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TECHNICAL CERAMICS FROM A FORGE? A POTTERY FIND FROM CĂLUGĂRENI/MIKHÁZA (ROMANIA)

In Călugăreni/Mikháza (RO) excavations are taking place for several years, which include several sites: the military fortress and the vicus with a bath. In the vicus next to the Roman fortress was found a ceramic vessel which was destroyed on site. It is an unusual vessel that ends in a wide tube and can be interpreted as part of a technical installation. Finds in the vicinity indicate that there may have been a forge and the vessel could have been part of a construction ventilating the Blacksmith's fireplace. The vessel itself could have been used as a bellows or a wind hole under the fire..

Dacia – vicus – blacksmith – forge – technical ceramic

On the left bank of the Niraj/Nyárád/Niersch River, in the east of Mureş County, near present-day Călugăreni/Mikháza a Roman auxiliary camp was situated with its associated vicus. The site was part of the defence line at the Eastern Dacian Limes. The routes through the river valley running from the Eastern Carpathians towards the Mureş valley could be controlled perfectly at this position (Pánczel et al. 2014; Dobos et al. 2017; Höpken, Fiedler and Oberhofer, K. 2020; Oberhofer, Höpken and Fiedler 2019/20).

In the last years, the military camp has been recorded by geophysical prospecting and some excavations (**fig. 1**). Tile stamps indicate that the garrison stationed here was probably the cohors I Augusta Ituraeorum from Syria.

The vicus had a size of about 10 ha, as geophysical and archaeological surveys have shown. The settlement's main street, a well-built embankment, can still be recognized in the modern terrain. The internal structure, however, is difficult to determine so far. The vicus was characterized by wood buildings which do not show regular anomalies in the geophysical images. They can be recognized in excavations only by postholes and beds for wooden beams. The only stone building seems to have been a bath, not far from the river.

In the 2019 campaign, a trench of 10 x 10 m was opened near the main street, in the southwestern part of the vicus (**fig. 2** area C6).

Underneath the top soil, a flat gravel layer appeared in the south of the trench (**fig. 2** Cx 2134). Whether this can be interpreted as the remains of the Roman road or as a paved area in the vicinity of the fort, has to be proven in future campaigns.

North of this gravel surface, several post-holes (presumably of different buildings) have been identified. Of eight postholes, five can be associated with a building (**fig. 2**). They apparently form a corner, with two possible orientations: A southwestern orientation of the house would comply with the structures of neighbouring areas. However, a southeastern orientation, and thus in connexion with the graveled area, cannot be excluded (Höpken, Fiedler and Oberhofer 2020; Oberhofer, Höpken and Fiedler 2019/20).

Several features could be uncovered adjacent to the post building structures at the north-eastern limit of the trench that may be associated with craft activities. A notable number of fire-damaged stones occurred here in a presumed posthole fill (Cx 2147) and an adjacent pit or ditch fill (Cx 2148).

Numerous pottery fragments from a vessel of an unusual shape came to light in a cultural layer Cx 2137 in the immediate vicinity (SF 6224, **fig. 3**). The object consisted of two parts separately modelled on the potter's wheel, which were joined together at a 90° angle while still being malleable (**fig. 4a**). The pot has a rounded bottom with a central opening of about 2,5 cm. The vessel has a diameter of about 15 cm and swings out to about 20 cm in diameter at the top. The rim is not preserved. Laterally, the second body, a separately made tube, was attached to the lower part. Its full length is unknown. At the base, the tube measures 12 cm in diameter; it widens slightly over the preserved length of 25 cm to about 15 cm in diameter.

The form is unusual. The object is not suitable as a serving, cooking, or storage vessel; it was rather a technical pottery object: Most probably it could have been used as an element of pot-bellows, a windpipe analogous to the windbox of a blacksmiths forge. In order to reach the high melting temperatures necessary for metals, oxygen had to be supplied to a fire by means of such technical installations.

Examples of ceramic pot-bellows can be found as early as the Bronze Age in the Eastern Mediterranean (Davey 1979; Kassianidou 2011; Yahalom-Mack et al. 2017: 58 fig. 3; Müller-Karpe 2021: 61–63; Davey 2021). Here they are quite

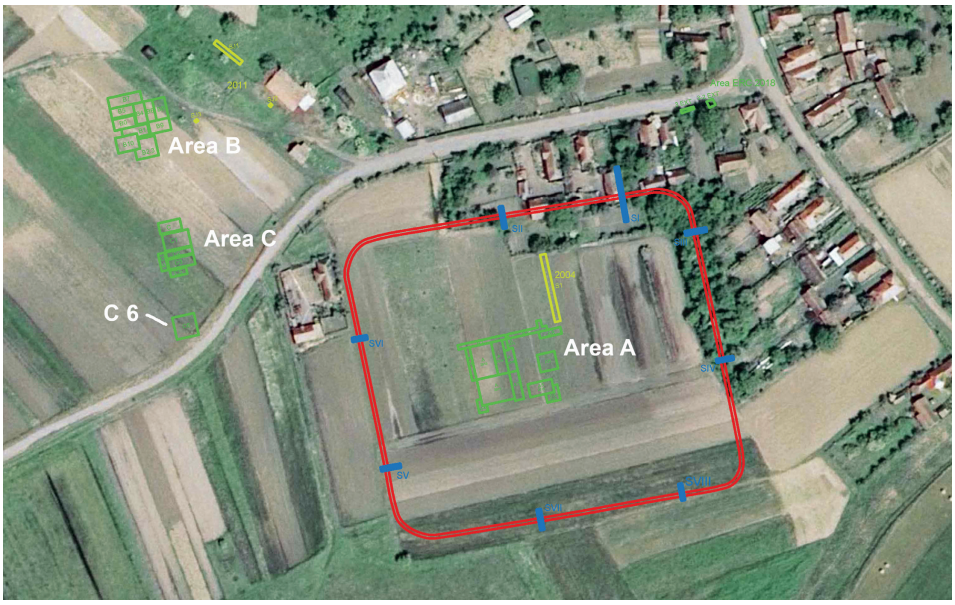

Fig. 1. Călugăreni/Mikháza with sections in the fort (Area A), at the bath (Area B) and in the vicus (Area C). C6 denotes the section of 2019. © Sz.-P. Pánczél/K. Oberhofer.

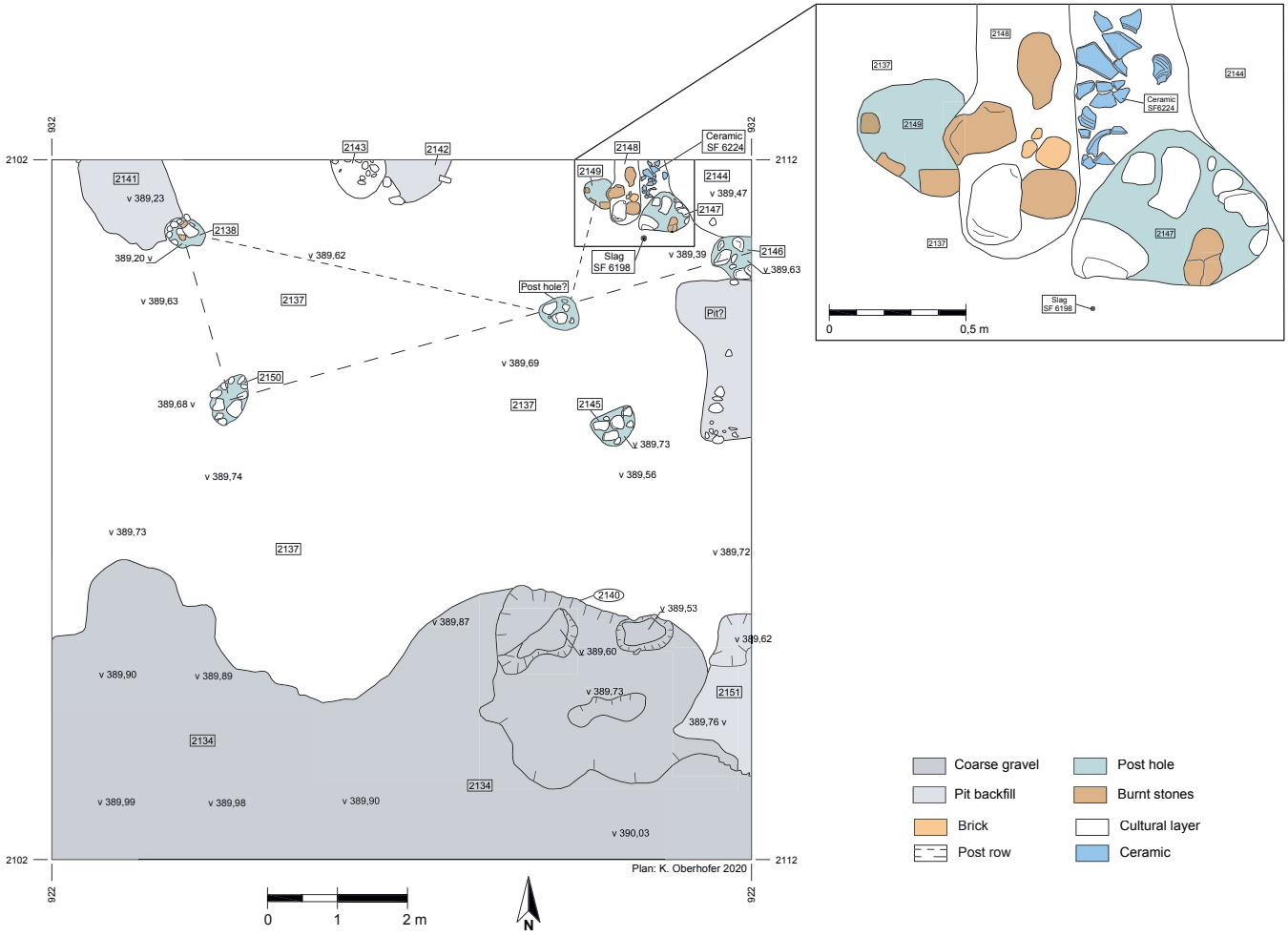

Fig. 2. Overview of features uncovered in 2019 in Area C6, below; Detail, above. © K. Oberhofer

Fig. 3. Find location of technical vessel pottery at the top of Cx 2137. © K. Oberhofer.

Fig. 4. The wind pipe (?) from Călugăreni/Mikháza (SF 6224). Scale 1:5. © C. Höpken/M. Fiedler.

shallow, squat pots with a straight bottom and a diameter of about 40 to 50 cm with a height of 25 cm. A tube is set just above the bottom, with an internal diameter of just under 10 cm (Davey 1979: 104–105). The rim of each pot is thickened like a torus at the top, sometimes with an accompanying rib underneath to secure the leather bellows to it (Davey 2021: 208–212 fig. 8–11). A similar system of ceramic pots with leather bellows is still used today in West Africa for the processing of glass (Alemaka, Garikda and Ali 2016: 205 fig. 2a): A wooden rod attached to the bellows is used to move the bellows up and down by hand, allowing air to flow in and out at any given time. While the air supply was apparently controlled by an opening at the top of the leather bellows in prehistoric times (Davey 1979, 103 fig. 2A), the hole in the bottom of the piece from Călugăreni probably served for the same purpose. The technique of the African bellows and our vessel seems to correspond. It is conceivable that it was fixed in a base, as is the case with the African parallels. Thus, the working height is flexible. On the other hand, the shape of our pot differs from the prehistoric pot-bellows due to its straight base. This could speak for an improved development to a windpipe construction at or below a forge (Lo Russo 2017: 442–449 fig. 398).

In general, such air supply constructions with pot-bellows, which were always in use in alternating pairs, are common above all in the Mediterranean East and their existence has not yet been proven for the Roman period in the Western provinces. This might be due to a lack of research. However, it is possible that a blacksmith from the region came to Dacia with the military unit which presumably came from Syria.

In vici, metal-processing is a common feature. Also, in Călugăreni numerous finds provide proofof metal-processing activities: While larger quantities of amorphous slag had already been found in the surrounding area during earlier excavations, a find from the immediate vicinity of the presumed pot-bellows provides further evidence. It is a dome-shaped blacksmiths slag (Höpken, Fiedler and Oberhofer 2020: 112 fig. 12b; Oberhofer, Höpken and Fiedler 2019/20: 138 fig. 9), as it arises while forging iron in the forge (Orengo, Frénée and Fluzin 2000: 51–55; Anderson et al. 2000, 107; Smettan, Hornung and Kronz 2013; Polfer 2000). Therefore, the possible pot-bellow, in conjunction with the finds of slags, provide ample evidence for the interpretation of the findings as a forge.

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Bibliography

Alemaka, E. M., Garikda, A. D. and Ali, E. A. 2016. Stimulating technological innovation in Nigerian glass bead industry by the introduction of a suitable designed electrical powered centrifugal fan. *Journal of Ceramics and Environmental Design* 2016, 203–212.

Anderson, T., Duvauchelle, A., Serneels, V. and Agustoni, C. 2000. Stone and metal working on the Roman site of Châbles-Les Saux (Ct. Fribourg, Switzerland). In M. Feugère and M. Guštin (eds.), *Iron, blacksmiths and tools. Ancient European crafts. Acts of the Instrumentum Conference at Podsreda (Slovenia) in April 1999* (Monographies Instrumentum 12): 103–108 Montagnac, Mergoil.

Davey, C. J. 1979. Some ancient near eastern pot bellows. *Levant 11*, 101–111.

Davey, C. J. 2021. Ancient Pot-Bellows: A Review Forty Years On. *Bulletin of the American Schools of Oriental Research* 385, 201–218.

Dobos, A., Fiedler, M., Höpken, C., Mustaţă, S. and Pánczél, S. P. 2017. Militärlager und vicus in Călugăreni/Mikháza (Kreis Mureş, Rumänien) am Dakischen Ostlimes. *Kölner und Bonner Archaeologica* 7, 145–154.

Höpken, C., Fiedler M. and Oberhofer, K. 2020. Ausgrabungen im vicus von Călugăreni / Mikháza, Kreis Mureş (Rumänien). *Marisia* 2020/2, 101–118.

Kassianidou, V. 2011. Blowing the wind of change: the introduction of bellows in Late Bronze Age Cyprus. In P. P. Betancourt and S. C. Ferrence (eds.), *Metallurgy: Understanding How, Learning Why. Studies in Honor of James D. Muhly* (Prehistory Monographs 29): 41–48. Philadelphia, INSTAP Academic Press.

Lo Russo, S. 2017. Geoarchäologische Untersuchung an Werkgrube G8.7 in der Schmiedewerkstatt auf Parzelle 8. In H. Flück (ed.), *Vor den Toren von Vindonissa. Wohnen und Arbeiten in einem Handwerkerquartier in den Canabae des Legionslagers (Windisch Zivilsiedlung West 2006-2008)*. Mit Beiträgen von Ö. Akeret, M. Bolliger, S. Deschler-Erb, S. Jeanloz, S. Kramis, S. Lo Russo, E. Martin and R. Schmidig (Veröffentlichungen der Gesellschaft Pro Vindonissa XXIII): 442–449. Brugg, LIBRUM Publishers.

Müller-Karpe, A. 2021. *Die Himmelsscheibe von Nebra und ihre anatolischen Bezüge* (Marburger Schriften aus dem Vorgeschichtlichen Seminar der Philipps-Universität 64). Marburg, Vorgeschichtliches Seminar der Philipps-Universität.

Oberhofer, K., Höpken, C. and Fiedler M. 2019/20. Ein Windrohr und eine Schmiede? Ausgrabungen im vicus von Călugăreni/Mikháza, Kreis Mureș (Rumänien). *Kölner und Bonner Archaeologica* 9/10, 129–140.

Orengo, L., Frénée, E. and Fluzin, P. 2000. Un atelier de forge de l'âge du Fer au «Bois du Jarrier 3», commune de La-Celle-sur-Loire (F, Nièvre). Archéologie et archéométrie. In M. Feugère and M. Guštin (eds.), *Iron, blacksmiths and tools. Ancient European crafts. Acts of the Instrumentum Conference at Podsreda (Slovenia) in April 1999* (Monographies Instrumentum 12): 45–66. Montagnac, Mergoil.

Pánczél, Sz.-P., Höpken, C., Fiedler M., Döhner, G., Szabó, M., Lenkey, L. and Man, N. 2014. Forschungen am Dakischen Ostlimes zwischen Brâncoveneşti und Sărăţeni. *Der Limes* 8, 2014, 23–27.

Polfer, M. 2000. Eisenproduktion und Eisenverarbeitung in Nordgallien und dem Rheinland während der römischen Kaiserzeit. In M. Feugère and M. Guštin (eds.), *Iron, blacksmiths and tools. Ancient European crafts. Acts of the Instumentum Conference at Podsreda (Slovenia) in April 1999* (Monographies Instrumentum 12): 67–87. Montagnac, Mergoil.

Smettan, M., Hornung, S. and Kronz, A. 2013. Die Bedeutung von Formen in Schmiedeschlacken – Rückschlüsse auf die Formen der Fertigprodukte und ihren Herstellungsprozess. In A. Hauptmann, O. Mecking and M. Prange (eds.) *Archäometrie und Denkmalpflege 2013. An der Bauhaus-Universität Weimar, 25. - 28. September 2013* (Metalla Sonderheft 6): 34–37. Bochum.

Yahalom-Mack, N., Eliyahu-Behar, A., Martin, M. A. S., Kleiman, A., Shahack-Gross, R., Homsher, T. S. and Finkelstein, I. 2017. Metalworking at Megiddo during the Late Bronze and Iron Ages. *Journal of Near Eastern Studies* April 2017, 53–74.