DAACS Cataloging Manual: Glass Vessels

by Jennifer Aultman, Kate Grillo, Jesse Sawyer,
and Jillian Galle

OCTOBER 2003
LAST UPDATED MARCH 2012

DAACS CATALOGING MANUAL: GLASS VESSELS

Introduction

The glass vessel table in DAACS is designed to encompass all types of glass vessels, including tablewares and bottles. The glass vessel table does not include non-vessel glass, such as window glass, which should instead be cataloged as General Artifacts.

1. Main Glass Table

1.1 Artifact Count

Batch non-diagnostic glass body sherds that are 15mm or less. Be sure to record that the maximum sherd measurement is 15mm. Batch glass by color.

Batch all non-lead automatic machine-made glass regardless of size and form. Distinguish by color. Record Count, Material, Color, Manufacturing Technique, and weight. List other fields as Not Recorded, unless all sherds in the batch share the same characteristic for a certain field. For example, if all are body sherds, go ahead and record "Completeness" as "Body."

Please note that new batching rules for all bottle glass were implemented on October 28, 2010. Prior to implementation, all non-automatic machine-made glass bottle sherds that had a maximum sherd measurement that was greater than 15 mm were individually recorded, measured and weighed. Please note that all other existing glass batching rules remain unchanged.

The new bottle batching rules are as follows:
Batch all non-diagnostic glass bottle sherds, with the exception of circular base sherds that have a measurable length. Batch non-diagnostic glass bottle sherds by form, manufacturing technique, completeness, color, burning, and maximum sherd size. If the bottle sherd is a circular base with a measurable length, or has any diagnostic manufacturing marks (pontil marks, string rims and finishes), text marks, or decoration, they must be cataloged individually. Circular base sherds with a measureable length are cataloged individually as base length and diameter are now recorded. If you have non-diagnostic base sherds with no measurable length (i.e. fragments of the push-up), then you may batch these.

Here is a batching example for all other non-diagnostic glass bottle sherds: If you had 5 green wine bottle body sherds whose max. sherd size were 35 mm and they were unburned, the cataloging record would look like:

Count: 5
Material: Non-lead
Glass Color: Green
Vessel Category: Hollow
Form: Bottle, wine
Completeness: Body
Manufacturing Technique: Mouth blown
Mold Type: Missing Information
Mended: No
PMM: No
Sherd Thickness: Do not record

Sherd Weight: Enter weight of the batch in grams.
Maximum Sherd Size: 35mm

1.2 Material

The distinction between lead and non-lead glass is one of the first cataloging decisions that must be made in the DAACS system. Lead glass is recognized by testing whether the glass fluoresces ice blue under short-wave ultraviolet light (Jones et al. 1985:12). Developed in 1676 by George Ravenscroft, lead glass is colorless, heavy, and lustrous (Jones et al. 1985:11). Lead glass was primarily used for tablewares, but was also occasionally used for medicine vials, condiment bottles, and lamp chimneys (Jones et al. 1985:12).

1.3 Glass Color

Glass Color is a rather subjective field in DAACS, although a few hard and fast cataloging protocols have been developed, indicated in the descriptions below.

The complete list of choices for glass colors is:

- "Amber": medium golden-brown
- "Amethyst": very light purple
- "Aqua": Light greenish-blue
- Blue: Generally a deep, cobalt blue
- Brown: Includes modern, dark brown beer or soda bottle glass; do not confuse with amber glass, which is redder and lighter in color
- Colorless: Clear
- Gray/Smoky: From a light gray tint to a dark, nearly black tint
- Green: Wine and case bottle glass, whether medium green or dark green, is simply "green" in DAACS
- Light Green: Seafoam or sage green
- Modern Green: bright green (like Sprite™ bottle glass)
- Purple:
- Unidentifiable: Too burned, patinated, or otherwise altered for glass color to be determined
- White: Opaque, sometimes called "milk glass"
- Yellow: Any range of light-to-medium yellows

1.4 Vessel Form

A number of glass vessel forms are available in DAACS. Examples of many of these forms are available in the *Parks Canada Glass Glossary* (Jones et al. 1985). A few, however, deserve special mention here:

Form	Description
Bottle, unidentifiable	Used for bottles whose original shape or type of contents cannot be determined, either due to the fragmentary nature of the sherd or to the lack of a diagnostic manufacturer's mark.

Bottle, Wine style	See section on Bottle, Wine style below.
Container, unidentifiable	For sherds that were clearly part of a hollow container, but are too fragmentary to identify as a bottle, jar, or other more specific container type.
Lid Liner	Occasionally one finds the white, "milk glass" jar lid liners used to line Mason jars. These jar lid liners should be cataloged in the glass vessel table because they are part of a vessel even though they, themselves, are not vessels. They should be cataloged as follows: *Material:* Non-lead glass *Vessel category:* Hollow *Form:* Lid liner *Manufacturing technique:* Machine made *Mold type:* Contact mold
Not recorded	"Not recorded" is used only when glass sherds of possibly mixed form are batched. See Section 13.2 on Batching Rules, below.
Pharmaceutical Bottle/Vial	Bottles for liquids and medicines. Pharmaceutical bottles come in a range of colors and with a variety of closure types, although most were closed with some sort of stopper. If you can distinguish for certain whether a vessel is a pharmaceutical bottle or a vial, please record "Pharmaceutical Bottle" or "Pharmaceutical Vial" in the notes.
Tableware, unidentifiable	Small fragments of leaded glass with apparent decorative elements are usually cataloged as Tableware, unidentified in DAACS. This category also includes fragments of stemware and other unidentifiable table forms.
Unidentifiable	Sherds that are so fragmentary or undiagnostic that they cannot be distinguished as bottle, container, or tableware should be cataloged as Unidentifiable.

1.5 Completeness

As with the Ceramic table, "Completeness" in the glass table indicates which portion of the vessel is present. A value for "Completeness" should be chosen that represents, as nearly as possible, all elements present on the sherd. Completeness is "Not recorded" when sherds are batched together (see "Batching Rules," below). Choices for "Completeness" are:

- "Base"
- "Base, Body"
- "Base, Body, Rim"
- "Body"
- "Body, Base"
- "Body, handle"
- "Body, Rim
- "Body, Stem, Foot"
- "Complete Object"
- "Finish"
- "Finish, Neck"
- "Finish, Neck, Shoulder"
- "Finish, Neck, Shoulder, Body"
- "Foot"
- "Handle"
- "Neck"
- "Neck, Shoulder"
- "Neck, Shoulder, Body"
- "Neck, Shoulder, Body, Base"
- "Not Recorded"
- "Rim"
- "Rim, Body, Stem, Foot"
- "Shoulder"
- "Shoulder, Body"
- "Shoulder, Body, Base"
- "Stem"
- "Stem, Body"
- "Stem, Foot"
- "Stopper"
- "Unidentifiable"

1.6 Manufacturing Techniques and Mold Types:

The manufacturing technique field indicates whether the glass was cut, free blown, lampworked, machine made, mold blown, mouth blown, or of unidentifiable manufacturing technique. These manufacturing techniques are defined clearly in the *Parks Canada Glass Glossary* (Jones et al 1985:17-24).

The term "mouth blown," however, requires further explanation. Jones et al (1985:17) define "mouth-blown" as a general term that signifies "a non-machine made or press-molded container, and is used to describe the method of manufacture of a fragment that has no mould seams, no distinctive mould-blown texture, no distinctive free-blown traits, and no machine-made indicators." For DAACS, "mouth blown" applies primarily to "Bottle, wine style" glass that is neither clearly machine made nor clearly totally free blown. "Mouth blown" vessels are possibly partly mold blown and partly free blown.

The decision was made to use "mouth blown" primarily for wine bottle glass because it was commonly manufactured using a number of techniques to form different parts of a single bottle. For example, many "Bottle, wine style" bottles are partially mold blown and then finished with free blowing. It is often difficult, with small sherds of wine bottle glass, to determine whether the vessel was completely free blown or was partially mold blown, especially if only a small fragment of the bottle is present. Given the prevalence of wine bottle glass on archaeological sites, it seems useful to distinguish between cases where manufacturing technique for wine bottle glass is ambiguous (i.e. free blown, mold blown, or a combination) and those cases in which manufacturing technique is truly unidentified.

For other types of glass, if the exact manufacturing technique cannot be determined it should simply be recorded as "unidentifiable."

Here are the protocols for relationships between the Manufacturing Technique and Mold Type fields:

Manufacturing Technique	Mold Type
Mouth Blown	Missing Information
Free Blown	Not Applicable
Machine Made	Contact Mold
Unidentifiable	Not Applicable
Mold Blown	*Bottles*: Contact Mold (more specific mold type information will be recorded in the Bottle ManuTech field). *Other vessels*: Unidentified, or identify Mold Type from the following list: Contact Mold, Optic Mold, Pattern Mold, or Press Mold (see Jones et al. 1985:31-41 for descriptions)

Note: You do not need the mold seam to designate that a vessel is Mold Blown. Other signs of mold blown vessels include an orange-peel textured exterior surface and smooth interior surface.

In order to use Mold Blown, however, the secondary mold evidence must be strong and readily apparent.

2. Glass Bottle Table

The Glass Bottle Table is used to record specific information about manufacturing techniques and vessel morphology for bottles with free blown or handworked elements. The vast majority of the bottles included in the Glass Bottle Table are "Bottle, wine style," with a number of "Bottle, case" included as well. The table was designed primarily for these types of bottles, but other bottles such as pharmaceutical vials that have handworked or free blown elements should be included in the table as well. It may be necessary to add terms to the database for such bottles, which must be done by the database administrator.

In Sections 2.1 through 2.4, below, each field in the Glass Bottle Table is described. Because not all values for all fields in the Glass Bottle Table apply to all bottle elements, the following tables present summaries of which shapes, manufacturing techniques, and treatments apply to which elements.

DAACS Glass Bottle Table: Guide to Elements and Possible Associated Values

NOTE: "Not Applicable" is an option in all fields listed below.

Base

Shape	ManuTech*	Treatment
Conical	Dip Mold	Mamelon
Convex	Free blown	
Domed	Molded, unid mold type	
Flat	Mouth blown	
Four point	Turn/paste	
Rocker		

Body Horizontal

Shape	ManuTech*	Treatment
Circular	Dip mold	Not Applicable
Ovoid	Free blown	
Rectangular	Molded, unid mold type	
	Mouth blown	
	Turn/paste	

Finish

Shape	ManuTech*	Treatment
1-part	Not recorded	Not Applicable
2-part		
3-part		
Champagne		

Lip

Shape	ManuTech*	Treatment
Down-sloped	Added glass/Untooled	Heat treated
Flat side	Crack-off/Burst-off	
Flat top	Finishing tool	
Irregular	Manipulated, unid	
Rounded	Molded, unid mold type	
Sloped top	Mouth blown	
V-shaped		

Neck

Shape	ManuTech*	Treatment
Bulged	Free blown	Not Applicable
Cylindrical	Molded, unid mold type	
Non-Existent	Mouth blown	
Rudimentary		
Tapered		
Tapered Out/Down		

String Rim

Shape	ManuTech*	Treatment
Down-sloped	Added glass	Not Applicable
Flat side	Finishing tool	
Irregular	Manipulated, unid	
Rounded	Molded, unid mold type	
Up-sloped	Mouth blown	
V-shaped		

* "ManuTech" for the bottle table is often the same as ManuTech in the main glass vessel table.

2.1 Glass Bottle Element

This field simply provides a place to record which part of the bottle the ensuing information about shape, manufacturing technique, and treatment refers. Not all possible bottle elements are offered as choices in the "Glass Bottle Element" field. Only those elements for which other specific information is recorded are listed in the "Element" field. The choices in this field are:

- **"Base":** bottom of the bottle; extends up to the heel, which is the curved edge where the base turns up to form the body.
- **"Body Horizontal"**: horizontal cross-section of the body; located somewhere between base and shoulders (i.e. not the cross-section of the neck).
- **"Finish"**: the top of the bottleneck, contains elements such as the lip and the string rim that allow for the closure of the bottle (Jones et al.1985:78).
- **"Lip":** the area, on the exterior and top of the bottle, around the opening of the bore.
- **"Neck":** the area from the bottom of the finish to the shoulder.
- **"String Rim":** not present on all bottles; it is "the ledge or ring that protrudes from the neck just under the lip" (Jones et al. 1985:81).

Other elements that are present, but for which no additional information is added to the bottle table, are not listed in the Glass Bottle Table.

2.2 Glass Bottle Shape

The shapes of certain elements are diagnostic to particular time periods or locales of manufacture. For that reason, a shape system was created for DAACS. The system is a simplified version of that presented in Jones et al. (1985). Catalogers in DAACS must be careful to consult the following list whenever they are cataloging glass bottle shapes because each shape applies only to certain elements. The list of elements with the shapes that apply to them is:

Base: refers to the vertical cross-sectional shape of the base (or pushup, if one is present)

- **"Conical"**: straight sided pushup, comes to a relatively sharp vertex
- **"Convex"**: rounded, protruding base—found on bottles used for shipping that were packed in crates with a packing material
- **"Domed"**: any sort of curved, arched basal profile
- **"Flat"**: no pushup; base extends straight across from resting point to resting point
- **"Four point"**: Found on case bottles. "The four corners of the bottle are the only points on which the bottle stands. The heel arches slightly between these four points" (Jones et al. 1985:86).
- **"Rocker":** irregularly shaped base that causes the bottle to wobble

Body Horizontal: shape of the horizontal cross-section of the body

- **"Circular"**: most common; the body is very nearly round in cross-section
- **"Ovoid"**: common with free-blown bodies; body is elongated in one horizontal dimension (i.e. is not quite circular in cross-section)
- **"Rectangular"**: has flat sides and corners at nearly ninety degrees; case bottles.

Finish: indicates how many components comprise the finish

- **"1-part"**: comprised simply of a lip
- **"2-part"**: comprised of a lip and a string rim

- **"3-part"**: comprised of a lip, a string rim, and any kind of third element
- **"Champagne"**: technically a special case of a two-part finish; a finishing tool is used to create "a wide, flat string rim a few millimeters below a flat-topped or a downward-sloping lip" (Jones et al. 1985:79).

Lip: "S*hape*" refers to the profile of the lip

- **"Downsloped"**: when the lip slopes outward and downward (Jones et al. 1985:81). Usually done with a finishing tool. Descriptions for "downsloped" and "sloped top" sound very similar, but note the difference between the two types depicted (see photo under "sloped top," below). With downsloped lips, the entire lip slopes. With sloped-top lips, only the top of the lip slopes down and out—in essence the top of the lip is beveled—and the rest is straight-sided.

Downsloped lip (1003-953H-NOS—00001)

- **"Flat side"**: the lip has vertical sides
- "**Flat top"**: the lip has a horizontal top (Jones et al. 1985:80). This applies to lips that were cracked off/burst off and not manipulated further, as well as lips that were made flat by manipulating the top to make it smooth.

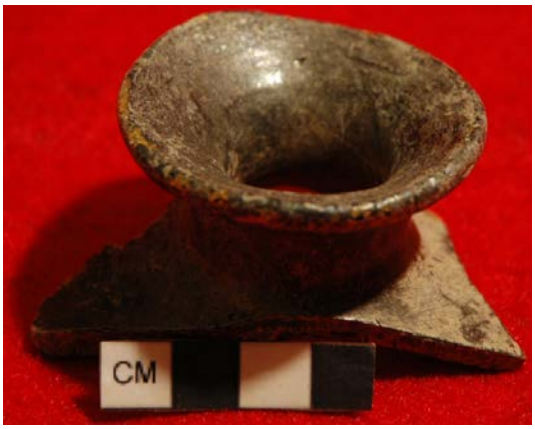
Flat top lip, rounded string rim

- **"Irregular"**: when the lip is either tooled or untooled and of non-uniform shape. If the shape of the lip is questionable because it is inconsistent around the circumference of the bottle, it should be cataloged as irregular.

- **"Rounded"**: the side of the lip is rounded in profile (Jones et al. 1985:81)
- **"Sloped top"**: "the lip is flat but slopes downward and outward"—essentially, the top of the lip is beveled and the rest is straight (Jones et al. 1985:80). See photo, below.

Sloped Top lip (1002-830B1-NOS—00059)
**Note how the top of the lip is beveled, and the sides are straight.*

- **"Tapered Out/Down":** lip is flared and wide at the opening and it tapers down to a narrow neck.



Tapered Out/Down lip (1013-062-1/3BC-NOS-000017)

- **"V-shaped"**: lip slants down and out from the top, and up and out from the bottom to give a v-shaped profile. Most often created with a finishing tool. The top and bottom of the v should be almost equal in the amount of downslope and upslope, respectively, therefore resembling a true sideways "v."

Neck: *Shape* refers to the profile of the neck

- **"Bulged"**: neck bulges outward at the center of the neck or down toward the shoulder (Jones et al. 1985:82).
- **"Cylindrical"**: "neck maintains a constant diameter from its base to the finish" (Jones et al. 1985:82).
- **"Non-Existent":** "no connecting constriction between the finish and shoulder or between the finish and body" (Jones et al. 1985:82).
- **"Tapered"**: neck decreased in diameter from the base of the neck to the finish (Jones et al. 1985:82).

- **"Tapered Out/Down"**: neck expands in diameter from the base of the neck to the finish (Jones et al. 1985:82).
- **"Rudimentary"**: neck is so short as to be almost non-existent. A small constriction between the shoulder and the finish. Found most frequently on snuff bottle and on some case bottles (Jones et al. 1985:82).

String Rim: Not present on all bottles; it is "the ledge or ring that protrudes from the neck just under the lip" (Jones et al. 1985:81).

- **"Downsloped"**: string rim has been modified to slope down and out (Jones et al. 1985:81).
- **"Flat side"**: the side of the string rim is vertical.

Flat sided string rim, with downsloped lip (Monticello ER 831E2)

- **"Irregular"**: when the string rim is either tooled or untooled and of non-uniform shape. If the shape of the string rim is questionable because it is inconsistent around the circumference of the bottle, it should be cataloged as irregular.
- **"Rounded"**: a string rim that has been tooled to give it a rounded profile (Jones et al. 1985:82).
- **"Upsloped"**: when the lower surface of the string rim slopes upward and outward. Has a flat or rounded top. This is usually done with a finishing tool.
- **"V-shaped"**: a string rim that has a v-shaped profile (Jones et al. 1985:81). The top and bottom of the v should be almost equal in the amount of downslope and upslope, respectively, therefore resembling a true sideways "v." Usually done with a finishing tool.

"Not Applicable" is also a choice in the "Shape" field.

2.3 Glass Bottle Manufacturing Technique

Just like *Shape*, *Manufacturing Technique* is recorded only for certain elements. A very limited number of manufacturing techniques is available in the Glass Bottle Table, and each applies only to particular elements:

Base

- **"Dip Mold**": a mold in which the body—and sometimes the base-- of a bottle is blown. The bottle is then removed from the mold and the shoulder and neck free blown. Therefore, on dip-molded bottles the mold evidence terminates at the shoulder (Jones et al. 1985:26).
- **"Free blown"**: An entirely free-formed vessel elements. Generally asymmetrical, with no evidence of molding (no mold seams, no "orange peel" on the exterior), no sharp corners or lines in the element shape (Jones et al. 1985:22).
- **"Molded, unid mold type"**: a base with clear evidence of molding (such as mold seams), but for which the mold type cannot be determined.
- **"Mouth blown"**: for bases that may be partially molded and partially free blown. See Section 1.6, above, for a full explanation.
- **"Turn/paste"**: a late nineteenth century technique in which glass was blown into a mold while the parison is being turned in the mold. Often characterized by horizontal striations on the bottle, and by a shiny surface appearance (unlike the "orange peel" effect common to most molded bottles) (Jones et al. 1985:30-31).

Body Horizontal

- **"Dip Mold"**: a mold in which the body—and sometimes the base—of a bottle is blown. The bottle is then removed from the mold and the shoulder and neck free blown. Therefore, on dip-molded bottles the mold evidence terminates at the shoulder (Jones et al. 1985:26).
- **"Free blown"**: An entirely free-formed vessel. Generally asymmetrical, with no evidence of molding (no mold seams, no "orange peel" on the exterior), no sharp corners or lines in the element shape (Jones et al. 1985:22).
- **"Molded, unid mold type"**: a body with clear evidence of molding (such as mold seams), but for which the mold type cannot be determined
- **"Mouth blown"**: for bodies that may be partially molded and partially free blown. See Section 13.1.5, above, for a full explanation.
- **"Turn/paste"**: a late nineteenth century technique in which glass was blown into a mold while the parison is being turned in the mold. Often characterized by horizontal striations on the bottle, and by a shiny surface appearance (unlike the "orange peel" effect common to most molded bottles) (Jones et al. 1985:30-31).

Finish

- **"Not recorded"**: information about manufacturing technique for components of the finish is recorded separately under "Lip" and "String Rim."

Lip

- **"Added glass/Untooled"**: when a string of glass is added to the container to create a protruding lip.
- **"Crack off/burst off"**: characterized by a jagged top where the blowpipe was detached from the bottle (Jones et al. 1985:40). Technically, cracked-off lips are found on mouth blown bottles, and burst-off lips on

mold blown bottles, but the two are difficult to distinguish and are thus collapsed in DAACS.

- **"Finishing tool"**: when the lip is shaped using a hand-held tool. Gives the lip a matte finish and regular shape (although not as regular as molding).

Neck

- **"Free blown"**
- **"Molded, unid mold type"**
- **"Mouth blown"**

String Rim

- **"Added glass/Untooled"**: when a string of glass is added to the container to create a protruding string rim.
- **"Finishing tool"**: when the string rim is shaped using a hand-held tool. Gives the string rim a matte finish and regular shape (although not as regular as molding).

2.4 Glass Bottle Treatment

Treatment includes procedures that are performed on particular glass bottle elements after their basic manufacture has been completed. The list of treatments available for recording in DAACS is limited to only two: heat-treating and mamelons.

Treatment	Description
Heat treated	Recorded only for bottle lips and string rims in DAACS. Heat-treating smoothens rough glass edges, especially those that were manufactured using a "crack-off/burst-off" technique.
Mamelon	A small downward protrusion at the vertex of the pushup. Mamelons are especially large on champagne bottles (Jones et al. 1985:87). Record only under "Base."

3. Stemware Table

The three main parts of a glass stemware vessel are the bowl, the stem, and the foot. In DAACS, the bowl is not called a bowl, but is instead a "body." This designation keeps glass terminology more consistent with the "Completeness" options for other vessel types, such as ceramics.

3.1 Stemware Body Shape

Stemware body shape refers to the overall shape of the body (or bowl) of the vessel. Jones et al. (1985:139) have developed a body shape classification system, which is used for DAACS with some additions. See Appendix 2 for a glossary of body shapes.

3.2 Stemware Foot Shape

Stemware foot shapes for DAACS are taken directly from Jones et al. (1985:140) with additions when needed. See Appendix 2.

3.3 Stem Shape
Stem shapes are also borrowed directly from Jones et al. (1985:139) with additions when needed. See Appendix 2.

3.4 Stem Length
Stem length should only be measured (in millimeters) if the entire stem is present.

4. Measurement Table

4.1 Sherd thickness
The original surface must still be present on both sides of the sherd to measure sherd thickness. If not, this field is left blank. When a rim is present, thickness measurements are always and only taken at the rim. Again, the original surface must remain on both sides of the rim to take this measurement.

4.2 Maximum Sherd Measurement
Maximum sherd size is measured using the cataloging mats. Each mat has a series of circles used to measure sherds in 5mm increments. The size of the smallest circle into which the sherd fits completely is the sherd size. If the sherd is too large to fit within any of the circles on the mat, a tape measure is used and the measurement is rounded up to the next number divisible by 5.

The maximum sherd measurement should *always* be taken, even if the sherd has been burned (and turned into an amorphous lump). Measure what you have.

4.3 Sherd Weight
Sherd weight is taken in grams, to the nearest tenth.

For **rim sherds**, take measurements for the following categories:
(these fields should be left blank for all other glass sherds)

4.4 Rim Length
Rim Length is measured for all rim sherds. This measurement should be taken in millimeters, to the nearest hundredth if possible. If a rim has significant curvature, its rim length is measured with a bendable tape measure.

4.5 Rim Diameter
Rim Diameter is taken for sherds with rim lengths of greater than 20mm. The radius template on the cataloging mat is used for this measurement –the curvature of the rim is matched to the curves on the mat to the nearest arc shown on the mat. When dealing with thicker sherds, the general rule is to measure along the exterior of the rim (rather than trying to determine the interior diameter of the vessel). Diameter measurements on the mats are in millimeters.

In order to measure the rim diameter for a flat, scalloped-edge vessel using the radius template, there must be three scalloped points.

4.6 Mended Rim Diameter

Enter the rim diameter for mended rim sherds.

4.7 Base Length

Base Length is measured for all circular bases that have a measurable base length as described herein for all vessel forms including tableware as well as bottle glass. The base length is obtained by using a soft tape to measure around the circumference of the base (see image below). In the case of wine bottle glass, this measurement is the outermost protrusion of the base.

Base Length measurement of wine bottle base

4.8 Base Diameter

Base diameter is measured for spherical tableware and bottle bases. Base diameter is measured with calipers for complete bases. Diameters are taken using the exterior edge of the base (image).

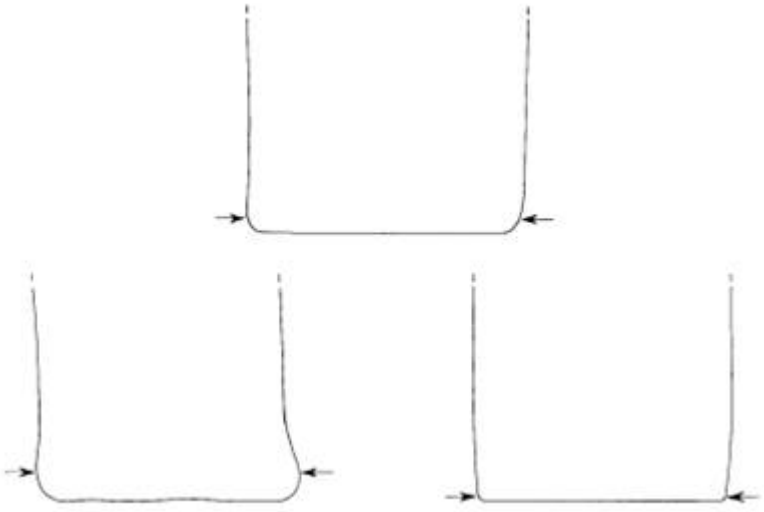


Figure 83. Base diameter.

(The Parks Canada Glass Glossary, Olive Jones and Catherine Sullivan, 1985.)

Base diameters for tablewares and bottles are estimated on sherds that have Base Length measurements greater than 20 mm and that can be confidently matched to a diameter arc on the radius template. The curvature of the base is matched to the curves on the radius template to the nearest "confidently estimated" arc that matches that curvature. By this we mean that the diameter must clearly match a single diameter arc and not have several possible matches. Note: If you cannot confidently match the sherd to an arc, no Base Diameter measurement is recorded. In many cases it may be easier to obtain this measurement using the mylar rim chart, in which case the curvature is estimated by placing the mylar over the inverted sherd in order to match it. Diameter measurements on the radius template are in millimeters.

4.9 AC Distance

This field records the AC distance used with the Plog-o-Meter. The AC distance consists of two points along the perimeter of a rim sherd that are equidistant from a point D. The AC Distance is determined by one of six possible attachments for the Plog-o-Meter.
Select the AC distance by choosing the Plog-o-Meter bar that is the largest bar while still maintaining contact with both edges of the rim sherd.

4.10 Curved Dial Reading

This reading will be a number read from the Plog-o-Meter dial to the second decimal place (i.e. 3.15, 5.68, etc.). Select the AC Distance bar that covers the widest portion of the rim that still allows both points to touch the edge of the rim. Place this on the Plog-o-Meter, making sure that the screw on the bar is tightened down on the flattened portion of the dial measure. Holding the Plog-o-Meter as horizontal as possible, and making sure that the sherd is vertical, measure the curvature of the sherd.

The following measurements should be taken using the Plog-o-Meter on hollow vessels with rim lengths greater than 20mm:

4.11 Flat Dial Reading

This reading will be a number read from the Plog-o-Meter dial to the second decimal place (i.e. 3.15, 5.68, etc.). With the same appendage used for the Curved Dial Reading, place the dial perpendicular to a flat surface, such as a table or block of wood, and record the flat dial reading. Make sure that the Plog-o-Meter remains steady.

4.12 BD

This field calculates the Flat Dial Reading minus the Curved Dial Reading. It is automatically calculated by the computer.

4.13 Plog Diameter

This field measures the diameter of the vessel derived from the equation (AC/2)^2+(BD)2/BD. It is automatically calculated by the computer.

5. Condition Table

The default for each of the following fields is "No." Simply choose "Yes" if any are applicable.

5.1 Burned
Glass often becomes globular in shape when melted. Also, green "bottle, wine style" glass tends to turn an opaque light blue when burned. If these or any other signs of burning are present, mark "Yes" in this field.

5.2 Patination
Iridescent crust that forms on the surface of some glass; caused by glass decomposition. The environment in which a piece of glass is buried, coupled with the original composition of the glass, greatly affect the degree of patination.

5.3 Solarized
Glass is colorless when produced. However, it contains manganese which will turn the glass a purplish tint when the glass has been exposed to sun for a long time (UV light). This type of glass was mostly produced during the last quarter of the nineteenth century. Solarized glass typically appears shiny with a slight purple hue.

5.4 Weathered/Eroded
If the glass surface is rough and appears to be either physically or chemically worn, put "yes" in this field.

6. Dech Tech Table

6.1 Decorative Techniques

"Acid Etched": The vessel is covered in a waxy compound, and the design is drawn on the object by cutting away the compound in those areas to be etched. Acid is applied and dissolves or frosts the glass. Generally late nineteenth century and later (McKearin and McKearin 1948:33).

"Air Bubbles:" Bubbles of air intentionally trapped within the glass. Common on stemwares (Jones et al. 1985:50).

"Air Twist": Air bubbles are trapped in the glass and drawn out to create helixes or swirls.
Usually in stemwares (Jones et al. 1985:50).

"Casing": Different layers of glass, usually of different color, are fused together. Outer layers are often cut to reveal inner layers more clearly (Jones et al. 1985:52).

"Copper Wheel Engraving": Technique invented in Germany in seventeenth century). Employed a copper wheel with an abrasive agent dripped onto it as it engraved. This created a frosted appearance on the engraved surface (McKearin and McKearin 1948:32). This is a mechanical etching technique, contrasted with diamond point engraving which was, until the late nineteenth century, a freehand etching technique.

"Cut": Practiced in Germany in the seventeenth century, spread to other parts of Europe and then to America in late eighteenth century. Glass used for cutting tends to be thicker, stronger, and softer than other glass because it had to withstand three processing steps: roughing out, smoothing, and polishing (McKearin and McKearin 1948:31). Cuts are generally deep into the glass surface compared to marks made by techniques such as etching and engraving.

"Diamond Point Engraving": Not practiced in the Unites States—on import glass only (McKearin and McKearin 1948:32). A diamond-pointed tool was carefully hammered along the glass surface, creating a fine, stippled line.

"Enamel Twist": Colored enamels are encased in glass and manipulated to form twists.

"Enameled": Application of an enamel to the glass surface. This enamel usually contained lead, tin, and a metallic oxide that provided color (McKearin and McKearin 1948:33).

"Engraved": A general term to be used when it is not clear whether copper wheel engraving, diamond point engraving, or some other type of engraving is present.

"Gilded": Gold oxide painted onto the glass surface, fired, and then burnished (McKearin and McKearin 1948:33).

"Mixed Twist": A combination of air twist and opaque twist; opaque twists are created by encasing opaque glass in colorless glass and manipulating it to form twists (Jones et al. 1985:50).

"Molded": Glass is blown, either by mouth or machine, into some type of mold.

"Painted": When glass is simply painted using non-enamel paints. Paint tends to wear off easily, and can sometimes be distinguished from enameling because paint appears "more transparent and smoother" (Jones et al. 1985:57).

"Sand Blasted": "Invented in ca. 1870 in the United States (Newman 1977: 270), this treatment was only recently adapted to decorative uses. Grains of sand are directed by high air pressure from a portable "gun" across the glass surface. The result is a frosted, finely pitted finish, with a degree of depth. The technique has been used on large panels of glass and is not very common on Parks Canada sites" (Jones et al. 1985:57).

"Silveria": When a thin layer of metal foil is placed between two layers of glass (Jones et al. 1985:50).

"**Tooled":** Decoration is worked using pincers, shears or other tools. This is often how cordoning is formed.

6.2 Applied Color

Applied colors refer to colors that are painted, enameled, or otherwise applied to the vessel. Munsell each color using the DAACS Color Range System, and enter the information into the Applied Color field.

** If the decorative technique has no applied color, enter "No Applied Color" in this field. Do not use "Not Applicable".

6.3 Stylistic Elements

See Appendix 1 for the Glass Stylistic Elements glossary.

7. Special Cases

7.1 Wine Bottle Glass

Material: Non-lead
Glass Color: Green
Vessel Category: Hollow
Form: Bottle, wine style (green glass with squared horizontal cross-section would be bottle, case)
Manufacturing Technique: Free blown, Mold blown, Mouth blown, Unidentified, Machine made
Mold Type: Contact Mold, Missing Information, Not Applicable, etc.

A note on "Bottle, wine style" manufacturing technique and mold type: To determine the manufacturing technique of a sherd of "bottle, wine style" glass, the first step is to examine whether the glass was molded in some way. Characteristic molding signs are: presence of a mold seam, regular body shape, and smooth surface without an "orange peel" effect. If no clear signs of molding are present and the bottle is not clearly free blown, catalog as follows:

Manufacturing Technique: Mouth Blown
Mold Type: Missing Information

Burned "Bottle, wine style" glass:

This type of bottle glass often melts into amorphous lumps when heavily burned. Because of the color, however, one can still identify these lumps of glass as hollow wine-style bottles. Do not take a sherd thickness measurement unless both original sides remain unmelted.

Green, wine-style bottle glass also often turns an opaque blue when heavily burned. Catalog as described above, but list the color as Unidentified. Describe in the notes that heavy burning has turned the sherd blue.

7.2 Modern Glass

Although modern glass is recorded in DAACS, modern machine made bottles and completely molded bottles are not included in the Glass Bottle Table. This decision was made because the classification systems for molded and machine made bottles are enormously complex given the vast range of bottle shapes possible with molding.

Dark brown bottle glass (cataloged as “brown” in DAACS) is almost always modern and machine made. Usually, this glass is from beer and soda bottles. Such glass should be cataloged as “Bottle, unidentifiable” unless there is some specific indication that the bottle is “Bottle, Beer” (for example, embossed lettering of a beer company’s name). Manufacturing Technique is “Machine Made.” Mold Type is: “Contact Mold”. There is no need to make notes about pontil marks.

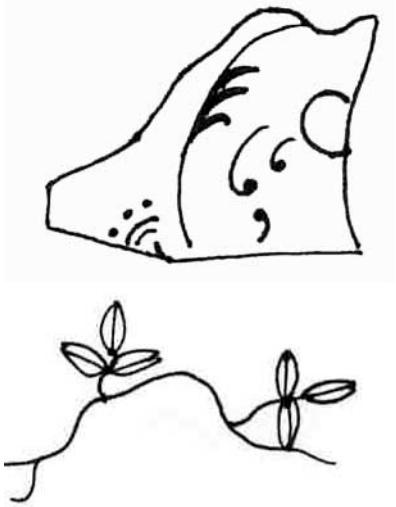
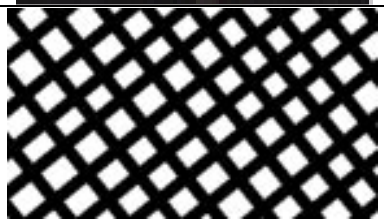
References

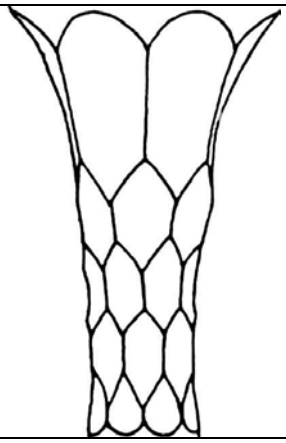
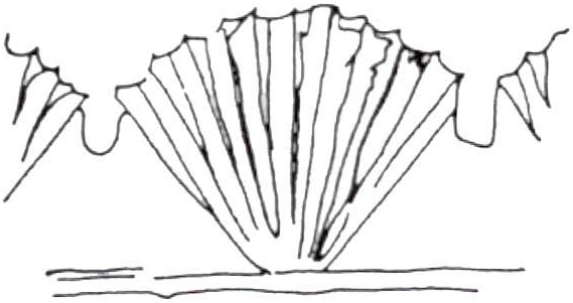
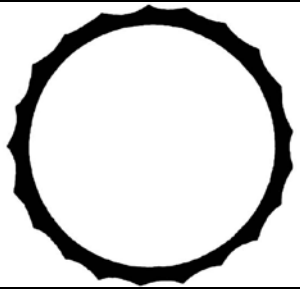
Jones, Olive and Catherine Sullivan
1985 The Parks Canada Glass Glossary for the description of containers, tableware, flat glass, and closures. National Historic Parks and Sites, Canadian Parks Service, Environment Canada: Ottawa.

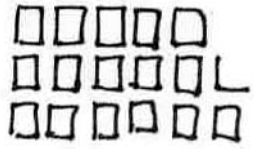
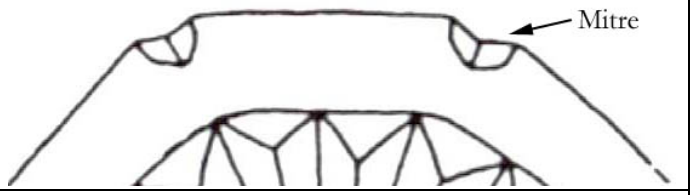
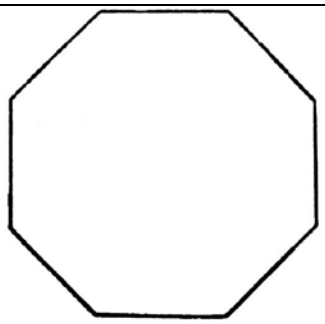
McKearin, George and Helen McKearin
1948 American Glass. Crown Publishers, Inc.: New York.

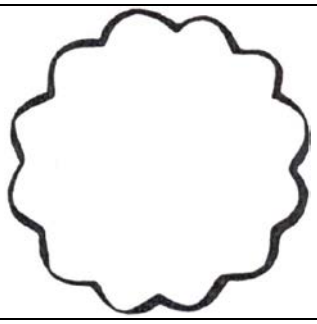
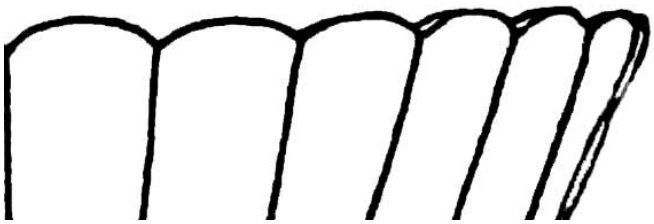
Newman, Harold
1977 An Illustrated Dictionary of Glass. Thames and Hudson: London.

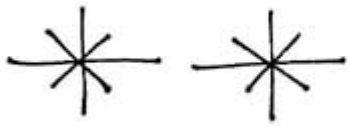
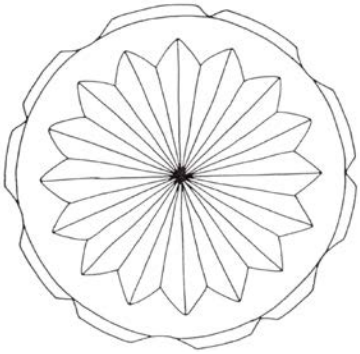
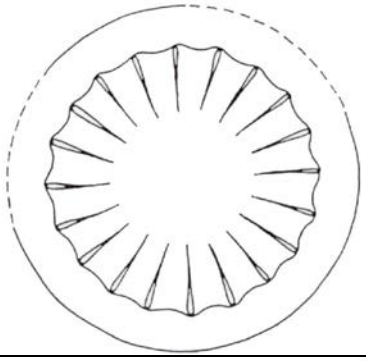
Appendix 1: Glass Stylistic Element Glossary

Stylistic Element	Description	Image
Band	A straight band.	
Botanical	Any botanical or floral-type element, be it a realistic or abstract rendering.	
Cartouche	Thick lines, normally curved, enclosing letters or symbols. The cartouche pictured includes thick, curved lines and areas of cross-hatching.	
Cordoned	Parallel incised lines, often seen repeated on a vessel. Most often formed by molding tooling (see Dec Tech section 6.1). Unlike ribbing which is most often oriented vertically on a vessel, cordoning is most often horizontal.	
Cross-Hatching	"A series of lines crossing over each other. In glass, these are most commonly created by engraving." (Jones et al. 1985:58)	

Double Wavy Band (currently in the database as Dble Wavy Band due to space constraints)	Two interlocking wavy bands that create the appearance of connected ovals or ellipses.	
Diamonds	One or more diamond shapes engraved or etched into the glass.	
Dogtooth Band	A regular, sharply jagged band.	
Dots	Small circular point or points painted or etched into the glass	
Facets	One or more small, distinct elements of various shapes cut or ground into the glass.	
Fan	One or more fan shapes.	
Flutes	"Repeating pattern of distinct, concave units parallel to each other, either adjacent to each other or at short intervals." (Jones et al. 1985:58).	

Hobnails	A regular pattern of raised knops or bumps formed by blowing or pressing glass into a mold.	
Lettering	Note the presence of any lettering. Although this information should also be in the "Marks" field, it is included in stylistic elements so that the manufacturing technique and applied color (if any) of the lettering can be recorded (molded, engraved, etc).	
Mitre	A V-shaped groove or incision cut into the glass.	
Notches	A regular pattern of small, shallow incisions or nicks cut, engraved, or etched into the glass.	
Other, see notes	Used when none of the other authority terms apply. The decoration should be imaged and thoroughly detailed in the Notes field.	
Panels	A (generally) flat section of a multi-sided vessel. "The panels or sides are generally of consistent or repeating sizes" (Jones et al. 1985:58). Panels are either molded or cut. They can extend the entire height of the vessel or take the shape of an arch, ending below the rim.	

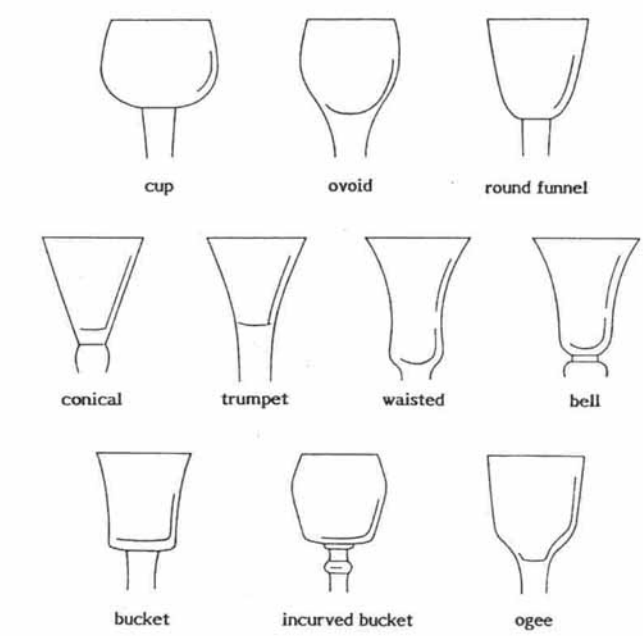
Prunt, raspberry (currently in the database as Prunt, raspberr to space constraints)	A type of flat circular prunt [a blob of glass applied to a glass object as a decoration] on which there is a relief design, impressed with a tool, that has the appearance of a raspberry (Newman 1977:256).	
Ribs	"Repeating pattern of convex units parallel to each other." (Jones et al. 1985:58).	
Scallop Band	Band consisting of a series of rounded teeth or half-circles.	
Scallop/Sawtooth Edge (currently in the database as Sclpd/Sawt Edge due to space constraints)	A repeating pattern, located on the rim of a vessel, consisting of rounded or pointed projections.	 
Solid	Used when one or more surfaces of the glass sherd is covered by paint, enamel, or gilt.	

Star	Any star or asterisk-shaped design cut, engraved, or etched into the glass.	
Stippled	A series of small, close-set dots, whose decorative technique is usually molded, but can be diamond point engraved or acid etched.	
Sun/Starburst	Most commonly found on the base of vessel, starbursts and sunbursts consist of molded or cut rays radiating outward from a center point.	 
Swag	Any element depicting a garland or drapery that is fastened at both ends and hangs down in the middle.	 
Teardrop		

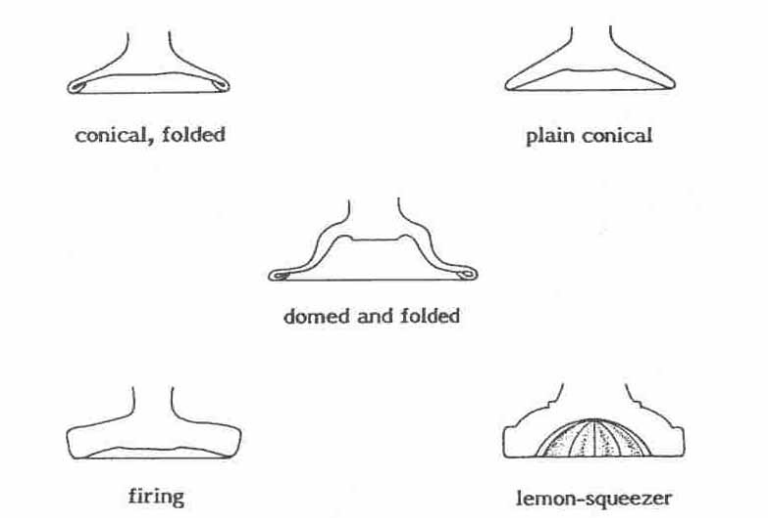
Twisted	Used to describe the elements seen in enamel and air twisted stems.	
Unidentifiable	Used when a decoration is present, but no specific details can be determined or the decoration is so small that an image or detailed notes are of little to no use.	
Wavy Band		
Wrythen	Simple decoration where external parallel grooves or ribs (applied either by hand or by blowing the parison into a dip-mold) are given a twist during blowing to create a spiral pattern.	

Appendix 2: Glass Stemware Shapes

Stemware Body (bowl) Shapes
(from Jones et al. 1985:139, Fig. 114)

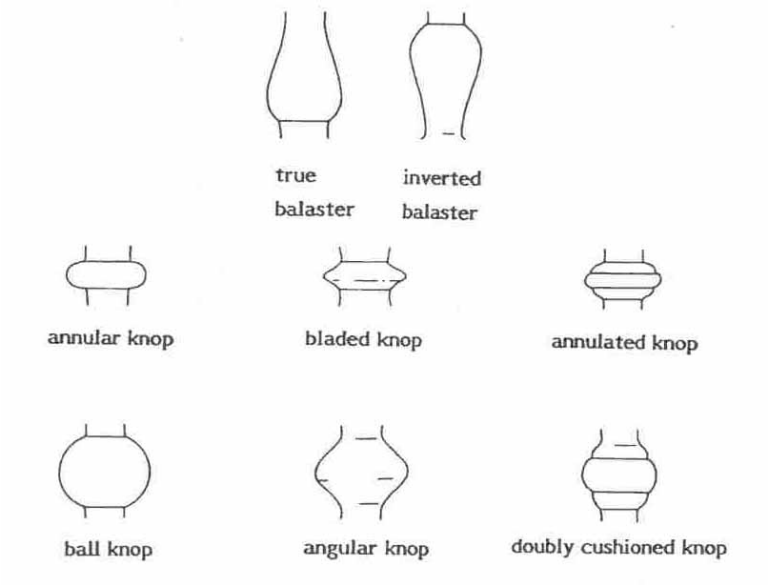


Stemware Foot Shape
(from Jones et al. 1985:140, Fig. 116)



Stemware Stem Shape

(from Jones et al. 1985:140, Fig. 115 except for "straight stem" and "quatrefoil stem")



straight stem

quatrefoil stem