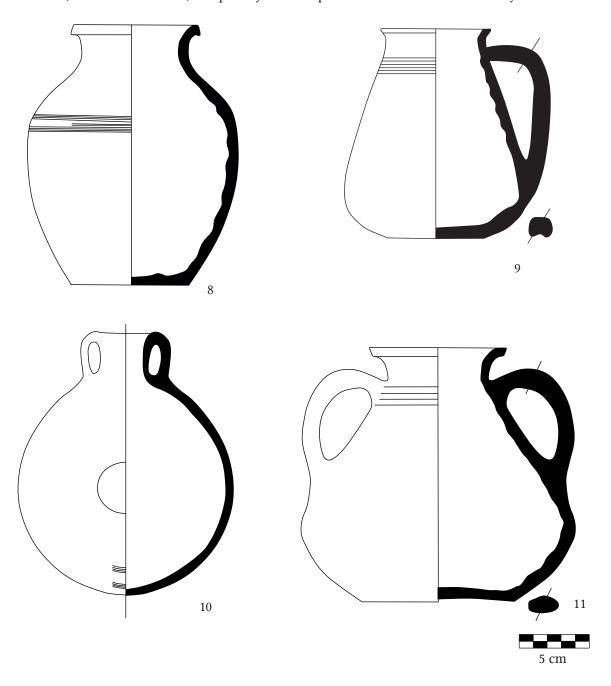


Fig. 9. Vessel typology. 8 – pot, 9 – pitcher, 10 – flat bottle (flask), 11 – amphora-like vessel

17 Hunt 2017, 101-147; Roux 2019, 1-14, 44-53.

Typology

The current research was based on the works of Éva Garam and Darina Bialeková, including their typological systems,¹⁸ which could be refined in light of the recent findings. The following 'functional' types were defined: 1. mug with a handle, 2. mug without a handle, 3. bottle, 4. kettle (spouted jug), 5. jug, 6. beaker, 7. bowl, 8. pot, 9. pitcher, 10. flat bottle (flask), and 11. amphora-like vessel (Fig. 8; Fig. 9).

Sub-types were distinguished within these types based on shape and size. With closed vessels (i.e., vessels with a width smaller than their height; mug, bottle, kettle, jug, etc.), the following formal variations could be observed: pear-shaped, rounded, oviform, and biconical. Where possible, variants were outlined within the sub-types (e.g., pressed or elongated pear-shaped mug). Bottles represent an exception in this regard, as their sub-types were determined based on their most characteristic features (miniature, long- or short-necked bottle); the distinction of variants in their case follows the method applied to the rest of the material. The most common body form is pear-shaped, while spherical, rounded, oval, barrel-shaped, and biconical pots are relatively few. Open vessels (cups, bowls) come with a conical, biconical, or hemispherical body, conical being the most frequent.

It is important to emphasize that neither the use of raw materials nor trimming, vessel colour, details of design, and decoration were form-specific. As most finds come from mugs with a handle, the biggest variety in raw material, size, finish, and decoration was observed within this type.

As for the decoration appearing on yellow pottery vessels, only painting relates to specific types (pear-shaped mugs with a handle, bottles, and jugs). The lines of the motifs are regular, but their execution is often incidental and irregular. The surfaces were decorated with black bands or medallions. It is worth mentioning that the pearl bands and pearled medallions only appear on mugs with a handle (Fig. 10), while medallions filled with interlace pattern only on bottles (Fig. 11).



Fig. 10. Painted handled mug. Bácskossuthfalva-Koplaló, Grave 182

- 18 Garam 1969, 229; Bialeková 1967, 6–26.
- 19 CSUPOR CSUPORNÉ 1998, 9; IGAZ KRESZ 1965, 89-91.



Fig. 11. Painted bottle. Csenej, Grave 234

Unfortunately, the known painted pitchers are way too fragmented for pattern analysis. Motifs seem to promote the distinction of pot sub-types: geometric plant motifs were only applied to mugs with a handle, while figural motifs may appear on both mugs with a handle and bottles. Two types of stylised geometric motifs appear in the record: a tree of life, predominant among the two, and a leaf ornament. The most frequent figural motif depicts a wild boar; besides, depictions of humans and birds have also been recorded.

Yellow pottery in funerary context

The dataset comprises altogether 718 yellow pottery finds from 131 cemeteries. These numbers already discard the previous assumption that yellow pottery is a special kind of funerary ceramic, as 290 more pieces are collected from the settlement context. As for the specimens from a funerary context, the burial rite could only be examined in 612 cases (to an extent varying by publication and documentation), as 106 items were found as stray finds in the area of the cemeteries (Fig. 12).

Yellow pottery appears in abundance in cemeteries located at focal points of the find group's distribution (in the vicinity of Szekszárd and the southern part of the Danube–Tisza Interfluve); in the case of the Szeged area, a slightly above-average amount of yellow pottery finds was only observed in the Szeged-Kundomb and Szentes-Nagyhegy cemeteries.

The burial rites correspond to those in the Late Avar Period, meaning no special rite for graves comprising yellow pottery. The most common orientations are W–S and NW–SE. The deceased were laid, almost without exception, extended on their back. The use of coffins and grave piles is also frequent. Rich graves had often been looted already in the Avar Period.

While according to Late Avar burial rites, pottery could have been placed anywhere inside the grave pit, in the vast majority of cases, it was put around the feet. Yellow pottery was added to graves with no consideration of age or gender, yet most yellow pottery vessels were given to adults (slightly more to women than men). Only miniature bottles reflect a distinct tendency: they were given primarily to those who died before reaching adulthood.

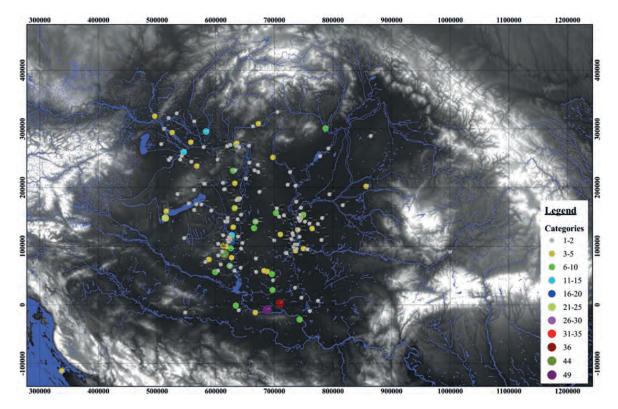


Fig. 12. Distribution of Late Avar yellow pottery in cemeteries

Few grave good types are characteristic of most Late Avar graves, and most objects found in graves with yellow pottery are typical of the entire Late Avar Period. Thus, only a relatively small part of the graves (253) was suitable for specifying dating within the Late Avar Period or drawing economic and social conclusions. In general, one may conclude that yellow pottery was added to burials with no consideration of age, gender, or social position. Although yellow pottery vessels occur relatively frequently in lavish burials, they have also been found in numbers in the graves of the less affluent and the poorest. Thus, yellow pottery was neither a luxury product nor a reference to the economic and social status of its owner. Besides, there is no regional difference between the poor or rich graves either.

Yellow pottery in settlements

Altogether 289 fragments have been collected from twenty-eight settlements. The sites concentrated around Szekszárd and Szeged (Fig. 13). While yellow pottery is related to all kinds of settlement features, most pieces were recovered from pits and furnaces.

Yellow pottery fragments from settlement context do not provide a suitable base for periodisation within the Late Avar Period. The chronological position of settlement features being very often determined based on yellow pottery finds represents a further difficulty in this regard.

Yellow pottery always comes with typical Late Avar Period pottery types (slow- and fast-wheeled vessels, undecorated or decorated with wave or line bundles that often also cover the inner side of the rim). The assemblages containing yellow pottery also frequently comprise fragments of discoloured hand-formed bowls with un- or semi-smoothened surfaces, thick-walled pots, and spindle whorls, sometimes also baking bells (hand-formed of clay), and, rarely, iron tools.

Workshops and workshop circles

Upon analysing pottery finds, the most important basic questions are where, how, by whom, and for whom the examined object was produced. Given its carefully selected and prepared raw material, excellent quality, and relatively low appearance, yellow pottery can be considered special. The whole production process of yellow pottery was a clearly identifiable operational sequence built of elements that could be varied and modified according to the potter's taste and knowledge. Conclusively, yellow pottery reflects strong traditions, intense organisation, and, in terms of specialisation, a strictly divided society.²⁰

Due to the difficulties in analysing the raw material mentioned above, workshops and workshop circles can only be localised based on the distribution of their products. In the areas of Szekszárd and Szeged–Hódmezővásárhely and the southern part of the Danube–Tisza Interfluve, archaeological sites line up densely along the rivers. Moreover, the high number of sites, in this case, comes with the highest number of yellow pottery finds per site, while such sites in the northern part of the Carpathian Basin are significantly fewer and with considerably fewer yellow pottery finds per site. The distribution of the cemeteries with yellow pottery mainly overlaps with settlements. Significant settlement concentrations can be observed in the Szekszárd and Szeged areas, along the northern course of the Danube, and on the outskirts of Lake Balaton (Fig. 1; Fig. 12; Fig. 13).

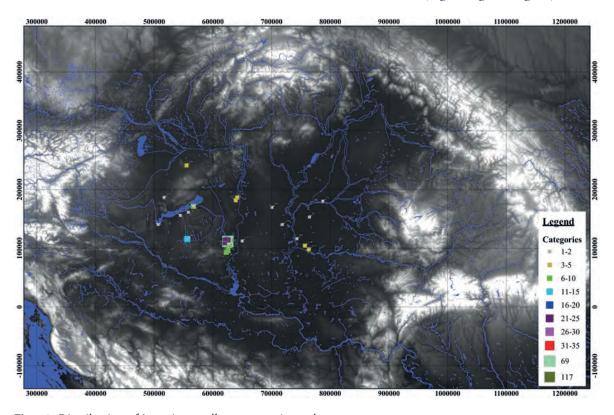


Fig. 13. Distribution of Late Avar yellow pottery in settlements

Based on the above, it is possible to conclude that the settlements outline the place of manufacturing. As there are neither newly discovered settlements in the southern part of the Danube-Tisza Interfluve nor hubs in the distribution of the type, current data suggest that this area was perhaps the main consumer but not the manufacturer of yellow pottery. The workshops that produced yel-

20 Holló et al. 2001, 51-54; Hunt 2017, 101-147; Roux 2019, 1-14, 44-53.

low pottery were more likely located in close surroundings of Szekszárd (probably around Őcsény; Duna workshop circle), at the estuary of the Körös River, and in the outskirts of Hódmezővásárhely (Tisza workshop circle).

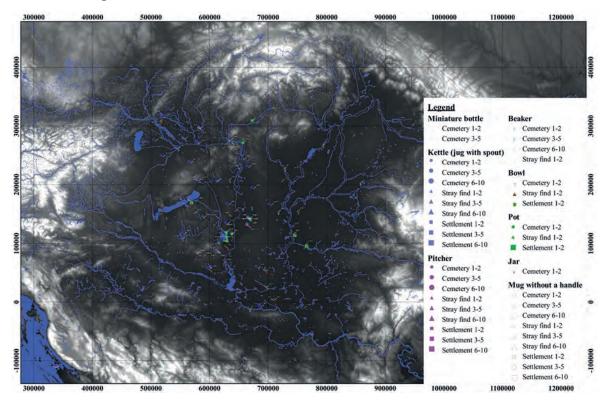


Fig. 14. Distribution of Late Avar yellow types of the Duna workshop circle

In the 1970s, an Avar pottery manufacturing centre was excavated on the outskirts of Szekszárd. One of the yellow pottery workshop circles may also be located in the Szekszárd-Őcsény region.²¹ The products of this workshop were transported into distant regions; moving away from the Szekszárd-Őcsény area, the presence of yellow pottery is becoming less and less significant. Based on the distribution of different vessel types, we suppose that only this workshop produced jugs, small flasks, and some particular types (mugs without a handle, cups, and cooking pots (Fig. 14).

The so-called workshops along the Tisza were located around the estuary of the Körös River and on the outskirts of Hódmezővásárhely; these were relatively low-capacity, specialised in producing mugs with a handle, jugs, and pitchers (based on type distribution, this was the main centre of pitcher manufacturing). Painted yellow pottery variants appear in the southern part of the Danube–Tisza Interfluve and along the Tisza River; the northernmost perimeter of their distribution is currently represented by Boldog in Heves and Ároktő in Borsod County. Painting only appears on mugs with lugs, jugs, and pitchers made by the Tisza workshop circle (Fig. 15) that probably operated in a yet-unknown settlement centre established near Szeged in the Late Avar Period. Without any archaeological evidence, one can only suspect that the potters of this workshop came from one of the Danubian centres mentioned above.

The production and distribution of yellow pottery presume a high-level division of labour and require a collaboration of skilled specialists—potters and perhaps merchants—within the frame of a complex social and economic system.

- 21 Rosner 1979, 106.
- 22 Fancsalszky 2007, 117–121; Szenthe 2021, 94; Szenthe Gáll 2021, 16.

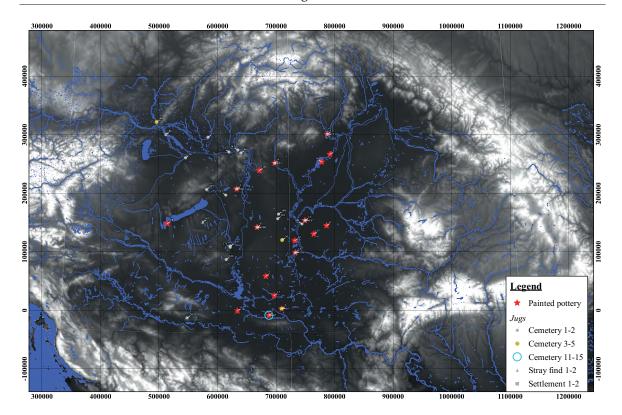


Fig. 15. Distribution of the rare pottery types of the Tisza workshop circle

The distribution of yellow pottery outlines an Avar Period road network (although it is important to keep in mind that all hypotheses, in this case, are only based on a single group of findings and, consequently, are rather speculative). To reconstruct this ancient network, first, the well-known Roman²³ and medieval road networks,²⁴ the recent micro-regional road network surveys,²⁵ the geographical setting,²⁶ and the range of commerce in the Avar Period was considered,²⁷ as was the possibility of transportation via the Danube and Tisza rivers.

The Roman and medieval road networks basically match²⁸ but there are also significant minor differences which could be explained by the emergence of new centres in the 11th century AD. Moreover, road construction in Roman and medieval times showed significant differences: while Roman road networks were designed by engineers, medieval ones were only completed while already in use.²⁹

Considering the small number of archaeological evidence of the road network, one may rightfully suppose that the main continental and water routes remained relatively unchanged between Roman and medieval times. There is little data regarding Avar times, but during the Early and Middle Avar Period, objects of Byzantine origin tended to appear conspicuously along Roman and medieval road networks. These objects (regardless of whether they were presents or merchandise) certainly made their way into the Carpathian Basin via existing road networks. ³⁰ Based on this indirect data and

- 23 Gabler 2011; Magyar-Hárshegyi 2014; Tóth 2004.
- 24 F. Romhányi 2019; Szende 2011, 168–169; Szikszai 2010.
- 25 Szalontai 2018; Szalontai 2019; Szücsi 2019, 140–177.
- 26 Felföldi 2019; Szalontai 2018, 11–12, 17.
- 27 Garam 2001, 181–183, Abb. 20, 22, 24.
- 28 F. ROMHÁNYI 2019, 407.
- 29 Szilágyi 2014, 17–18.
- 30 GARAM 2001, 181-183, Abb. 20, 22, 24.

the distribution of yellow pottery, road networks in the Carpathian Basin in the Late Avar Period probably mainly matched (except for a few regional alterations) the Roman and medieval ones.

Merchants in Late Avar times probably used the Danube and Tisza rivers and their tributaries as existing routes of fluvial trade. The distribution of some special types of yellow pottery (e.g., mugs without a handle and barrel-shaped spouted jugs) that mainly appear on sites along these rivers seems to confirm this hypothesis. At the same time, yellow pottery in Transdanubia mainly concentrates along Roman and medieval continental routes (Fig. 16).

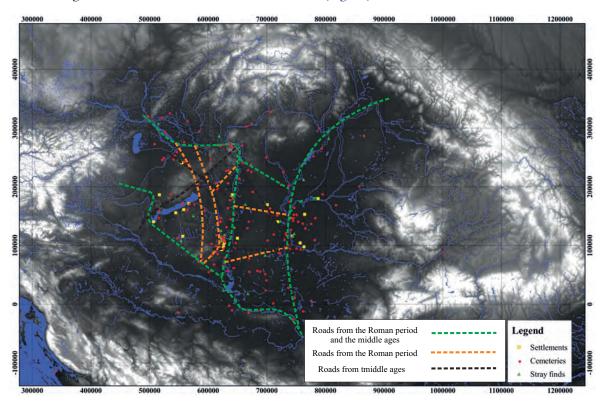


Fig. 16. Supposed road networks in the Late Avar Period

Chronology

Research has dated the appearance of yellow pottery to the Late Avar Period since long. Based on some grave and settlement finds, however, it is possible to specify the time of use more accurately—while emphasizing that of the 1,032 pieces, only 267 could be used for a chronological evaluation and that so little data is only enough to outline tendencies. Yellow pottery first appeared sporadically in the first and second phases of the Late Avar Period and only became more common in the third and fourth phases. Towards the very end of the Late Avar Period, the use of yellow pottery showed a descending tendency. In absolute numbers, yellow pottery appeared first at the end of the 7th and the beginning of the 8th century AD, while most finds can be dated to the second half of the 8th century AD, and the type disappears from the Carpathian Basin in the first half or second third of the 9th century AD.

No detailed typo-chronological framework can be created for yellow pottery; one can only talk about tendencies there, too. In the second part of the Late Avar Period (until the end of the 8th century AD), yellow pottery was in use in Transdanubia, the surroundings of Őcsény–Szekszárd, and the southern part of the Danube–Tisza Interfluve. At that time, the formal spectrum was relatively narrow, mainly consisting of mugs with a handle, round or pear-shaped mugs, bottles,

and spouted jugs. The variety of forms increased considerably in the third phase of the Late Avar Period (second part of the 8th century AD), and the expanded type set included both new types (miniaturised bottles, bowls, etc.) and new shapes (biconical and special variants). The distribution of yellow pottery also seems to be more balanced at that time: such vessels appear on sites throughout the Late Avar dwelling area, although most findings appear in the surroundings of Őcsény and Szekszárd, and new hubs also emerge in the Danube–Tisza Interfluve and the Szeged–Hódmezővásárhely area.

Based on the above, one may assume with certainty that the so-called Danube workshop circle (located in the surroundings of Őcsény–Szekszárd) was the first to produce yellow pottery, mainly pear-shaped mugs with a handle, bottles, and spouted jugs. The Danube valley workshops produced pottery with increased intensity until the end of the Late Avar Period (the first half or second third of the 9th century AD).

The Tisza workshop circle most likely started to operate during the third phase of the Late Avar Period (the second part of the 8th century AD) and reached its highest capacity in the fourth and fifth phases (the first half or second third of the 9th century AD). Jugs and painted pottery were the characteristics of their assortment. The significant difference between the number of vessels produced by the Tisza and Danube workshop circles can rather be explained by the shorter running time of the Tisza workshop circle than its lower capacity.

In the southern part of the Danube-Tisza Interfluve, the products of both workshop circles were used: yellow pottery appeared in this area already in the first phase of the Late Avar Period, but younger assemblages also contain jugs and painted vessels from the Tisza workshop circle in abundance. Yellow pottery was present throughout the Late Avar Period, although it only appeared in large quantities (and with new types and shapes) in the third phase.

Origin

While yellow pottery was mainly produced in the Carpathian Basin by two identified workshop circles (besides local pottery traditions), several external impacts and international trends influenced its evolution. Grey pottery, originating in local tradition, was especially important in this regard, as—according to archaeological and petrographic analyses—its *chaîne opératoire* included the same steps of raw material selection and processing as that of yellow pottery, and the two even shared some steps of production method.³¹

Currently, some coeval yellow pottery finds from Pliska (Bulgaria) represent the closest analogy to the Late Avar yellow pottery. The two find groups share technological traits, including well-prepared, rich clay, powdery surface, mainly yellow colour, formal spectrum, and some painted motifs.³²

The appearing painted motifs follow an international trend: they are certainly of Sasanian origin,³³ appearing in China, the Byzantine Empire, and Western Europe alike. The Silk Road, an international route connecting the Western world with China at the time, must have played a key role in their spread.

- 31 Kreiter et al. 2017, 33-34; Rosner 1979, 103.
- 32 Petrova Brey 2005, 167; Petrova 2007, 26; Vida 2015, 317–325.
- 33 Compareti 2006, 150; Kageyama 2006, 320.

Conclusions

A comprehensive evaluation of the yellow pottery record enabled us to specify the typological framework and chronological position of this find group. Furthermore, two main workshop circles involved in the production of yellow pottery were outlined and characterised based on their products. The distribution of yellow pottery finds also enabled us to study from a different angle and draw some conclusions regarding the Late Avar Period road network.

There is still room for a future investigation of yellow pottery. Chemical composition analyses could shed light on different workshops' specific use of raw materials. The identification of the paint substance by natural scientific methods may also yield relevant information. Moreover, yellow pottery can be a basis for other research projects, as the seeming connection between the distribution of the related finds and known road networks raises further questions. Thus, yellow pottery could even be used in an analysis of Late Avar Period road networks.

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References

- BAUER, I. Endres, W. Kerkhoff-Hader, B. Koch, R. Stephan, H-G. 1986: Leitfaden zur Keramikbeschreibung (Mittelalter-Neuzeit). Terminologie Typologie Technologie. Munich.
- BIALEKOVÁ, D. 1967: Žltá keramika z prohrebísk avarskej ríše v Karpatskej kotline (Die gelbe Keramik aus der awarenzeitlichen Gräberfelden im Karpatenbecken). *Slovenská archeológia* 15, 5–76.
- BIALEKOVÁ, D. 1968: Zur Frage der Genesis der gelben Keramik aus der Zeit des zweiten awarischen Zusammenlebens. Š*tudijné Zvesti Acheologického Ústavu Slovenskej Akadémie Vied* 16, 21–35.
- Compareti, M. 2006: The role of the sogdian colonies in the diffusion of the pearl roundels pattern. In: Compareti, M. Raffetta, P. Scarcia, G. (eds): Ēran ud Anērān. Studies presented to Boris Ilich Marshak on the Occasion of His 70th Birthday. Venice, 149–174.
- Csiffáry, G. 2000: A szurok és a kőolaj használata a régi Magyarországon (Die Nutzung von Pech und Erdöl im alten Ungarn). *Agria. Az Egri Múzeum Évkönyve* 36, 101–146.
- Csupor, I. Csuporné, Zs. 1998: Fazekaskönyv. Budapest.
- Fancsalszky, G. 2007: Állat- és emberábrázolás a késő avar kori öntött bronz övvereteken (Tier- und Menschendarstellungen auf den spätawarenzeitlichen gegossenen bronzenen Gürtelbeschlägen). Budapest.
- Felföldi, Sz. 2019: A folyók szerepe az Avar Kaganátusban (The Role of the Rivers in the Avar Khaganate). In: Balogh, Cs. Szentpéteri, J. Wicker, E. (eds): *Hatalmi központok az avar kaganátusban Power Centres of the Avar Khaganate*. Kecskemét, 349–374.
- F. Romhányi, B. 2019: Szempontok a Kárpát-medence térszervezésének változásaihoz (5–14. század) (Changes in the Early Medieval Settlement Structure of the Carpathin Basin [5th–14th century]). In: BALOGH, Cs. Szentpéteri, J. Wicker, E. (eds): *Hatalmi központok az avar kaganátusban Power Centres of the Avar Khaganate.* Kecskemét, 399–420.
- Gabler, D. 2011: Utak Pannonia és Dácia között a "barbaricumon" át (Strassen zwischen Pannonien und Dakien durch das Barbaricum). *Dolgozatok az Erdélyi Múzeum Érem- és Régiségtárából* 3–4 (13–14), 43–61.
- GARAM, É. 1968: Die awarischen Gräberfelder von Szebény und die spätawarische hellgelbe, dünnwandige Scheibenkeramik. *Régészeti Dolgozatok az Eötvös Loránd Tudományegyetem Régészeti Intézetéből* 9, 63–65. DOI: 10.17204/dissarch.1968.63

- GARAM, É. 1969: A későavarkori korongolt sárga kerámia (Die spätawarenzeitliche gelbe Keramik). *Archaeologiai Értesítő* 96, 207–241.
- GARAM, É. 2001: Funde byzantinische herkunft in der awarenzeit vom ende des 6. Bis zum ende des 7. Jahrhunderts. Budapest.
- HOFER, N. 2010: Handbuch zur Terminologie der mittelalterlichen und neuzeitlichen keramik in Österreich. Vienna.
- Holló, Zs. Mester, Zs. Lengyel, Gy. 2001: Egy pattintott kőeszköz életútja. Magyar kifejezések a technológiai vizsgálatokhoz 1. *Ősrégészeti Levelek* 3, 51–57.
- Hunt, A. M. W. 2017: The Oxford Handbook of Archaeological Ceramic Analysis. Oxford. DOI: 10.1093/oxford-hb/9780199681532.001.0001
- IGAZ, M. KRESZ, M. 1965: A népi cserépedények szakterminológiája. Néprajzi Értesítő 47, 87-131.
- KAGEYAMA, E. 2006: Use and production of silks in Sogdiana. In: Сомрагеті, М. Raffetta, Р. Scarcia, G. (eds): Ēran ud Anērān. Studies presented to Boris Ilich Marshak on the Occasion of His 70th Birthday. Venice, 319–332.
- Kreiter, A. Skoda, P. 2017: *Avar kori sárga kerámiák petrográfiai vizsgálata* [Petrographic Analysis of Avar Age Yellow Ceramics]. Unpublished Report. Hungarian National Museum, Laboratory of Applied Natural Sciences. Repository ID: 2017/0003/1.
- Kreiter, A. Skriba, P. Bajnóczi, B. Tóth, M. Viktorik, O. Páncél, P. 2017: A dunaszentgyörgyi avar temető kerámiái az archeometria tükrében (The Ceramic Assamblage of the Avar Cemetery at Dunaszentgyörgy [Tolna County, Hungary] in the Light of Archaeometry). In: Türk, A. (ed.): Hadak útján XXIV/II. A népvándorláskor fiatal kutatóinak XXIV. konferenciája. Esztergom, 2014. november 4–6. Budapest–Esztergom, 21–102. doi: 10.55722/Arpad.Kiad.2017.3.2 02
- MAGYAR-HÁRSHEGYI, P. 2014: Pannonia kereskedelme az amphorák tükrében (Kr. u. 1–4. század) (The Trade of Pannonia in the Light of Amphorae [1st–4th century AD]). PhD Dissertation, Eötvös Loránd University, Budapest. doi: 10.15476/ELTE.2014.046
- MASEK, Zs. VÉNINGER, P. 2017: "...s mint a fazekas, abba a formába gyúrd át, amelyik inkább tetszik." Készítéstechnológiai megfigyelések gyorskorongolt szarmata finomkerámián. ("...in the Form You may Prefer." Observations on the Production of Wheel-Thrown Sarmatian Fine Ceramic). In: Merva, Sz. (ed.): Hadak útján XXII. A népvándorláskor fiatal kutatóinak XXII. konferenciája. Visegrád, 57–84.
- ORTON, C. HUGHES, M. 2013: Pottery in Archaeology. Cambridge. DOI: 10.1017/CBO9780511920066
- Petrova, V. 2007: The Yellow Pottery from Pliska, Bulgaria and Its Archeological Context. In: Böhlen-Dorf-Arslan, B. Uysal, A. O. Witte-Orr, J. (eds): Çanak. Late Antique and Medieval Pottery and Tiles in Mediterranean *Archaeological Contexts*. Byzas 7. Istanbul, 25–42.
- Petrova, V. Brey, G. 2005: Provenance Studies of Early Medieval Fast Wheel Pottery from Pliska, Bulgaria. In: Prudêncio, M. I. Dias, M. I. Waerenborgh, J. C. (eds): *Understanding People through Their Pottery. Proceedings of the 7th European Meeting on Ancient Ceramics*. Lisboa, 167–174.
- RICE, P. M. 1987: Pottery analysis. A sourcebook. Chicago-London.
- ROSNER, Gy. 1979: Avar kerámiaközpont Szekszárd környékén. Keramisches Zentrum der Awaren in der Umgebung von Szekszárd. A Szekszárdi Béri Balogh Ádám Múzeum Évkönyve 8–9, 97–108.
- Roux, V. 2019: Ceramics and Society. A Technological Approach to Archaeological Assemblages. Basel. DOI: 10.1007/978-3-030-03973-8
- RYE, O. S. 1981: Pottery Technology: Principles and Reconstruction (Manuals on archeology). Washington.
- Szalontai, Cs. 2018: Az utakról. Szempontok az úthálózat kutatásához. In: Rácz, Zs. Koncz, I. Gulyás, B. (eds): "Hadak útján." A népvándorláskor fiatal kutatóinak XXVI. konferenciája. Gazdaság kereskedelem kézművesség. Dissertationes Archaeologicae Supplementum 2. Budapest, 9–20. doi: 10.17204/dissarch.suppl2.9
- Szalontai, Cs. 2019: Berendezkedés a szegedi tájban (Settlement in the Szeged Landscape The Re-interpreted Settlement System and Power Structure of a Micro-region in the Avar Period). In: Ваlogн, Сs. Szentpéteri, J. Wicker, E. (eds): *Hatalmi központok az avar kaganátusban Power Centres of the Avar Khaganate.* Kecskemét, 375–398.

- SZENDE, K. 2011: Towns Along the Way. Changing Patterns of Long-distance Trade and the Urban Network of Medieval Hungary. In: Houben, H. Toomaspoeg, K. (eds): Towns and Communications II. Communication between Towns. Proceedings of the Meetings of the International Commission for the History of Towns. Lecce, 161–225.
- Szenthe, G. 2021: A késő avar kor, mint régészeti korszak és történeti problematika (Kr. u. 650/700–840/850). *Magyar Tudomány* 182, 90–100. doi: 10.1556/2065.182.2021.S1.9
- SZENTHE, G. GÁLL, E. 2021: A (Needle) Case in Point: Transformations in the Carpathian Basin during the Early Middle Ages (Late Avar Period, 8th–9th century AD). *European Journal of Archaeology*, 1–22. DOI: 10.1017/eaa.2021.3
- Szikszai, M. 2010: A máramarosi só továbbszállítása a Jászkunságban. *Revista Arhivei Maramuresene* 3, 109–119.
- Szilágyi, M. 2014: Római utak a középkori Dunántúlon [Roman Roads in the Medieval Transdanubia]. *Történelmi Szemle* 56, 1–25
- Szücsi, F. 2019: Temetkezési szokások az avar kori Mezőföldön és az 5-10. századi térhasználati és kontinuitási kérdések (Burial Customs in the Avar Age Mezőföld and Issues of Spatial Use and Continuity in the 5th and 10th Centuries). PhD Dissertation, Pázmány Péter Catholic University, Budapest. doi: 10.15774/PPKE. BTK.2019.010
- Thér, R. 2020: Ceramic Technology: How to Reconstruct and Describe Pottery-forming Practices. *Archaeological and Anthropological Sciences* 12/172, 1–22. DOI: 10.1007/s12520-020-01131-0
- Тотн, E. 2004: Római utak Pannóniában. Ókor 2004:1, 43–48. DOI: 10.1002/pfi.4140430412
- VÉNINGER, P. 2018: Gyorskorongon készült edényeken található nyomok (korongozás, fakés, esztergakés nyomai). In: Ringer, I. (ed.): A Fiatal Középkoros Régészek VIII. Konferenciájának Tanulmánykötete, Petőfi Irodalmi Múzeum Kazinczy Ferenc Múzeum Sátoraljaújhely, 2016. november 17–19. Sátoraljaújhely, 399–422.
- Vida, T. 2015: Zur Frage des gelben Tafelgeschirrs der frühmittelalterlichen Eliten im mittleren Donaubecken. In: Heinrich-Tamáska, O. Herold, H. Straub, P. Vida, T. (eds): "Castellum, civitas, urbs": Zentren und Eliten im frühmittelalterlichen Ostmitteleuropa. Budapest–Leipzig–Keszthely–Rahden/Westfalen, 313–328.

