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Notes

VENETIAN GOBLETS FROM THE TOWN HALL IN BARDEJOV, SLOVAKIA

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ABSTRACT

This lesser-known series of six goblets from Bardejov provides specific information about the distribution of Venetian glass to the countries north of the Alps and also about the efforts to imitate it in local glasshouses. Other covered goblets with chalice-shaped cups from the 1480s to early sixteenth century are known from present-day Hungary and Slovakia. SEM/EDS analyses of the glass and enamel compositions reveals the use of brass in the enamel, as has been seen for the same period in Hungary, and one goblet's origins can be traced to Venice.

The town of Bardejov was founded in the thirteenth century by German colonists in the northeastern corner of the Kingdom of Hungary, on a trade route near the border with Poland and Russia. The town benefited from its advantageous location and crafts, especially cloth-making and pottery. It had its heyday in the second half of the fifteenth and sixteenth centuries, when the local Church of St. Egidius was rebuilt and a town hall was constructed in the main square (before 1511).[1]

According to written records, a glasshouse was established in the town in 1473 and operated until 1873. It focused on the production of luxury glassware, and six goblets with lids and the painted coats of arms of the town were ordered from Venice as templates.[2] The goblets were stored in the town hall and judging by the heavy wear of the bands of "gold" paint on the rims, were also well used. In 1906 the town hall became the seat of the Šariš Museum (ŠM), and five of the goblets passed to its collections:[3] two goblets with lids and two without, and the fifth specimen was only represented by a lid of different glass and design.[4] The sixth goblet from the town hall was donated to the Magyar Nemzeti Múzeum (MNM, Hungarian National Museum) in Budapest.[5]

One goblet from ŠM (H 712) and the one from MNM have ribbed knops and feet made of deep blue glass (**Fig. 1**);[6] three goblets (ŠM H 713, H 714, H 716) are made of

1 Gutek and Jiroušek 2011, 84–85.
2 Hetteš 1958, 294.
3 Gutek and Jiroušek 2011, 84.
4 The authors would like to thank František Gutek, the director of the museum at the time, for his help in the preparation of this paper.
5 Veres 2006, 12.
6 Hetteš 1973, no. 2.

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colorless glass and only the knops are ribbed, while on one of them part of the foot was replaced with wood (**Figs. 2–4**). Except for slight differences in dimensions and the number of ribs on the hollow knops, they are identical in shape and decoration. They have smooth chalice-shaped cups and a thick thread with pincered tips wound above the cup's bottom.

The main decorative motif is a pair of angels holding the coat of arms of Bardejov, granted to the town in 1453 (detail in **Fig. 5**). The borders of the goblets' rims consist of bands of "gold"-colored fish scales, which are heavily worn. Each scale has a red enamel dot, and the bands are lined with rows of blue-and-white dots.

The lids on the ŠM and MNM goblets have slightly arched bodies and their handles are finished with buttons. The lid without its goblet (H 715) has a flat upper part and is made of yellowish glass with numerous bubbles and grains of sand. The decoration is in *schwarzlot*, unusual for Venetian products, and consists of three flowers on the body and a series of dots on the handle (**Fig. 6**). The lid may, with some reservation, represent the only surviving evidence of production by the Bardejov glasshouse based on Venetian models.

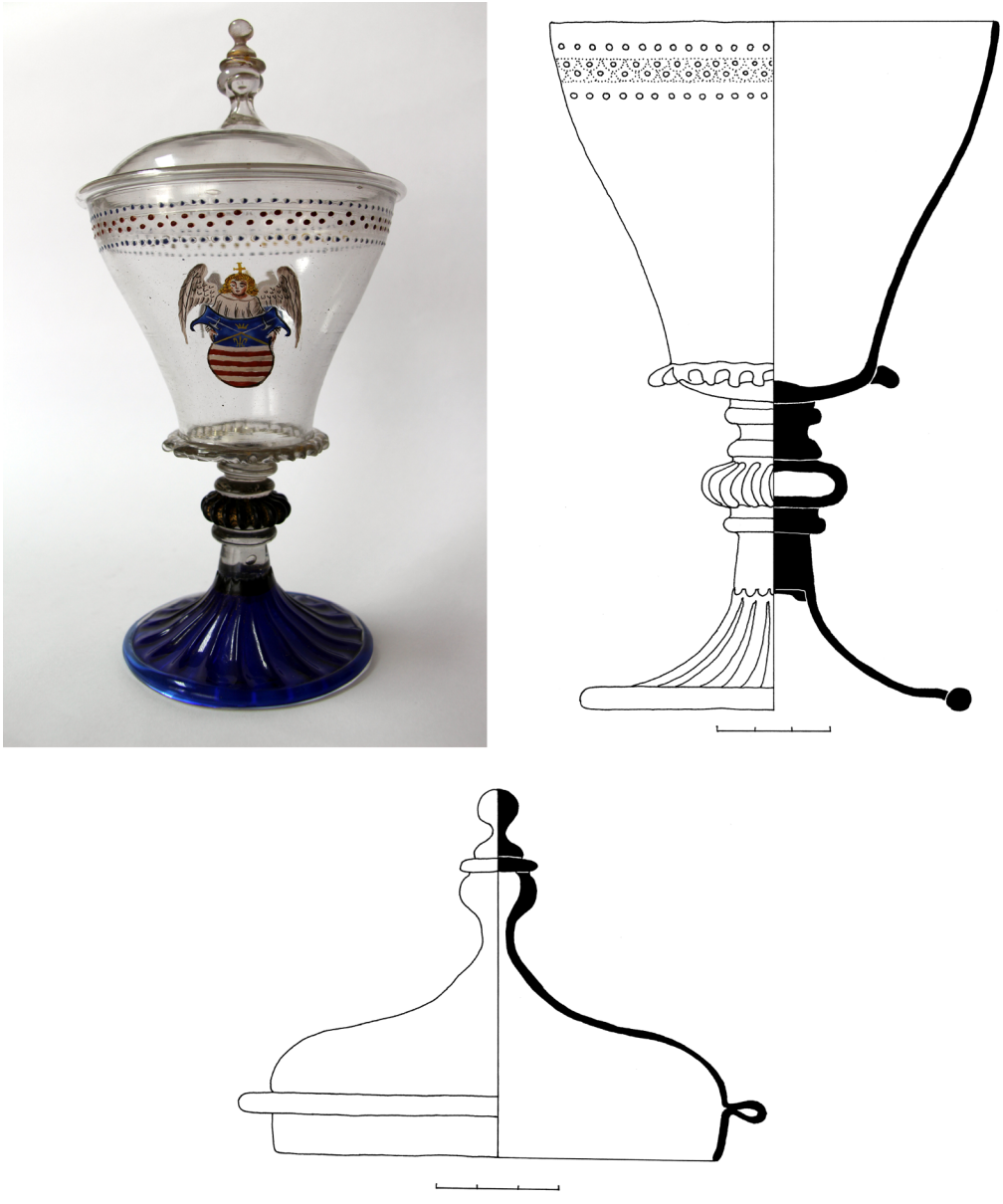

FIG 1. Goblet with blue ribbed knop and ribbed foot (16 and 18 ribs), with profiles. The foot is wound with light-blue thread. H. without lid 18.5 cm, Diam. (rim) 12 cm. ŠM, Bardejov, H 712. (Photo: Šariš Museum; Drawings: Hedvika Sedláčková)

FIG 2. Goblet made of colorless glass, with profiles. Knop with 18 ribs. The foot is wound with two rows of thread. H. without lid 17.3 cm, Diam. (rim) 12 cm. ŠM, Bardejov, H 713. (Photo: Šariš Museum; Drawings: Hedvika Sedláčková)

ANALOGIES

Goblets with chalice-shaped cups count among the shapes from the period spanning the 1480s to the first decade of the sixteenth century. One of the oldest specimens in the museum collections is a goblet from Wrocław with the coats of arms of the Hungarian and Bohemian king Matthias Corvinus and a ribbed knop, made before 1490; it has survived only in a color drawing.[7] More recent products can be found, for example, in museums in London and Vienna. They include goblets with ribbed knops on a stem and simple bell-shaped stems, as well as a goblet on which the lower part of the stem was replaced with a gilt silver section.[8]

There are numerous goblets with chalice-shaped cups from present-day Hungary, where they have been found in archaeological excavations. From Kőszeg Castle come

7 "Pokal mit den Wappen von Böhmen und Alt-Ungarn. Venedig, um 1480. Ehemals Breslau, Schlesisches Museum für Kunstgewerbe und Altertümer (Kriegsverlust)"; Strasser and Baumgärtner 2002, 17 and 20, fig. 2.

8 Barovier Mentasti and Tonini 2020, fig. 5.

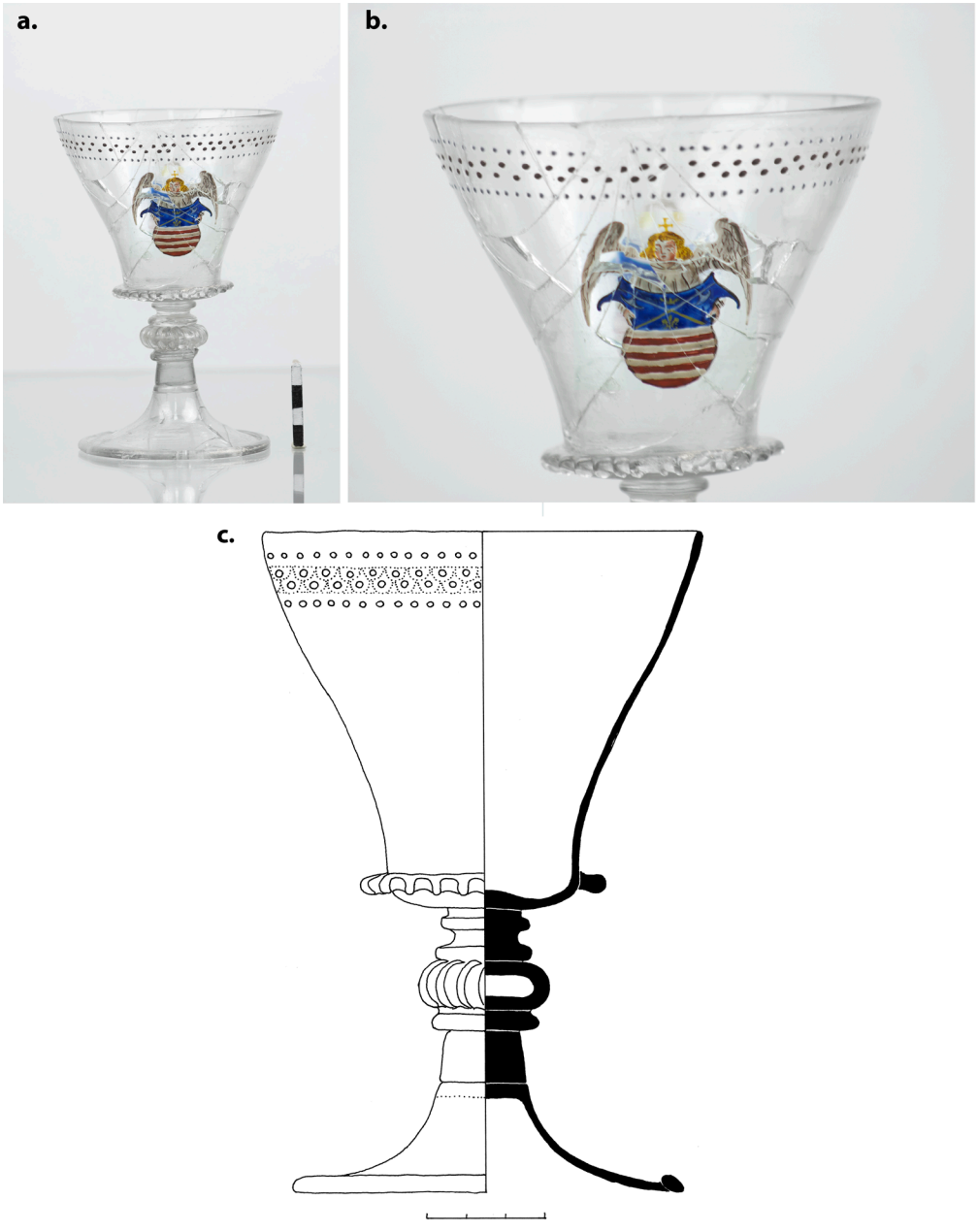

FIG 3. Cristallo goblet, restored. Knop with 15 ribs. The foot is wound with thread, on the thread and the knop are remains of "gold" decoration (see Table 1), H. 17.1 cm, Diam. (rim) 11.3 cm. ŠM, Bardejov, H 714: (a) full view; (b) repairs to the top; (c) profile. (Photos and restoration works: Tereza Malínková; Drawing: Hedvika Sedláčková)

parts of a goblet with ribs, from 1482–1490, that is associated with János Corvinus, illegitimate son of Matthias Corvinus.[9] Fragments of plain, enamel-decorated cups and cups with ribs were found in the royal castle of Buda,[10] and a goblet with an undecorated cup was discovered in Bátmonostor in southern Hungary.[11]

An incomplete enameled goblet with a lid comes from a refuse pit dated the first half of the sixteenth century at Bratislava Castle;[12] and an undecorated cristallo goblet was found in the city of Bratislava in the context of the second quarter of the sixteenth

9 Gyürky 1991, fig. 46, no. 6.
10 Gyürky 1986, table XXXVII:1, 2.
11 Gyürky 1991, fig. 62, no. 1.
12 Sedláčková and others 2016, 354–355, figs. 1, 2, photo 1.

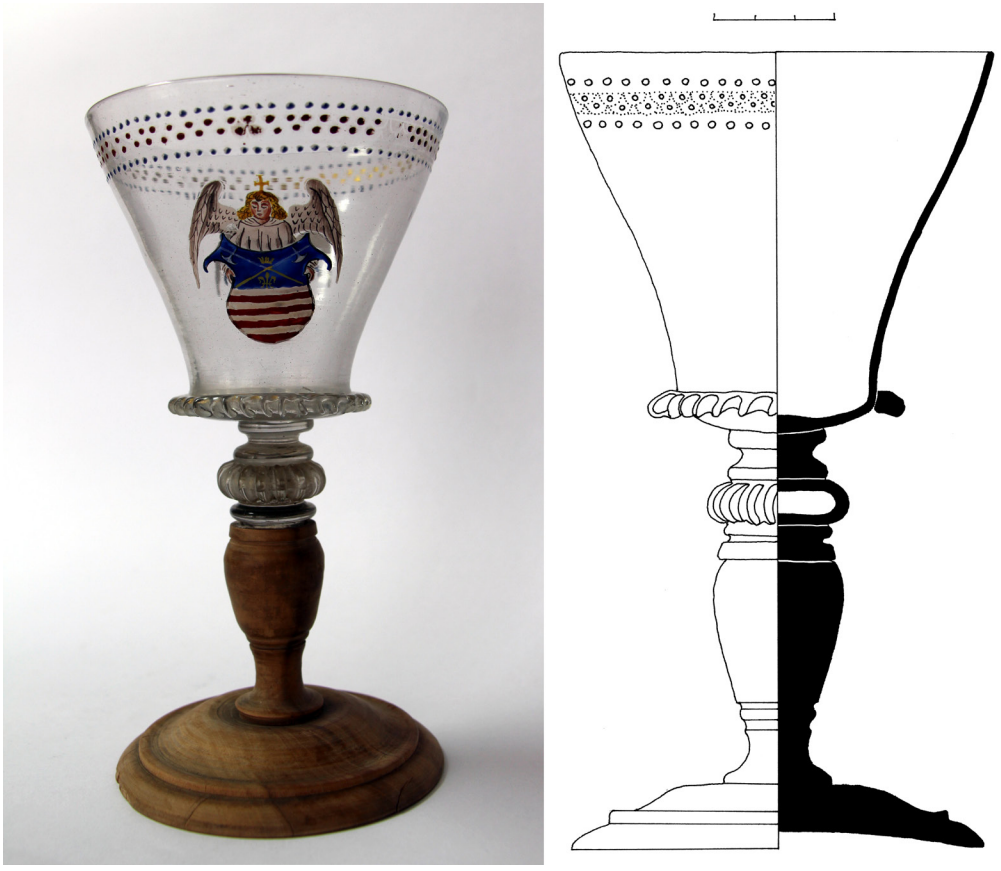

FIG 4. Goblet made of colorless glass with wooden part of the stem, with profile. Knop with 16 ribs. According to the inscription on the underside of the foot, the replacement was made in 1905 by Jánosz Mihalik. H. 9.8 cm, Diam. (rim) 11 cm. ŠM, Bardejov, H 716. (Photo: Šariš Museum; Drawing: Hedvika Sedláčková)

FIG 5. Coat of arms of the town of Bardejov, detail from the goblet of ŠM, H 712 in Figure 1. (Photo: Šariš Museum)

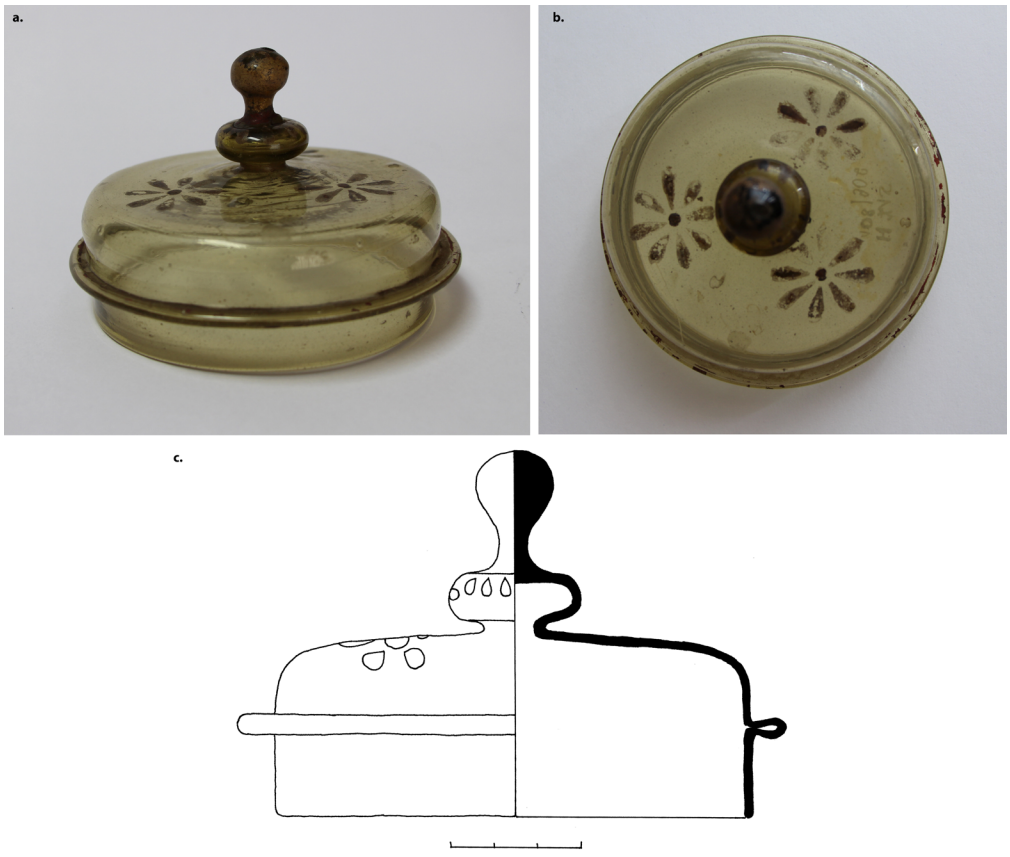

FIG 6. Lid of yellowish glass with bubbles and grains of sand, with three flowers painted in *schwarzlot*. H. 8.5 cm, Diam. (rim) 11 cm. ŠM, Bardejov, H 715: (a) side view; (b) top view; (c) profile. (Photo: Šariš Museum; Drawing: Hedvika Sedláčková)

century.[13] The only evidence of this type of goblet outside present-day Hungary and Slovakia comes from the castle of Sovinec in Moravia, which was part of the Kingdom of Hungary under Matthias Corvinus.[14]

CHEMICAL COMPOSITION OF THE GLASS AND ENAMELS

In summer 2019, ŠM allowed the goblets to be studied and documented in detail, and they delivered the broken goblet for restoration (H 714; see **Figure 3**).[15] The restoration was preceded by chemical analysis of the glass together with analyses of the enamels used for the main decoration (the angel holding the Bardejov coat of arms) and the dots below the rim. The "gold" rim of the foot of the goblet was also analyzed. Chemical analysis by scanning electron microscopy / energy dispersive spectroscopy (SEM/EDS)[16]

13 Sedláčková and others 2016, 363, fig. 8:4, analysis table 1:A5.

14 Vaďurová 2020.

15 Restoration was conducted by Bc. Tereza Malínková.

16 The SEM/EDS analyses were performed on the Jeol JSM 6510 microscope equipped with EDS detector SSD Inca (Oxford Instr.). The perpendicular section of glass was embedded into resin, ground (sandpaper SiC 400, 800 and 1200), polished (1 μm diamond particles), and, finally, cleaned with ethanol. Chemical composition of enamels was measured directly on the surface of the sample, without the need of any coating. The samples were observed in back-scattered mode, at the acceleration voltage 20 kV in low vacuum regime (30 Pa). Every measurement is the average of 2–3 analyses. Standards of K_2O-CaO-SiO_2 and Na_2O-CaO-SiO_2 glasses were used. The obtained data were normalized to 100%.

Oxide	SiO_2	Al_2O_3	Na_2O	K_2O	CaO	MgO	P_2O_5	FeO	MnO	SO_3	Cl
wt %	71.1	0.5	18.7	3.1	3.8	1.4	n.d.	0.2	0.3	0.3	0.6
n.d. = not detected											

TABLE 1. Chemical Composition of the Base Glass of the Goblet H 714 from Bardejov, SEM/EDS

confirmed that the base-glass composition corresponds to Renaissance Venetian *cristallo* glass (**Table 1**).[17]

Yellow, white, and blue enamels were analysed by non-destructive analysis using SEM/EDS in low vacuum mode. A red-brown pigment's composition was confirmed by micro X-ray diffraction (μ-XRD).[18]

The SEM/EDS analyses showed that the colorant for the yellow enamel could be $PbSnO_4$ or more probably $PbSn_2SiO_7$ (lead-tin yellow type II). The type II compound has a lemon-yellow color and contains silicon (Si), which was also detected. This compound was used in glassmaking from at least the fifteenth century.[19] The white enamel is composed of sodium-calcium-lead silicate glass with crystalline cassiterite (SnO_2) particles. Particles rich in iron (Fe), cobalt (Co), and nickel (Ni) were added to blue enamel; copper (Cu) and manganese (Mn) were detected as well. Cobalt was undoubtedly the main colorant, although copper and iron might also have contributed to the blue color. The red-brown pigment was analyzed by μ-XRD, and it is obvious from the diffractogram that the coloring component is ferric ions (III) in the form of Fe_2O_3 (hematite) and $Fe^{+}_3O(OH)$ (goethite) particles. White SnO_2 (cassiterite) was added to soften the hue.

A highly interesting discovery was that the decoration of the scales and the "gold" color on the knop and foot involved no gold (Au) but copper and zinc, indicating the use of brass. The substitution of cheap brass for gold has also been detected on other vessels from the same period found in Hungary.[20]

This lesser-known series of goblets from Bardejov provides specific information about the distribution of Venetian vessels to the countries north of the Alps and also about the efforts to imitate it in local glasshouses. One goblet was subjected to a more detailed examination due to necessary restoration. The chemical analysis confirmed its origin in Venice, and a detailed examination of the pigments showed that the coats of arms of the town were not painted later but were definitely created in the place of manufacture.[21]

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17 Verità 2014.

18 The μ-XRD method was used to analyse the red pigment in situ using a PANanalytical X´Pert PRO with a Cu lamp (anode). The evaluation was performed with X´Pert HighScore Plus 3.0 software. The measurements were conducted by Dr. Petr Bezdička, Institute of Inorganic Chemistry of the CAS, Řež u Prahy, Czech Republic.

19 Agresti and others 2016.

20 Černá 2015, 42, table 26.

21 Verità and Biron 2021.

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