Vieux-Marché, Place Saint-Lambert, Liège — The glass

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The seventeen fragments from layer 15 are all small in size, the largest being 19 mm in length, but they show a number of distinctive characteristics. They fall into three categories, tesserae, window glass and vessel glass, the vessel glass including both monochrome and bichrome fragments.

There are two small tesserae, of which one, No. 1, is a small, irregular cube in an opaque buff-yellow. The other, No. 2, is an opaque blue-white, but although it is roughly cuboid the remains of a cylindrical perforation with an adjacent shaped surface shows that it has been cut from a bead. At Liège these cubes could have been used for a wall mosaic, although most tesserae found in Carolingian contexts on more northern sites were imported as coloured raw material for glass decoration or bead-making, e g. at Paviken, Gotland, Ribe, Denmark and Paderborn, Germany [1].

Three of the fragments are flat, and are probably parts of cylinder-blown window quarries. One, a light blue-green with a faint red streak, No. 3, is of bubbly glass with the defect of a large grit inclusion. One edge appears to have been intentionally cut in a slight curve. A smaller fragment in light green, No. 4, has three sharply broken edges, but the fourth is grozed. No. 5 is a light blue-green with faint red streaking, and one of the edges is grozed. These may be compared with window fragments found at the monasteries of Monkwearmouth and Jarrow [2], and amongst the fragments there also are pieces of green glass streaked with red, and many were shaped by grozing. The windows of these two monasteries are to be related to the buildings put up in 675 and 685 AD. The beginning of red streaking in green and blue glass can be placed at the end of the Merovingian period, and it continued into the eighth century.

These few window glass fragments therefore suggest the presence of small windows as at Monkwearmouth and Jarrow in England and Séry-les-Mézières and Mondeville, Calvados in France where small shaped pieces of glass in a variety of colours were assembled in patterns and held together by lead cames or frames of wood or plaster [3]. The colours at Liège are light green and light blue-green with red streaks, and two methods of shaping are used, grozing and scoring with a sharp instrument followed by snapping on the scored line. The presence of these fragments at Liège is not surprising in view of the record by the poet Sedulius in the ninth century of the inclusion of a coloured glass window in the episcopal palace at Liège [4]. The design of this window must have incorporated a centre piece of the Christian cross built up from quarries of varied shapes and colours like the cross at Séry-les-Mézières.

Amongst the monochrome vessel glass are the four fragments Nos. 6, 7, 8 and 9 in various shades of light green, and all from different vessels, two of them being very thin, about 0,5 mm thick. The light green fragment No. 10 ranges from 2 to 4 mm in thickness, and may have been part of the base of a vessel, but although two of its edges are sharply broken, the third edge was grozed. This might have been shaping in preparation for use in a window. The two vessel fragments Nos. 11 and 12 are very light green with iridescence.

The light green fragment No. 13 (fig. 140: 1) is part of a very distinctive vessel. The rim is folded back to leave a small circular aperture about 8 mm in diameter. Similar perforated fragments have been found at Southampton, Hampshire and Brandon, Suffolk [5], where the edge of the perforation is thickened only and not folded back. Some are decorated, and one is of sufficient size to curve round into the beginning of the wall, giving a diameter to the vessel of c.56 mm. The complete shape of the vessels and the purpose of the hole is not known. Uses which have been suggested are lamps or inkwells. The dates indicated by the sites at which they have been found, Southampton and Brandon, are late seventh to ninth century. The more advanced surface deterioration

(1) A. LUNDSTRÖM, *Bead-making in Scandinavia in the early Middle Ages,* Antiqvariskt arkiv 61, Early Medieval Studies 9, (1976); M. BENCARD, "Wikingerzeitliches Handwerk in Ribe", *Acta Archaeologica* 49 (1978) 124-132; W. WINKELMANN, "Archäologische Zeugnisse zum frühmittelalterlichen Handwerk in Westfalen", *Frühmittelalterliche Studien* 11 (1977), 123-5.

(2) R. CRAMP, "Glass finds from the Anglo-Saxon monastery of Monkwearmouth and Jarrow", *Studies in Glass History and Design,* 8th International Congress on Glass 1968, 16, figs. 1-2.

(3) J. PILLOY and E. SOCARD, "Le vitrail Carolingien de la Chasse de Séry-les-Mézières", *Bulletin Monumental* 74 (1910) 5-23; J. LAFOND, *Le Vitrail* (1978), 32.

(4) J. HELBIG, *Corpus Vitrearum Medii Aevi Belgique* I, *Les vitraux médiévaux conservés en Belgique* (1961), 9.

(5) Information on Southampton from J. Hunter and on Brandon from B. Carr.

of this fragment and of No. 11, as opposed to the well-preserved and sometimes glossy appearance of the other fragments from this site, might indicate a different chemical composition, i.e. potash as opposed to soda glass, although, in the absence of scientific confirmation, differing effects of environmental chemicals cannot be ruled out.

The light emerald green fragment No. 14 (fig. 140: 2) is decorated with thick trails laid on horizontally and then nipped together to form a lattice pattern. Reheating has melted the trails into the wall to a certain extent. The pattern was used on Roman beakers and drinking horns of the third and fourth centuries and reappeared on drinking horns of the late sixth and early seventh century in Germany and Italy [6]. It was also the decoration used on deep blue squat jars of the late sixth and early seventh century which were manufactured in Kent [7]. In a much later context similar decoration was used on a tenth-century squat jar at Birka in Sweden [8].

The colour of the Liège vessel is a light emerald green which does not appear before the end of the seventh century, when it occurs as window glass at Monkwearmouth in the north of England, as the claw of a claw-beaker at a cemetery site at Loveden, Lincs., and in the form of a claw-beaker at Valsgärde, Sweden [9]. The trails are self-coloured, but contain a faint yellow tinge, a suggestion of the use of two colours which began to come in at the end of the seventh century. Vessels swirled with a second colour occur, e.g. flame effects seen on the Valsgärde claw-beaker and also trails in two colours drawn from a blob of mixed colours as on the Swedish claw-beaker, and the beaker from Dry Drayton, Cambridgeshire [10]. The Liège fragment has a slightly incurved profile, probably the neck of a squat jar.

The remaining four fragments of vessel glass each have an added second colour. The light blue-green piece No. 15 is decorated with three opaque yellow trails, and parallel yellow trails also decorate the light green, nearly colourless fragment No. 16. The latter is thin and of good quality, its concave curve suggesting that it was part of the neck of a squat jar [11]. Opaque yellow is the colour most usual for decorative trails on Carolingian vessels, and occurs frequently on bowls of the Valsgärde 6 type, as well as on squat jars [12].

The light blue-green fragment No. 17 (fig. 140: 3) is decorated in a distinctive way by the application of a vertical self-coloured trail in which there are fine, longitudinal strands of red. The fragment comes from the part of the vessel where the wall is beginning to curve in towards the base, and as the diameter of the vessel at this point may be estimated at about 30 mm, the vessel must have been an elongated palm cup [13]. The reticella threads applied to vessels in the eighth and ninth centuries are usually the same colour as the vessel itself, twisted with threads of one or two contrasting colours. It is unusual for the threads to be straight, not twisted, but one parallel to this has been published, from Cordel in Germany, where a deep blue vessel fragment is ornamented with trails containing white longitudinal threads. The material from the site at Cordel ranges from the Roman to the medieval period, but a proportion of it may certainly be attributed to the Carolingian period [14], and this proportion no doubt includes this blue fragment.

The find spots of reticella threads on glass vessels are clustered mainly on the coasts of the North and Baltic Seas [15]. Find spots from the more southern regions of Europe, however, have recently been augmented by the finding of reticella trails at the Runde bei Urach in South Germany [16], and particularly by the discovery of glass furnaces at St. Vincenzo al Volturno in Italy [17], where reticella threads were actually being produced. It is probable that these twisted coloured rods were exported to northern Europe where they were used by glass workers to decorate vessels and beads.

Three fragments show evidence of decoration by the application of gold leaf; on two of these some of the gold leaf remains, but on the third the leaf has worn off, leaving only the keyed surface of the shapes on the

(6) V.I. EVISON, "Germanic glass drinking horns", *Journal of Glass Studies* XVII (1975) 75, fig. 3; IDEM, "Anglo-Saxon finds near Rainham, Essex", *Archaeologia* XCVI (1955), pl. LXVIII, a, b, e.

(7) D.B. HARDEN, "Glass vessels in Britain and Ireland AD 400-1000, ed. D.B. Harden, *Dark Age Britain* (1956), 141-2, pl. XVIIIj.

(8) H. ARBMAN, *Schweden und das Karolingische Reich* (1937), 48-9, Taf. 9, 1.

(9) V.I. EVISON, "Anglo-Saxon glass claw-beakers", *Archaeologia* CVII (1982) 51-2, pl. IVb, top right; G. ARWIDSSON, "Some glass vessels from the boat-grave cemetery at Valsgärde", *Acta Archaeologica* III (1932) 252, pl. XII.

(10) V.I. EVISON "Bichrome glass vessels of the seventh and eighth centuries", *Studien zur Sachsenforschung* 3 (1983), 15-19, fig. 4c (colour plate).

(11) Cf. J. HUNTER, "The glass", P. HOLDSWORTH, *Excavations at Melbourne Street, Southampton 1971-76* (1980), 67, fig. 11, 6, 7.

(12) V.I. EVISON *op.cit.* 1983, 13-14, fig. 4d (colour plate).

(13) Cf. J. YPEY, "Die Funde aus dem frühmittelalterlichen Gräberfeld Huinerveld bei Putten im Museum Nairac in Barneveld", *Berichten van de Rijksdienst voor het Oudheidkundig Bodemonderzoek* 12-13 (1962-3) 145, Abb. 40, 9-11.

(14) ARBMAN *op.cit.* 1937, Taf. 2, 1.

(15) V.I. EVISON, "Some distinctive glass vessels of the post-Roman period", *Journal of Glass Studies* 25 (1983), 92, fig. 7.

(16) R. CHRISTLEIN, *Kleinfunde der frühgeschichtlichen Perioden aus den Plangrabungen 1967-1972, Der Runde Berg bei Urach* III (1979), Taf 19: 9, 11, 12.

(17) R. HODGES and J. MITCHELL, *San Vincenzo al Volturno* (1985), BAR S252.

glass[18]. The application of gold foil on glass was a rare technique before the twelfth century, and is mostly known from the Roman gold-in-glass work depicting Christian symbols and portraits in the late fourth century. There are a few later examples in Byzantine tiles or mosaics. Some gold-decorated vessels without a sealing layer of glass had been produced in Roman Cologne, and amongst them were blue glasses decorated with gold leafy patterns, human figures or inscriptions [19]. Near colourless glasses with geometrical decoration of gold arcades and triangles were also produced [20]. Both traditions seem to have survived, or to have been revived, in the eighth century.

Although only a fragment of gold remains and the pattern is indecypherable, the light green fragment No. 18 (fig. 140: 4) may be compared with similar fragments of light green glass decorated with a row of triangles and other geometrical shapes found at Dorestad [21]. Like the Dorestad pieces, the Liège fragment is part of a funnel beaker, a form which occurs in the ninth- and tenth-century graves at Birka in Sweden [22], and at other sites, such as Southampton, in less datable contexts.

Two other fragments were decorated with gold, both a deep blue, No. 19 (fig. 140: 5) on which some gold remains on a row of triangles and diamond shapes, and No. 20 (fig. 140: 6) where the gold has gone but one such element is visible, as well as a cluster of triangles in triangular formation. Both belong to a vessel with vertical sides and a diameter of c.100 mm, but a difference of thickness suggests that they belong to different vessels.

This type of vessel was first noted at Helgö, Sweden and Paderborn, Germany [23]. The Paderborn fragment was in a Christian context, and its stratification ensured a date after 778 AD. A variety of religions, including Christianity, are represented by the finds at Helgö. Another blue glass rim fragment with gold triangle and diamond shapes was found at the abbey of Niedermünster, Bas-Rhin, in a context of the end of the eighth to the beginning of the ninth century [24]. Similar blue and gold fragments are yet to be published from Dorestad, and gold decoration on transparent glass has been found at Åhus in southern Sweden [25].

Technique and geometrical patterns similar to those of the Paderborn and Helgö fragments are displayed on the "Tating" or Frisian jugs where, instead of gold to glass, tin is applied to pottery. A Christian cross also frequently appears in the decoration of these jugs, and the contexts in which they are found are often Christian. Similar gold patterns are also to be found on eighth-century pseudo-cameo brooches [26].

Another deep blue fragment, this time ornamented with a gold band and also with marvered white feathered trails was found at Dorestad. This is a curving tubular shape and has been published as a bead, but it is, in fact, the middle part of a funnel beaker. It is to be expected that gold decoration would have been repeated near the rim, and the diameter of this vessel mouth would have been 100 mm or more [27].

The basic pattern of a row of triangles with diamond shapes below occurs on the Helgö and Paderborn fragments [28], and an extra diamond shape also appears on the Helgö piece indicating a possible continuation of the row in the same arrangement as on the Liège piece No. 19 (fig. 140: 5). The design of small triangles in triangular formation on the Liège fragment No. 20 (fig. 140: 6) may be compared with the Paderborn glass, although on the Liège piece the triangles are in gold and on the Paderborn piece the illustration suggests they are reserved on a triangular gold background. The fragment from Helgö is said to indicate a diameter of only 50 mm, which is a small vessel, but Lundström points out that this is a normal size for a viaticum chalice of the period. Comparison with these chalices suggests a squat vessel like the Jellinge cup for the Helgö fragment, and although the Liège diameters are larger they probably also belonged to a simple cup shape.

([18]) I have not seen these three fragments, and judgement is based on descriptions, drawings and colour slides kindly supplied by Professor Otte and M. D. Marcolungo.

([19]) F. FREMERSDORF, "Ein bisher verkanntes Römisches Goldglas mit Christlichen Wunderszenen in der Römischen Abteilung des Wallraf-Richartz-Museums, Koln", *Wallraf-Richartz Jahrbuch* NF1, (1930) 282-304.

([20]) W. HOLMQVIST and B. ARRHENIUS, *Excavations at Helgö* II (1964) 247-8, fig. 109.

([21]) C. ISINGS, "Glass finds from Dorestad, Hoogstraat 1", W.A. VAN ES and W.J.H. VERWERS, *Excavations at Dorestad 1, The Harbour: Hoogstraat 1* (1980), 230, fig. 153, 26.

([22]) ARBMAN *op.cit.* 1937, 73ff., Taf. 3-5.

([23]) A. LUNDSTRÖM, "Cuppa vitrea auro ornata", *Early Medieval Studies* 3, (1971), 52-68; WINKELMANN *op.cit.* 1977.

([24]) T.E. HAEVERNICK, "Karolingisches Glas aus St. Dionysius in Esslingen", *Forschungen und Berichte der Archäologie des Mittelalters in Baden-Wurttemberg* 6, (1979), 165, Abb. 4, 4, where the illustration is wrongly attributed to Mainz.

([25]) I am grateful to Professor Isings for allowing me to see the glass fragments from Dorestad, and for information on various pieces. J. CALLMER, "Production site and market area", *Meddelanden fran Lunds Universitets Historiska Museum* NS 4, (1981-2), 149.

([26]) LUNDSTRÖM *op.cit.* 1971, fig. 62, 5; HAEVERNICK *op.cit.* 1979, 163ff.

([27]) ISINGS *op.cit.* 1980, 324, fig. 157, 7.

([28]) LUNDSTRÖM *op.cit* 1971, figs. 1 and 2.

It has been suggested that these gold-decorated vessels were used as chalices, and this may be considered a probability as contemporary legislation against the use of glass chalices indicated their actual existence, and there is the record of two glass cups decorated with gold donated by Ausegeis, Abbot of Fontanelle 823-833 AD [29]. The impressive appearance achieved by the gold decoration on blue glass makes them stand out amongst the glasses available at that time, and so present a likely selection for service as a chalice.

The distribution map of the find-spots of glass vessels with gold decoration, Frisian vessels and pseudo-cameo fibulae with similar gold decoration assembled by Lundtröm [30] suggested a Rhineland production centre, and other considerations in addition pointed to the convent at Lorsch. The subsequent finds at Åhus, Liège, Niedermünster and Dorestad are also situated within the same perimeter of local and Baltic trade routes which were operating at the time in the vicinity of Lorsch. However, the glass finds at Paderborn have not yet been fully published, and there is a possibility that the glass furnaces found there, which seemed to specialise in various shades of blue [31], could have been responsible for the production of some of these blue vessels.

Catalogue (Measurements given are maximum length and thickness in millimetres)

Tesserae

1. Irregular cube, opaque buff-yellow. 7×6×5 mm.
2. Irregular broken cube, opaque blue-white, part of a cylindrical hole at one corner and remains of a moulded surface adjoining shows origin as a bead. 6×6×7 mm.

Window glass

3. Light blue-green, bubbly glass with one large impurity, faint red streak. Glossy one side, striations the other. One edge cut in a slight curve. 26×2 mm.
4. Light green, three edges broken, one edge grozed. 11×1.5 mm.
5. Light blue-green, faint red streaking, small bubbles, one straight edge, one edge grozed. 20×1.5 to 2 mm.

Vessel glass, monochrome

6. Very light green, fractured. 14×0.5 mm.
7. Very light green glossy. 14×0.5 mm.
8. Light green, small bubbles. 14×1 mm.
9. Light blue-green, bubbly. 14×2 mm.
10. Light green, convex surface scratched, concave surface smooth, triangular, two broken edges, one grozed.
11. Very light green, milky surface deterioration. 23×1.5 mm.
12. Very light green, small bubbles, patchy iridescence. 28×1 mm.
13. Light green, iridescent and milky surface, bubbly. A rim is folded back from a small aperture, and there are two transverse tool impressions on the fold. 25×1.5 mm. (fig. 140: 1).
14. Light emerald green, glossy, nearly bubble-free. Trails laid on horizontally and nipped together in lattice pattern, half melted in. Faint yellow streaking in the trails. 29×2 mm. (fig. 140: 2).

Vessel glass, bichrome

15. Light blue-green, three nearly parallel opaque yellow fine trails. Distorted by heat. 16×1 mm.
16. Light green, nearly colourless, good quality. Seven parallel opaque yellow trails. 16×1 mm.
17. Light blue green, curving in to a rounded base, few minute bubbles. Vertical applied trail, self colour with longitudinal red streaks. 19×1 to 2 mm. (fig. 140: 3).
18. Light green rim, remains of gold leaf decoration. 25×1.5 to 3 mm. Diameter c.100 mm. (fig. 140: 4).
19. Deep blue, vertical rim, slightly thickened and turned in. Small bubbles, some iridescence, decorative gold border consisting of a row of triangles with a diamond shape on the points, with the addition of three more diamonds and another triangle to three of the elements. Some of the gold leaf missing. Thickness 1.5 to 3.1 mm, diameter c.100 mm. (fig. 140: 5).
20. Deep blue rim, keyed surface for gold decoration: one triangle and diamond, several triangles in triangular formation, small bubbles. 26×3 to 4 mm. Diameter c.100 mm. (fig. 140: 6).

([29]) *Ibid.* 58.

([30]) *Ibid.* fig.3.

([31]) WINKELMANN *op.cit.* 1977, colour plate.

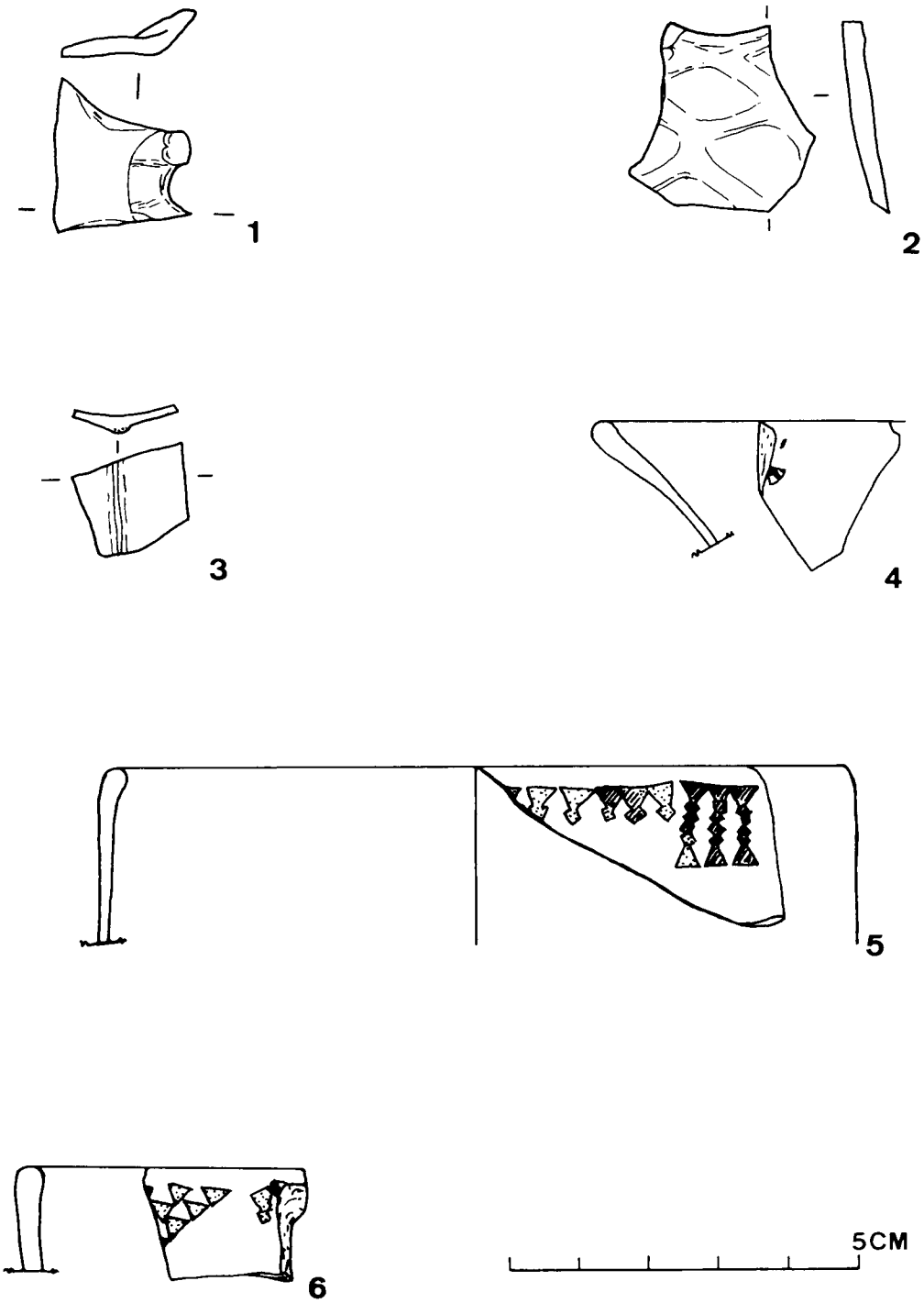

Fig. 140
Verres médiévaux provenant de la couche 15 du Vieux-Marché.