

# Ninth- to Mid-16th-Century Glass Finds in Moravia

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UNTIL RECENTLY, research on medieval glass in Moravia lagged behind that on glass of comparable date in Bohemia, which has been a focus of scholars since the late 1950s. Attention to Moravian glass was directed mainly by Zdenka Himmelová (1942–2001), who published several assemblages from southern Moravian sites.<sup>1</sup> However, finds of medieval glass from archeological excavations in Brno were so extensive that Himmelová was able to publish only some of them.<sup>2</sup> She concluded that glassmaking trends differed in Moravia and Bohemia, and that conclusion has been supported

by the limited amount of additional research on that subject.<sup>3</sup> Domestic glass production developed in Bohemia in the 13th century, and imports of glass were rare. In the 13th and 14th centuries, Moravia was supplied with imported glass, and domestic glassmaking was not well established there until the 15th century. It is likely that the first glassworks in Silesia and northern Moravia were built during the second half of the 14th century.

When I succeeded Himmelová in working with the collection from Brno, I had already published on medieval and early post-medieval glass

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1. Zdenka Himmelová, "Nález středověkého dutého skla z Příbice (okr. Břeclav) = Ein Fund mittelalterlichen Hohlglases aus Příbice (Bez. Břeclav)," *Archaeologia Historica* (Brno), v. 4, 1979, pp. 283–285; *idem*, "Nález okenního skla z Mikulčic = Fund des Fensterglases aus Mikulčice," *Jižní Morava* (Mikulov), v. 23, 1989, pp. 233–239; *idem*, "Sklo ze zaniklé středověké osady Konůvky = Glasgegenstände aus der mittelalterlichen Ortswüstung Konůvky," *Acta Musei Moraviae Scientiae Sociales* (Brno), v. 75, 1990, pp. 131–140; *idem*, "Archeologické ná-

lezy skla na moravských opevněných sídlech = Archäologische Glasfunde von mährischen befestigten Siedlungen," *Archaeologia Historica* (Brno), v. 19, 1994, pp. 431–436; *idem*, "Nálezy dutého skla z archeologického výzkumu hradu Melic na Vyškovsku = Das Hohlglas in den archäologischen Funden von der Burg Melice," in *Z pravěku do středověku: Sborník k 70. narozeninám Vladimíra Nekudy*, Brno: Muzejní a vlastivědná společnost, Moravské zemské muzeum Brno, 1997, pp. 219–224.

2. Zdenka Himmelová, "Sklo středověkého Brna = Mittelalterliches Glas in Mähren," *Archaeologia Historica* (Brno), v. 15, 1990, pp. 437–446; *idem*, "Příspěvek k typologii středověkého dutého skla (Zusammenfassung)," in *Historické sklo*, v. 1, *Sborník pro dějiny skla*, Čelákovice: Sklářská odborná sekce pro dějiny skla při České archeologické společnosti, 1991, pp. 13–16; *idem*, "Umělecká řemesla č. kat. 306–311," in *Od gotiky k renesanci: Výtvarná kultura Moravy a Slezska 1400–1550*, Brno: Moravská galerie v Brně, Muzeum umění Olomouc, 1999, pp. 582–583.

3. Eva Černá, ed., *Středověké sklo v zemích koruny české. Katalog výstavy*, Most: Ústav archeologické památkové péče SZ Čech Most, 1994. Brno: nos. 3, 8–11, 27, 28, 30, 32, 35–39, 43, 45–47, 52, 74, 77, 84, 129, 130, 133–135, and 141–143; Jihlava: no. 72. Finds from other localities are not specifically identified.

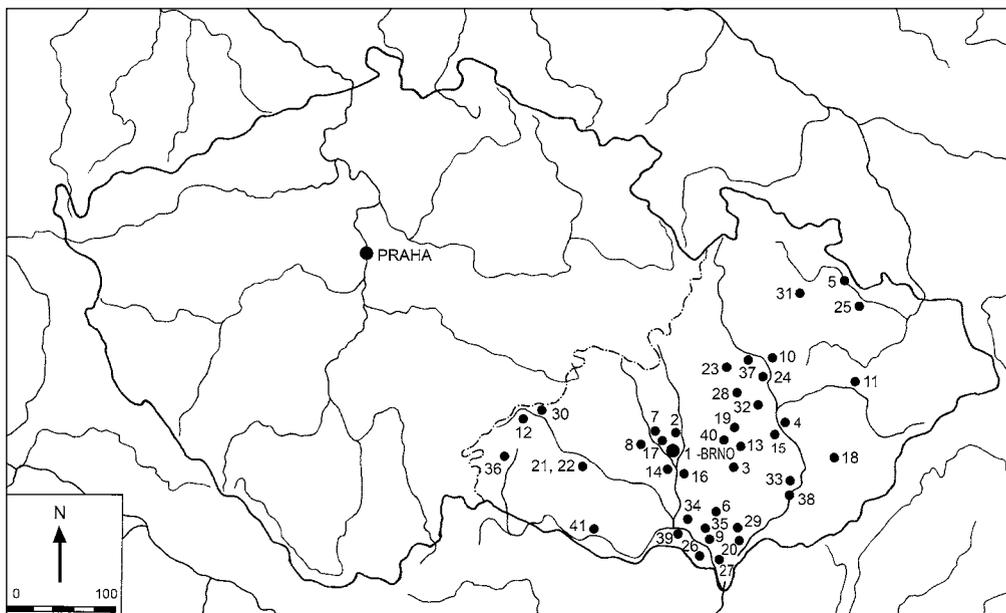


FIG. 1. Map showing cities and sites mentioned in the text: (1) Brno, (2) Bílovice nad Svitavou castle (Brno, country district), (3) Buchlov castle (Zlín district), (4) Cimburk castle (Kroměříž district), (5) Cvilín u Krnova castle (Bruntál district), (6) Čejkovice mansion (Hodonín district), (7) Čepička u Tišnova mansion (Brno, country district), (8) Deblín castle (Brno, country district), (9) Dívce church at Brumovice (Břeclav district), (10) Dolany cloister (Olomouc district), (11) Hranice chateau, (12) Jihlava, (13) Konůvky mansion at Nížkovice (Vyškov district), (14) Koválov village settlement at Žabčice (Brno, country district), (15) Kroměříž, (16) Kulatý Kopec mansion at Žabčice (Brno, country district), (17) Lelekovice castle (Brno, country district), (18) Lukov castle (Zlín district), (19) Melice castle at Pustiměř (Vyškov district), (20) Mikulčice (Hodonín district), (21) Mstěnice village settlement (Třebíč district), (22) Mstěnice mansion (Třebíč district), (23) Náměšť na Hané (Olomouc district), (24) Olomouc, (25) Opava, (26) Pohansko fortress at Břeclavi (Břeclav district), (27) Pohansko fortress at Nejdek (Břeclav district), (28) Prostějov, (29) Přibice cloister (Břeclav district), (30) Rokštejn castle (Jihlava district), (31) Rýmařov mansion, (32) Smilovo Hradisko castle at Žárovice (Prostějov district), (33) Staré Město at Uherské Hradiště, (34) Strachotín (Břeclav district), (35) Šakvice village settlement (Břeclav district), (36) Šternberk castle at Telč (Jihlava district), (37) Tepenec castle at Jívová (Olomouc district), (38) Uherské Hradiště, (39) Vysoká Zahrada at Dolní Věstonice (Břeclav district), (40) Zelená Hora castle at Pustiměř (Vyškov district), and (41) Znojmo castle.

finds from central and northern Moravia and Silesia.<sup>4</sup> After a detailed investigation of finds from 135 features in Brno, including about 2,200 pieces of mainly hollow glass, I will re-

view in this article ninth- to mid-16th-century glass found all over Moravia and in part of Silesia (Fig. 1). My previous publications on the Brno collection include a general typology of the

4. Hedvika Sedláčková, "Sklo první poloviny 16. století na Moravě v archeologických nálezech = Mährisches Glas der 1. Hälfte des 16. Jahrhunderts in archäologischen Funden," *Pravěk NŘ* (Brno), v. 10, 2000, pp. 163–191; *idem*, "Gotické sklo na střední a severní Moravě v archeologických nálezech = Gotisches Glas in den archäologischen Funden aus Mittel- und Nordmähren," *Archaeologia Historica* (Brno), v. 26, 2001, pp.

441–458; *idem*, "Středověké sklo z Opavy = Das mittelalterliche Glas aus Opava (Troppau)," *Památky Archeologické* (Prague), v. 95, 2004, pp. 223–264; *idem*, "Archeologické nálezy skla z hradu Cvilín u Krnova, okr. Bruntál = Archäologische Glasfunde auf der Burg Cvilín (Schellenburg) bei Krnov (Jägerndorf), Bezirk Bruntál (Freudental)," *Vlastivědný Věstník Moravský* (Brno), v. 56, no. 4, 2004, pp. 367–379.

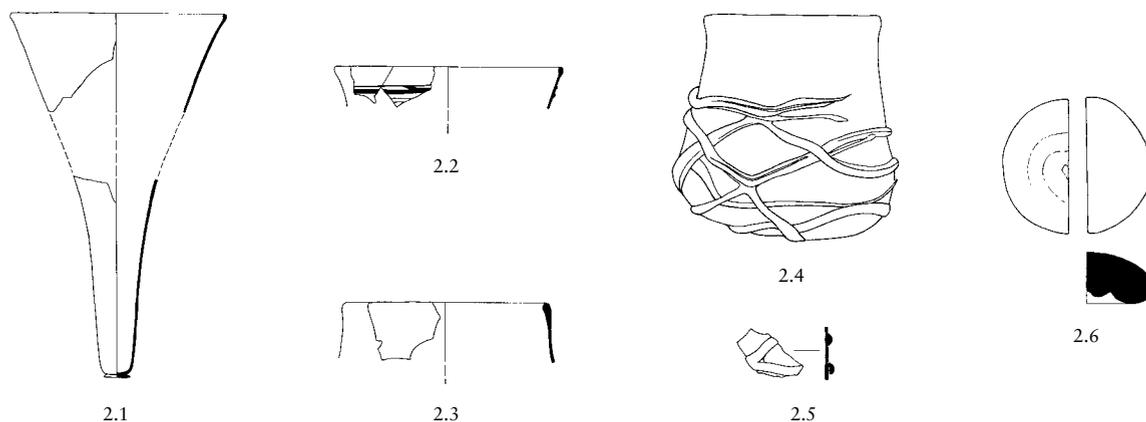


FIG. 2. Glass finds from the Great Moravian Empire period. Scale 1:3.

glass,<sup>5</sup> as well as several important assemblages<sup>6</sup> and partial results.<sup>7</sup>

#### LATE NINTH TO LATE 12TH CENTURIES

*Great Moravian Empire Period,  
about 850–950 (Fig. 2)*

In the ninth and 10th centuries, Moravia became part of the Great Moravian Empire, which afforded it extensive political, economic, and cultural ties to other European powers. Among the imported goods it received at that time were objects made of glass. Most of these were small jewelry items, but there were also supplies of hollow and window glass. In the fortress at Mikulčice, some fragments of several types of glass of Carolingian origin have been found, including at least 13 funnel-shaped beakers of mostly greenish glass. Two of these beakers are decorated below the rim with yellow trails (Fig. 2.1 and 2). Another form found there is beakers with a slightly inturned mouth, one of which is made of blue glass (Fig. 2.3). There is a green beaker fragment with a white trail, and a fragment of blue glass has an opaque white trail. Another member of this group of hollow glass vessels is the lower part of a green glass lamp. This lamp, which was suspended, may be of Islamic origin.<sup>8</sup>

Hollow glass from Olomouc is represented by a tiny fragment from a small, thick-walled vessel made of greenish glass.<sup>9</sup> Chemical analysis has shown that this glass, and that of vessels found at Mikulčice, was made of soda-lime glass.<sup>10</sup>

A complete beaker was found in 1940 at the Pohansko fortress at Nejděk (Fig. 2.4).<sup>11</sup> This

5. Hedvika Sedláčková, "Typologie des Glases aus dem 13. und 14. Jahrhundert aus Brünn, Mähren," *Beiträge zur Mittelalterarchäologie in Österreich* (Vienna), v. 19, 2003, pp. 127–138; *idem*, "Abriss einer Typologie der mittelalterlichen Glasimporte aus Brno/Brünn, Mähren, Tschechische Republik," *Annales de l'Association Internationale pour l'Histoire du Verre*, v. 16, London, 2003 (Nottingham, 2005), pp. 237–240.

6. David Merta, Marek Peška, and Hedvika Sedláčková, "Příspěvek k poznání středověkého skla z Brna = Ein Beitrag zur Erkenntnis mittelalterlichen Glases aus Brno," *Pravěk NR* (Brno), v. 12, 2002, pp. 359–412.

7. Hedvika Sedláčková, "Skleněné šálky: 'Scheuer' ve středověkém Brně = Glastassen: 'Scheuer' in mittelalterlichen Brünn," in *Brno v minulosti a dnes* (Brno), v. 18, 2005, pp. 461–483.

8. Zdenka Himmelová, "Nález skla z Mikulčic = Die Glasfunde aus Mikulčice," in *Historické sklo*, v. 2, *Sborník pro dějiny skla*, Čelákovice: Městské muzeum v Čelákovících, 2000, pp. 85–99.

9. Josef Bláha, "Nález vitrají a dutého skla z období raného středověku na lokalitě Olomouc: Biskupské náměstí č. 1 = Funde des Fenster- und Hohlglases aus dem Frühmittelalter in Olomouc: Bischofsplatz Nr. 1," in *Historické sklo* [note 8], pp. 81–82, fig. B.5.

10. Himmelová [note 8], pp. 88–89, fig. 2.3; Bláha [note 9], p. 81, no. 5.

11. Boris Novotný, "Výzkum velkomoravského hradiště 'Pohansko' u Nejděku na lednickém Ostrově = Erforschung des grossmährischen Burgwalles 'Pohansko' auf dem Lednicer Insel," *Památky Archeologické* (Prague), v. 56, no. 1, 1963, pp. 31 and 35, fig. 27.

vessel, which is made of greenish glass, is decorated with two rows of crossed trails. There are some ninth- and 10th-century parallels among grave finds from Bohemia, Scandinavia, and Istria,<sup>12</sup> and another analogous piece is a fragment from the settlement at Mikulčice (Fig. 2.5). Mikulčice also yielded eight “smoothers” (Fig. 2.6). One was made of sea-green glass, while the others were weathered.<sup>13</sup> The last two pieces in this group came from Olomouc in Moravia, dated as late as the 14th century, and from the Hradec Králové district of Tisová in Bohemia, dating from the mid-13th century.<sup>14</sup>

There is also some evidence in Mikulčice of glazed windows in church buildings. Fragments of tawny and violet soda-lime plate glass are assumed to have originated in the Augsburg area.<sup>15</sup> A tiny fragment of honey brown glass with red trails and a high lead content came from Olomouc.<sup>16</sup>

Small items of jewelry and other adornments of glass have often been found in cemeteries of that time.<sup>17</sup> The largest collection of beads (78 graves) and globular buttons (14 graves) came from the Na Valách cemetery near Staré Město. Based on their manufacturing technique and decoration, the beads were divided into seven groups, most of which are also known from coeval Germanic graves in what is now Hungary. It is possible that the beads made of greenish glass were produced domestically, while the oth-

ers were imported from other regions of Europe. On occasion, glass was used to fill a finger or hair ring.<sup>18</sup>

Some evidence of glassmaking in the form of glass lumps and drops from the melting process has also been found in Mikulčice, but no glassworks was uncovered.<sup>19</sup> A ninth-century glass furnace was discovered in Bratislava, however.<sup>20</sup>

### *Early Middle Ages (About 950–1200)*

Following the collapse of the Great Moravian Empire, trade links by which imports had reached Moravia were broken. Hollow glass is not recorded among the finds from this period, and the sole fragment of window glass is a dark green lead glass with traces of painting from Olomouc.<sup>21</sup>

The popularity of small glass jewelry continued, however, but the quantity of beads found in graves decreased considerably. In the 11th century, among the objects that were formerly imported, there were only a few beads of pressed glass. Beads with gold and silver foil were now imported from Kievan Rus. Most of the finds were simple, tiny shapes of lower-quality glass that was apparently made domestically.<sup>22</sup>

In contrast to the earlier period, there were now more tiny loops that were employed as pendants on earrings or as finger rings. They were found not only in graves but also at fortress-

12. Kolín: Innocenc Ladislav Pič, *Čechy za doby knížecí: Starožitnosti země České III*, v. 1, Prague: Vydáno s příspěvím České akademie císaře Františka Josefa pro vědy, slovesnost a umění, Společnosti musea král. Českého a Zemského výboru král. Českého v Praze, nákladem vlastním, 1909, p. 338, fig. 20.4; Birka: Franz Rademacher, *Die deutschen Gläser des Mittelalters*, Berlin: Verlag für Kunstwissenschaft, 1933, pl. 31a; Mejica u Buzeta: Branko Marušič, *Istria v ranom srednjem veku*, Pula: Archeologische Museums Istriens, 1960, p. 20, fig. 1.1.

13. Himmelová [note 8], p. 88, fig. 6.

14. Sedláčková, “Gotické sklo” [note 4], p. 448, no. 3.10.3, fig. 1.7; Černá [note 3], p. 63, no. 59.

15. Himmelová [note 8], p. 87, fig. 10.7–13.

16. Bláha [note 9], pp. 79 and 81, no. 1, fig. B.1a, b.

17. František Kalousek, *Břeclav-Pobansko. Velkomoravské pohřebiště u kostela = Grossmährisches Gräberfeld bei der*

*Kirche*, v. 1, *Archeologické prameny z pohřebiště = Archäologische Quellen vom Gräberfeld*, Brno: Universita J. E. Purkyně, 1971; Josef Poulík, *Staroslovanská Morava*, Prague: Státní archeologický ústav, 1948, p. 65.

18. Vilém Hrubý, *Staré Město. Velkomoravské pohřebiště ‘Na Valách,’* Prague: Československá akademie věd, 1955, pp. 246–258, figs. 85 and 86.

19. Himmelová [note 8], pp. 86 and 88.

20. Zdeněk Farkaš and Vladimír Turčan, “Včasnostredoveká sklárská pec v Bratislave na Devínskej Kobyle,” *Slovenská Archeológia* (Nitra), v. 46, no. 1, 1998, pp. 31–54.

21. Bláha [note 9], p. 81, no. 2, fig. B.2.

22. Vlasta Šikulová, “Moravská pohřebiště z mladší doby hradištní,” in *Pravěk východní Moravy*, Gottwaldov: Krajské nakladatelství Gottwaldov, 1959, pp. 127–132.

es and in villages and surrounding areas.<sup>23</sup> Although there is still no direct evidence of local manufacture, it is possible that simple rings of light yellow or green glass were produced in nearby glassworks. The remains of one jewelry workshop that used blanks of lead glass apparently imported from Poland have been uncovered.<sup>24</sup>

### 13TH AND 14TH CENTURIES

During the 13th century, two centuries after Moravia became part of Bohemia, there was a period of rapid economic growth marked by the building of new cities and a series of royal castles. At that time, hollow glass was reintroduced, although the quantities found in the various parts of Moravia vary widely. The cities of Brno in the south and Olomouc in central Moravia were founded during the first half of the 13th century, and for the rest of that century they imported their glass. Although their economies and trade connections were similar, they accumulated different amounts of glass. Olomouc was developed as a religious center, with many churches and cloisters, while Brno was a seat of secular power, ruled by the counts of Mark and Czech kings. In Opava, which was part of Silesia, local glassmaking did not begin until the mid-14th century.

#### 1240–1270 (Fig. 3)

During this period, the first evidence of hollow glass from Brno is found. The oldest find is the upper part of a bottle with optic-blown vertical ribs, which was recovered in Mečová Street (Fig. 3.1). It has parallels in 13th-century bottles from Buda.<sup>25</sup> Contemporaneous glass from Olomouc includes a fragment of a painted windowpane and a somewhat later fragment of undecorated window glass.<sup>26</sup>

In Brno, glass became a consistent part of the local material culture shortly before the mid-13th century, with an increase in imports from Italy and a decrease in those from Germany. Some idea of the range of glass is provided by

finds from 10 features dating between 1240 and 1270, while another nine features are less firmly dated to the 13th century. Only two of these features contained large assemblages of glass; the others yielded from one to five vessels apiece.

Thirty-one of the 80 vessels recovered here are bottles with a tubular body-ring. Four of them have a pear-shaped body. Three are made of green glass, while another is of blue glass (Fig. 3.2 and 3). Some examples have a cylindrical lower part and a hollow ring around the base (Fig. 3.4), but their colors vary. Fourteen of these objects are made of brown glass, five are violet, three are colorless, and two are slightly greenish. Seven finds represent a type of table bottle with applied vertical ribs (Fig. 3.5). Bottles of this sort appeared in Brno only in the mid-13th century. There are also seven pieces of beakers with large snail-like prunts, a higher funnel-shaped mouth, and a pincer base-ring. Each of them is made of brown or tawny glass (Fig. 3.6 and 7). Two beakers with the same type of prunts but a plain base-ring are made of yellowish glass (Fig. 3.8).

This group also includes a colorless glass ewer with a blue trail on the neck (Fig. 3.9) and a green table bottle with a blue trail around the body (Fig. 3.10). Both of these vessels have optic-blown vertical ribs. The assemblage is com-

23. Olomouc: Josef Bláha, "Komunikace, topografie a importy ve středověku a raném novověku (7.–17. století) na území města Olomouce = Die Kommunikation, Topographie und Importe im Mittelalter und in der Frühneuzeit (7.–17. Jh.) auf dem Gebiet der Stadt Olmütz," *Archaeologia Historica* (Brno), v. 23, 1998, p. 145; Znojmo: Bořivoj Dostál, "Skleněné prsteny ze Znojma," in *Sborník F. Vildomcovi k 85. narozeninám*, Brno: ČSAV – archeologický ústav, pobočka Brno, 1963, pp. 73–75; Mstěnice: Vladimír Nekuda, *Mstěnice: Zaniklá středověká ves 3. Raně středověké sídliště*, Brno: Muzejní a vlastivědná společnost v Brně – Moravské zemské muzeum, 2000, pp. 280–281.

24. Zdenka Himmelová and Zdeněk Měřínský, "Objekt s doklady výroby a distribuce šperkařských výrobků na hradisku 'Vysoká zahrada' u Dolních Věstonic (okr. Břeclav)," in *Sborník Zkoumání výrobních objektů a technologií archeologickými metodami*, Brno: Technické Muzeum v Brně, 1987, pp. 129–134.

25. Katalin H. Gyürky, "Glasfunde aus dem 13. u. 14. Jahrhundert im mittelalterlichen Dominikanerkloster von Buda," *Acta Archaeologica Academiae Scientiarum Hungaricae* (Budapest), v. 23, 1971, p. 207, fig. 8.

26. Bláha [note 9], p. 81, nos. 3 and 4, fig. B.3 and 5.

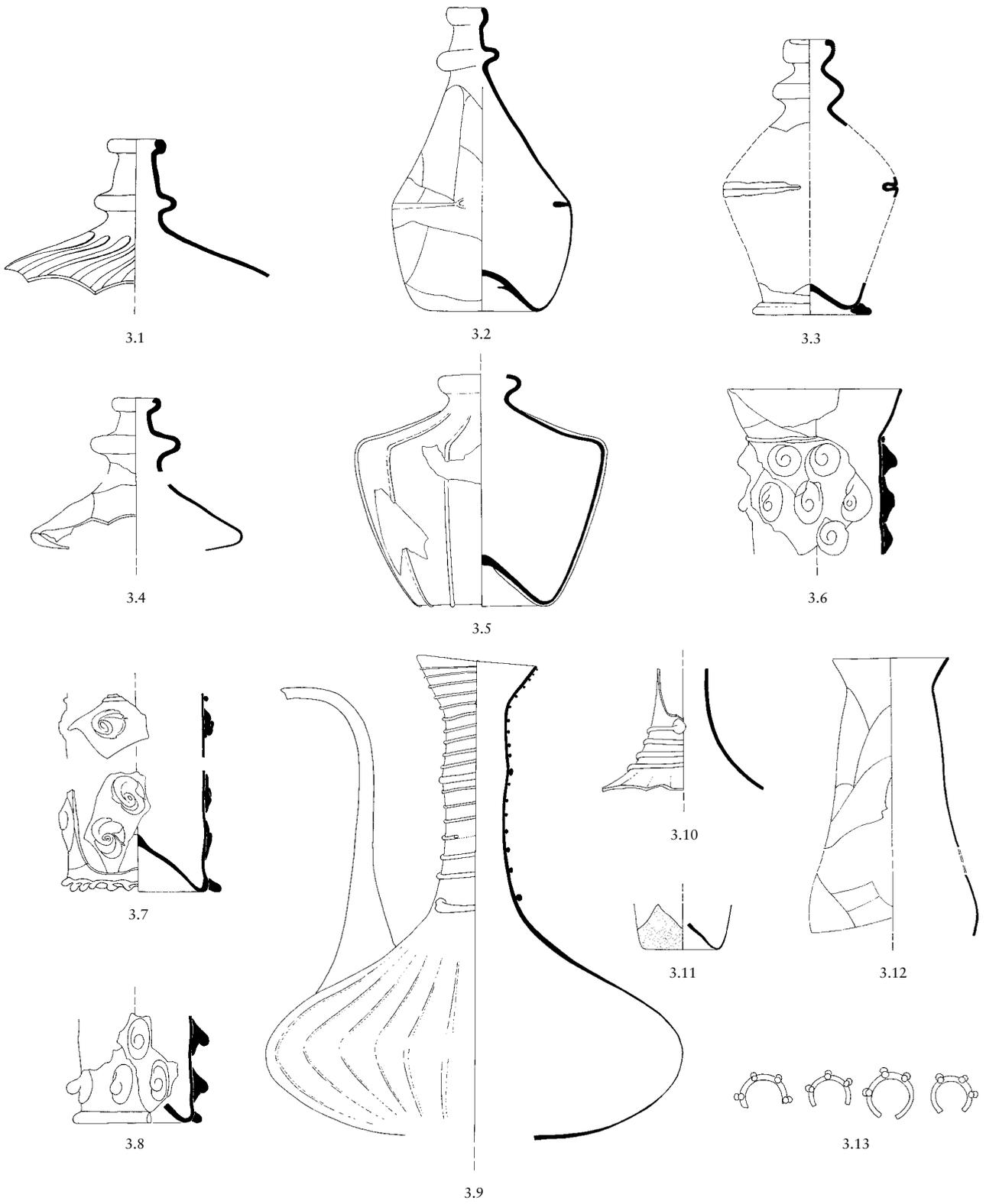


FIG. 3. *Glass finds from 1240 to 1270. Scale 1:3.*



FIG. 3a. *Brown glass from Brno.*

pleted by a small beaker with optic-blown decoration of lozenges (Fig. 3.11), cup fragments, and a urinal of green glass (Fig. 3.12). There are also some small items of jewelry: rings of lead glass (Fig. 3.13).<sup>27</sup>

In this relatively large group of glass, we can observe several types. Vessels of brown glass predominate (Fig. 3a), while those of violet glass are fewer. This glass was used for bottles with applied ribs, a tubular body-ring, and a cylindrical lower part, as well as for most of the prunted beakers. Articles of green glass—bottles with

a pear-shaped body and tubular body-ring, the ribbed table bottle, and the urinal (Fig. 3b)—are confined to the 13th century. All of the finds of green glass came from one site, which also included a bottle of blue glass and some rings. The use of blue glass is also documented by trails on the necks of the jug and table bottle. The ewer, cup fragments, and beaker with optical decoration are made of thin-walled colorless glass that is attributed to Italian glassworks (Fig. 3c). Chemical analyses have shown that lead glass is present only in the rings, but the shining yellow color of the beakers with plain base-rings (Fig. 3d) may also indicate such a composition.

The closest 13th-century parallels for the brown glass vessels—the beakers with identical

27. Černá [note 3], p. 62, no. 52.



FIG. 3b. *Green glass from Brno.*



FIG. 3c. *Colorless glass ewer with blue trail around the neck, from Brno.*

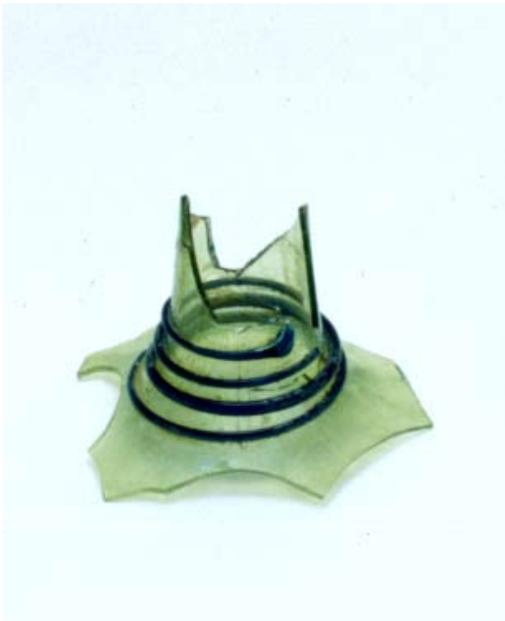


FIG. 3b. *Green glass from Brno.*



FIG. 3d. *Yellow (lead?) glass beakers from Olomouc.*

prunts and the bottles with a tubular body-ring—have been found in Hungary. K. H. Gyürky assigned them to the group containing the oldest glass of “Byzantine type.”<sup>28</sup> The oldest glass from Brno is almost the same as that from Budapest, excluding beakers of German origin. Beakers and bottles made of brown glass in the 13th century were also found in Vienna and at Austrian castles.<sup>29</sup>

In Brno, brown (and violet) glass is found from the first half of the 13th century to the mid-14th century. Among the 200 imported prunted beakers dating between the 13th and 15th centuries, there are 35 pieces of brown or violet glass with large snail-like prunts. In the last third of the 13th century, beakers of thick grayish glass with pointed prunts began to appear. Beakers of brown glass later than 1350 are found only rarely in Brno, and they are unknown at other Moravian sites. Likewise, most of the bottles with a tubular body-ring and a cylindrical lower part can be dated before the mid-14th century. They are made of brown or violet glass (41 of about 70 items in all). There are also two plain cups of brown glass (Fig. 4.15), which were probably made in southern Europe during the 13th century. At the beginning of the 14th century, the manufacture of violet soda-lime glass is also documented north of the Alps in Sternstein, Austria.<sup>30</sup>

The vessels of green and blue glass apparently came to Brno from Germany, where they had been produced since the 12th century.<sup>31</sup>

The cesspits that yielded the oldest glass were found at several locations in Brno: Mečová Street, which was probably the home of the Moravian counts of Mark and the Czech kings; Náměstí Svobody (Liberty Square), perhaps the home of a lead merchant; and Kozí and Rašínova Streets (“quartale renensis”), the merchant district of the Rhine region.

In the second half of the 13th century, hollow glass began to appear elsewhere: in Olomouc and in some residences of the landed gentry.<sup>32</sup> Among the small assemblages of glass found here, prunted beakers of yellowish glass with a plain base-ring and bottles with a tubular body-ring are found regularly. In Olomouc and at the fortress of Smilovo Hradisko, there are fragments from vessels of lower-quality glass that are decorated with applied wavy lines.<sup>33</sup> These can be associated with the German glassworks.<sup>34</sup>

#### 1270–1350 (Fig. 4)

During the last third of the 13th century, objects made of high-quality colorless or grayish glass appeared in Brno. Twenty-three features have produced a total of about 170 vessels. Here again, the most significant finds were made near

28. Katalin H. Gyürky, “Mittelalterliche Glasfunde aus dem Vorhof des königlichen Palastes von Buda,” *Acta Archaeologica Academiae Scientiarum Hungaricae* (Budapest), v. 39, nos. 1/2, 1987, pp. 49–54.

29. Kinga Tarcsay, *Mittelalterliche und neuzeitliche Glasfunde aus Wien: Altfinden aus den Beständen Historischen Museums der Stadt Wien*, Beiträge zur Mittelalterarchäologie in Österreich, v. 3, Österreichische Gesellschaft für Mittelalterarchäologie, Vienna: Österreichische Gesellschaft für Mittelalterarchäologie, 1999, p. 19, fig. 14; *idem*, “Neue Erkenntnisse zum Spektrum des mittelalterlichen und neuzeitlichen Glases in Wien,” in *Fundort Wien: Berichte zur Archäologie* (Vienna), v. 5, 2002, p. 171, pl. 1, fig. 1; *idem*, “Zum Stand der mittelalterlichen und neuzeitlichen Glasforschung in Ostösterreich,” *Beiträge zur Mittelalterarchäologie in Österreich* (Vienna), v. 19, 2003, p. 166, fig. 3.

30. Tarcsay, “Zum Stand” [note 29], p. 166; Christine Schwanzar, “Zwei Glashüttengrabungen der Oberösterreichi-

schen Landesmuseum – Ein Überblick,” *Beiträge zur Mittelalterarchäologie in Österreich* (Vienna), v. 19, 2003, p. 179, fig. 2.

31. Martina Bruckschen, *Glasfunde des Mittelalters und der frühen Neuzeit aus Braunschweig. Bedeutung, Verwendung und Technologie von Hohlglas in Norddeutschland*, Materialhefte zur Ur- und Frühgeschichte Niedersachsens, v. 33, Rahden/West: Niedersächsischen Landesamt für Denkmalpflege in Zusammenarbeit mit der Archäologischen Kommission für Niedersachsen, 2004, p. 113, nos. 150 and 151.

32. “Kulatý kopec” u Žabčic: Himmelová, “Archeologické nálezy skla” [note 1], p. 431; Náměšť na Hané: Sedláčková, “Gotické sklo” [note 4], p. 441; Smilovo Hradisko u Prostějova: *ibid.*, p. 452.

33. Sedláčková, “Gotické sklo” [note 4], p. 444, no. 3.7.1, and p. 452, no. 7.1.3.

34. Erwin Baumgartner and Ingeborg Krueger, *Phönix aus Sand und Asche: Glas des Mittelalters*, Munich: Klinkhardt & Biermann, 1988, p. 106; Černá [note 3], p. 54, no. 33.

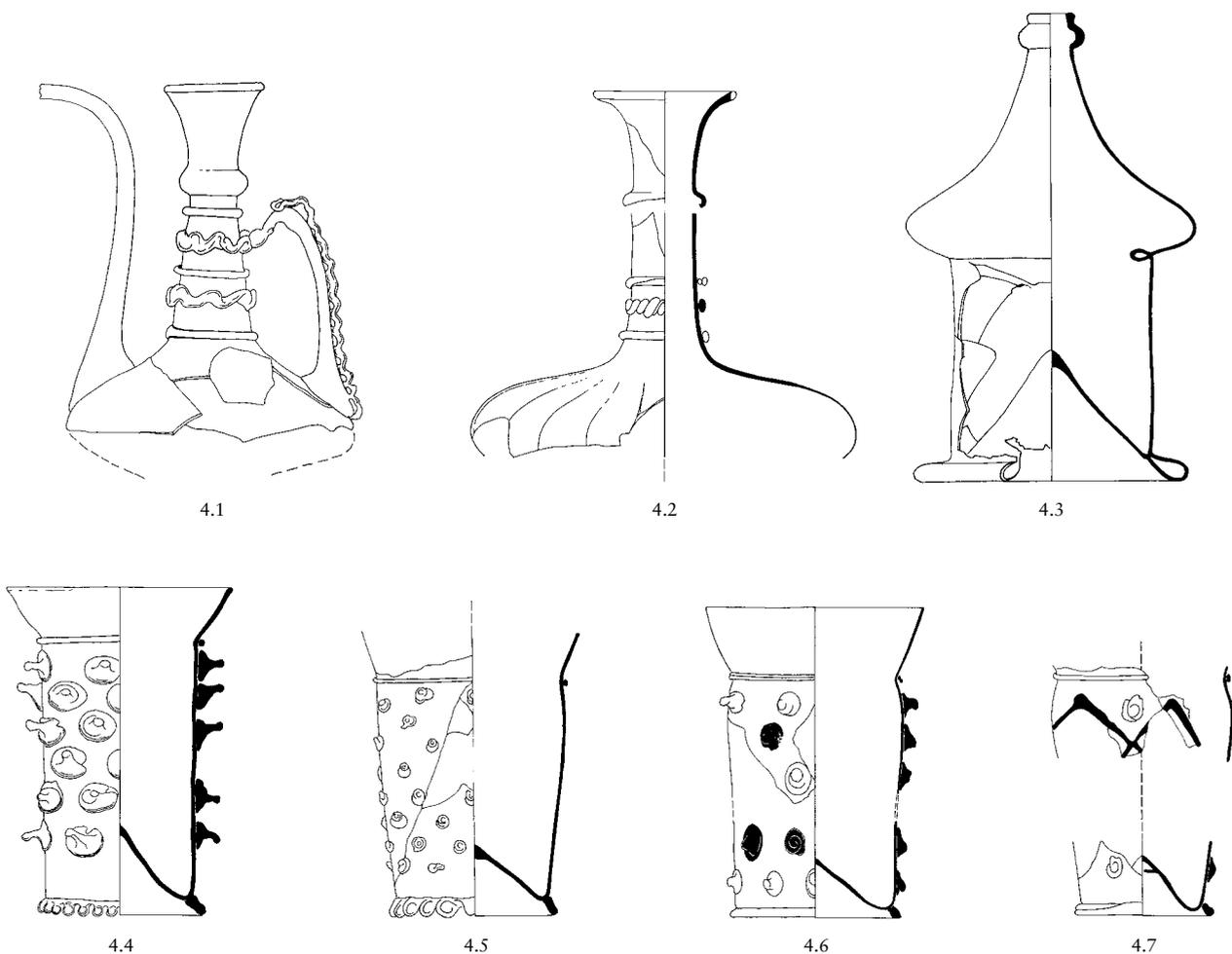


FIG. 4. Glass finds from 1270 to 1350. Scale 1:3.

Mečová Street. Two features in Brno and one in Olomouc were dated to the first half of the 14th century on the basis of coins of the Bohemian king Wenceslas II (r. 1300–1305).

Most of the luxury vessels are dated to this period. Finds in Brno include a ewer (Fig. 4.1)

and a table bottle of the same type (Fig. 4.2). The ewer, of “Mečová” type I, has six or seven European parallels.<sup>35</sup> A larger group contains bottles of similar appearance, with vertical ribs of the “Nuremberg” type. They were found in Slovenia, Hungary, Lower Austria, southern Slo-

35. Bratislava: City Museum of Bratislava, unpublished finds; Brunswick: Bruckschen [note 31], pp. 104–105, no. 133, pl. 28.2; Gaiselberg: Sabine Felgenhauer-Schmiedt, “Hohlglasfunde des Mittelalters aus Niederösterreich. Teil I: Archäologische Bearbeitung,” *Beiträge zur Mittelalterarchäologie in Österreich* (Vienna), v. 7, 1991, pp. 17–19; Konstanz: Christine Prochaska-Gross and Andrea Soffner, “Hohlglasformen des 13. und 14. Jahrhunderts in Südwestdeutschland und der nördlich-

er Schweiz,” in *Stadtluft, Hirsebrei und Bettelmonch. Die Stadt um 1300*, Zurich: Hrsg. vom Landesdenkmalamt Baden – Württemberg und der Stadt Zürich, 1992, pp. 108–109; Kutná Hora: Eva Lehečková, “Nové nálezy středověkého skla z Kutné Hory = Neue mittelalterliche Glasfunde aus Kutná Hora,” *Památky Archeologické* (Prague), v. 66, no. 2, 1975, p. 479; Castle of Prague: Jan Frolík, “O kováři a dlouhé chodbě,” in *Příběh Pražského hradu*, Prague: Správa Pražského hradu, 2004, p. 148.

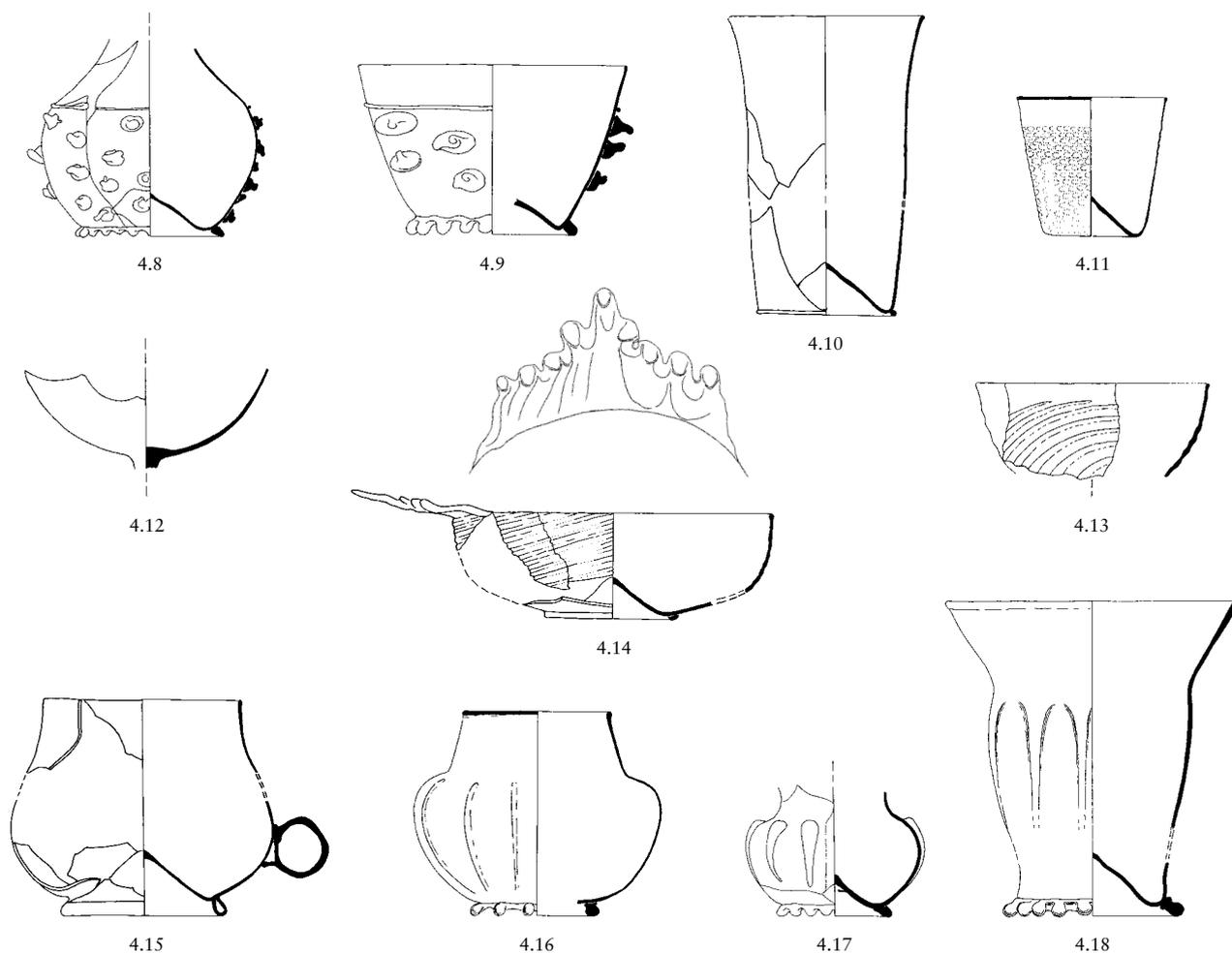


FIG. 4 (continued). Glass finds from 1270 to 1350. Scale 1:3.

vakia, southern Moravia, Bohemia, southern Germany/Switzerland, Liechtenstein, and northern Germany.<sup>36</sup> With a few exceptions, the ewers and bottles date from the second half of the 13th century to the first half of the 14th century. Because of their similar style, shape, and decora-

tion, I assume that they were products of a single glassmaking center. Later finds, of 15th-century date, probably reflect the high value of these vessels rather than the time of their origin.

High dining standards and the extent of trade links are exemplified by two beakers of Islamic

36. Celje, Slovenia: Irena Lazar, "Medieval Glass in Slovenia: Some Principal Forms," *Beiträge zur Mittelalterarchäologie in Österreich* (Vienna), v. 19, 2003, fig. 5 (1350–1400:7); Sopron and Győr, Hungary: Katalin H. Gyürky, *Úvegek a középkori Magyarországon = Gläser im mittelalterlichen Ungarn*, Budapest: BTM Műhely 3 (Die wissenschaftliche Werkstatt des Historischen Museums der Stadt Budapest 3), 1991, pp. 37, 109, and 114, figs. 26.1.1 and 31.1.3; Gaiselberg: Felgenhauer-Schmiedt [note 35], p. 18, no. 2.2.17 and 18; Vienna: Tarcsey *Mittelalterliche* [note 29], p. 38, nos. 124–128; Bratislava: Mária Mináriková, "Nové nálezy skla z historického jadra Bratis-

lavy = Neue Glasfunde aus dem historischen Stadtkern von Bratislava," in *Historické sklo* [note 8], p. 133, fig. 3.9; Brno: Himmelová, "Sklo středověkého Brna" [note 2], p. 440, fig. 2.4; Kutná Hora: Lehečková [note 35], pp. 464 and 475, no. 151, fig. 5; Tábor: Rudolf Krajíc, "Unikátní nález středověké skleněné nádoby na Tábořském hradě = Der einzelne Fund eines mittelalterlichen Glasgefäßes aus der Taborer Burg," in *Historické sklo* [note 8], pp. 109–111; Augsburg, Basel, Eichstätt, Konstanz, Landshut, Nuremberg, Worms, and the Schellenberg castle: Baumgartner and Krueger [note 34], p. 276, nos. 308 and 309; Brunswick: Bruckschen [note 31], p. 106, no. 134, pl. 28.2.



FIG. 4a. *Islamic beakers from Brno.*



FIG. 4b. *Beaker with enameled decoration from Olomouc.*



FIG. 4c. *Bowl of colorless glass with grayish tinge, from Brno.*



FIG. 4d. Bowl with applied vertical ribs, from Brno.

origin that are decorated with gilded and enameled fishes (Fig. 4a) and by fragments of two enameled Venetian beakers from Olomouc (Fig. 4b).<sup>37</sup> Another Islamic glass decorated with colored enamels and gilding is a bottle or lamp of the late 14th to early 15th centuries that was found in a filled-in well in Brno (Figs. 8.1 and 8a). There is also a group of enameled glasses from Moravia. Brno is the source of an undecorated variant of the Venetian beakers. This object, which has a plain base-ring, is dated from the late 13th to 15th centuries (Figs. 4.10 and 8.11).

Five beakers are decorated with a zigzag trail of blue glass and alternating rows of blue and colorless prunts (Fig. 4.6 and 7). This variant typically has a plain base-ring, which is also found on some colorless beakers.

Among the finds of this period from Brno, there are only three beakers with pointed prunts (Fig. 4.4). This variant was dominant between the late 14th and late 15th centuries. There are two bottle-like and bowl-like beakers of thin-walled yellowish glass (Fig. 4.8 and 9). The re-

maining 24 prunted beakers represent an older variant made of brown glass. Several of these objects have small coiled prunts (Fig. 4.5). They resemble sea-green glass beakers of the “Schaffhausen” type, which were not found in Moravia.

Two identical hemispherical bowls appear to be without parallels. One of them is made of blue glass with optic-blown diagonal ribs, while the other is of undecorated colorless glass with a grayish tinge (Figs. 4.14 and 4c). It is evident, however, that these objects, which feature horizontal-profiled handles, were not made in imitation of metal bowls. A bowl of grayish glass with solid applied ribs (Fig. 4d) is identical to an object in Gela, Sicily.<sup>38</sup> An example from Brno was found with coins of Wenceslas II. That same site produced both of the Islamic beakers, some goblets that are discussed below, fragments of beakers of indeterminate shape, and bottles with a tubular body-ring.

Some goblets dating to this period were found in Brno and at the Konůvky mansion.<sup>39</sup> The lower portions of these objects, with a sticklike stem, have been preserved. Martine Newby considered identical fragments from Italy to be the bottoms of wine bottles with a woven straw cover.<sup>40</sup> A complete enameled goblet of grayish glass from Prague also includes the sticklike shank,<sup>41</sup> and other parallels are known from Hungary.<sup>42</sup> Another grayish glass cup with diagonal ribs is undoubtedly a goblet (Fig. 4.12 and 13).

37. Černá [note 3], p. 97, nos. 141 and 142; Hedvika Sedláčková, “Výsledky druhé sezony archeologického výzkumu v Olomouci, Hrnčířské ulici: Drobná plastika a emaillem zdobené sklo,” in *Výroční zpráva 1999, Památkový ústav v Olomouci*, Olomouc: Památkový ústav v Olomouci, 2000, p. 117; *idem*, “Gotické sklo” [note 4], p. 441, no. 3.1.1, obr. 1.1.

38. Daniela Stiaffini, *Il vetro nel medioevo: Tecniche strutturae manufatti*, Rome: Fratelli Palombi Editori, 1999, p. 117, fig. 117.

39. Himmelová, “Sklo ze zaniklé” [note 1], p. 134, fig. 2.9.

40. Personal information on the 16th congress of the Association Internationale pour l’Histoire du Verre, London, 2003.

41. Baumgartner and Krueger [note 34], pp. 156–157, no. 116.

42. Edit Mester, *Középkori üvegek*, Visegrád Régészeti monográfiái 2, Visegrád: Kiadja az MNM Mátyás Király Múzeuma az Országos Tudományos Kutatási Alap, 1997, fig. 65.88 and 91.

Another type of glass is represented by 40-odd cup fragments found in Moravia exclusively in Brno. Three variants in this group were distinguished. There are several plain pieces, and two of them are made of brown glass (Fig. 4.15). Most of the fragments have optic ribs, as well as blue trails around the rim (Fig. 4.16). The third, small group has distinct mold-blown ribs (Fig. 4.17). A review of these pieces by E. Baumgartner<sup>43</sup> can be supplemented with single finds from Bohemia and Slovakia, and recent discoveries in Venice, Vienna, and Brunswick.<sup>44</sup> The Brno examples are dated up to the late 14th century.<sup>45</sup> The high quality of the glass, the manufacturing technique, and the mostly blue trails on the rims lead me to believe that these cups belong to a large group of Italian glass.

Additional objects with optical decoration include small thin-walled conical beakers with small or larger ovals, some of which have a blue trail around the rim (Fig. 4.11). Most of these were found in Brno and are later than the mid-14th century, although some examples are earlier. There are some grayish and colorless bottles with a tubular body-ring on which the swell of the neck is smaller than in earlier pieces and located just below the rim (Fig. 4.3).

Some features have yielded hollow glass of domestic origin, which appeared after the year 1300. Mouth fragments of five beakers of Bohemian type were found in a feature with coins of Wenceslas II. The other two examples consist solely of foot fragments, so it was not possible to

define a variant. However, a short beaker with vertical droplets (Fig. 4.18) was reconstructed, and in Bohemia this type appeared as early as the 12th century.<sup>46</sup>

Features with glass are concentrated in the area of the count of Mark's residence on Mečová Street. Evidence of significant building is documented by painted windowpanes of deep green glass and oblong plates of yellow and violet glass. The sinkholes containing glass often produced other extraordinary articles, such as an iron sword with a tin inlay and the bodies of numerous glazed ceramic aquamaniles. From this time, glass is found in the merchant districts and residential areas of Brno, which also produced fragments of domestic beakers dated by coins.

### 1350–1420 (Figs. 5–7)

Throughout the 14th century, the number of sites with glass finds increases. In addition to the approximately 330 vessels found at 28 features in Brno, there are several examples from Olomouc,<sup>47</sup> and glass from the cities of Kroměříž, Jihlava, and Opava appears for the first time.<sup>48</sup> Some features in Brno contained dozens of vessels each. Several cesspits and filled-in wells showed layers dating between the late 14th and early 16th centuries, which offered visual evidence of forms throughout that time (e.g., Dominikánské náměstí [Dominican Square] 12, cesspit 9/90). Two Brno glasses are dated by coins;

43. Erwin Baumgartner, "Fundverbreitung und Produktionsgebiete: Zur Glasherstellung im mittelalterlichen Europa," *Annales de l'Association Internationale pour l'Histoire du Verre*, v. 12, Vienna, 1991 (Amsterdam, 1993), p. 314, fig. 3.

44. Sedláčková [note 7]; Carl Pause, *Spätmittelalterliche Glasfunde aus Venedig: Ein archäologischer Beitrag zur deutsch-venezianischen Handelsgeschichte*, Universitätsforschungen zur prähistorischen Archäologie. Aus dem Institut für Ur- und Frühgeschichte der Universität Freiburg i. Br., v. 28, Bonn: Verlag Dr. Rudolf Habelt GmbH, 1996, figs. 5.21 and 18.12; Tarcsay, "Neue Erkenntnisse" [note 29], p. 176, fig. 3.3.6 and 8; Bruckschien [note 31], no. 93, fig. 20.2, and no. 104, fig. 21.3 and 3a.

45. Merta, Peška, and Sedláčková [note 6], pp. 367–368, figs. 8 and 9.

46. Eva Černá, "K problematice nejstarších nálezů středověkých skel na území Čech = Zur Problematik der ältesten Funde mittelalterlichen Glases in Böhmen," in *Historické sklo* [note 8], pp. 48–51, fig. 5.

47. Sedláčková, "Gotické sklo" [note 4], pp. 448–449, nos. 3.10.1–3, 3.13.1–9, 3.14.1–3, 3.16.1, and 3.17.1.

48. Regional Museum Kroměříž (unpublished); Boris Novotný, Bedřich Karel, and Vlastislav Dušek, "Středověké objekty ze 14. až poč. 15. století v historickém jádru Jihlavy," *Vlastivědný Věstník Moravský* (Brno), v. 30, 1978, pp. 54–57; Sedláčková, "Středověké sklo z Opavy" [note 4].

other glasses from the Melice castle near Vyškov,<sup>49</sup> the Šternberk castle near Telč,<sup>50</sup> and the cloisters of Komárov near Brno<sup>51</sup> and Dolany near Olomouc<sup>52</sup> are dated by their destruction by the Hussites between 1421 and 1428. To this period also belong the assemblages from the Konůvky,<sup>53</sup> Lelekovice,<sup>54</sup> and Mstěnice<sup>55</sup> mansions. One beaker fragment from Tepenec is dated before the destruction of its castle in 1391.<sup>56</sup>

Elevated dining standards in Brno at this time are revealed by ewer fragments of opaque red glass (Fig. 5.1), for which it is difficult to find contemporaneous parallels. Brunswick in northern Germany provided two published beakers that were revealed by chemical analysis to be of a potassium-lime composition.<sup>57</sup> The jug was a new type of table glass. Articles of high-quality colorless glass have parallels in Italy and Germany (Fig. 5.2 and 3),<sup>58</sup> while Brno yielded a jug of greenish glass of central European (domestic?) origin (Fig. 6.7). In addition to the last two table bottles of the “Nuremberg” type (Fig. 5.4), we find several new bottle shapes. One of them is bottles featuring a funnel-shaped mouth with a blue trail and diagonal ribs (Fig. 5.5), which are found in Brno until the second half of the 15th century (Fig. 10.9). They were also seen at the homes of the nobility during the 15th centu-

ry.<sup>59</sup> In Brno, there are single examples of table bottle variants that are commonly known in Italy (Fig. 5.6 and 7).

The number of bottles with a tubular body-ring and a cylindrical lower part was diminishing. Eleven examples are known from Brno, and only one of them is made of brown glass. A bottle with a tubular body-ring and a kegl-like lower part (Fig. 5.8) has been found in Opava. This variant was predominant from the 14th century in Hungary<sup>60</sup> and the former Yugoslavia.<sup>61</sup> Smaller numbers of these vessels were uncovered in the cities of southwestern Slovakia.<sup>62</sup> In Moravia, they are found only in Opava and later at the Cvilín castle near Krnov.<sup>63</sup>

A large group of glasses from Brno includes several variants of pruned beakers. From this time are found small beakers with large snail-like prunts (15 examples, Fig. 5.9); they were made of colorless glass and often have a distinct brownish cast. More abundant (41 examples) are beakers with pointed prunts. There are three variants of this shape: (1) small, with a low open or vaulted mouth, and made of thin-walled colorless or yellowish glass (Fig. 5.10); (2) large, cylindrical, relatively wide, and made of colorless glass with a grayish tinge (Fig. 5.11); and (3) larger, slightly kegl-like beakers with a low

49. Himmelová, “Nález dutého skla” [note 1].

50. Josef Bláha, “Zjišťovací výzkum na hradě Šternberku a některé problémy keramiky vrcholného středověku na jihozápadní Moravě (Zusammenfassung),” *Vlastivědný Věstník Moravský* (Brno), v. 22, no. 3, 1970, pp. 5–9.

51. Dana Cejnková, “Raně středověký výzkum v Brně: Komárově,” *Přehled výzkumů 1975*, Archeologický ústav ČSAV pobočka v Brně, Brno: Archeologický ústav ČSAV pobočka v Brně, 1977, pp. 66–67.

52. Sedláčková, “Gotické sklo” [note 4], p. 441.

53. Himmelová, “Sklo ze zaniklé” [note 1].

54. Himmelová, “Archeologické nálezy skla” [note 1], p. 432.

55. Vladimír Nekuda, *Mstěnice*, v. 1, Brno: Muzejní a vlastivědná společnost v Brně, 1985, p. 168.

56. Sedláčková, “Gotické sklo” [note 4], p. 452.

57. Bruckschen [note 31], pp. 91–93, nos. 108 and 109, fig. 22.1 and 2.

58. Merta, Peška, and Sedláčková [note 6], p. 391, figs. 5 and 10.

59. Tvrz v Konůvkách: Himmelová, “Sklo ze zaniklé” [note 1], p. 136, fig. 2.10; Šternberk u Telče castle: Bláha [note 50], fig. 16.14.

60. Katalin H. Gyürky, *Az Űveg: Das Glas. Katalog*, Budapest: Monumenta Historica Budapestiensia V, BTM, 1986, fig. X.1–5; *idem* [note 36], fig. 14.9 and 12.

61. Verena Han, “The Origin and Style of Medieval Glass Found in the Central Balkans,” *Journal of Glass Studies*, v. 17, 1975, pp. 122–123, figs. 9 and 10.

62. Bratislava: Marta Maruniaková, “Súbor skla z Bratislavského hradu = Die Glaskollektion aus der Burg von Bratislava,” in *Zborník Filozofickej Fakulty Univerzity Komenského XXXIX–XL, História*, Bratislava: Filozofická Fakulta Univerzity Komenského Bratislava, 1989, p. 297, fig. 1.c; Josef Hošo, “Mittelalterliche und neuzeitliche Glasfunde aus der Slowakei: Stand der Forschung,” *Beiträge zur Mittelalterarchäologie in Österreich* (Vienna), v. 19, 2003, fig. 2.15; Trenčín: Klára Meszárosová, “Nález středověkého skla v Trnave = Der Fund von mittelalterlichen Glas in Trnava,” in *Zborník Slovenského národného múzea LXXVII, História*, v. 23, Bratislava: Slovenské národné múzeum v Bratislave, 1983, p. 124, fig. 3.

63. Sedláčková, “Středověké sklo z Opavy” [note 4], p. 256, fig. 5.4; *idem*, “Archeologické nálezy skla” [note 4], p. 378, fig. 1.2.

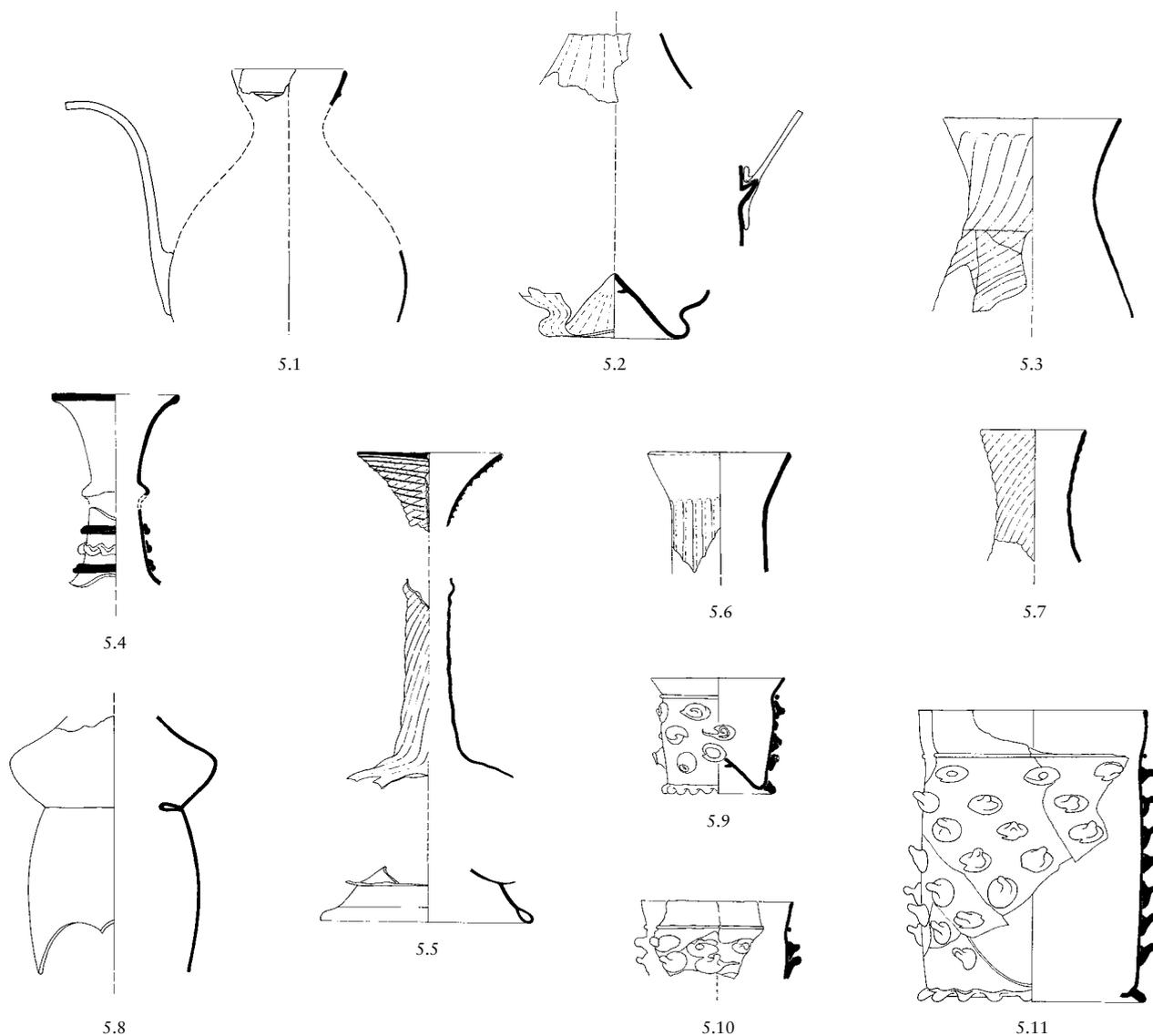


FIG. 5. *Glass imports from 1350 to 1420. Scale 1:3.*

cylindrical or small mouth, and made of slightly greenish glass (Fig. 5.12). Prunted beakers with a high, even mouth begin to appear. They are relatively numerous in the first half of the 15th century (Figs. 5.13, 8.7 and 12, and 8b). There are also bowl-like beakers (Fig. 5.14). Fragments of the mouth and lower part may have come from more than 100 objects. Although the high quality of the beakers allows us to suppose that they may have originated in Italian glassworks, some variants, such as slim shapes with a body that gradually opens up from base to rim,

are absent in Brno.<sup>64</sup> The closest of the assemblages with beaker variants analogous to those in Brno came from Bratislava.<sup>65</sup>

In Olomouc and Jihlava, prunted beakers appear to be the only type of imported glass. Opa-

64. Baumgartner and Krueger [note 34], p. 44, fig. 43.

65. Veronika Plachá and Bořivoj Nechvátal, "Středověké sklo z Bratislavy (Súbor zo Starej radnice) = Mittelalterliches Glas aus Bratislava (Fundkomplex aus dem Alten Rathaus)," *Památky Archeologické* (Prague), v. 71, no. 2, 1980, pp. 433–463; Hoššo [note 62], fig. 1.2, 5, and 6.

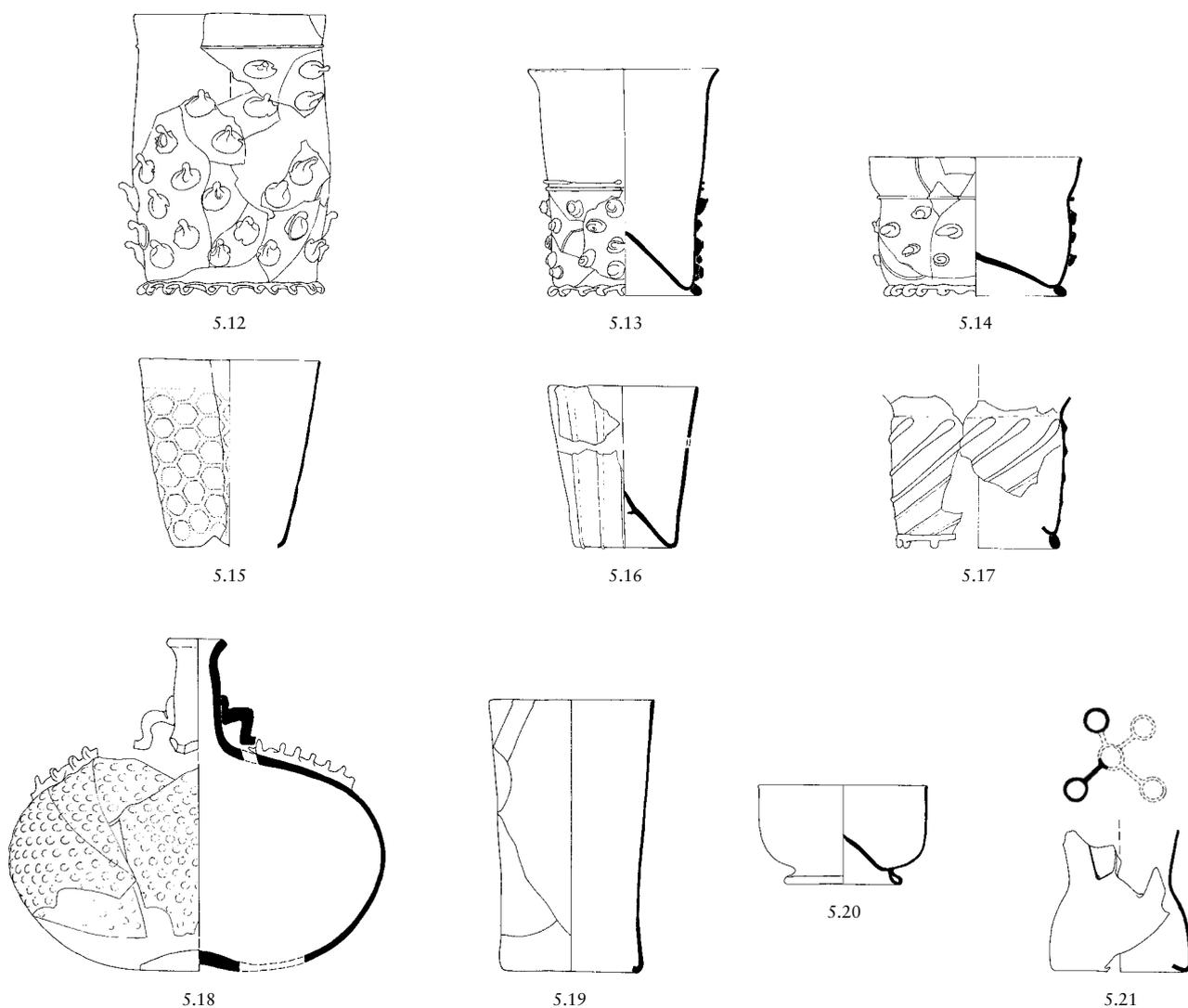


FIG. 5 (continued). *Glass imports from 1350 to 1420. Scale 1:3.*

va has several goblets and a bottle with an inner ring.

Among the articles with optic-blown decoration in Brno are some small conical beakers with roundels, which are also known from previous periods (Fig. 5.15), and beakers with vertical ribbing (Fig. 5.16), which were new at that time. Rarer are mold-blown beakers with diagonal ribs and a pincer base-ring (Fig. 5.17). Until the end of the 14th century, the numbers of cups with fine or massive ribs decline. An exceptional form is the pilgrim flask of sea-green glass

decorated with optic-blown roundels (Figs. 5.18 and 5a), but its dating to the 14th century is uncertain.

Common finds during this period are simple, plain beakers (Fig. 5.19). Beakers with a tubular base-ring (Fig. 5.20) were also found in Kutná Hora<sup>66</sup> and Slovenia.<sup>67</sup> From this time onward, there are beakers with a plain base-ring. To date, the only parallel to a small *Kuttrolf* of slightly

66. Lehečková [note 35], p. 477, no. 134, fig. 6.

67. Lazar [note 36], fig. 5.2.



FIG. 5a. Pilgrim flask of sea-green glass with optic-blown lenses, from Brno.

grayish glass and with five neck tubes (Fig. 5.21) was found in Bratislava.<sup>68</sup>

The numbers of domestic glasses of lesser quality slowly increased in Brno. Eleven features containing these objects have been dated exclusively to the second half of the 14th century. Even in very large assemblages, tall beakers of Bohemian type are represented mostly by single fragments of indefinable shape. Some larger fragments of slim flute-shaped goblets, one slender clublike beaker, and three beakers with a wider conical body are known from Bohemia (Fig. 6.1–3).<sup>69</sup> They feature coiled prunts (D. about 0.5 cm). Single examples of a broader beaker with a blue trail on the rim (Fig. 6.4) and a wider funnel-shaped beaker (Fig. 6.5) have been found. There is also a small jug of weathered glass with vertical ribs on the neck (Fig. 6.6). A jug with an applied zigzag trail (Fig. 6.7), similar to that found in the succeeding period, may now have become part of domestic (Silesian?) production. A beaker with diagonal pincer trails (Fig. 6.8) has some parallels from Vienna.<sup>70</sup> Another novelty at this time is the barrel-shaped prunted beaker, the lower part of which was wrapped with trails (Figs. 6.10 and 6a). This object was popular until the mid-16th cen-

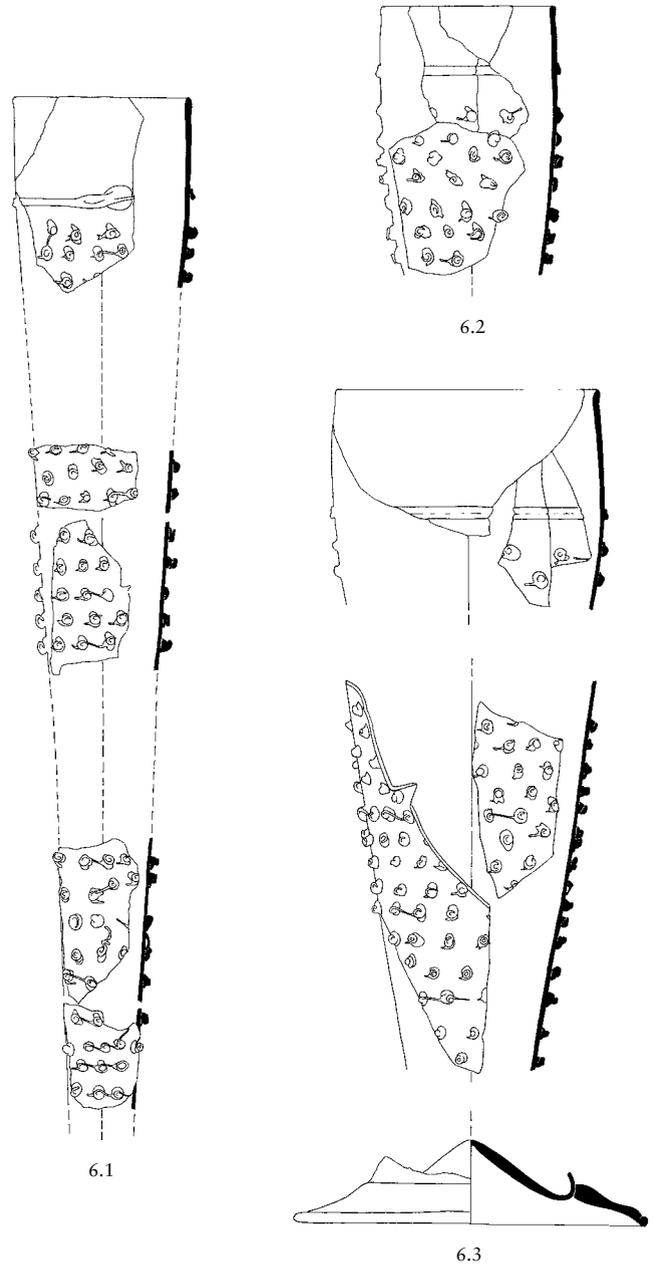


FIG. 6. Glass finds from 1350 to 1420, mostly domestic production. Scale 1:3.

68. Hoško [note 62], fig. 3.3.

69. František Frýda, "Typologie středověkého skla v Čechách od 13. do konce 15. století = Zur Typologie des böhmischen Glases aus dem Mittelalter vom 13. bis zum 15/16. Jahrhundert," in *Sborník Západočeského muzea v Plzni Historie*, v. 5, Plzeň: Západočeské muzeum v Plzni, 1990, pp. 59–84, no. I.1–3.

70. Tarcsay, "Neue Erkenntnisse" [note 29], p. 177, fig. 3.

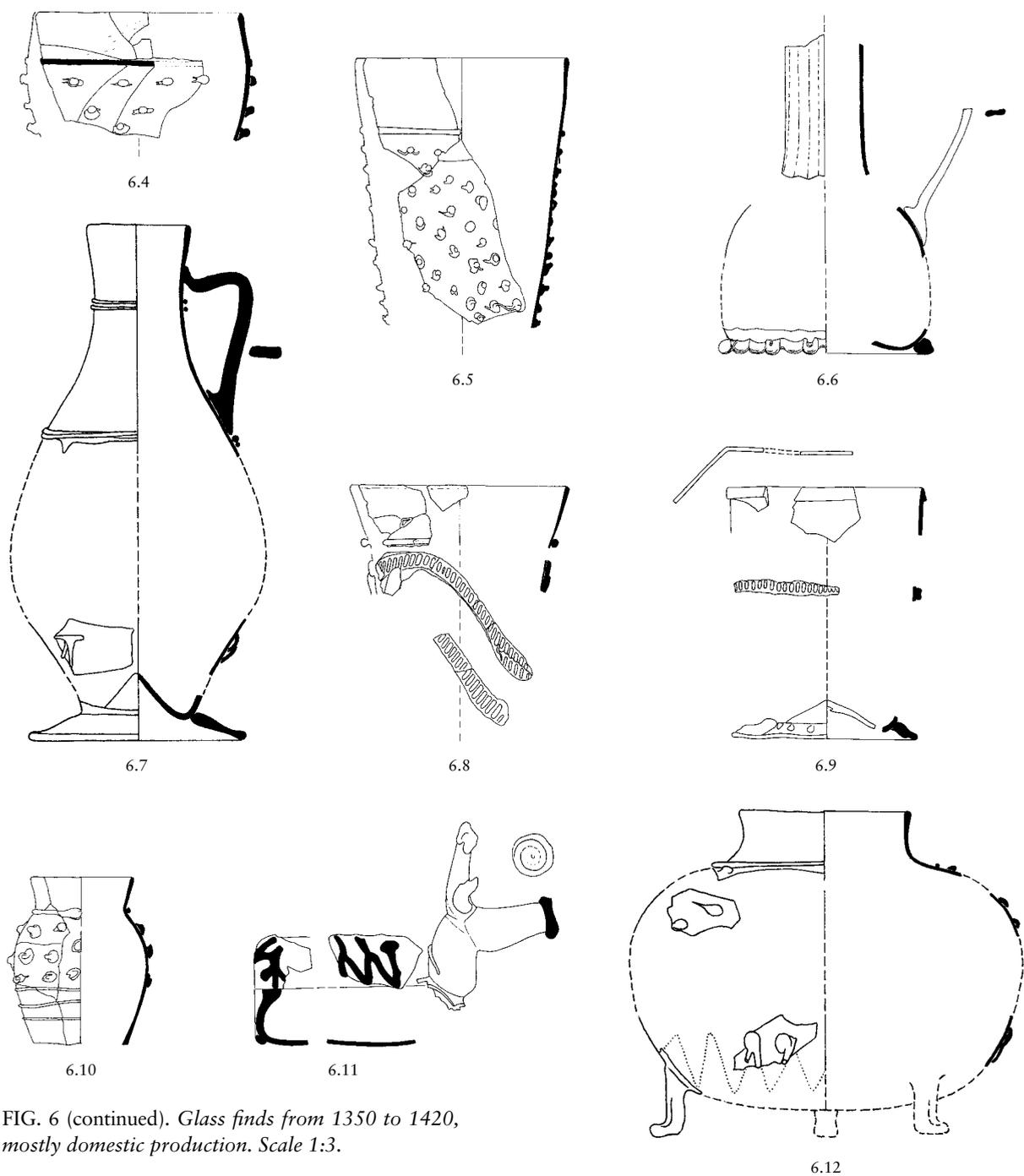


FIG. 6 (continued). Glass finds from 1350 to 1420, mostly domestic production. Scale 1:3.

ture. Multi-sided beakers (Fig. 6.9) also made an appearance during this period.

Vessels of greenish low-quality glass made during the second half of the 14th century include an aquamanile in the form of a deer decorated with blue trails (Figs. 6.11 and 6b) and a

*Gräpen* (cooling pot on three feet, made of ceramic or bronze; Fig. 6.12).<sup>71</sup> They were probably produced in Germany.

71. Himmelová, "Příspěvek k typologii středověkého" [note 2], p. 14, fig. I.2.



FIG. 6a. Domestically produced prunted beaker from Brno.



FIG. 6b. Aquamanile in shape of deer, from Brno.

During the late 14th and early 15th centuries, beakers with vertical glass trails that are largely decorated with drops of blue glass (Figs. 7.7 and 7b) were found in Olomouc and at fortified noble residences.<sup>72</sup> The only type of glass in

Opava from the late 14th to late 15th centuries is the tall, slender clublike beaker.

Several well-dated assemblages have shown a distinct change in the shapes and quantities of domestic glass produced between the end of the 14th century and the outbreak of the Hussite Wars. In addition to the sites destroyed during those wars, there is a feature from Brno that is dated by coins. The assemblages found here consisted mostly of domestic glass, but there were also some exceptional imports. One of them was a fragment of opaque white glass (Figs. 7.1 and 7a), perhaps from a goblet, with a bulge on the wall. It was found in a well at the cloister in Komárov, which was destroyed in 1428. The probable Venetian provenance of this object is suggested by a Venetian document of 1420 in which the term *lattimo* is mentioned.<sup>73</sup> Contemporaneous lids made of opaque white glass have been found only in England.<sup>74</sup>

Two *Krautstrünke* (prunted beakers) of sea-green glass from the castle of Melice (Fig. 7.2 and 3) can be dated before 1423, making them among the oldest such objects in Europe. No chemical analyses have been performed on these pieces, but they are most probably similar to glasses produced in Venice.<sup>75</sup> Supporting this supposition is the soda-lime composition of contemporaneous *Krautstrünke* of sea-green glass from Plzeň and Kutná Hora.<sup>76</sup>

72. Olomouc: Sedláčková, "Gotické sklo" [note 4], pp. 442, 446, and 450, nos. 3.5.1, 2, and 4, fig. 2.1–3; no. 3.9.7, fig. 2.6; and no. 3.13.5, 7, and 8; Melice: Himmelová, "Nálezy dutého skla" [note 1], p. 222, nos. 16–21, fig. 3.2 and 5; Mstěnice: Nekuda [note 55], p. 168, fig. 224.

73. Luigi Zecchin, *Vetro e vetrai di Murano: Studi sulla storia del vetro*, v. 1, Venice: Arsenale, 1987, p. 41.

74. Rachel Tyson, *Medieval Glass Vessels Found in England, c AD 1200–1500*, CBA Research Report 121, York, England: Council for British Archaeology, 2000, pp. 71–72, fig. 9.

75. Pause [note 44], pp. 58–60, figs. 18.2, 19.1, and 22.2, 5, 8, and 9.

76. Dagmar Hejdová and Bořivoj Nechvátal, "Studie o středověkém skle v Čechách (Soubor z Plzně, Solní ul.) = Studie über das mittelalterliche Glas in Böhmen (Fundkomplex aus Plzeň, Solní ul.)," *Památky Archeologické* (Prague), v. 58, no. 2, 1967, pp. 442 and 448–449, nos. 37 and 38, figs. 6 and 14; Kutná Hora: Lehečková [note 35], pp. 472–473, no. 81, fig. 6.

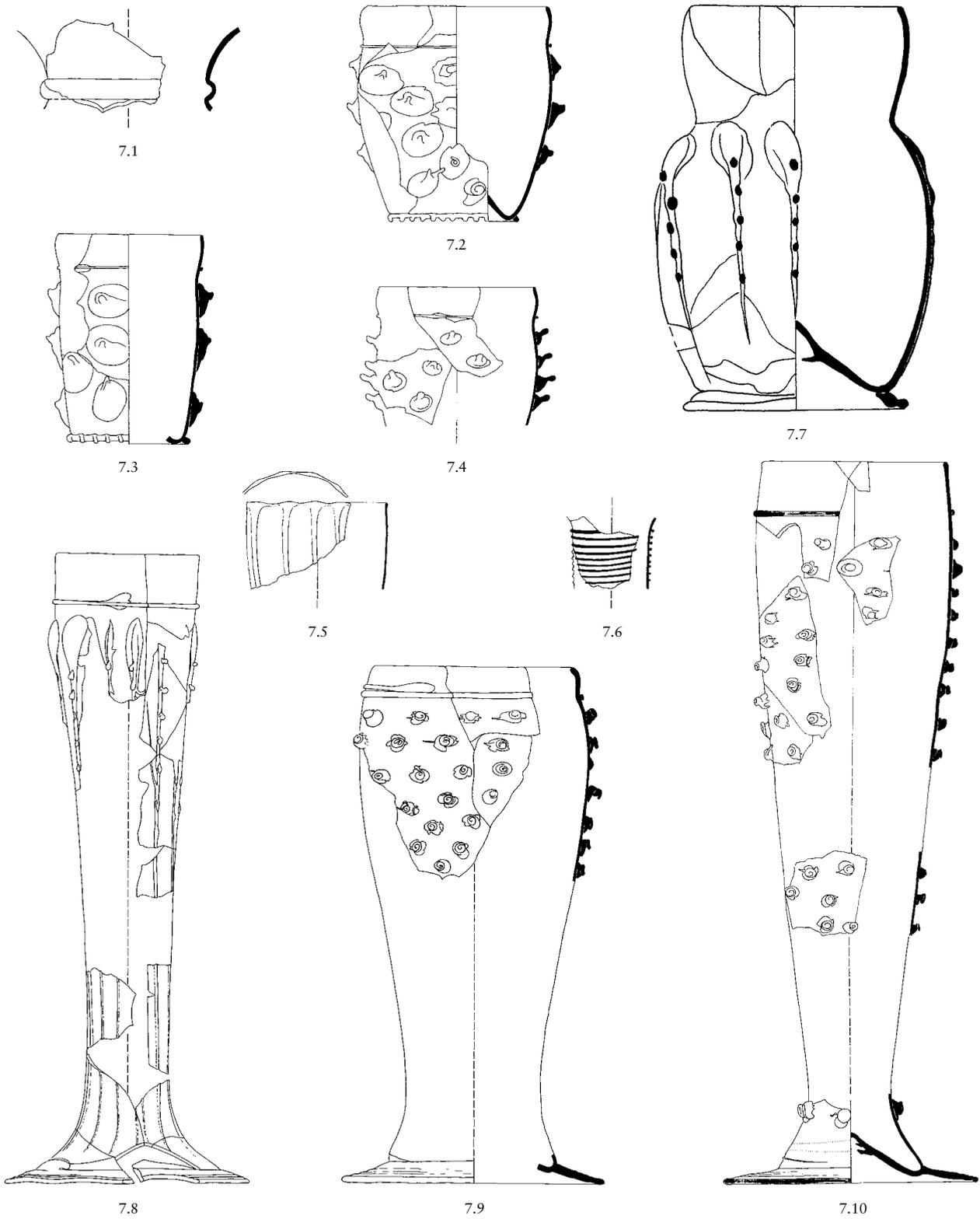


FIG. 7. Glass finds from castles and cloister destroyed between 1421 and 1428 by the Hussites. Scale 1:3.



FIG. 7a. Goblet(?) of opaque white glass from Brno/ Komárov.



FIG. 7b. Beaker with vertical trails and drops of blue glass, from Olomouc.

In the assemblage from the Šternberk castle, there is a bottle with a funnel-shaped mouth enveloped by blue trails (Fig. 7.6). Beakers with pointed prunts (Fig. 7.4) and vertical ribbing (Fig. 7.5) are common.

Between the end of the 14th century and the Hussite Wars, the local production of glasses increased dramatically. They include a tall beaker with drawn droplets (Fig. 7.8) and massive club-like beakers (Fig. 7.9). Some of these objects have

blue trails on the mouth and around the foot (Fig. 7.10). These shapes are also known among the Czech finds.<sup>77</sup> From the Carthusian cloister of Dolany came an extensive assortment of windowpanes of greenish, yellow, and purplish glass. Window glass is otherwise relatively rare during this period.

## 15TH AND EARLY 16TH CENTURIES

### About 1420–1470 (Figs. 8 and 9)

Before the Hussite Wars in the 1420s, Brno was supplied with high-quality glassware from the south. After 1474, when Moravia became part of the kingdom of Hungary under the rule of King Matthias Corvinus and, later, the Jagiellons, trade links were restored and glass made in the new Renaissance style began to stream into Moravia.

A shortfall of imports during the wars was offset by an increase in domestic production. Although it is difficult to date the features by any archeological methods, there are 15 cesspits dating to the first half of the 15th century and 11 dating to the second half. Other features can be dated from the second half of the 14th century to the first half of the 15th century. In Olomouc and Opava, there is a smaller quantity of glass during the early 15th century, and there are no finds from castles. About 1450, however, the advent of the Renaissance in Moravia can be seen in changes in the glass found there.

A small quantity of imported glass is known from Brno, and most of the types were also seen in earlier periods. Colorless glass vessels include a jug or ewer with vertical ribs (Fig. 8.3), a ribbed bottle of greenish glass (Fig. 8.2), and bottles with a funnel-shaped mouth wrapped with a blue trail (Fig. 8.4). Among the later glasses are bottles with a bowl-like mouth made of lower-quality glass (Fig. 8.5), which were employed until the first half of the 16th century

77. Frýda [note 69], nos. I.4 and 5, and II.

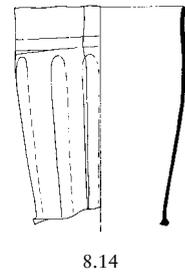
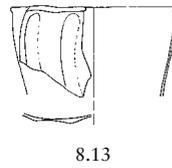
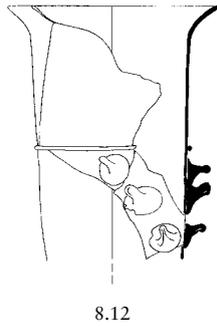
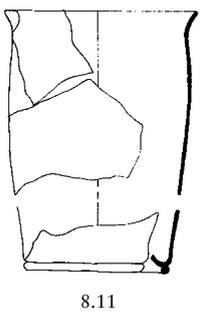
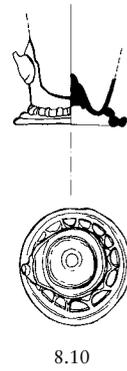
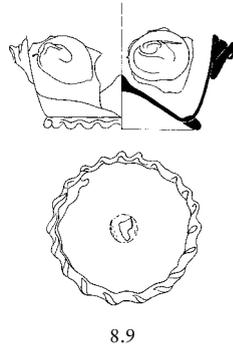
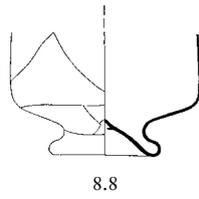
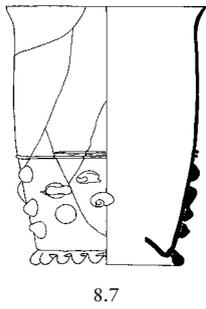
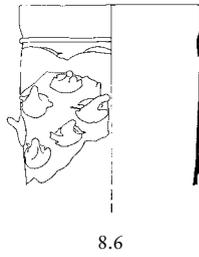
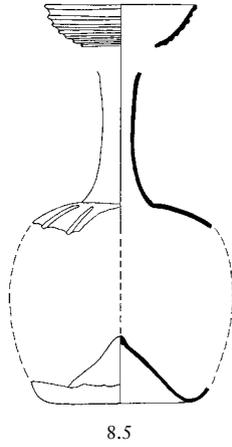
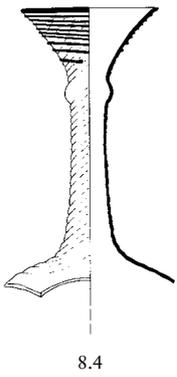
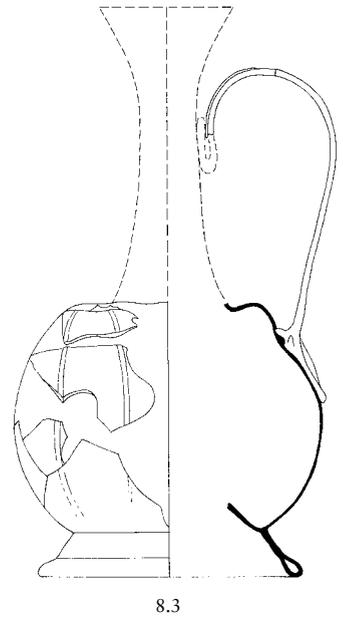
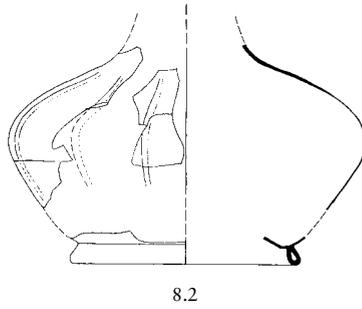
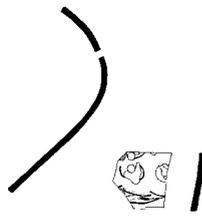
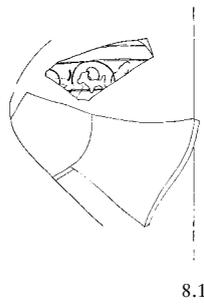


FIG. 8. Glass imports from about 1420 to 1470. Scale 1:3.



FIG. 8a. *Islamic bottle or lamp from Brno.*



FIG. 8b. *Prunted beaker from Brno.*

(Fig. 12.11). They may have been imported from Hungarian glassworks.<sup>78</sup>

An enameled and gilded vessel of thick-walled colorless glass with a yellowish tinge was reassembled from fragments, and it was shown to be a bottle or lamp of Islamic origin (Figs. 8.1 and 8a). It came from a well in which more than half of the glass finds of comparable date (late 14th–

mid-15th centuries) were imports. Although this new find has not yet been studied in detail, I assume that, because of its high value, it was preserved in a household for a long time.

New forms from this period include barrel-shaped beakers with pointed prunts (Fig. 8.6), a *Krautstrunk* (Fig. 8.9), and a prunted *Stangenglas* of sea-green glass (Fig. 8.10). Among the surviving forms from earlier periods are prunted beakers with a high, even mouth, which now also have pointed prunts (Fig. 8.7 and 12, and Fig. 8b), undecorated beakers with a plain (Fig. 8.11) or tubular (Fig. 8.8) base-ring, and conical beakers with optic-blown ovals and vertical ribs. One ribbed beaker has a blue trail around the rim (Fig. 8.13), which had not been seen previously. A beaker with mold-blown ribs and a pincer base-ring (Fig. 8.14) is reminiscent of enameled Venetian beakers dating to the last third of the 15th century.

Tall, slim beakers now become the predominant finds from Brno and Opava. Some sites produced dozens of vessels, but the range of forms is smaller than that of the previous period. Most of these objects have flute-like shapes, and there are a few clublike vessels (Fig. 9.1 and 2, and Fig. 9a) as well. The coiled prunts (D. about 0.5 cm) from the later 14th century were followed, in the early 15th century, by smaller, irregular prunts and, later in that century, by tiny crescent prunts. At the same time, the undecorated parts of the vessels, including the mouth and the glass above the base, became larger. A second group of tall beakers featured wide conical and distinctly clublike shapes. The prunts on the clublike forms are large and coiled, sometimes with drawn-up points, and some beakers have blue trails below the mouth (Fig. 9.3 and 4).

A large number of domestically produced prunted beakers of 15th-century date have been found in Brno (Fig. 9.5), but in most cases, only the lower portions of the objects have been pre-

78. Katalin H. Gyürky, "Glasiimport und Glasherstellung im mittelalterlichen Ungarn," *Beiträge zur Mittelalterarchäologie in Österreich* (Vienna), v. 19, 2003, p. 48, fig. 2.10.

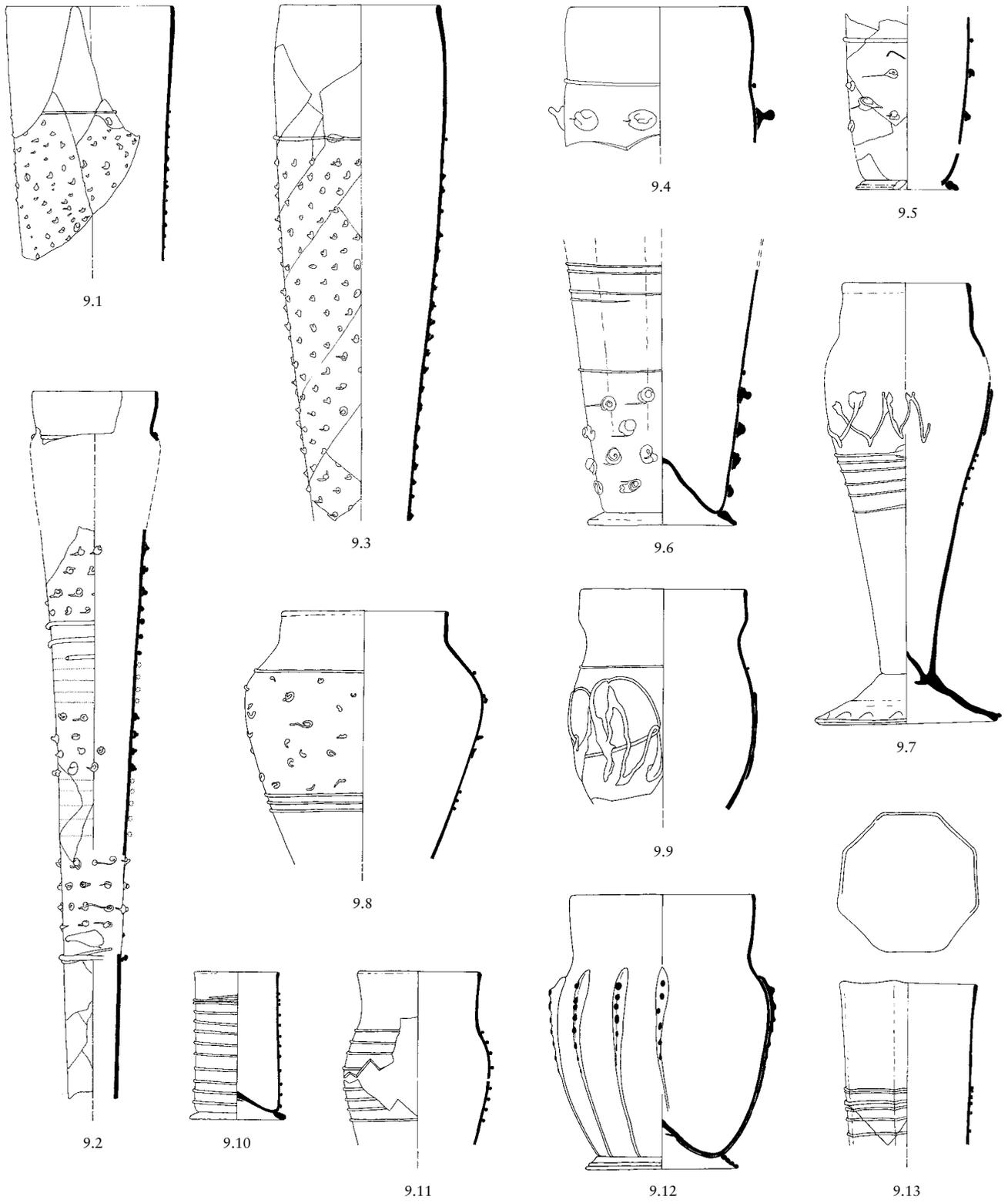


FIG. 9. Domestic glass from about 1420 to 1470. Scale 1:3.



FIG. 9a. Bohemian-type beaker from Brno.

FIG. 9b. Beaker with zigzag decoration from Olomouc.

served. Completing the range of forms are multi-sided beakers (Fig. 9.6) and beakers with drawn droplets (Fig. 9.12). Storage bottles with a trail-wrapped or everted rim are among the common finds from this period.

Some new shapes and decorations are observed in Olomouc shortly before the mid-15th century, and they have numerous parallels in cities in the Polish part of Silesia.<sup>79</sup> These include clublike beakers, some of which have a wide shoulder or unusual decoration (Fig. 9.8 and 9) featuring trails that are crossed (Figs. 9.7 and 9b) or spiral (Fig. 9.10 and 11), but no examples from this period have been uncovered in Brno and Opava. From this time forward, beakers decorated with vertical trails and drops of blue glass (Fig. 9.12) are found in Olomouc.

#### *Second Half of the 15th Century* (Figs. 9.1 and 10)

Until recently, scholars believed that Czech and Moravian glassmaking declined during the

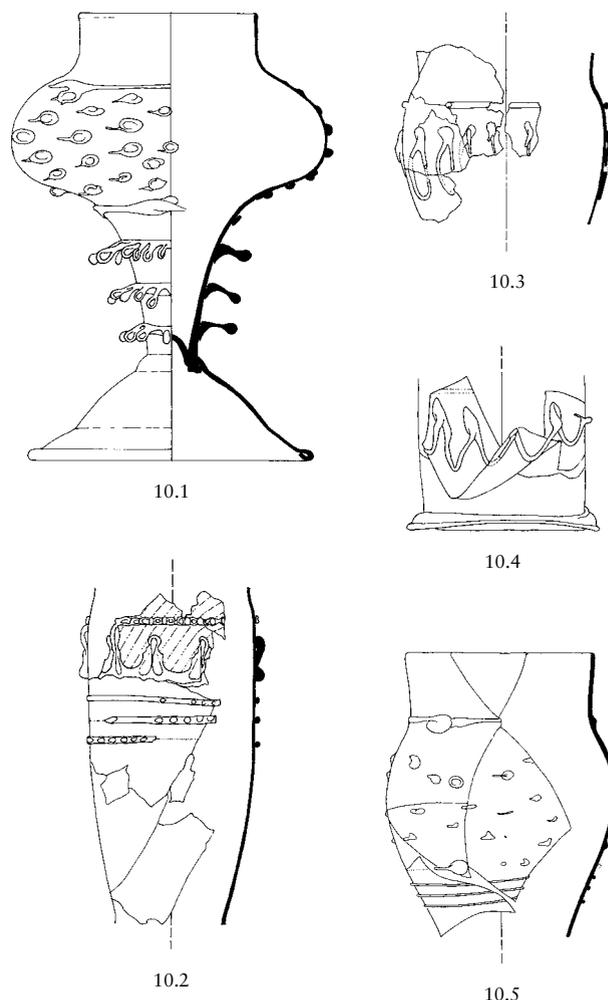


FIG. 10. Glass imports and domestic production from second half of 15th century. Scale 1:3.

second half of the 15th century, and there was little investigation of finds from the first half of the 16th century. However, archeological discoveries and documentary evidence demonstrate that Moravian glassmakers produced a considerable amount of hollow and window glass during this period, adapting Venetian and German techniques as they developed a domestic industry.

79. Jadwiga Biszkont, "Spätmittelalterliche Glasgefäße aus Schlesien, Polen," *Beiträge zur Mittelalterarchäologie in Österreich* (Vienna), v. 19, 2003, pp. 139–156.

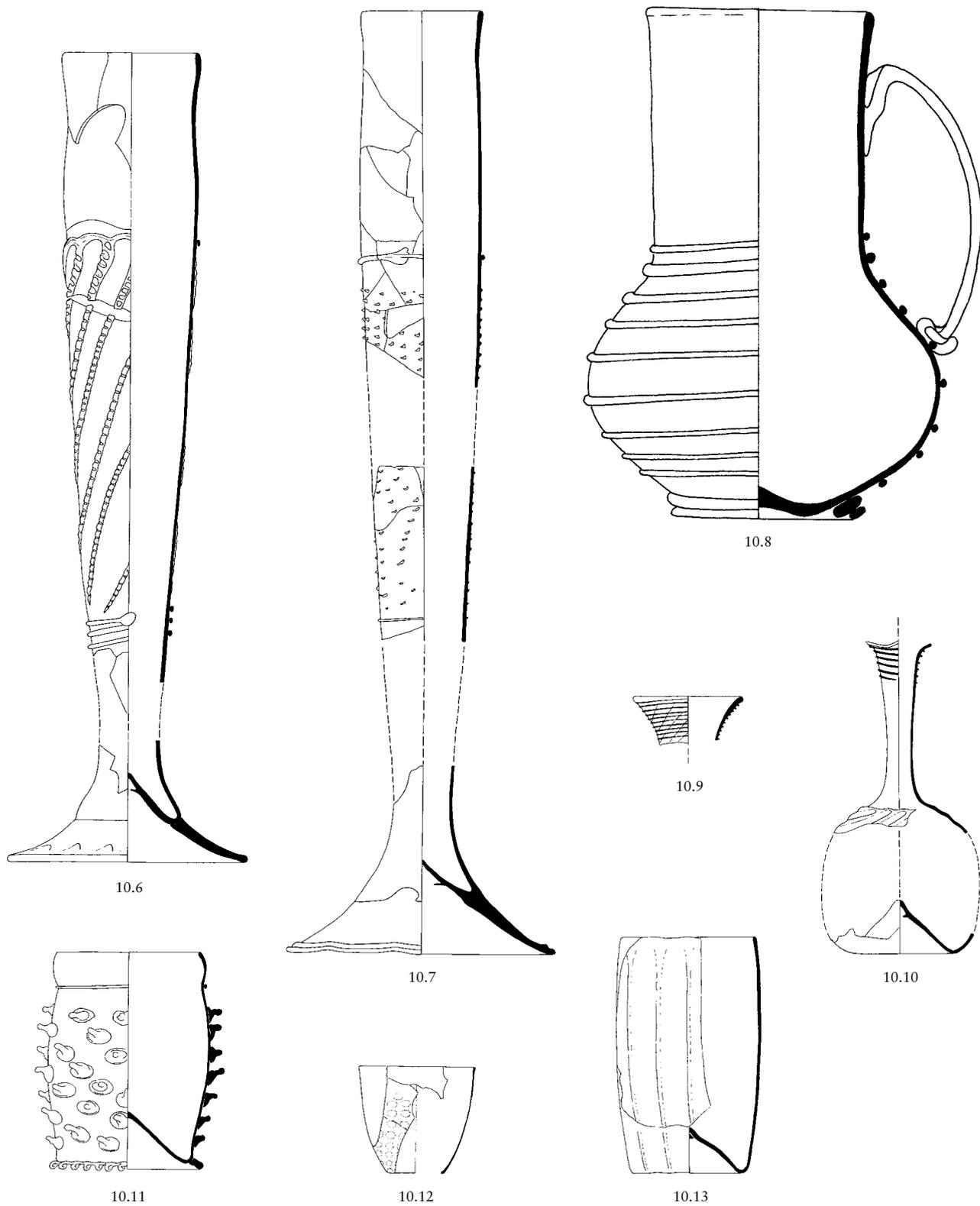


FIG. 10 (continued). *Glass imports and domestic production from second half of 15th century. Scale 1:3.*



FIG. 10a. Jug from Prostějov.

A Brno feature dated by dendrochronology between 1455 and about 1480 provides us with an opportunity to review forms of Moravian glass made during that period. The most sophisticated example is a prunted goblet on a tall bell-shaped foot with three rows of lobelike drawn trails on the stem (Fig. 10.1). It shows that Venetian glass was already exerting an influence on Moravian production. The prunted cup and the richly decorated conical stem reflect a Gothic heritage, while the foot was inspired by the technical advances of the Renaissance. A plug is embedded in the base, and this can also be seen on later beakers from Opava (Fig. 12.3 and 5). It is therefore possible that all of these objects originated in a Silesian glassworks. Another luxurious piece from this assemblage is a tall beaker enveloped by pincer trails, a band of garlands, and, on the upper part, optic-blown diagonal ribbing (Fig. 10.2). The finds also included beaker fragments with optical decoration in the form of lozenges, ovals, and large, flat prunts. All of these

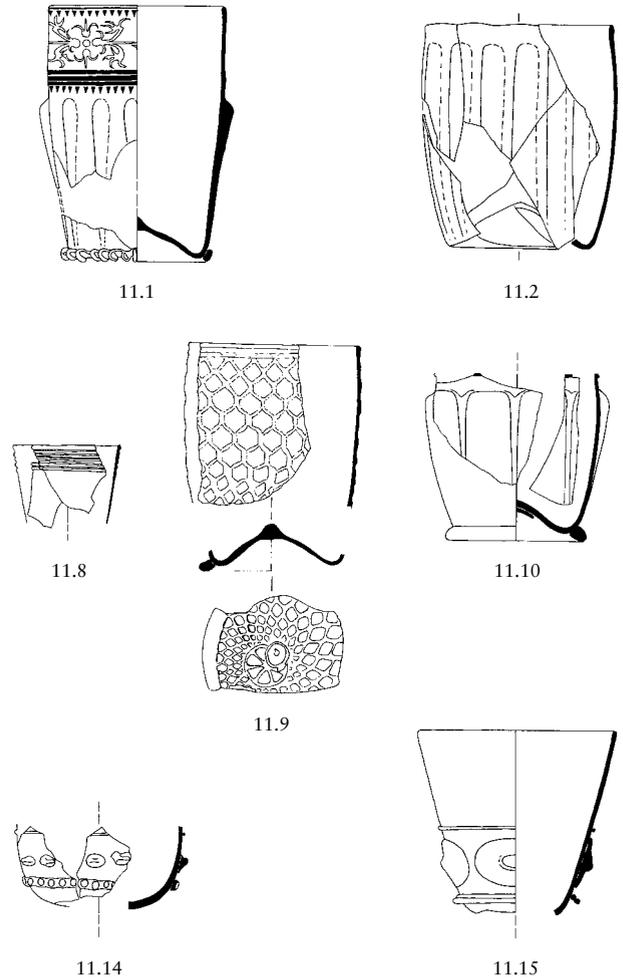


FIG. 11. Glass imports from 1500 to 1560. Scale 1:3.

pieces are heavily weathered, but there is occasional evidence of the colorless glass melt. The zigzag pattern of decoration is also observed on other types of beakers (Fig. 10.3 and 4).

Silesian glassworks supplied Opava with tall, slim beakers featuring crescent prunts and pincer diagonal ribbons (Fig. 10.6 and 7), and some of these objects were distributed to Brno as well. There, domestic production included club-like beakers (Fig. 10.5) and small prunted beakers with a multi-sided cup. The latter objects had been made there earlier as well.

In Olomouc, tall, slender beakers were almost nonexistent. Instead, it introduced its own style

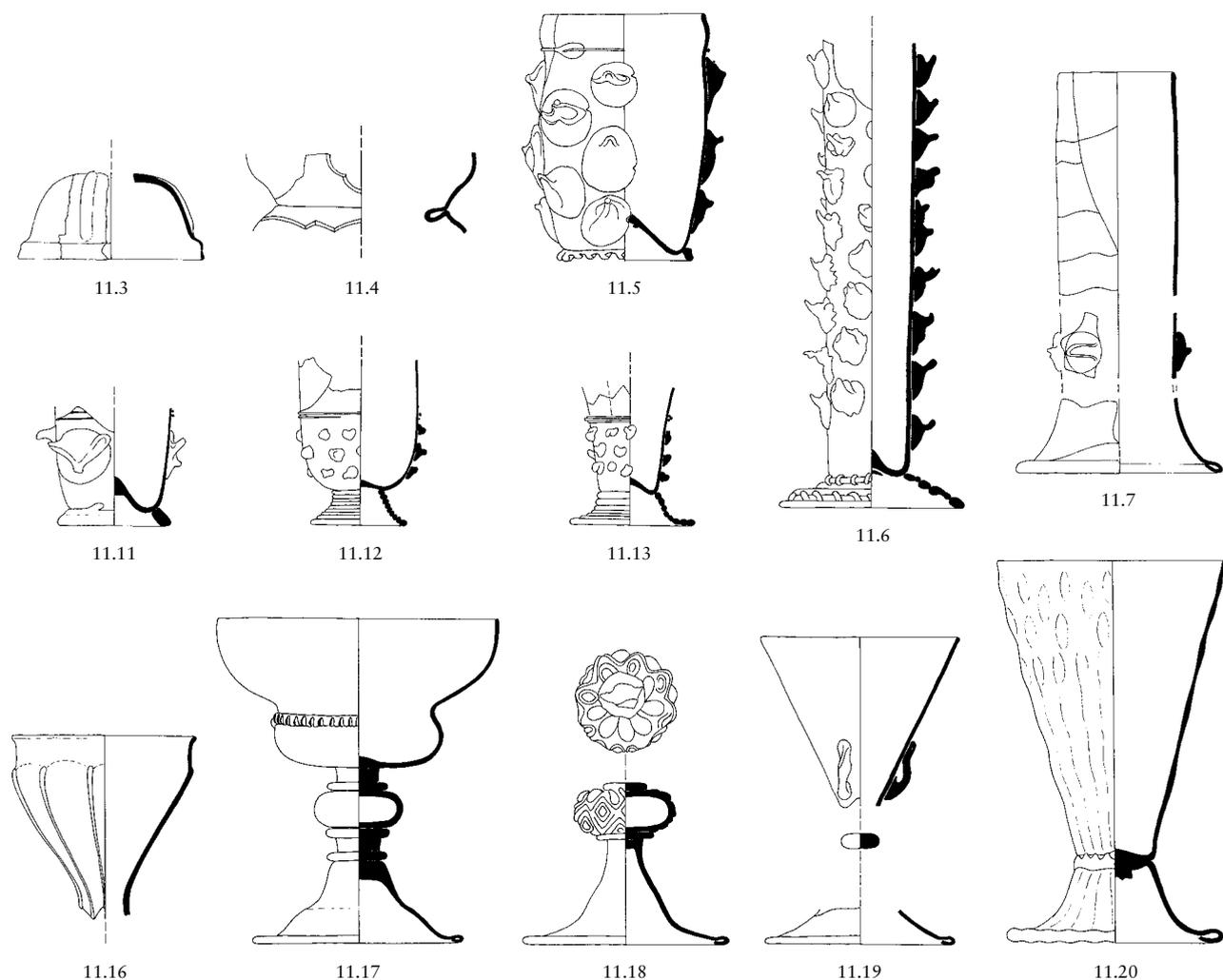


FIG. 11 (continued). *Glass imports from 1500 to 1560 (continued). Scale 1:3.*

of beaker toward the end of the 15th century, and this became a dominant form in the first half of the 1500s.

The amount of glass imported to Brno declined during this period. It was limited to three forms: table bottles with a funnel-shaped or bowl-shaped mouth (Fig. 10.9 and 10), beakers with pointed prunts (Fig. 10.11), and beakers with optic-blown ovals and ribs (Fig. 10.12 and 13). Other finds from this period include a *Stangglas* with an openwork foot, a German *Achtkantglas* with blue trails on its upper part (Fig. 9.13), and a jug with a globular body decorated with a trail (Figs. 10.8 and 10a), which was uncovered in Prostějov.

1500–1560 (Fig. 11)

Finds from this period show a gradual evolution of forms that were introduced in the later part of the 15th century. Examples from several features have been dated by written records or coins. For example, two features in Olomouc were dated by archival sources to about 1540,<sup>80</sup> and another contained coins from as late as

80. Josef Bláha, "Archeologie a poznání výtvarné kultury období, 1400–1550," in *Od gotiky k renesanci: Výtvarná kultura Moravy a Slezska, 1400–1550*, v. 3, Olomoucko, Brno: Moravská galerie v Brně, Muzeum umění Olomouc, 1999, p. 616.



FIG. 11a. *Beaker with enameled decoration from Brno.*



FIG. 11aa. *Beaker with enameled decoration from Olomouc.*



FIG. 11b. *Prunted Stangenglas, with imported goblets and domestic beakers of Olomouc type, from Olomouc.*

1560.<sup>81</sup> In Brno, the upper two layers of a buried well contained coins from the 1560s, and the dating of another feature to the end of the 16th century was certified by documentary evidence.

During this period, there was a new influx of imports from several regions. Moravia undoubtedly received a large quantity of glassware from Venice by way of Hungary, but only a few examples have been found in cesspits. Luxury wares included the goblet of “the Lords of Deblín”<sup>82</sup> and a small goblet from Prostějov that is diamond-point engraved with centaurs and the date 1518.<sup>83</sup> Sinkholes in Olomouc and Brno have yielded two ribbed beakers with a cylindrical mouth and enameled decoration (Figs. 11.1, 11a, and 11aa), as well as a ribbed lid of bright green glass (Fig. 11.3). Simple beakers with optic-blown ribs made of high-quality glass (Fig. 11.2) and several *crystallo*-like bottles from Cvilín are of the same origin.<sup>84</sup> The trade links with Hungary are confirmed by a bottle with a tubular body-rim and a kegl-like lower part (Fig. 11.4). There are also some ribbed goblets of high-quality yellowish glass (Fig. 11.16). Chemical analysis of one of these goblets showed that it was made of a potassium-lime glass, which could indicate a German provenance.<sup>85</sup>

Few examples of *Krautstrünke* have been found in Moravia, and from this time they are made of sea-green (Fig. 11.5)<sup>86</sup> or, more rarely, bright green glass. A more common form is the sea-green pruned *Stangenglas* (Figs. 11.6 and 11b).<sup>87</sup> The latest such object, dated by coins to about the mid-16th century, is made of blue

glass, and it features a typical Renaissance bell-shaped foot (Fig. 11.7).

German-produced glass includes a goblet of opaque red glass, numerous bottles of sea-green glass, and a beaker that is identical to one in Regensburg (Fig. 11.15).<sup>88</sup>

The origin of another group of vessels made of sea-green glass in various shapes and with dark blue trails on the rim and body is uncertain. It consists of small conical beakers, beakers with optic-blown diamond decoration or distinct vertical ribs, and beakers with prunts in the shape of an animal’s head (Fig. 11.8–11). Reports of analogous glasses from Vienna and Krems have been published.<sup>89</sup> Determining the provenance of such objects may be assisted by finds from the Anabaptist courts in southern Moravia, which include many small pruned beakers on a bell-shaped foot with spiral-trailed stringers and a goblet made of the same glass (Fig. 11.12–14). The Anabaptists moved to Moravia after 1526, mainly from southern Germany and Switzerland, and they probably brought these glasses with them when they relocated.<sup>90</sup>

Toward the end of the 1530s, Moravia began to be supplied with tableware from the Tyrolean glassworks in Hall and perhaps also from other newly established factories in Austria that made glass in the Venetian style. Three goblets found in Olomouc were definitely made in Hall (Fig. 11.17–19),<sup>91</sup> and one of these objects is paralleled by the so-called Luther’s goblet that is in the collection of the German National Museum in Nuremberg.<sup>92</sup>

81. Hedvika Sedláčková, ed., *Renaissance Olomouc in Archaeological Finds: Glass, Festive Ceramics and Tiles*, Archaeological Research of the Institute of Landmark Conservation in Olomouc, Olomouc: Institute of Landmark Conservation in Olomouc and Association for Support of Historical and Archaeological Research in the Olomouc Region, 1998, p. 47.

82. Hugh Tait, *The Golden Age of Venetian Glass*, London: British Museum Publications Ltd., 1979, no. 18.

83. Karel Hetteš, *Benátské sklo*, Katalog UPM, Prague: Uměleckoprůmyslové muzeum v Praze, 1973, no. 7.

84. Sedláčková, “Archeologické nálezy skla” [note 4], p. 379.

85. Sedláčková [note 81], no. 19.1 and 2.

86. Himmelová, “Umělecká řemesla č. kat. 306–311” [note 2], no. 308.

87. Sedláčková [note 81], no. 13.1.1.

88. Eugen Trapp, Andreas Boos, and Peter Germann-Bauer, *Regensburg im Mittelalter: Katalog des Abteilung Mittelalter im Museum der Stadt Regensburg*, Regensburg: Universitätsverlag Regensburg, 1995, no. 174.

89. Tarcsay, “Zum Stand” [note 29], p. 170, fig. 7.

90. Hedvika Sedláčková, “Soubor renesančního skla z areálu novokřtenského dvora ve Strachotíně (okr. Břeclav) = Kollektion von Renaissance Glas aus dem Areal des Wiedertäuferhofs Strachotín (Bez. Břeclav),” in *Jižní Morava*, v. 37, Mikulov: Muzejní a vlastivědná společnost v Brně, 2001, p. 67, fig. 1.1–11.

91. Sedláčková [note 81], no. 4.1.1 and 2.

92. *Reformation in Deutschland*, Ausstellung Katalog, Nuremberg: Germanisches Nationalmuseum, 1983, no. 607.

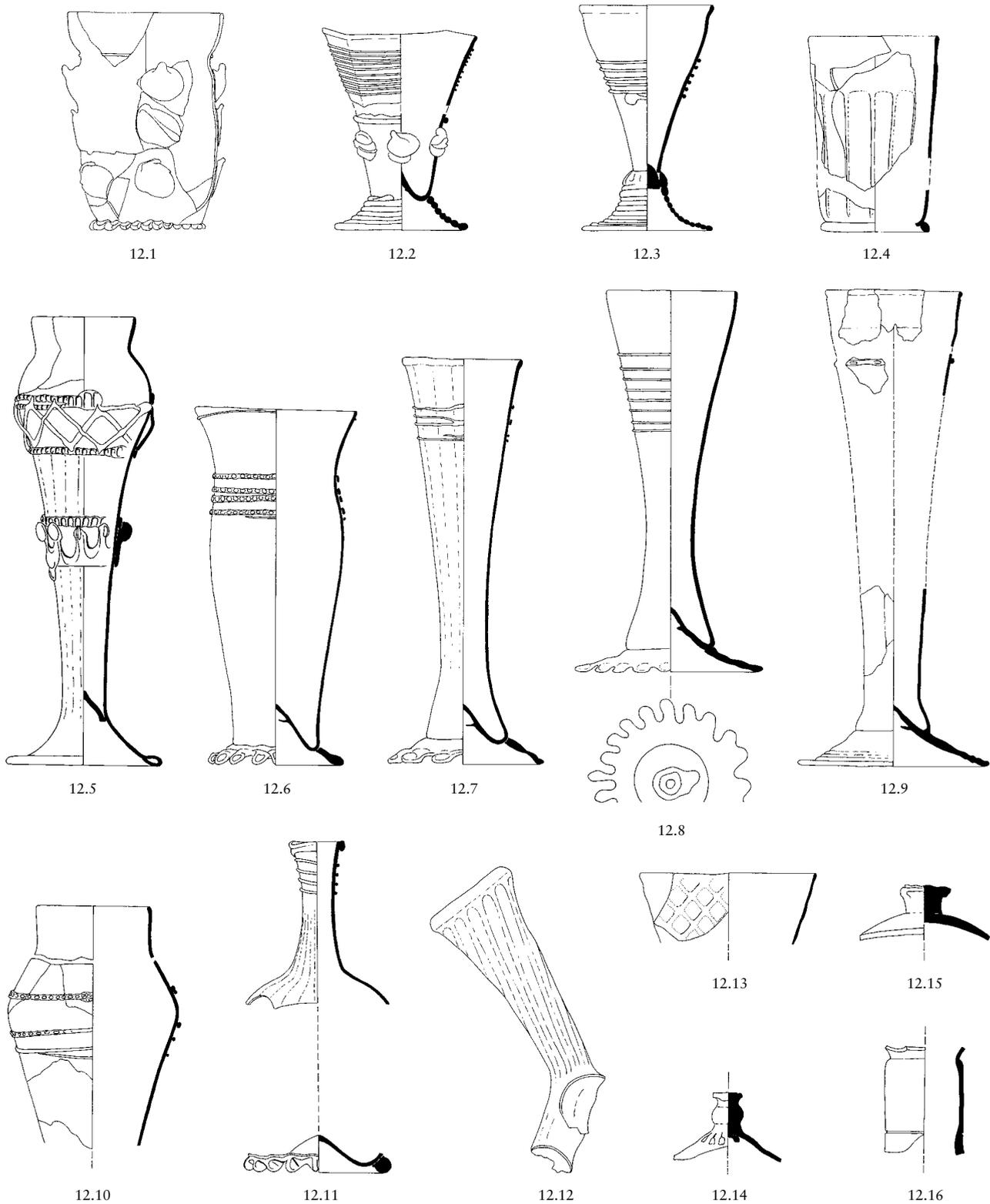


FIG. 12. Domestic production from 1500 to 1560. Scale 1:3.

Other items made in Austrian glassworks are funnel-shaped beakers, most of which feature large optic-blown ovals (Fig. 11.20). The grayish glass of the Austrian tableware contrasts sharply with the greenish glass of domestic Moravian production. Most of these imports have been found in Olomouc, but some examples were recently found in Brno as well. Rosary rings of soda-lime glass have been uncovered only in Olomouc, and no evidence of Austrian imports has been found in the Opava region.

Late variants of Gothic beakers have smaller, more subtle shapes than their predecessors. The most significant member of this group is the Olomouc-type beaker, a slender, fluently opening shape that often includes optic-blown ribbing. The upper part of this object is usually decorated with a pincer trail. All of these beakers have a tooled base-ring with pinched ends (Fig. 12.6–8 and Fig. 12a). More than 100 of these objects have been found in Olomouc, demonstrating that they were produced mainly for the local market. A few examples were found at Moravian castles and in Brno,<sup>93</sup> but there is no evidence for them in the Opava region. Similar beakers, which have a bell-shaped foot (D. 8–10 cm), have been found throughout Moravia (Fig. 12.9). Clublike beakers decorated with zigzags and garlands were uncovered in the Opava region and in Brno (Fig. 12.5), and Brno has also yielded larger clublike beakers with pincer trails (Fig. 12.10) and, in a few instances, crescent prunts.

Domestic production included multi-sided and funnel-shaped beakers. In the later years of this period, the feet of these objects were increasingly decorated with spiral-trailed stringers (Fig. 12.2 and 3). Goblets were also made here for the first time (Fig. 12.13 and 14). The shapes of other domestically made items of colorless glass were inspired by imported objects. Among them were a *Krautstrunk* (Fig. 12.1) and ribbed beakers resembling Venetian beakers (Fig. 12.4), but they were made of lower-quality glass. There were also table bottles with a bowl-shaped mouth (Fig. 12.11). The *Kuttrolf* with one or more neck tubes had been imported as a bright green glass



FIG. 12a. *Beaker of Olomouc type from Olomouc.*

object, while its counterpart made in Moravia was of colorless glass that is now weathered (Fig. 12.12).

Laboratory glassware was also made during this time. Fragments of alembics and other parts of distilling devices were found at the Cvilín castle near Krnov and in Olomouc (Fig. 12.15 and 16).<sup>94</sup> The advanced level of hygiene in households is underscored by numerous fragments of flytraps<sup>95</sup> and even by part of a “pheasant” urinal from Brno.

The number of sites that yielded glass from this period is substantial, and they include many castles and châteaux. Before this time, glass finds from Olomouc had been limited, but now they are significantly greater. As noted above, the

93. Sedláčková, “Sklo první poloviny” [note 4], pp. 179–184, fig. 4.

94. Sedláčková, “Archeologické nálezy skla” [note 4], p. 379, no. 10; *idem* [note 81], no. 13.1 and 2.

95. Sedláčková, “Středověké sklo z Opavy” [note 4], p. 260, fig. 8.107 and 108.

Olomouc-type beaker may have been made specifically for the local market. In Brno, which produced great numbers of glasses from earlier periods, there are features that contained hundreds of vessels.

Forms of Gothic glass declined about 1550, and they were replaced by Renaissance shapes and decoration. The shift occurred rather quickly, perhaps over the course of a single decade. In mid-16th-century cesspits, excavators have found flagons and pilgrim flasks with optic-blown ribbing, goblets, beakers on hollow bell-shaped or stringed feet, and bottles of various shapes. These glasses have a distinctive grayish cast and flakes of weathering that was not seen in objects from earlier periods.

## CONCLUSIONS

This article was written to present all of the types of glass found in southern and central Moravia and Silesia from the ninth to mid-16th centuries. Space considerations have precluded a listing of all known parallels, as well as the range of opinions on the origin of various forms of imported glass. I am convinced, however, that throughout this time, glasses from Italy entered Moravia by way of Hungary. From the end of the 14th century to the outbreak of the Hussite Wars, glass had also been imported from Bohemia. Similar forms were later produced by Moravian and Silesian glassworks. Glass imported from Germany is seen at intervals in the mid-13th and mid-16th centuries. Much of this glass, unfortunately, has yet to be chemically analyzed.

Typology and chronology represent only the first stage of this work. Glass is a very valuable historical resource in the political, cultural, and economic history of Moravia. Its study, therefore, should be a cooperative effort involving

field archeologists (whose excavations yielded the glass finds), historians, and archivists. The number of finds from central (Olomouc) and northern Moravia and Silesia (Opava) is smaller than that from Brno, but that does not indicate a lesser quality of production; instead, it reflects the number and condition of the sources that produced the samples. One of the glass historian's main tasks, I believe, is to determine the reasons for the striking difference in the use of glass in Olomouc and Brno, cities that had similar economies and societies.

The other unsolved problem concerns the domestic production of glass in Moravia and Silesia, which has not yet received the level of research that has been accorded state-supported investigations of glassmaking in Bohemia. Written records indicate that glassworks were present in Moravia as early as 1376,<sup>96</sup> and in Silesia by 1430.<sup>97</sup> A small trench has been dug at the only Moravian glassworks from the Renaissance period,<sup>98</sup> and field research was undertaken by an amateur archeologist and an archivist at the Branná estate in northern Moravia. Fourteen glassworks dating to the periods discussed in this article have been located.<sup>99</sup> Clearly, there is ample room here for further research that should shed considerable new light on glassmaking in Moravia.

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96. František X. Jiřík, *České sklo*, Prague: K 50. výročí založení Umělecko-průmyslového musea Obchodní a živnostenské komory v Praze vydalo Kuratorium musea, 1934, p. 28.

97. Erwin V. Czihak, *Schlesische Gläser*, Breslau: Verlag des Museums schlesischer Altertümer, 1891, pp. 22–25.

98. Jiří Merta, "Zaniklá sklárna ve Sklené (kat. úz. Pusté Žibřidovice, okres Šumperk). Soubor výsledků archeologického výzkumu v sezóně 1992 = Untergangene Glashütte in Sklené (Katastraalgebiet von Pusté Žibřidovice, Bezirk Šumperk)," *Archaeologia Technica* (Technické Muzeum Brno), v. 9, 1994, pp. 45–49.

99. Michal Gelnar, unpublished manuscript in author's personal collection, 2000.