

**GLASS REPORT**

**DARLING QUARTER (WALK)  
DARLING HARBOUR  
SYDNEY**

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**FOR**

**CASEY & LOWE PTY LTD**

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## 1.0 Introduction

This report presents the results of the analysis of glass artefacts recovered from archaeological excavations on the Darling Quarter site (previously known as Darling Walk), on the east side of Darling Harbour, Sydney. The site is located west of Harbour Street, between Bathurst and Liverpool Streets. The excavation was conducted by Casey & Lowe between October 2008 and April 2009 on behalf of Lend Lease Development.

The following discussion includes data on temporal placement, function, origin, technomorphology and reuse when applicable. This discussion facilitates the subsequent analysis of the specific contexts and assists in addressing site-specific research questions set forth in the research design.

### 1.1 The Glass Assemblage

The glass assemblage consisted of 13,803 glass artefacts representing 4209 items or minimum item count (MIC). For the purpose of this study the glass assemblage is detailed by minimum item count (MIC). For any serious archaeological research purposes, artefacts need to be considered as objects rather than rubbish.<sup>1</sup> They must be quantified in such a way as to facilitate functional and temporal analyses.<sup>2</sup> Furthermore it is an essential requirement when comparing data from this study with contemporary archaeological sites.<sup>3</sup>

The initial discussion of the glass assemblage is presented as background for context analysis. This discussion is not intended as an analysis of the glass assemblage from the entire site, for the site is composed of several lots and many occupational episodes, representing numerous individuals over time. The artefacts cannot be lumped together in one mega-assemblage that provides any substantive analysis that will contribute to the reconstruction and understanding of the site's history.<sup>4</sup>

This discussion begins with discussion of vectors of use. Functional and temporal data are the basic components of any artefact analysis. For the purpose of functional analysis items were grouped in a series of general use and specific use categories. Standard typological methods were applied as a prelude to chronological reconstruction and chronological data were incorporated into functionally grouped artefact discussions.

### 1.2 Methodology

Artefacts were catalogued according to a system developed by Dr Mary Casey. Information within this catalogue provided data on shape, function, material, completeness, count, minimum item count (MIC), description, dimensions, conjoins, product, manufacturer, reuse, and temporal placement.

### 1.3 Common Abbreviations

MIC	Minimum Item Count
TAQ	<i>Terminus ante quem</i> ('the limit before which' – ie the latest date an artefact was made or an event occurred)
TPQ	<i>Terminus post quem</i> ('the limit after which' – ie the earliest date an artefact was made or an event occurred)
TT	Test Trench

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<sup>1</sup> Sussman 2000.

<sup>2</sup> Casey 2004.

<sup>3</sup> Davies 2004:230; Crook et al. 2002.

<sup>4</sup> Miller 1991.

## 2.0 Glass Chronology and Functionality

### 2.1 Chronology

Modern blown glass technology, discovered sometime between 27 BC and AD 14, changed little until the late nineteenth century: a glass blower took a blowpipe, dipped the end into a pot of liquefied glass, turned it around to collect a batch on the blow pipe, put the other end of the blow pipe in his mouth and blew air into the batch while forming the exterior of the batch to the desired shape. In this manner bottles, tableware, lamps, window glass, marbles, etc were formed. Over the centuries specialised tools, such as paddles, moulds, scissors, among others, were developed for each specialised aspect of the industry. Many of these tools provide date-specific information. The basic technologies are discussed separately below.

Manufacturing evidence can appear anywhere on the bottle, although the base and finish are the main areas where changed technology left its mark. These are also the more robust parts and survive best if the bottle is broken. Undifferentiated cylindrical bottle fragments retain seam lines but it is difficult to count whether there are two or more per original bottle.

#### 2.1.1 Bottles

A typology for glass bottles is not simple. The innumerable combinations of the many technological attributes must be considered during the identification of individual bottles. For the purpose of this study these attributes are grouped into four basic diagnostic categories: mould type, empontilling method, finishing techniques and colour. These attributes represent process used in bottle manufacture from the mid-eighteenth century.

During the 1800s the pace of technological advancements increased dramatically in many areas of the glass-manufacturing industry. Free-blown bottle technology of the seventeenth century was gradually replaced by hinged metal moulds and by the 1800s mould-blown bottles were ubiquitous. Development of shoulder and full height moulds, new empontilling methods, and improved finishing techniques were primary areas of advancement.

#### Moulds

The use of shoulder height moulds can be identified by the absence or disappearance of seam lines on bottles, just above the curve of the shoulder. The main types of this mould were the shoulder height multi-piece (1820-1920) and the one-piece dip mould. On full height moulds, vertical seams appear from the base to just below the lip. Above this point, seams were removed during the finishing process. The principal varieties of this mould type include:

- the bottom hinge (1810–1880), with a basal seam running either diagonally or straight across the bottom.
- multi-part leaf mould (1850–1920), with two, three, or four vertical leaf parts and a separate base part.
- a three-part dip mould (1820–1920), an improved version of the dip mould that allowed variation in bottle shape not possible with the plain dip mould.

Two additional moulding variations used at the time were turn-paste and plate moulds. Turn-paste moulds (1880–1900) were produced by adding a paste to the mould to allow the bottle to slide when the mould was turned over.<sup>5</sup> This process produced a symmetrical bottle and removed seam lines, but it also prevented the embossing of bottles. Plate moulding (1821–1920), was an adaptation of the previously mentioned moulds and contained removable or interchangeable

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<sup>5</sup> Kendrick 1966:43.

plates. Thus, the same main or base mould could be used to manufacture bottles with different embossments.<sup>6</sup>

### Pontils

Several methods exist for holding bottles during the finishing stage of hand blown glass. All of these methods involved holding the bottle by the base, allowing the craftsman free access to finish the bottle lip. Methods using pontil rods included:

- Glass-tipped, using either a solid rod bar or blow pipe, was the earliest empontiling method. Each method left a distinctive scar on the base of the bottle.
- Sand empontilling method was common on eighteenth-century and nineteenth-century beer and wine bottles.
- Bare rod empontilling method was popular until the early 1870s when it was replaced by the snap-case method as the primary empontilling method.
- The snap-case empontilling device was 'a four-pronged clip attached to an iron rod, a closely fitting case of wrought iron mounted on a long handle from which only the neck of the bottle is allowed to project.' This method provides no evidence of its use and is therefore not helpful in dating.<sup>7</sup>

### Finishes

The finish is everything above the upper terminus of the neck. This is termed the 'finish' because it is the last step in bottle production involving the formation of the bottle lip. The shape of the finish is dictated by the intended bottle use, preferred method of closure, and artisan preference. Prior to the mid-1800s, various methods of finishing were used, including lips that were cracked-off, burst-off, everted or flared, flanged, fold-in and foldout, and others demonstrating applied lip techniques.

Two primary production methods employed in the mid- to late nineteenth century were the form-finishing tool and flared or fired lip. A form-finishing tool is a handheld clamp and plug device. The plug is placed in the bore of the reheated bottleneck and the two-pronged clamps around its outer edge. The tool is rotated manually to shape the lip. Evidence of this method consists of the absence of mould seams on the neck, horizontal striations on the glass, and an excess of puddled glass on the neck at the bottom of the tooled finish.

The fired or flared lip is a method by which the neck of a full height mould bottle was reheated by placement in the 'glory hole' of the furnace. This reheating melted and smoothed rough edges left by the mould. Additionally, this process also faded or completely removed seam marks, depending upon the amount of reheating and the distinctiveness of the marks.

During the late nineteenth century, manufacturing of glass containers became progressively more mechanised, beginning with development of semi-automatic machinery (c.1880), and culminating with the introduction of a fully automated version (1903). By this method bottles were made in one step and moulds were the full-height of the bottle (including the finish). First developed by Michael Owens, this fully mechanised process quickly gained worldwide acceptance for quick and inexpensive manufacture of glass bottles. By the 1920s his machines had become the primary bottle manufacturing method in North America. During the next decade Owens's machines (and those of his competitors) began to operate worldwide.

The early finishes produced opening sizes that varied from bottle to bottle. Finishes were defined by their closures. While corking and wax sealing would allow a reasonably airtight closure for wine

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<sup>6</sup> Jones et al 1985:49.

<sup>7</sup> Jones et al. 1985:46.

and spirits, a more consistent device was needed for aerated beverages and beer that would rapidly go flat. A range of stoppers and built-in closures, including Codd's patent 'marble' stopper, attempted to manage the escape of gas. Many of these were patented and can provide reliable dating evidence. The development of the crown seal in 1892 was widely adopted, providing a very useful dating 'horizon'.

### Colour

Generally, colour cannot be used as a functional or temporal indicator. 'Green' or natural glass is a crude silicate of lime and soda. It contains high amounts of iron oxides, which result in colours ranging from brown to olive, amber to olive-green, and light green to aquamarine. Black glass, in popular manufacture until the 1870s for of beer and wine bottles, is actually dark green glass made by adding iron slag to the glass recipe.<sup>8</sup> It was only the first attempts to decolourise common glass that provide assistance in assigning temporal placement to glass. While the addition of flint and/or lead to the batch made the glass colourless (used for tableware and pharmaceutical bottles), late nineteenth-century glassmakers attempted to achieve decolourisation by adding manganese (1876–1930s) and early twentieth-century glassmakers used selenium as a decolourant agent (1914–1930s). When exposed to unfiltered ultra-violet rays, bottles manufactured in this manner solarised. For bottles made with manganese the metal turned purple and for those made with selenium the resulting colour is described as like honey or ripened wheat. The use of these decolourants continued until the 1930s when arsenic, a more stable decolourant, was introduced.<sup>9</sup>

### **2.1.2 Table glass**

#### Technomorphology

Until the early nineteenth century manufacturing methods in the glass industry as a whole were predominately mouth-blown processes. During the nineteenth century and early twentieth century the technology slowly progressed until by the 1940s glassware was predominately machine made. Foremost of these advancements was the development of pressed glass tableware that introduced in the 1820s. This technology opened the market to middle class households by providing inexpensive imitations of prestigious hand-cut wares. Other advancement included:

Blow-over moulds (1810–1830s),

Acid-etched (1850)

Mechanised needle etching for fine design work (1860s)

Plated etched (1870)

Enamelling (1880s)

Silver bonding (1880–1930)

Technology for traditional cut glass was also affected by these advancements. Traditionally, cut-glass tableware was mouth-blown and then decorated by wheel cut or 'etched' designs. By the late nineteenth century vessel blanks were mass produced and then current cut designs were crafted.<sup>10</sup> The fledgling Australian glass industry did not start until the mid-nineteenth century and then primary production was commercial containers (bottles and jars). The importation of undecorated tablewares, called "blanks", was common practice by local craftsmen. Crown Crystal Glass (1926), a subsidiary of Australian Glass Manufacturers, was of the earliest Australian firms to successfully compete for the glass tableware market.

<sup>8</sup> Kendrick 1966:55.

<sup>9</sup> Kendrick 1966:59.

<sup>10</sup> Jones 2000:174.

### Tableglass patterns and styles

Hundreds of books have been written about glassware patterns – naturally, the most common of these are collector books. These books are useful in artefact analysis only when a sufficient portion of the vessel is present.<sup>11</sup> More useful are references that detail the evolution of tableware styles and discuss use-popularity trends throughout time.<sup>12</sup> Throughout the 1800s documented changes in bowl and stem shapes on stem drinking glass contributed to temporal placement and for tumblers a chronology of panelled pattern styles has been documented.

### **2.1.3 Flat Glass**

#### Window glass

From the time of first colonisation until the mid-nineteenth century window glass was imported from England. Unlike other imported commodities, consumer choice for window glass was not based on quality, but rather was influenced by the British weight-based excise duties placed on glass. By the 1830s Australians began to realise that the thinner glass was not well suited for the frequent hail storms in Sydney and surrounds. In 1845, the excise tax was repealed. By the 1870s broad glass and the new and improved cylinder glass had gained preference over crown glass and by the 1880s crown glass had all but disappeared from the Australian market.<sup>13</sup>

#### Plate glass

Plate glass was originally developed by the French in the seventeenth century. English polished plate glass was first processed at Ravenshead in 1773. While use of plate glass was unlimited in both household and commercial settings, one common use during the nineteenth century was that of mirrors.

#### Patterned glass

Patterned glass evolved from plate glass. In 1847 James Hartley patented a process by which one side of the pane was impressed with a pattern.<sup>14</sup> This glass, which was often made in colours, was used to wholly or partially obscure view. A later form of this plate glass, developed in the 1880s was prismatic or stallboard light glass with rows triangular rib that refract light rays deep into a room and thus improve lighting.<sup>15</sup>

#### Mirrors

Glass mirror date from the thirteenth century. It was not until the nineteenth century that the technology was developed for coating the backs of mirrors with metallic silver. The inventor of this process is much disputed between countries, but the most probable inventor of 'silver' mirrors was Justus von Liebig who published an article in 1835 on his process. This discovery seemed to galvanize the mirror production industry, making mirrors affordable to most socio-economic classes.

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<sup>11</sup> Bates 1910; Percival nd; Ever 1998.

<sup>12</sup> Jones 2000; Jones et al. 1985; Noel-Hume 1970; McKearin & McKearin 1948.

<sup>13</sup> Lardner 1832:114-148

<sup>14</sup> Boow 1991:108; Lewis nd:11.05.3.

<sup>15</sup> Neumann 1995:189.

## 2.2 Function

Artefacts recovered from the site also were examined on the basis of function or original intended use. The purpose of functional classification artefacts are clustered into groups so that statistical analysis of these clusters provides interpretive data on the site. For the purpose of this study any identified reuse patterns are discussed separately. Functional analysis categorised glass artefacts from Darling Quarter into eight identified groups (Fig. 2.1).

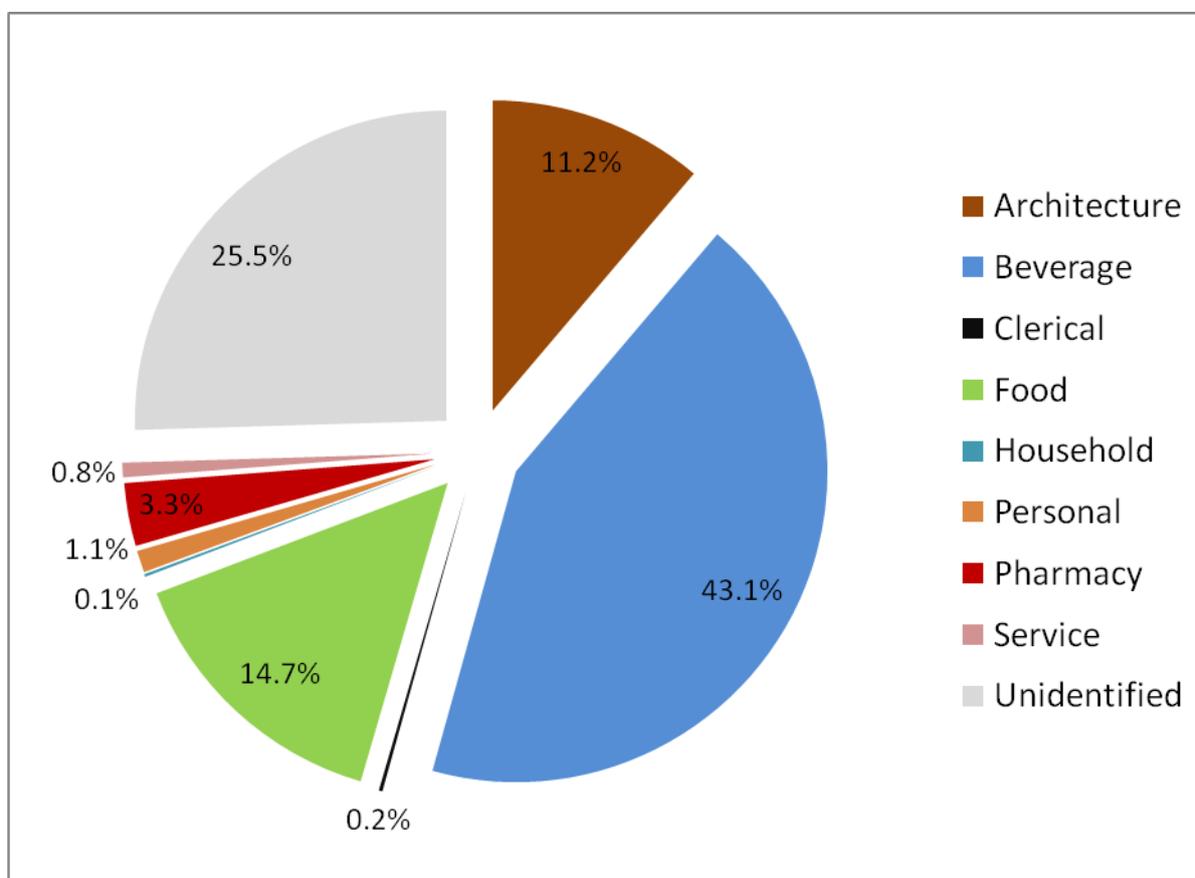


Figure 2.1: Relative Frequencies of Glass Artefacts by Function.

### 3.0 Artefact Discussion

Initial discussion of the assemblage is presented as background for context analysis. This discussion is not intended as an analysis of the glass assemblage from the Darling Quarter excavation, for the project area is composed of numerous activity areas and different occupational episodes, representing numerous individuals over time. Artefacts cannot be lumped together in one mega-assemblage that provides any substantive analysis that will contribute to the reconstruction and understanding of the area's history.<sup>16</sup>

Minimum item counts (MIC) were calculated for fragmented items during cataloguing. MIC are used throughout the report, so that quantities used in the following discussion represent whole, partial and/or fragmented items. Therefore, unless otherwise specified, the use of the term 'artefact' in this report is synonymous with MIC. Given this large number of artefacts, this report concentrates its discussion on artefact types by material and basic form. Temporal, functional and other attribute data are discussed when pertinent to subsequent analyses.

#### 3.1 Chronological Analysis of the Glass Artefacts

Approximately 59 per cent of the glass MIC (2514) provided temporal information, if only about the possible manufacturing date of the artefact itself. Dating of materials is the primary level of analysis. Establishing defined date ranges for discrete deposits from this excavation is key to any further analysis, as the date of use and deposition can differ significantly from manufacture. For without this base data, many subsequent analyses would have little meaning.

Standard typological methods were applied as a prelude to chronological reconstruction. Artefacts then were assigned dates through comparison of identified artefacts with others having documented use-popularity patterns. These dates were further enhanced by documented temporal information that was available for manufacturers and product manufacturers. All datable artefacts have a *terminus post quem* (TPQ) or a date when the item was first manufactured or a *terminus ante quem* (TAQ) or an end date for manufacture. During context analysis TPQs are graphically represented. These tools form the basis of statistical data that aid in calculating chronological placement for contexts.

Glass artefacts were dated primarily by reference to manufacturing attributes. During the mid- to late nineteenth century, advancements in bottle manufacturing technologies developed at such a rate that documented diagnostic attributes serve to provide tight chronological data. These attributes are well-documented in records and archives of leading bottle manufacturers. Documented manufacturer's marks evident on glass bottle further serve to establish date ranges (Table 3.1).<sup>17</sup> Finally, trademarks for product manufacturers also aid in establishment of data-specific information for archaeological materials (Table 3.2).<sup>18</sup>

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<sup>16</sup> Miller 1991.

<sup>17</sup> Toulouse 1971; Boow 1991.

<sup>18</sup> Baldwin 1975; Fike 1986; Deutsher 1999.

**Table 3.1: Chronological and Locational Data for Glass Manufacturers from Darling Quarter Excavations.**

Manufacturer	Shape	From	To	Country	Quantity
Aire & Calden Glass Bottle Co.	bottle/stopper	1836	1913	England	3
Alexandria Glass Bottle Works	bottle	1902	1906	Australia	1
Cannington Shaw & Co.	bottle	1880s	1915	England	1
Cooper & Wood	bottle	1859	1868	Scotland	5
Cooper & Wood	bottle	1868	1928	Scotland	1
Cooper Wood & Company	bottle	1859	1890	Scotland	5
Crosse & Blackwell	bottle	1830	1900s	England	1
John Woolfall	bottle	1850		England	1
Lumb & Co.	bottle	1870s	1890s	England	1
Melbourne Glass Bottle Co.	bottle	1902	1915	Australia	1
Powells & Filer	bottle	1853	1923	England	1
Ross Bros.	bottle	1897	1919	Australia	1
Sykes MacVay & Co	stopper	1860s	1894	England	1

**Table 3.2: Chronological and Locational Data for Product Manufacturers from Darling Quarter Excavations.**

Product Manufacturer	Description	From	To	Country	Quantity
<b>BOTTLES</b>					
Symington & Co Ess Coffee & Chicory	beverage	1880		Scotland	1
Barry's Tricopherous For the Skin and Hair	patent medicine	1851	1982	USA	1
Black Horse Brewery	beer	1879	1899	Australia	1
Booth & Co	gin	1850	1860	England	1
Daniel, Malcohm & Mark McLean	aerated water	1871	1877	Australia	2
Dinneford's Fluid Magnesia	patent medicine	1880	1930s		1
E Rimmel Perfumer	perfume	1850		France	5
Ed Pinaud	perfume	1830	1931	France	1
Ellison & Cos	mustard	1834	1858	England	1
George Whybrow	sauce	1825	1899	England	38
Goodall Backhouse & Co Yorkshire Relish	condiment	1837		England	1
Bishop's Granular Citrate Of Magnesia	patent medicine	1876	1915	USA	2
Henfrey & Co	aerated water/beer	1856	1916	Australia	1
Hora & Co.	castor oil	1860	1915	England	5
J. T. Gayen	schnapps	1790		Germany	1
James Stewart & Co	whisky	1832		Scotland	1
Jean Maria Farina	perfume	1841		(Aus import) Germany	2
John Watson Chemist	compounding medicine	1852	1888	Australia	2
Lea & Perrin's Worcestershire Sauce	club sauce	1837		England	7
Piesse & Lubin	perfume	1888		USA	1
Ricord's Injection Brou	medicine	1843		France	1
Rowlands Macassar Oil	hair restorative	1793	1953	England	1
Schwepe & Co	aerated water	1884	1930	Australia	1
Senior Chemist	compounding medicine	1859	1901	Australia	1
Udolpho Wolfe's Aromatic Schnapps	schnapps	1848	1902	Netherlands	8
William Goodman Henfrey	aerated water	1848	1878	Australia	3
<b>STOPPERS</b>					
George Whybrow	Oil/vinegar	1825	1899	England	16
Lea & Perrin's Worcestershire Sauce	club sauce	1837		England	4

## 3.2 Bottles

Bottles are one of the few commercial containers that survive as artefacts in the archaeological record. In this study there are 1579 bottles (MIC). Commercial containers provide insight into consumer choice in foods, beverages, medication, perfumes, cosmetics, etc. Much of the current research in historical archaeology depends on the interpretation of bottles.

The commercial packaging of foods in glass bottles was for the most part a nineteenth-century development. Like many technological developments, from antiquity the impetus for development of commercially preserved foods has been for military and naval needs. Preserving foods in alcohol, vinegar, brine or oil were the medium most foods were preserved in, but corrosive properties of vinegar was problematic until the development of glass containers.

The bottle is one of the most common of glass artefact types recovered from archaeological sites. The term “bottle” was used throughout this discussion to represent commercially manufactured glass storage containers, such as bottles, vials, flacons, and jars. Bottles contributed to both the temporal placement and the use (function) of the site. Chronological data for bottle glass were based on advancements and/or changes in manufacturing technology over time. Recognised bottle shapes enable identification of products consumed by the occupants of a site, which help answer questions about trade and economics. Patented shapes and documented manufacturer and/or bottler embossments contribute chronological data, as well as helping to answer questions on consumer choice and market access.

### 3.2.1 Bottle Typology

The shape of a bottle can often assist in the identification of the bottles content. Much as shop keepers throughout antiquity hung above their shops pictures or cut outs of their goods to advertise to the illiterate faction of the community, standardised bottle shapes and colours served identify the contents of a bottle. Bottle forms were often developed in association with the preservation requirements of the contents, e.g. thick walls and finishes on aerated water bottles prevented the pressure inside from exploding the bottle, and while variations in shape exist, bottle forms for a particular product or range of similar products remained consistent throughout the eighteenth, nineteenth and early twentieth centuries.

A type series is a systematic method of identifying similar items by assigning a ‘series’ number to individual items with a similar attribute or set of attributes that facilitates easy access to the whole collection. To facilitate the cataloguing and analysis of bottles and associated stoppers, Casey & Lowe has developed a type series. The bottle type series was designed as a searchable database with diagnostic attributes recorded and accompanied by an embedded digital image (Figure 3.1). In this manner the type series provided pre-considered and systematic categories in which bottles fit.<sup>19</sup>

The intent of this multi-purpose type series was to 1) expedite the cataloguing process by reducing the entry of redundant descriptive and temporal information; 2), as a comparative reference for future cataloguing of similar whole or fragmented bottles; and 3) most importantly as a tool to assist the analyst in accurate and quick retrieval of data. The database was designed with separate fields for bottle attribute data, including, finish, neck, shoulder, body and base. Measurement fields consisted of the overall height of the bottle and base diameter. General and specific function fields were provided to categorise the bottle’s original or intended use.<sup>20</sup> A descriptive field was also included to record any stylistic attributes, such as moulded design, embossments and colour.

<sup>19</sup> Crook et al. 2002:33–34.

<sup>20</sup> NB: Bottle reuse and recycling is an issue for the analysis of an individual collection.

<i>General function</i>	alch	
<i>Specific function</i>	beer	
<i>Description</i>		
Type - Under sized beer		
<i>Finish</i>	down-tooled lip and string	
<i>Neck</i>	cylindrical	
<i>Shoulder</i>	rounded	
<i>Body</i>	cylindrical	
<i>Base</i>	circular; bulged heel, roun	
<i>Base dimensions</i>	99	
<i>Height</i>	235	

**Figure 3.1: Sample of Bottle Type Series Data Form.**

Standardised nomenclature was used in the type series, as it was in the artefact catalogue. The need for standardised bottle nomenclature for archaeological assemblages was first addressed in the 1970s when John White assembled a glossary of terms for use in cataloguing bottles and their closures.<sup>21</sup> There are several references used by Australian archaeologists to standardise bottle nomenclature.<sup>22</sup> For this type series the nomenclature for fields are defined as:

- **Finish** – The finish is the top most part of the bottle and consists of the lip, rim and bore. Each finish is made to accommodate a particular closure (cap, cork, etc.). Since the top part of the bottle is the last part to be completed, it was called the ‘finish.’
- **Neck** – The neck is the narrow part of the bottle between the finish and the shoulder. Some wide mouthed containers, such as jars, have no neck.
- **Shoulder** – is the widened area of the bottle between neck and body.
- **Body** – The body is the main part of the container.
- **Base** – The base is the bottom of the bottle or jar and elements within consist of the heel, resting point and push up.

Bottle measurements provide comparative data, as well as potentially assisting in the dating of bottles or fragments. One study in particular, set out to develop a way to use actual measurements of eighteenth- and nineteenth-century British beer/wine bottles as a tool for dating different types of these bottles.<sup>23</sup>

<sup>21</sup> White 1978:58–67.

<sup>22</sup> Boow 1991; Burke & Smith 2004.

<sup>23</sup> Jones 1986:115-123.

Typically, a type series should not be used to assign function to a bottle form, but rather to record attribute data specific to that bottle. This is not to say that function cannot be identified from bottle forms. For standardised shapes enable quick determination of bottle primary, intended or original use. One of the pitfalls that archaeologists fall into is assuming function by form. There are examples in the archaeological literature where mass-produced generic bottles have classified by archaeologists' preconceived notion of function.<sup>24</sup> In some instances a bottle type is most often associated with one product, but rare use as a container for another product(s) is known. For example, a bottle almost always associated with salad oil is illustrated in Zumwalt's *Ketchup, Pickles Sauces: 19<sup>th</sup> Century Food in Glass* showing this same bottle embossed "Try Burnett's 1D Jell Set," which is identified as Australia's Burnett's Jelly Crystals.<sup>25</sup> However, in the absence such embossments bottles in the type series would be placed in the group they most commonly represents.

In other instances generic bottle shapes were used for more than one type of product. For example, there were rectangular 'panelled' bottles that were used as containers for food condiments, patent medicines, and cosmetics. In this situation, the function was assigned the bottle type based on embossments and labelling when possible. Unlabelled bottles were assigned to the generic category.

For this study 33 bottle types (218 bottles) and two stopper types (18 stoppers) were identified. Partial and fragmented bottles were assigned a type series designation when sufficient attributes were available to identify the type.

#### Bottle Chronology and Manufacturing Technology

From the time of British colonisation until the late nineteenth-century Australia's primary source of bottles and bottled products was Great Britain. Therefore, the focus of this chronological study of bottle glass was the British glass industry; its technology and factors that affected it. From the mid-eighteenth century to mid-nineteenth century there was a dichotomous development in the technology of bottle glass. For 100 years (1746–1845) British excise duties on common green bottle glass was  $\frac{1}{8}$  that levied upon flint glass.<sup>26</sup> As a result two- and three-piece moulds were developed for bottles made from for higher taxed glass that produced thinner, lighter bottles.<sup>27</sup>

#### Alcohol bottles

Approximately 56 per cent of the bottles in this collection are commercial containers for alcohol (1759). Forty-eight per cent of alcohol bottles (317) were cylindrical British beer/wine bottles that were made from common green bottle glass that range in colour from dark green (black), olive, to medium green.<sup>28</sup> These all purpose alcohol bottles were also used for cordial, aerated waters and other household products, but often there use as the latter was in fact a reuse of the bottle.<sup>29</sup>

From the mid-eighteenth century to the mid-nineteenth century British beer/wine bottles were manufactured using the standardised technology of the time, however, during this period cylindrical beer/wine bottles underwent major and minor changes in shape and size of the finish, neck, shoulder, body and base.<sup>30</sup> Studies of these forms provide date ranges that were established

<sup>24</sup> Baugher-Perlin 1982.

<sup>25</sup> Zumwalt 1980:64.

<sup>26</sup> Lardner 1832:151.

<sup>27</sup> Boow 1991:115.

<sup>28</sup> Colour cannot be used in assigning temporal placement of these bottles, as the composition of the glass was determined by each manufacturer's preference.

<sup>29</sup> Davies 2004:238; Carney 1998:80–93.

<sup>30</sup> Jones 1986:6.

through datable seals and from dated archaeological contexts.<sup>31</sup> Based on the results of these studies, characteristics of finishes (lip and rim) and base (heel, pontil, push up), as well as shape and size of neck, shoulder, body and base contribute, alone or in combinations, to the temporal placement of these bottles. Conical push-ups bases (with ridges around the push-up) (1820–1870) were the most common datable characteristics observed for cylindrical beer/wine bottles in this collection. Dates for other beer/wine bottles were established by the type of empontilling method used to hold the bottle during the finishing process and the finish process itself. Chronological data for British beer/wine bottles datable attributes is shown in Table 3.3.

**Table 3.3: Chronological Data for British Beer/Wine Bottles.**

<b>Technomorphology</b>	<b>Date Range</b>
Conical push-up	1790–1870
Dome shaped push up with sand pontil	1720–1870
3 part shoulder height mould with dip mould body (including Rickett's patent)	1820s–1920
form tool finish	1850–1920

The abundance of champagne bottle in the collection champagne bottles (88) have a separate technological chronology. Based on manufacturing technology developed in France, these bottles are designed to withstand the pressure produced by the effervescing wine. The deep reinforced push up evolved in three stages from 1760 onward. Early technology until about 1800 involved the use of an empontilling tool, but from the nineteenth century onward a snap case or similar holding device was used during the finishing process.

Gin/schnapps bottles (224) or 'Dutch gin' bottles also have a separate technological and stylistic chronology that began in the seventeenth century. By the time of Australian colonisation the tapering squarish bottle with a 4-point resting base was well established. Changes in from the wide pig snout lip shape (until 1850) to the tapering flat-sided lip shape (1800–1900) were gradual. Also there was a gradual change from a blow pipe pontil to a snap case type holder that was started circa 1800. About 1850 various symbols began to appear on the base of the bottles. To date research is ongoing into these symbols, but it is likely that they are trademarks of a sort. Other chronological tools for dating gin/schnapps bottles involve the irregularity or concavity of walls and the degree of tapering of the body from shoulder to base. These factors need to be considered with the depth of the push up, the presence or absence of symbols and the manner and shape of the finish.<sup>32</sup>

#### Other commercial bottles

Throughout the nineteenth century bottle technology advanced steadily for other bottle forms. By the end of the nineteenth century glass containers were mass-produced, relatively inexpensive, and consequently readily disposable. Therefore, they became increasingly popular as packaging for all manner of commercial products. The frequency of container glass entering into the archaeological record since the mid-nineteenth century has also increased dramatically as a result. Chronological data for manufacturing techniques were shown in Table 3.4, these techniques form the basis for dating bottles in the collection from the mid-nineteenth century to early twentieth century.

<sup>31</sup> Dumbrell 1992:134; Noël Hume 1970:63-68.

<sup>32</sup> McNulty 2004.

**Table 3.4: Chronological Data for Nineteenth-Century Bottle Glass.**

Technomorphology	Date Range
Finishing tool	1820–1920s
Post bottom mould	1820s+
Cup bottom mould	1850 +
3- part moulds (Ricketts type)	1820s–1920s
Bare iron pontil	1840s–1870s
2- or 4 part vertical moulds	1850s–1920s
Internal ledge finish	1850–1910

Four hundred and fifty-eight (458) bottles are identified by form and include food storage, clerical, personal and pharmacy bottles. Observation on these bottles are as follows:

- Food storage bottles are condiment bottles (289) including sauce, oil, vinegar and pickle/chutney.
- Clerical bottles (3) are all containers for ink.
- The majority of personal-related bottles are perfume bottles (34), including four from well known perfumers E Rimmel, Edward Pinaud, Jean Maria Farina and Piesse & Lubin.
  - Other personal bottles are grooming products – lavender water and Rowland’s Maccasar Oil, a hair restorative.
- Pharmaceutical containers (131) are mostly generic bottle forms that were used by chemists and product manufacturers.
  - The most identified product is castor oil (32)
  - Other identified medicinal containers include chemists (9) and poison (3) bottles.

#### Bottle and Product Manufacturers

The basic distinction was made between bottle manufacturers (glassworks) and product manufacturer (brewer, distiller, etc). Documented manufacturer’s marks for glass containers served to establish date ranges each company. Primary sources of this information included Toulouse<sup>33</sup> and Boow.<sup>34</sup> Chronological and location data for manufacturers are shown in Table 3.1 and data for product manufacturers is shown in Table 3.2.

### **3.3 Flat Glass**

Flat glass consists of plate glass and window glass. While not all plate glass is architectural, in the absence of identifying attributes, such as silvering for mirrors (3) or bevelled finishes (2), plate glass was catalogued as architecture-related.

Window glass consists of plain and patterned flat glass. As previously discussed, plain window glass includes crown (1870 *TAQ*) and broad (1850 *TPQ*) types. The majority of flat glass recovered from the project area is crown glass (390), with significantly less broad glass (41). A few examples (4) of patterned glass (1840s *TPQ*) were recovered in a variety of colours (red, green aqua and colourless). One patterned glass is has a prismatic pattern that was developed during the 1880s. As a general observation on nineteenth-century construction in the project area, it would appear that most construction in excavated areas was accomplished prior to the 1860s.

<sup>33</sup> Toulouse 1971.

<sup>34</sup> Boow 1991.

### 3.4 Tableware

Glass tableware is an underappreciated artefact category in the archaeological record. This is due, in part, to the low relative frequency of recognisable glass tableware in a typical assemblage, because fragility and resulting fragmentation of this type of artefact often renders its form and decorative motif unrecognisable. There are 272 tableware artefacts in the glass assemblage and approximately 62 per cent had identifiable form. The majority of identified glass tableware forms are tumblers (107) and stemmed glass drinking vessels (43). Other identified forms include a bowl, a cruet, cups (2), decanters (2), open dishes (2), drinking glasses (2), a plate, salts (3) and a salt shaker.

Press-moulded tableware (1820 *TPQ*) comprises the majority of datable tableware artefacts (158). Stylistic elements and patterns of press- moulded tableware also contribute to temporal placement. The most common design element has vertical panels (95) that are usually on the lower half or lower two thirds of vessels (1830*TPQ*). Other datable pattern elements include the inclusion of a ovoid impression that is generally termed a thumbprint (3), brilliant type pattern (1840s *TPQ*), comet type pattern (1850-1870s) and patterns with a stippled ground (1865*TPQ*).

Colour is also an important dating tool for tableware. Within the tableware assemblage 15 different colours were identified. Colourless tableware is by far the most abundant in the assemblage (238) and since colourless glass for tableware has been the standard throughout time, it provided no temporal information. Time periods for the introduction of colours cluster between the 1820s and 1880s. During the 1820s colours such as opaque cornflower blue (5) were introduced. During the 1830s technology advanced to include colours such as white (1), purple (4) and apple green (1). Finally, by the 1880s all manner of colours were available and popularised. Colours included in the Darling Quarter tableware assemblage include dark aqua, amethyst (1), opaque green (2), opaque blue (1) and flashed and multi layered colours (4). While gilding on ceramic had been popular for most of the nineteenth century, its use as a decorative design technique on tableware (2) was popularized during the 1890s.

For blown stemware there are several datable stylistic attributes, including:

1780–1840	central knob on the stem (4)
1830	panels (12)
1840	ground and polished pontil scar on foot
1870–1890	baluster stem (1)

## 4.0 Context Analysis

Select contexts were subject in depth analyses. For the purpose of this study analysis is divided into the four excavation areas (Areas 6, 7, 8, and 9). Contexts in this analysis include underfloor deposits, fill layers, yard deposits and demolition deposits. Collectively, these contexts represent approximately 75.6 per cent of the glass artefacts (10 434) or 71 per cent of MIC (2990). Analysis results and/or observations are noted for each context or group of contexts. Each context is subject to temporal analysis. Functional data is also presented, however, in the absence of functional data from other material categories, functional analysis results are not discussed in depth. Unless otherwise noted all architecture-related artefacts are window glass and generally not discussed unless pertinent to either temporal or functional analysis for an individual context.

### 4.1 **Area 6 – 1820s Barker’s jetty and subsequent reclamation work**

The area is bounded on the north by Thomas Street, on the east by Duncan Street, on the south by Area 7 and on the west by the waters of Darling Harbour and by part of Area 4. Area 6 is along the southern boundary of Thomas Barker’s land and included the 1820s Barker’s jetty and subsequent reclamation work.

#### 4.1.1 **Area 6, Phase 4**

Phase 4 is the 1820s to late 1830s Barker’s mill and lands.

##### Jetty Fill (8395)

This fill layer is yellow/brown mixed sands with dark patches. It covers slipway (8377) and bedrock east of a rubble deposit (8419). This fill yielded 10 glass artefacts, representing 2 MIC.

All artefacts are datable diagnostic beer/wine bottles dating from the late eighteenth century to mid-nineteenth century. Dates from these artefacts are consistent with 1820–1840s occupation dates of Barker’s original jetty.

#### 4.1.2 **Area 6, Phase 6**

Phase 6 is the 1840s to 1860s residential and industrial development.

##### Deposit/Dump - associated with occupation of timber yard (8258)

The rubbish deposit (8258) consisted of a matrix of mid-dark brown silty clay (20%) with very frequent artefacts (80%). Recovered from this deposit are 99 glass artefacts, representing 33 MIC.

Approximately 84.8 per cent of artefacts (28) provided date-specific information. With the exception of one crown window glass fragment (1870 *TAQ*) and one panelled tumbler (1835 *TPQ*), datable artefacts are bottles. The majority of datable glass (18) is beer/wine bottles bases (1820–1870), however two of the four associated bottle finishes have 1850 *TAQs*. Also used in temporal placement was one gin/schnapps bottle that has an 1800–1850 date range. Results of temporal analysis suggest an 1820s–1850s date range for this deposit.

Functional analysis classified 88 per cent of artefacts (29) into three identified groups:

- Architecture – 1
- Beverage – 26
- Food – 2

Beverage bottles comprise the majority of artefacts (23), of which 20 are alcohol bottles. Food-related items are one oil/vinegar bottle and a tumbler. Also present is one window glass fragment.

## 4.2 Area 7 – 1850s reclamation, Murphy’s wharfage and cottage

Area 7 is bounded on the north by Area 6 and by James Street, on the east by Harbour Street, on the south by Liverpool Street and on the west by the waters of Darling Harbour. Much of the west end of this area was below the 1820s water line. Identified within Area 6 are different reclamation fills, Murphy’s cottage and wharfage and other residential and industrial development

### 4.2.1 Area 7, Phase 5

Phase 5 is late 1830s/early 1840s reclamation.

#### Reclamation Fills (7986)

Context 7986 consists of multiple reclamation fill layers that yielded 21 glass artefacts, representing 9 MIC and six artefacts provided date-specific information. All artefacts have an 1820 *TPQ* and five artefacts have an 1870 *TAQ*. Datable items include bottles, a lamp chimney and crown window glass. Temporal results indicate that glass artefacts have an 1820-1870 date range.

Approximately 66.7 per cent of artefacts (6) were functionally classified into three identified groups: Architecture (2), Beverage (3) and Services (1). Architectural elements are window glass. Beverage items are beer/wine and champagne bottles. The Services – lighting element is a lamp chimney.

### 4.2.2 Area 7, Phase 6

Phase 6 is the 1840s to 1860s residential, industrial development and some reclamation.

#### Occupation-related material (8090)

Context 8090 represents unstratified finds that are probably reclamation/occupation from rear of Liverpool Street houses. There are 15 glass artefacts, representing 14 MIC. Approximately 92.8 per cent of artefacts (13) provided date-specific information. There are three beer/wine bottle bases that have an 1820-1870 date range, however their associated bottle finishes (4) have a 1780–1850 date range and therefore, these seven items have a combined 1820–1850 date range. Four additional bottles have 1850 *TPQs* and one champagne bottle finish has an 1850 *TAQ*. Results of temporal analysis for glass from Context 8090 indicate a circa 1850 date.

Approximately 92.8 per cent of artefacts (13) were functionally classified as Beverage (11) or Food (2). Beverage-related artefacts consist of alcohol bottles (beer/wine, champagne and gin/schnapps). A pickle/chutney bottle and one stemware comprise food-related artefacts.

#### Levelling Fill (7991)

Levelling fill (7991) has a matrix of compact grey clay with orange and red clay mottling, which is the same as other levelling fill in this area (8019). This fill yielded 56 glass artefacts, representing 23 MIC. Approximately 87 per cent of artefacts (20) provided date-specific information.

Key dates used in temporal analysis are:

1800–1850	Beer/wine bottle with down tooled lip shape
1820	Press-moulded tableware
1830	Tableware with panels
1840–1920	Club sauce type bottle stopper
1850–1920	Champagne bottle with deep push up and large mamalon
1850–1920	Bottle with cup bottom mould

Results of temporal analysis suggest a circa 1850s date for glass artefacts, which is consistent with Phase 6 occupation of the area. Functional analysis classified artefacts as Beverage (9) and Food (8), and these results are consistent with a residential occupation.

### 4.2.3 Area 7, Phase 7

Phase 7 is 1860s to 1900 residential and industrial development.

#### Fill of Linear Drainage Feature 7936 (7928)

The linear drainage fill of Feature 7936 contained 310 glass artefacts, representing 120 MIC. A relative high frequency (95%) of artefacts (114) provided date-specific information.

Key datable artefacts are listed in a time line below:

1720–1870	beer/wine bottle – domed push up sand pontil scar
1775–1850	gin/schnapps bottle with 4 point resting place
1780–1850	beer/wine bottle – down-tooled lip shape
1810	torpedo bottle – embossed
1820–1870	beer/wine bottles – conical push up with sand pontil scar
1820–1920	beer/wine bottles – 3-part shoulder height mould with dip mould body
1850–1920	beer/wine bottles – tooled lip shape
1850–1920	champagne bottles – deep push up with large mamalon
1859–1890	Cooper Wood & Co beer/wine bottle
1868–1928	Cooper & Wood beer/wine bottle

Temporal analysis results for glass from drain fill are consistent with the 1860–1900 residential and industrial development of the area. All artefacts are beverage-related bottles and all but one are alcohol related and include beer/wine (59), champagne (14), gin/schnapps (7), unspecified alcohol (33) and one torpedo aerated water bottle.

#### Structural Elements of Verandah of Building 8098. (7987)<sup>35</sup>

This is a sandy deposit with a high density of artefacts thought to originate as sand built up around artefacts discarded beneath the verandah of Murphy's cottage (8098), where it was bounded by wall 7938 to the south and timbers 7989 to the north. It lay above 8043, which also was an occupation related deposit associated with this verandah. Context 7987 yielded 651 glass artefacts, representing 123 MIC.

Approximately 92.7 per cent of artefacts (114) provided date-specific information. Date-specific information was obtained from bottles, stoppers, window glass and tableware. The majority of datable artefacts (58%) are beer/wine bottles (66) that have an 1850–1870 date range. Champagne bottles (8) have an 1850–1920 date range. Gin/schnapps bottles (13) have a 1775–1900 date range. Other bottles have manufacturing dates that range between 1820 and 1920. Also contributing to temporal analysis are dates from the following product manufacturers:

1834–1858	Ellison & Cos
1825–1899	George Whybrow
1856–1916	Henfrey & Co
1852–1888	John Watson Chemist

Results of temporal analysis for glass from Context 7987 are consistent with the 1860–1900 residential occupation of the area.

Approximately 89 per cent of artefacts (110) are functionally classified into six identified groups: Architecture (2), Beverage (88), Food (15), Household (1), Personal (1) and Pharmacy (3). Beverage-

<sup>35</sup> Note: The glass artefacts had been originally incorrectly catalogued as context 7989, when they were in fact from context 7987. This error was limited to the glass artefacts only. The artefact database, the catalogue, this section and the artefact overview (section 4.0) have been amended to so that the glass artefacts are catalogued with the correct context number, 7987 (N Pitt, 29/10/2013).

related and food-related artefacts comprise the majority of glass from this context. With the exception of one aerated water bottle, beverage-related artefacts are alcohol bottles, including beer/wine (66), champagne (8) and gin/schnapps (13). Food-related artefacts are mostly condiment bottles including oil/vinegar (8) and pickle/chutney (1), and also include one tumbler and a salt. The one Personal Group artefact is a lavender water bottle, which was advertised about this time as perfume for handkerchiefs<sup>36</sup>, but is also used medicinally for headaches. Pharmacy-related artefacts consist of a bottle from John Watson, a Sydney compounding chemist, and two cylindrical vials, which might also be from a compounding chemist. Several observations for glass from this context give insight into the origin of these artefacts:

- The salt is a tableware item most often associated with a residential setting.
- Lavender water is a product preferred by females.
- Bottles from a compounding chemist indicate a health concern, possibly beyond normal complaints (headache, gastrointestinal irritation, and pain).

#### Occupation Deposit (8043)

This under-verandah deposit of pale brown sand was located along the north side of verandah footings (7938) and beneath the sandy and artefact rich deposit 7987. It yielded 31 glass artefacts, representing 14 MIC. Approximately 71.4 per cent of artefacts (10) provided date-specific information. Most of the datable artefacts have wide date ranges spanning from the early to late nineteenth century. There is one bottle made by Powells & Filer (1853–1923) which taken with a form finished beer/wine bottle finish, suggest an 1850sTPQ. Several artefacts have an 1870TAQ, including beer/wine and gin/schnapps bottles and crown window glass. Results of temporal analysis for glass from the under-verandah deposit suggest an 1850s–1870s date range.

Approximately 79 per cent of artefacts (11) were functionally classified into three identified groups: Architecture (3), Beverage (6) and Food (2). Beverage-related artefacts are beer/wine and gin/bottles. Food-related artefacts are a food bottle and a press glass lid for tableware vessel. While these glass items are consistent with a residential assemblage, the paucity of materials precludes further use analysis.

#### Deposit - last phase of occupation associated with Building 8098 (7953)

Context 7953 is demolition associated with the rebuild phase of Murphy's cottage/building. The matrix was moderately compact, friable black clayey silt moderately frequent oxidised iron and slag inclusions. This deposit is the same as Context 8099, which is discussed subsequent to this context.

This deposit yielded 59 glass artefacts, representing 21 MIC. Approximately 90 per cent of artefacts (19) provided date-specific information. Over 42 per cent of datable glass artefacts have an 1850 TPQ and there are three artefacts with documented manufacturers' information – Cooper Wood & Company (1859-1890) and Sykes MacVay & Co Glassworks (1860–1894) that date from about 1860, and one from Lumb & Co (1870s-1890s). No artefact has a *terminus ante quem* after 1920. Results of temporal analysis for glass from this deposit are consistent with the 1860–1900 occupation.

Functional analysis classified approximately 95 per cent of artefacts (20) into five identified groups: Architecture (1), Beverage (13), Food (4), Pharmacy (1) and Services (1). Beverage artefacts are all bottles, including two aerated water, four beer/wine, one champagne and three gin/schnapps. Food-related artefacts are mostly tableware (3), including a tumbler, a piece of stemware and a salt. There is also a generic pharmacy bottle and a lamp chimney in the glass assemblage. Observations for glass from this context give insight into the origin of these artefacts:

<sup>36</sup> *The Sydney Herald* 26 February 1842, p 1.

- The salt is a tableware item most often associated with a residential setting.
- The tableware is high quality and one is possibly cut crystal.

#### Demolition Deposit - last phase of occupation of Building 8098 (8099)

Context 8099 is demolition associated with the rebuild phase of Murphy's cottage/building. The matrix is black humic silty clay with decayed timber, intact tongue and groove floorboards, fine soot and frequent artefacts. This deposit is the same as Context 7953, which was discussed above.

This deposit yielded 77 glass artefacts, representing 23 MIC. Approximately 96 per cent of artefacts (22) provided date-specific information. Over 54 per cent of datable glass artefacts (12) are beer/wine bottles with a combined 1850–1920 date range for mould and finish and among these was one manufactured by Cooper Wood & Company (1859–1890). Date ranges for all glass artefacts fall, in part, within the date range and therefore, temporal analysis results for glass artefacts are consistent with the 1860–1900 occupation.

Functional analysis classified all glass artefacts into identified groups. Beverage (19) bottle comprise the majority of glass artefacts and include aerated water, beer, beer/wine, champagne and gin/schnapps bottles. The one food-related artefact is bottle stopper. The pharmacy-related artefact is a generic bottle used by chemists and patent medicine manufacturers alike.

#### Discussion –demolition deposits from Building 8098.

Contexts 7953 and 8099 are demolition deposits associated with Murphy's cottage/building. Results of temporal analysis for both contexts are consistent with the 1860–1900 occupation. Functional analysis for Context 7953 suggest a residential association for glass artefacts, while the paucity of functional diversity in the glass assemblage from Context 8099 does not preclude a residential association, it might also be indicative a different activity area within the structure.

#### Fill of Cesspit 8036 (8037)

Cesspit fill yielded 197 glass artefacts, representing 33 MIC. Approximately 97 per cent of glass artefacts (32) provided date-specific information. Half of the glass artefacts have an 1820 *TPQ* and/or wide 1820s–1900s date ranges, including two oil/vinegar bottles attributed to George Whybrow (1825-1899). Artefacts that served to narrow this date range include:

1842–1883	Bottle with British Patent Registry mark
1850–1920	Beer/wine bottles with form-tooled finish
1850–1920	Bottles made in blow-back and cup bottom moulds
1850–1920	Champagne bottle with deep push up and large manalon

Results of temporal analysis for glass artefacts are consistent with the 1860–1900 occupation.

Approximately 88 per cent of artefacts (29) were functionally classified into six identified groups: Architecture (2), Beverage (15), Clerical (1), Food (8), Pharmacy (1) and Services (2). Beverage (15) bottle comprise the majority of glass artefacts and include aerated water, beer/wine, champagne and gin/schnapps bottles. The Clerical-related artefact is a penny ink bottle. Food-related artefacts are bottles, including oil/vinegar and pickle/chutney. A colourless vial is probably Pharmacy-related. Services artefacts are fragments of two lamp chimneys for a vertical wick lamp. Observations on glass from cesspit fill are:

- The absence of certain types of glass artefacts, such as tableware and personal grooming items, would suggest a non-residential association for the cesspit fill. However, this cesspit is associated with Murphy's cottage and glass artefacts from the cottage also lacked diversity that typifies a residential setting. One possibility for this lack of diversity is that

the assemblage results from a male-dominated household rather than an indication of a non-residential setting.

- The inclusion of writing materials denotes literacy and might be associated with commercial rather than residential activities.

#### Levelling Fill - yard surface on northern Area 7 boundary (8293)

The matrix of this yard levelling fill is a tan sandy fill with horizontal wooden planks. It yielded 67 glass artefacts, representing 19 MIC. Approximately 63.1 per cent of artefacts (12) provided date-specific information. Half of the datable glass has an 1850s *TPQ*. Included in the glass assemblage is one salt shaker. Salt shakers were first made in the 1880s, prior to which salt was served in small open dishes called salts. Also contributing to temporal placement is a *Ricord's Injection Brou* patent medicine bottle (1843*TPQ*).

Results of temporal analysis produced an 1850–1900s date range for glass.

Over 63 per cent of artefacts (12) were functionally classified into four identified groups: Architecture (1), Beverage (4), Food (6) and Pharmacy (1). Beverage-related artefacts are beer/wine and gin/schnapps bottles. The majority of food-related glass artefacts are tableware, including stemware, a tumbler, and a salt shaker. There are also two condiment bottles. Pharmacy bottles consist of one generic bottle type used by both chemists and patent medicine manufacturers, and a *Ricord's Injection Brou* bottle. *Injection Brou* is opiate based pain remedy sold as a cure for genital diseases. NB: The *Ricord's* bottle mends with fragments recovered from Context 8263, which was TT 17 Fill 6, between footings (8205) and timber fence line (8247). The high relative frequency of tableware is suggestive of a residential association for glass from this deposit.

#### Levelling fill - possible occupation-related (8295)

The matrix of this fill was dark grey/brown soil with frequent slag, oyster shell and spongy brown sawdust/decomposed wood inclusions. It yielded 32 glass artefacts, representing 20 MIC. All identified forms are bottles. Only 35 per cent of artefacts (7) provided date-specific information. All date-specific information came from documented advancement in bottle manufacturing technologies and produced an 1850–1880 date range for glass from this context.

Functional analysis classified 40 per cent of artefacts as Beverage (7) and food (1). All beverage bottles are for alcohol, including beer/wine and gin/schnapps. The datable attribute on the food-related bottle is a generic applied finish.

#### Fence line Fill/Dump (8330)

The matrix is a moderately compact dark greyish brown silty sand against the south side of the fence line (8247) that served as the boundary between Area 6 and Area 7. It yielded 890 glass artefacts, representing 99 MIC. Approximately 94 per cent of artefacts (93) provided date-specific information. Temporal information for glass artefacts suggests an accumulation of materials from the early to late nineteenth century. This finding is demonstrated in the chronological listing of key datable glass artefacts recovered from this context:

1750–1800	Gin/schnapps bottles – open pontil scar
1800–1820	Champagne bottle – slight push up and open pontil scar
1800–1850	Beer/wine bottle – down tooled lip shape
1820–1920	Bottle – 3 part shoulder height mould and dip mould body
1830	Tableware – press-moulded with panels
1849	Bottle – British Registry mark dated 28 February 1849
1850–1880	Champagne bottle – sand pontil scar
1850	Bottle – cup bottom mould

Results of temporal analysis for glass suggest an 1800s–1900s date range and the consecutive date ranges suggest that the deposit represents an accumulation of artefacts over this time span.

Approximately 93 per cent of artefacts were functionally classified into five identified groups: Architecture (2), Beverage (73), Food (14), Personal (2) and Pharmacy (1). Beverage-related artefacts are all alcohol bottles and the majority are beer/wine (49), and also includes beer (1), champagne (8) and gin/schnapps (9). Food-related artefacts are condiment bottles and tableware. Condiment bottles include oil, vinegar and pickle/chutney. Glass tableware consists of a drinking glass and tumblers. Perfume bottles comprise the personal group artefacts. The one pharmacy bottle is a generic type used by chemists and patent medicine manufacturers.

Results of functional analysis for this fence line deposit suggest that in part the glass was associated with a residential occupation. The inclusive tableware and perfume bottles are more often associated with a residential setting.

Levelling Fill – associated with structure footing 8224 (8345)

The matrix of this levelling fill is red and white clays with frequent ironstone inclusions. It yielded 708 glass artefacts, representing 101 MIC. Approximately 97 per cent of artefacts (98) provided date-specific information. Nearly 50 per cent of glass is bottles that have wide early to late nineteenth-century date ranges. Key dates used in temporal placement include:

1837 <i>TPQ</i>	Lea & Perrin's Worcestershire Sauce bottle
1830 <i>TPQ</i>	press-moulded tableware with ground resting place
1830 <i>TPQ</i>	a lamp shade
1850 <i>TPQ</i>	John Woolfall beer/wine bottle
1858 <i>TPQ</i>	applied elongated seal of Domain Hering vineyards

Since a sealed or capped deposit cannot date any earlier than the latest dated artefact, temporal analysis results for glass from this fill deposit indicate an 1858–1900s date range.

Functional analysis classified 92.0 per cent of artefacts (93) into six identified groups: Architecture (1), Beverage (68), Food (20), Personal (1), Pharmacy (2) and Services (1). Beverage-related artefacts are all alcohol bottles, including wine, beer/wine, champagne and gin/schnapps. Food – related consist of condiment bottles and tableware. Condiments include oil/vinegar, pickle/chutney and club sauce bottles. Tableware consists of tumblers and a decanter. The Personal-related glass artefact is a perfume bottle. Pharmacy items consist of generic bottle forms used by chemists and patent medicine manufacturers. The one Service-related artefact is a light shade for a vertical wick lamp. While the origin of the glass artefacts in this fill layer cannot be ascertained, their association with a residential setting is likely.

#### 4.2.4 Area 7, Phase 8

Phase 8 is 1900s to 1920 resumption and railways.

##### Fill – Associated with brick yard paving 7913 (7902)

This upper fill was black industrial waste containing soot, ash and sand mixed with brick and sandstone rubble in southeast corner. It yielded 28 glass artefacts, representing 18 MIC. Approximately 89 per cent of artefacts (16) provided date-specific information. This subsurface deposit had a number of key artefacts that contributed to temporal analysis:

1840s	Stoppers – club sauce type
1848–1902	Schnapps bottle – Udolpho Wolfe
1875	Aerated water bottle – Codd patented
1882–1930	Aerated water bottle – Marchant
1897–1919	Aerated water bottle – Ross Bros.

Results of temporal analysis indicate that glass from this deposit is consistent with the 1900s–1920 resumption occupational phase.

With the exception of club sauce stopper, functionally classified artefacts (15) are beverage bottles, including aerated water, beer/wine, champagne and gin/schnapps.

##### Machine-excavated Fill (8279)

These machine-excavated fill layers, which have a matrix of dark brown coarse sandy silt, yielded 201 glass artefacts, representing 41 MIC. Approximately 78 per cent of artefacts (32) provided date-specific information. The majority of datable artefacts have wide date ranges that span from the first quarter of the nineteenth century to the twentieth century, including the documented product manufacturers – George Whybrow (1825–1899) and Rowlands Macassar (1793–1953). Approximately 28 per cent have an 1850 *TPQ* and nothing has an end date beyond 1920. Key datable artefacts are listed in a time line below:

1790	Torpedo type bottle
1793-1920	Rowlands Macassar Oil (date modified for datable bottle technology)
1820-1870	Beer/wine bottles with conical push up
1825-1899	George Whybrow oil/vinegar bottle
1830	Press-moulded tableware
1850-1920	Champagne bottle with deep push up and large mamalon
1850-1920	Gin/schnapps bottles with 4 point resting place and symbol on base

Results of temporal analysis suggest an 1850s-1920s date range for glass from Context 8279.

Functional analysis classified 87.8 per cent of glass artefacts into five identified groups: Architecture (1), Beverage (18), Food (13), Personal (2) and Pharmacy (2). The functional classification of only glass artefacts precludes use-pattern analysis, therefore the following observations were made:

- Beverage-related artefacts are bottles and consist of aerated water (1), beer/wine (9), champagne (3) and gin/schnapps (4).
- Food-related items consist of condiment bottles, such as oil/vinegar (3), pickle/chutney (3), as well as generic food containers (5), a tumbler and unidentified tableware (1).
- Personal items consist of a perfume bottle and a bottle for hair restorative.
- Medicine bottles are cobalt castor oil bottles.
- There are also fragments of window glass pane.

Many components of the glass assemblage are consistent with rubbish from a number of possible settings, including a residence, a pub, a hotel or a restaurant. However, the paucity of glass tableware items suggests the glass assemblage is not associated with a setting that conducted much formalised dining.

Fill of Rubbish Pit 8359 (8360)

The matrix of the fill (8360) within rubbish pit (8359) is dark grey/black gravel with industrial waste and artefacts. This deposit yielded 64 glass artefacts, representing 12 MIC. Approximately 83.3 per cent of artefacts (10) provided date-specific information. An 1850–1900 date range is suggested for these materials which include one George Whybrow oil bottle (1825-1899), beer/wine bottle (1850–1870), champagne bottles (1850–1900) and a club sauce type bottle (1840–1920).

Approximately 83 per cent of artefacts were functionally classified as Beverage (7) and Food (3). These relative frequencies are consistent with a residential setting.

### 4.3 Area 8 – 1840s reclamation and workers housing 1840s–1900

Area 8 is bounded on the north by Bathurst Street, on east by Duncan Street, on the south by Area 5 and on the west by Barker Street. It is a part of an 1840s subdivision that included 108 building lots. During the next decade these lots were purchased and residential development progressed. The archaeological Phase 7 of excavations, which included the 1860s to 1900 residential and industrial development of Area 8, consisted of the excavation of underfloor and yard deposits of several of these lots.

For this study glass artefacts the underfloor deposits from rooms in seven houses were analysed, as well as yard deposits from three of the associated house lots. For each context summary data for temporal and functional analysis is provided and where sufficient numbers of glass are present, an in depth analysis is included. Results of glass analysis for these deposits are detailed below.

#### 4.3.1 House 7

##### House 7, Room 1 Deposit - Underfloor/Occupation (8735)

The thin underfloor deposit in Room 1 is a matrix of fine dark blackish brown silty sand with traces of clay. It yielded 41 glass artefacts, representing 32 MIC. Only six artefacts provided date-specific information, including fragments of 5 crown window glass panes (1850/1870 TAQ) and one opaque blue tableware item (1880 TPQ). Results of temporal analysis indicate a circa 1880 date for this deposit.

Approximately 56 per cent of artefacts were functionally classified into three identified groups: Architecture (5), Beverage (12) and Food (1). Functional analysis based only glass artefacts precludes use-pattern analysis, therefore the following observations were made:

- All Beverage-related artefacts are alcohol bottles, including beer (1), beer/wine (2) and gin/schnapps (4).
- The one food-related item is an unspecified tableware vessel.

##### House 7, Room 2 Deposit – Underfloor (8700)

The underfloor deposit in Rom 2 is a matrix of dark blackish brown fine silty sand with traces of clay. It yielded 532 glass artefacts, representing 230 MIC.

Approximately 41 per cent of artefacts (94) provided date-specific information. Over 46 per cent of datable artefacts are crown window glass (1870TAQ). A chronology of other key dates used in temporal analysis is listed below:

1775–1840	Bottle – gin/schnapps with open pontil scar
1800–1840	Bottle – beer/wine crack off lip formation/down tooled lip shape
1810–1800	Bottles – foldout/flanged lip shape
1820–1920	Bottles – 3 part shoulder height mould with dip mould body
1830	Tumbler – press-moulded with panels
1840–1899	Stoppers – George Whybrow club sauce type stopper
1841	Bottle – Jean Maria Farina (first imported into Australia)
1850–1920	Bottles – cup bottom mould/form tooled lip shape

Results of temporal analysis for the underfloor deposit in Room 2 indicate an 1840–1900s date range.

Approximately 59 per cent of artefacts were functionally classified into five identified groups: Architecture (44), Beverage (54), Food (32), Personal (2) and Pharmacy (3). The functional

classification of only glass artefacts precludes use-pattern analysis, therefore the following observations were made:

- All beverage-related artefacts are alcohol bottles, including beer/wine (5), champagne (3) and gin/schnapps (15)
- Food-related artefacts are condiment bottles/stoppers and tableware.
  - Condiment bottles include oil/vinegar, pickle/chutney and the stopper is a club sauce type.
  - Tableware includes stemware, a cup, a bowl and tumblers
- Personal-related artefacts include a perfume bottle and the crystal from a pocket watch
- Pharmacy-related artefacts are bottles, including a castor oil bottle and a chemist's dispensary bottle.

Results of functional analysis are consistent with a residential occupation.

#### 4.3.2 House 9

##### House 9 Yard Deposit – Occupation (8625)

Located in the northeast corner of the yard was a dark brown sand and gravel mixed deposit containing domestic artefacts. It yielded 52 glass artefacts, representing 12 MIC. Seven artefacts provided date-specific information. Four datable artefacts are crown window glass (1870 *TAQ*), two bottles have form tooled lip shapes (1820–1920) and one is an Udolpho Wolfe schnapps bottle (1848 *TPQ*). The lack of diverse datable artefacts precludes temporal placement, however an 1850–1900 date range is suggested for glass artefacts.

Approximately 58 per cent of artefacts were functionally classified into four identified groups: Architecture (2), Beverage (1), Food (3) and Pharmacy (1). Beyond the architectural window glass, all identified artefact forms are bottles. The beverage bottle is for gin/schnapps. Food-related bottles are for condiments. The pharmacy bottle is a flint glass, high quality chemist's dispensary type.

##### House 9 – Beneath brick paving in yard (8730)

Context 8730 is a layer of compact black sand beneath the brick paving (8542) at the rear of Room 2, House 9. It yielded 11 glass artefacts, representing 8 MIC. Datable artefacts included a press-mould vessel (1820 *TPQ*), one broad glass window pane (1850 *TPQ*) and an Udolpho Wolfe aromatic schnapps bottle (1848 *TPQ*). Results of temporal analysis indicate an 1850 *TPQ* for glass. For five artefacts function was assigned, including two Beverage-related alcohol bottles, one Food-related tableware item and fragments of two window glass panes.

##### House 9, Room 2 Interface (8629)

This deposit is the interface between overlying levelling fill (8572) and underlying underfloor deposit (8610). It yielded 66 glass artefacts, representing 18 MIC. Approximately 95 per cent of artefacts (17) provided date-specific information. The majority of datable glass artefacts provided only a *terminus post quem*, these date range from 1800 *TPQ* to 1870 *TPQ*. The one artefact with a complete date range is a beer/wine bottle with a form tooled lip shape (1850–1920). Since a sealed or capped deposit cannot date any earlier than the latest dated artefact, temporal analysis results for glass from this fill deposit indicate an 1870–1920s date range.

Functional analysis classified glass artefacts into five identified groups: Architecture (2), Beverage (3), Food (4), Pharmacy (3) and Services (6). The functional classification of only glass artefacts precludes use-pattern analysis, therefore the following observations were made:

- Beverage-related artefacts are alcohol bottles, including beer/wine, champagne and gin/schnapps.
- Food-related artefacts are condiment bottles and a tumbler.
- Pharmacy-related artefacts consist of two generic chemist/patent medicine bottles and a castor oil bottle.
- Services-related artefacts consist of lamp parts and lamp chimneys.

Results of functional analysis are consistent with a residential setting.

#### House 9, Room 2 Deposit – Underfloor (8610)

Underlying Context 8629 is a dark brown/black sandy to silt (8610), with some brick and a dense concentration of artefacts. It yielded 1722 glass artefacts, representing 309 MIC. For two artefacts cross mends were identified – a tumbler (F2/F3) and a press-moulded tableware vessel (F4/F5).

Approximately 52 per cent of artefacts (161) provided date-specific information. Thirty (30) per cent of datable glass from this context is crown window glass (1870 TAQ), however, given the systematic excavation method employed and scatter nature of the deposit, this number is realistically is much lower. A chronology of other key dates used in temporal analysis is listed below:

1825–1899	Bottles – oil/vinegar
1835	Tumbler – press-moulded/ panelled/ ground resting place
1840	Stopper – Lea & Perrin's Worcestershire Sauce
1840–1899	Stoppers – George Whybrow
1850	Bottle – James Stewart & Co
1850s	Bottles – cup-bottom/blowback moulds
1865	Dish/tableware – press-moulded/stippled ground

Results of temporal analysis indicate an 1865–1900 date range for glass.

Approximately 74 per cent of artefacts were functionally classified into six identified groups: Architecture (63), Beverage (70), Food (73), Personal (5), Pharmacy (15) and Services (4). The functional classification of only glass artefacts precludes use-pattern analysis, therefore the following observations were made:

- Architecture-related artefacts include plate glass (4).
- All beverage-related artefacts are alcohol bottles.
  - 30 per cent of beverage-related artefacts is unspecified alcohol bottles.
  - Other alcohol bottles include beer/wine, champagne, whisky and gin/schnapps.
- Food-related artefacts are condiment bottles and tableware.
  - Condiments include oil/vinegar, pickle/chutney and sauce bottles and stoppers.
  - Tableware includes an open dish, stemware, a plate and tumblers.
- Personal-related artefacts are a perfume bottle and stopper, and a lens from a pair of spectacles.
- Pharmacy-related artefacts are all bottles, including castor oil, generic chemist/patent medicine and chemist dispensary type bottles.
- Services-related artefacts are a lamp chimney and a lamp prism.

#### House 9, Room 2 Deposit - Underfloor/Occupation (8631)

Underlying 8629 in the northeast corner of Room 2 is black sandy silt with high charcoal. Context 8631 yielded 5 glass artefacts, representing 4 MIC. The only datable glass artefact is a oil/vinegar bottle attributed to George Whybrow (1825–1899). Other artefacts include a high quality cut crystal perfume bottle and two alcohol bottles.

#### House 9, Room 1 Deposit – Underfloor (8634)

Context 8634 is just one of the underfloor deposits in Room 1. It is concentrated along the west footing and in the northwest corner of the room. The matrix is a fine dark grey silt with brick fragments and lime mortar flecks.

Six artefacts provided date-specific information. Three artefacts are crown window glass (1870 TAQ) and a beer/wine bottle also has an 1870 TAQ. Other datable artefacts consist of one pickle bottle with a form tooled finish and a stemware bowl/plate with a bladed knob and mould seams (1835). Few conclusions can be ascertained from this information. As with most house lots in Area 8, the presence of crown window glass indicates that associated structure(s) was constructed before 1870. Other artefacts vaguely suggest an 1835–1920 date range for glass.

Fourteen glass artefacts were functionally classified into three identified groups: Architecture (3), Beverage (7) and Food (4). The functional classification of only glass artefacts precludes use-pattern analysis, therefore the following observations were made:

- Beverage-related include one aerated water bottle stopper and six alcohol bottles. The stopper is unique combination of a Codd marble type stopper and a Lamont bullet type stopper (Figure 4.1).
- Food-related items consist of a pickle/chutney bottle, and two unspecified condiment bottles and one stemware.



**Figure 4.1: Aerated water bottle stopper**

#### **4.3.3 Cesspits from House 7 and House 9**

In the yards of House 7 and House 9 there are two sandstone block cesspits (8716, 8717) that were constructed together and were split by a dividing wall at the boundaries of the properties. The upper fill layer (above the water line) was removed as one context (8724). Under the water line, fill of each cesspit was given separate numbers (8736, 8737). The bottom layer (8739) of the House 9 cesspit also yielded glass artefacts. The following analyses discuss each context separate, followed by a discussion of the two cesspits.

#### House 7 and 9 Cesspit Fill – upper fill deposit (8724)

The upper fill (above the water line) of cesspits 8716 and 8717 was coarse dark grey/black clay silt mixed with brick fragments and other demolition material. This context yielded 54 glass artefacts, representing 22 MIC. Approximately 64 per cent of artefacts (14) provided date-specific information. Date-specific information was derived mostly from documented advancements bottle technologies and stylistic changes and technological advancements in tableware. Key dates used in temporal analysis are listed below:

1820–1880	Bottle – bottom hinge mould
1820–1920	Bottle – 3 part shoulder height mould with dip mould body
1830	Tumblers – press-moulded with panels
1848–1902	Bottle – Udolpho Wolfe's Aromatic Schnapps
1850	Bottles – cup bottom mould
1860	Tableware – press-moulded with 'thumbprint' design element
1860–1915	Bottle – Hora & Co. castor oil

Results of temporal analysis indicate an 1850–1900s date range for glass artefacts.

Functional analysis classified 81.8 per cent of artefacts into five identified groups: Architecture (1), Beverage (7), Food (5), Pharmacy (3) and Services (2). The analysis of only glass artefacts precludes use-pattern analysis; therefore the following observations were made:

- All beverage-related artefacts are alcohol bottles.
- Tableware (4) comprises the majority of Food-related items.
- Pharmacy-related artefacts are bottles, including a castor oil and a poison bottle.
- Services-related artefacts are a vertical wick lamp and associated chimney.

Results of functional analysis are consistent with a residential setting.

#### House 7, Cesspit 8717 –Fill (8736)

Context 8736 is a layer of cesspit fill below the water line. The matrix is a grey/black silt layer that yielded 216 glass artefacts, representing 36 MIC. Approximately 92 per cent of artefacts (33) provided date-specific information. Date-specific information was derived mostly from documented advancements bottle technologies and stylistic changes and technological advancements in tableware. Key dates used in temporal analysis are listed below:

1820–1920	Bottles – 3-part shoulder height mould with dip mould body
1830	Tumblers – press-moulded and panelled
1840	Tumbler – cornflower blue opaque glass
1840–1899	George Whybrow oil/vinegar bottle with internal ledge for stopper
Circa 1840	Cruet – dip mould, acid-etched and style popular until 1840s
1850	Bottles – cup bottom and blow back moulds
1860–1915	Hora & Co castor oil bottle

Results of temporal analysis indicate an 1860–1900s date range for glass artefacts.

Approximately 89 per cent of artefacts were functionally classified into seven identified groups: Architecture (2), Beverage (7), Food (14), Household (1), Personal (4), Pharmacy (2) and Services (2). The analysis of only glass artefacts precludes use-pattern analysis, therefore the following observations were made:

- Beverage-related items consist of beer/wine (4) and champagne (2) bottles.
- Food-related artefacts consist of condiment bottles and stoppers, and tableware.
  - Condiments include oil/vinegar, pickle, pickle/chutney and club sauces.
  - Stoppers are club sauce type used as closures for sauce, oil and vinegar bottles.
- Tableware includes tumblers (4) a cruet and one unspecified press-moulded vessel.
- Personal-related artefacts are perfume bottles, including one lavender water bottle.
- Pharmacy-related bottles include generic bottle types, a poison bottle and a castor oil that mended with other fragments found in Cesspit 8716 fill (8737) and is not counted here.
- Services-related artefacts consisted of two lamp chimneys and a lamp shade for a vertical wick lamp. The lamp shade mended with fragments found in Cesspit 8716 fill (8737) and is not counted here as a MIC.

Results of functional analysis are consistent with a residential setting.

### House 9 Cesspit 8716 – Fill (8737)

In Cesspit 8716, the fill below the water line was context 8737. This was coarse grey/black silt with brick fragments, slag and demolition material. It yielded 324 glass artefacts, representing 48 MIC. Approximately 87 per cent of artefacts (42) provided date-specific information. Date-specific information was derived mostly from documented advancements bottle technologies and stylistic changes and technological advancements in tableware. Key dates used in temporal analysis are listed chronologically below:

1775–1850	Bottle – gin/schnapps bottle with 4 point resting place and strap lip shape
1810–1880	Bottle – bottom hinge mould
1820	Tableware – press-moulded
1836–1913	Bottle – Aire & Calden Glass Bottle Co
1837	Bottle – Lea & Perrin's Worcestershire Sauce
1825–1899	Bottle – George Whybrow oil/vinegar
1840s	Stopper – club sauce type
1848–1902	Bottle – Udolpho Wolfe's Aromatic Schnapps
1850	Bottle – E Rimmel Perfumer
1859–1890	Bottle – Cooper Wood & Company
1860–1915	Bottle – Hora & Co castor oil

Results of temporal analysis indicate an 1850–1910s date range for glass artefacts.

Approximately 87 per cent of artefacts were functionally classified into seven identified groups: Architecture (2), Beverage (11), Clerical (1), Food (13), Personal (3), Pharmacy (7) and Services (5). Fragments of a bell shaped cobalt ink bottle from this last layer of the cesspit join with the bottom layer of cesspit fill (8739). The functional classification of only glass artefacts precludes use-pattern analysis, therefore the following observations were made:

- Beverage-related items consist of beer/wine (3), gin/schnapps (5) and champagne (2) bottles.
- Food-related artefacts consist of condiment bottles and stoppers, and tableware.
  - Condiments include oil/vinegar, pickle, pickle/chutney and club sauces.
  - Stoppers are club sauce type used as closures for sauce, oil and vinegar bottles.
- Tableware includes a tumbler, a stemware, a salt and two unspecified press-moulded vessel.
- The Personal-related artefacts are three E Rimmel perfume bottles.
- Pharmacy-related bottles include four generic bottle types and three castor oil bottles
- Services-related artefacts consisted of three lamp chimneys and two lamp shades for a vertical wick lamp.

Results of functional analysis are consistent with a residential setting.

### House 9 Cesspit 8716 – bottom fill layer (8739)

The bottom layer of fill in cess pit (8716) in the back yard of House 9 yielded 27 glass artefacts, representing 12 MIC. Half of these artefacts (6) provided date-specific information. A lamp chimney and a press-moulded tableware item have an 1820 *TPQ*, a second tableware item has an 1830 *TPQ*. Significant to temporal analysis was an E Rimmel perfume bottle that has an 1850 *TPQ*. Results of temporal analysis indicate an 1850 *TPQ* for glass artefacts.

Functional analysis classified 83.3 per cent of artefacts into five identified groups: Architecture (2), Beverage (3), Food (3), Personal (1) and Services (1). The functional classification of only glass artefacts precludes use-pattern analysis, therefore the following observations were made:

- Beverage-related glass artefacts are alcohol bottles.

- Food-related items are tableware.
- The one Personal-related artefact is a bottle from E Rimmel Perfumer, which was a very popular and common imported fragrance.
- The one Services-related artefact is a lamp chimney for a vertical wick lamp.

Results of functional analysis are consistent with a residential setting.

NB: Fragments of a bell shaped cobalt ink bottle from this last layer of the cesspit join with the subsequent layer of cess pit fill (8737) and therefore, are not counted as a MIC in this context.

#### Discussion of Cesspit fill from House 7 and House 9

A summary of temporal information for glass from cesspit fill deposits is:

- Above waterline deposit (8724) an 1860–1900s date range and the earliest date is 1820.
- Below water line fill (8736) for House 7, Cesspit 8717 has an 1860–1900s date range and earliest date is 1820.
- Below water line fill (8737) for House 9 has 1850–1910s date range and earliest date is 1775.
- Bottom fill layer (8739) of Cesspit 8716 at House 9 has an 1850 *TPQ* and earliest date is 1820.

A summary of functional observations for glass from cesspit fill deposits is:

- Beverage-related artefacts from all cesspit deposits are alcohol bottles.
- All cesspit deposits contained tableware.
- All cesspit deposits contained elements of vertical wick lamps (base, chimney, shade).
- All under water deposits yielded perfume bottles.

Cross-mend analysis assists in establishing relationships among deposits. Seven distinct artefacts were found to mend across cesspit deposits. In Cesspit 8716 there is a bell-shaped cobalt ink bottle that mends between the bottom fill layer (8739) and the subsequent below water fill layer (8737). Mends were achieved for six distinct items from both under-water fill layers (8736, 8737) of the two adjacent cesspits. These items include:

- Two embossed Hora & Co castor oil bottles
- An acid-etched lamp shade
- A pickle/chutney bottle
- An oil/vinegar bottle
- A generic pharmacy bottle

#### **4.3.4 House 11**

##### House 11, Room 2 – Deposit - Underfloor/Occupation (8529)

Associated with Context 8583, this deposit is fine dark grey silt with concentration of sandstone in the centre and south area of Room 2. It yielded 527 glass artefacts, representing 332 MIC. Given the systematic excavation method employed and scatter nature of the deposit, there is most likely an inflated number of minimum vessels, in particular that of window glass. This is evidence by the presence of a tumbler that mends across subdivided squares (A3/D3) as part of the planned grid excavation.

Approximately 30 per cent of artefacts (99) provided date-specific information. Over 38 percent of date-specific information came from window glass. A chronology of other key dates used in temporal analysis is listed below:

1835	Tableware – press-moulded/ground resting place
1840–1899	Stoppers – George Whybrow club sauce type
1850	Window glass – broad glass
1850–1870	Tableware – ‘comet’ pattern
1876–1915	Bottle – Bishop’s Granular Citrate of Magnesia
1880	Jar – external threads/sheered-off top
1880	Tableware – cased glass
1890	Tableware – gilded

Results of temporal analysis indicate the glass artefacts in this deposit accumulated between 1850 and 1900.

Approximately 52 per cent of artefacts were functionally classified into seven identified groups: Architecture (38), Beverage (83), Food (34), Household (1), Personal (2), Pharmacy (16) and Services (2). The functional classification of only glass artefacts precludes use-pattern analysis, therefore the following observations were made:

- Beverage-related artefacts consist of 82 alcohol bottles and one aerated water bottle.
  - Alcohol bottles include beer/wine, champagne and gin/schnapps.
- Food-related artefacts consist of condiment bottles and tableware.
  - Condiment bottles include oil/vinegar, pickle/chutney and club sauce.
  - Identified tableware includes a drinking glass, tumblers, and a cup.
- Personal-related artefacts consist of a mirror and a watch part
- Pharmacy –related artefacts consist of medicine bottles, a stopper and a hypodermic syringe.
  - Medicine bottles consist of patent medicine, such as fluid magnesia, a castor oil bottle, a poison bottle, and generic chemist/patent medicine bottle types.
  - The high relative frequency of pharmacy-related artefacts might indicate a serious or chronic medical problem by a member(s) of the associated household or the presence of a medical practitioner at this location.
- Services-related consist of lamp shades.

Results of functional analysis for this deposit suggestion it might have an association with a residential and medical activities.

#### House 11, Room 2 – Deposit – Underfloor (8583)

Associated with 8529, Context 8583 yielded 8 glass artefacts, representing 7 MIC. Datable glass was limited to crown window glass (1870 *TAQ*). Identified forms include a gin/schnapps bottle and two fragmented window glass panes.

#### House 11, Room 1 Deposit – Underfloor (8615)

Context 8615 yielded 26 glass artefacts, representing 10 MIC. Date-specific information was limited to tableware, including two press-moulded (1820 *TPQ*), one acid-etched (1850 *TPQ*) and one flashed (1880 *TPQ*) items. Functional classification identified four food-related tableware items.

#### House 11, Room 1 Deposit - Possible Underfloor (8616)

Context 8616 yielded 23 glass artefacts, representing 12 MIC. Approximately 67 per cent of artefacts (8) provided date-specific information. The two key artefacts used to in temporal analysis

are a George Whybrow oil/vinegar bottle (1825–1899) and a press-moulded and panelled tumbler (1830TPQ). Results of analysis indicate an 1830–1900 date range for glass artefacts.

Functional analysis classified 67 per cent of artefacts into three identified groups: Architecture (2), Beverage (3) and Food (3). Beverage-related artefacts are alcohol bottles. Food –related artefacts consist of an oil/vinegar bottle and a tumbler.

House 11, Room 1 Deposit - Possible Underfloor (8617)Context 8617 yielded 14 glass artefacts, representing 10 MIC. Datable artefacts consist of one crown window glass (1870 TAQ) and a press-moulded, panelled tumbler (1830 TPQ). Functionally identified artefacts included four alcohol bottles and two tableware items.

#### 4.3.5 House 13

##### House 13, Room 1 Deposit - Possible Underfloor (8608)

This deposit is a moderately loose, mid-dark brown fine sandy silt mottled with sandstone and brick fragments. It yielded 55 glass artefacts, representing 26 MIC. Crown window glass (1870 TAQ) provided the only temporal information for glass artefacts.

There are only two types of glass artefacts – window glass (12) and alcohol bottles (11). Alcohol bottles include beer/wine and gin/schnapps bottles.

##### House 13, Room 1 Deposit – Underfloor (8609)

Similar to Context 8608 this deposit is loose dark brown fin silt, but with fewer inclusions. Context 8609 yielded 35 glass artefacts, representing 9 MIC. There is a paucity of date-specific information for the glass artefacts, which produced a vague 1820–1870 date range for glass. Identified forms from this context include alcohol bottles (2), window glass (3) and a lamp chimney.

##### House 13, Room 2 Deposit – Underfloor (8630)<sup>37</sup>

Context 8630 is substantial underfloor deposit in the rear room (room 2) of house 13. It yielded 619 glass artefacts, representing 253 MIC. A mend was found across squares for a tableware item (Square B7/ Spit 1 and Square C2/Spit 1), which suggests that this underfloor deposit was scatter.

NB: There are 39 catalogued window glass panes, however, given the systematic excavation method employed and scatter nature of the deposit, this number is realistically is much lower.

Approximately 31 per cent of artefacts (79) provided date-specific information. Over 41 per cent of datable glass is crown window glass (1870 TAQ). Other datable glass provided only a *terminus post quem* date or a combined date range that extend to 1920. A chronology of key datable artefacts is listed below:

1720–1800	Beer/wine bottle – domed push up with open pontil scar
1820	Bottle – form tooled lip shape
1820	Tableware – press-moulded
1820–1920	Bottle – 3-part shoulder height mould with dip mould body

<sup>37</sup> Note: The glass artefacts from this underfloor deposit (8630) had been originally incorrectly catalogued as context 8830. Once on the Casey & Lowe artefact database, the context number for the glass assemblage was changed to 8831, which again was not correct. However this error was detected and the database and all relevant parts of the site report have now been amended so that all glass artefacts from this deposit are now correctly catalogued as context 8630. The amended sections include the catalogue (Appendix 6.5), this glass specialist report (section 8.3) and the artefact overview (section 4.0) (N Pitt, 29/10/2013).

1830	Tumbler – press-moulded and panelled
1848–1902	Schnapps bottle – Udolpho Wolfe's Aromatic Schnapps (1848–1902)
1850–1918	Bottle – amethyst coloured glass
1880	Tableware – flashed interior
1880	Tableware – press-moulded with stippled ground

Results of temporal analysis indicate an 1850s–1920 date range for glass.

Functional analysis classified 62.4 per cent of artefacts into seven identified groups: Architecture (39), Beverage (93), Food (21), Household (1), Personal (1), Pharmacy (2) and Services (1). The analysis of only glass artefacts precludes use pattern analysis therefore the following observations were made:

- Beverage-related artefacts are alcohol bottles, including beer/wine and gin/schnapps.
- The majority of food-related artefacts (19) are tableware, including stemware and tumblers.
- Also functionally identified are one mirror, a perfume bottle, a castor oil bottle and a prism for a lamp prism.
- a high relative frequency of tableware, such as that found in a dining area
- a prism for a fancy oil lamp that would have been in a public room, such as lounge or dining area
- a mirror

While these are only a small percentage of artefacts in this underfloor deposit, they could serve as keys to the origins of the deposit. Collectively they are all items one would have in a room that guests would frequent. Mirrors while more affordable by this time were still expensive and it is likely that any mirror in the household would be in a room where all could view it, or rather view themselves in it.

#### House 13, Room 3 Deposit – Underfloor/Occupation – second layer (8525)

Context 8525 yielded 31 glass artefacts, representing 12 MIC. Window glass was the only datable artefacts with three fragmented panes of crown glass (1870 TAQ) and fragments of one broad glass pane (1850 TPQ). Beside architectural window glass, two alcohol bottles were the only functionally identified artefacts from this deposit.

#### House 13, Room 3 Deposit – Underfloor (8585)

This deposit appears in patches across Room 3. Underlying Context 8525 is a deposit of fine dark brown sandy silt with sandstone inclusions (8585). It yielded 98 glass artefacts, representing 51 MIC. Temporal information was limited to 10 artefacts, three of which are crown window glass (1870 TAQ). Most date-specific information is limited to terminus post quem ranging from 1775 to 1830. One tableware item is press-moulded with a ground base/resting place that has an 1840–1930 date range.

Functional analysis classified 51 per cent of artefacts into five identified groups: Architecture (2), Beverage (18), Food (4), Personal (1) and Pharmacy (1). The analysis of only glass artefacts precludes use pattern analysis, therefore the following observations were made:

- Beverage-related artefacts are alcohol bottles, including beer/wine and gin/schnapps.
- Food-related artefacts are tableware.
- The one Personal-related artefact is tapering fire-polished perfume bottle.
- The one Pharmacy-related artefact is rectangular patent medicine bottle.

Results of functional analysis for glass are consistent with a residential occupation.

#### House 13, Room 3 Deposit – Underfloor (8614)

Underlying the patchy deposits (8585) is a fine red/mid-brown silt, which is hard packed on the surface. It yielded 185 glass artefacts, representing 61 MIC.

Date-specific was derived from the window glass, bottle and tableware forms. There are twelve datable artefacts – four of which are crown window glass (1870 *TAQ*), which is consistent with known construction of building in this area. Temporal information for the remaining eight artefacts indicate a circa 1880 date for glass.

Half of the artefacts were functionally classified into four identified groups: Architecture (4), Beverage (19), Food (6) and Pharmacy (2). The analysis of only glass artefacts precludes use pattern analysis, therefore the following observations were made:

- Beverage-related artefacts are alcohol bottles, including beer/wine and gin/schnapps.
- Food-related artefacts are condiment bottles and tableware
- Pharmacy-related artefacts are generic chemist/patent medicine bottles

Results of functional analysis for glass are consistent with a residential occupation.

#### House 13, Room 4 Deposit – Underfloor/Occupation – first layer (8527)

Context 8527 yielded 90 glass artefacts, representing 55 MIC. Approximately 34 per cent of artefacts (19) provided date-specific information. An 1850–1880 date range is indicated for glass from this deposit it contained both crown (1870 *TAQ*) and broad (1850 *TPQ*) window glass, a press glass tumbler (1835 *TPQ*) and deep aqua coloured stemware (1880 *TPQ*)

Functional analysis classified 61.8 per cent of artefacts into three identified groups: Architecture (8), Beverage (19) and Food (7). The majority of Beverage-related artefacts are unspecified alcohol bottles and other beverage bottles include aerated water (1), beer/wine (2), champagne (1) and gin/schnapps (2). Food-related artefacts are condiment bottles and tableware. Condiment bottles include pickle/chutney (2) and oil/vinegar. Glass tableware consists of coloured stemware (2) and a tumbler.

### **4.3.6 House 15**

#### House 15, Room 2 Deposit - Underfloor/Occupation (8810)

Context 8810 was a dark brown silt concentrated in southwest corner and south quarter of Room 2. It yielded 107 glass artefacts, representing 32 MIC. Approximately 31 per cent of artefacts (10) provided date-specific information. Datable artefacts include beer/wine bottles and a press-moulded tableware item. Most of the beer/wine bottles have wide 1820–1870 date ranges; however one of these bottles has a finish that has an 1850–1870 date range. The one press-moulded items has vertical mitres below the rim. This style had an 1840 *TPQ*. Results of temporal analysis suggest an 1850s–1870 date range for glass.

Functional analysis classified 56.6 per cent of artefacts into four identified groups: Architecture (2), Beverage (11), Food (4) and Pharmacy (1). The analysis of only glass artefacts precludes use pattern analysis, therefore the following observations were made:

- The majority of beverage-related are unidentified alcohol bottles, and also included beer/wine (4) and gin/schnapps (1) bottles.
- Food-related items consist of a condiment bottle and remnants of one tableware item.
- The Pharmacy-related item is a castor oil bottle.

House 15, Room 2 Deposit - Possible Underfloor/Occupation (8821)

Context 8821 is a thin black silt layer over brown sand mottled with clay, charcoal and sandstone flag that accumulated in the centre and northwest corner of Room 2. It yielded 67 glass artefacts, representing 21 MIC. There are six datable artefacts, including three crown window glass (1870TAQ), one beer/wine bottle with conical push and sand pontil scar (1820–1870); a press-moulded panelled tumbler (1830 TPQ) and a lamp chimney with a crimped/scalloped rim (1870 TPQ). Results of temporal analysis for Context 8821 indicate an 1830–1870 date range for glass.

Functional analysis classified 62 per cent of artefacts into four identified groups: Architecture (3), Beverage (7), Food (2) and Services (1). Beverage-related artefacts are alcohol bottles including beer/wine (1) and gin/schnapps (2). Food-related artefacts are tableware and include one tumbler. The Services-related artefact is a lamp chimney for a vertical wick lamp.

House 15, Room 2 Deposit – Underfloor (8861)

Context 8861 is a small discrete lens of fine dark brown/grey silt in northeast and southeast corners. It yielded 37 glass artefacts, representing 16 MIC. Seven artefacts contributed date-specific information, including two crown glass window panes (1870 TAQ), three press-moulded tableware items (1820 TPQ), one acid-etched tableware item (1850 TPQ) and one bottle with an 1850 British Patent Registry mark. Results of temporal analysis indicate an 1850 TPQ for glass.

Functional analysis classified the majority of glass artefacts as Beverage-related (4) and Food-related (5) artefacts. Beverage-related artefacts are alcohol bottles. Food-related artefacts are tableware and one condiment bottle.

**4.3.7 House 17**House 17 Toilet Block Fill (8770)

Context 8770 is dark brown fine silt toilets 8766 and 8778. This deposit yielded 28 glass artefacts, representing 13 MIC. Five glass artefacts contributed to temporal placement, including one bottle with a form-tooled finish (1820–1920), two press-moulded panelled tumblers (1830TPQ), an Eno's type stopper manufactured by Aire & Calden Glass Bottle Co (1836–1913). Results of temporal analysis indicate an 1830s–1910s date range for glass.

The majority of artefacts were classified as Beverage (3) or Food (4). The analysis of only glass artefacts precludes use pattern analysis; therefore the following observations were made:

- Beverage-related artefacts include a beer/wine bottle, a champagne bottle and a gin/schnapps bottle.
- Food-related artefacts consist of a condiment bottle stopper, stemware and tumblers.

House 17, Room 1 Deposit – Underfloor (8847)

Context 8847 yielded 1 glass artefact, a bottle fragment with no identifiable temporal or functional attributes.

House 17, Room 2 Deposit – Underfloor (8860)

Context 8860 is a possible underfloor accumulation consisting of a thin lens of dark brown sandy clay. It yielded 163 glass artefacts, representing 81 MIC. Approximately 26 per cent of artefacts (21) provided date-specific information. The majority of dated artefacts are crown window glass (13) that has an 1870TAQ. The remaining datable diagnostic glass artefacts, key dates are:

1830	Tumblers – press-moulded and panelled
1850–1920	Bottle – beer/wine bottle
–1880	Bottle – dip mould bottle

Results of temporal analysis suggest an 1850–1880 date range for glass artefacts.

Functional analysis classified 59.2 per cent of artefacts into three identified groups: Architecture (13), Beverage (22) and Food (13). The analysis of only glass artefacts precludes use patterning; therefore the following observations were made:

- Beverage-related artefacts are mostly alcohol bottles, including beer/wine and gin/schnapps, and also include one decanter stopper.
- Food-related artefacts consist of condiment bottles (7) and tableware (6).
- A pickle/chutney bottle is the only specifically identified condiment bottle.
- Tableware includes four tumblers and two unidentified tableware forms.

#### 4.3.8 House 19

##### House 19, Room 1 Deposit – Underfloor (8850)

The underfloor deposit in Room 1 is loose mid-dark brown moderately coarse sandy silt that yielded 782 glass artefacts, representing 187 MIC. As might be expected in an underfloor deposit, there is one distinctive bottle that mended across several squares and two spits. Cross-mend analysis assists in establishing relationships among deposits, however, it can also assist in horizontal spatial distribution patterns within a context such as this where systematic excavation methods subdivided the underfloor area into squares. Fragments from a cobalt bell-shaped ink bottle were recovered from Squares E5/Spit 1, E6/Spit 2, E7/Spit 1, F5/Spit 1, F6/Spit 1 and F8/Spit 1.

Approximately 67 per cent of artefacts (123) provided date-specific information. Approximately 25 per cent of datable artefacts are crown window glass (1870 TAQ). Date-specific information was derived mostly from documented advancements bottle technologies and stylistic changes and technological advancements in tableware. Key dates used in temporal placement are listed chronologically below:

1780–1850	Bottle – beer/wine with crack-off lip formation with v-shaped string rim
1800	Bottle – gin/schnapps with 4 point resting place and no pontil scar
1820	Tableware – press-moulded
1820–1920	Bottle – 3 part shoulder height mould with dip mould body
1825–1899	Bottles – George Whybrow oil/vinegar bottles
1830	Tumblers – press-moulded and panelled
1840–1899	Stoppers – George Whybrow club sauce type
1850–1920	Bottles – blow back mould
1850–1920	Bottles – form tooled finish
1860–1915	Bottle – Hora & Co. castor oil type
1870–1890	Stemware – with baluster as part of stem
1880	Tableware – flashed
1880	Tableware press-moulded reverse brilliant type pattern

Results of temporal analysis indicate an 1850–1900s date range for glass artefacts.

Approximately 75 per cent of artefacts were functionally classified into six identified groups: Architecture (32), Beverage (58), Clerical (5), Food (41), Personal (3) and Pharmacy (2). The functional classification of only glass artefacts precludes use-pattern analysis; therefore the following observations were made:

- Beverage-related artefacts are alcohol bottles, including:
  - beer/wine (28)
  - champagne (6)

- gin/schnapps (18)
- Clerical-related artefacts are ink bottles and an ink well.
- Food-related artefacts are condiment bottles, stoppers and tableware.
  - Condiment bottles are pickle/chutney (7) and oil vinegar (15).
  - Tableware includes two stemware and five tumblers.
- A lens from a pair of spectacles and two perfume bottles comprise the Personal group.
- Pharmacy-related artefacts consist of a castor oil bottle and a generic chemist/patent medicine bottle.

#### House 19, Room 2 Fireplace Fill/Accumulation (8874)

Context 8874 was a medium brown sandy fill within fireplace 8862. It yielded 134 glass artefacts, representing 11 MIC. Glass from this context was highly fragmented. Approximately 73 per cent of artefacts (8) provided date-specific information. The earliest dated artefact is a gin/schnapps bottle (1800 *TPQ*) and the latest dated artefact is a jar with added external thread for closure (1885–1920).

In between are datable tableware items with an 1835 *TPQ* and a pickle bottle with a hand formed finish (1880 *TAQ*). The paucity of glass artefacts preclude temporal placement, however a 1830–1880 date range is suggested for this accumulated deposit.

Functional analysis classified 72.7 per cent of artefacts into four identified groups: Architecture (2), Beverage (1), Food (4) and Pharmacy (1). The functional classification of only glass artefacts precludes use-pattern analysis; therefore the following observations were made:

- A beverage-related is a gin/schnapps bottle.
- Food-related artefacts are mostly tableware (3).
- The pharmacy-related artefact is a generic chemist/patent medicine bottle.

## **4.4 Area 9 – Mill pond and later industrial development**

Area 9 is bounded on the west by Duncan Street and contained the 1820s Barker’s mill yard and mill pond, and later industrial development. Context analysed below relate to the millpond and subsequent fill of the pond.

### **4.4.1 Mill Pond**

#### Upper Levelling Fills sealing mill pond - date to c.1860 (9201)

Mixed fills and lenses (9201) were used to seal the mill pond. The matrix was mostly brown and grey sandy soil, some charcoal, oxidised and ash rich lenses. These fills were removed by mechanical excavator, which dug a test trench through discrete dumps. Results of this excavation yielded 632 glass artefacts, representing 236 MIC.

Ninety-four (94) per cent of artefacts (222) provided date-specific information. There are more than seventy datable attributes, or combinations thereof, that contribute temporal information. Datable artefacts include bottles, tableware, window glass and lamp parts. Key dates used in temporal analysis are listed below:

1775	Bottles – gin/schnapps with 4-point resting place
1780	Bottle – torpedo type
1809–1880	Bottle – added glass for blob top lip shape on aerated water bottle
1820–1830	Bottle – 3 part shoulder height mould with dip mould body/down tooled lip shape
1820–1850	Bottle – beer/wine bottle with down tooled lip shape

1820–1870	Bottles – beer/wine bottles with conical push up and sand pontil scar (82)
1820–1920	Bottles – 3 part shoulder height mould with dip mould body
1825–1899	Bottles – George Whybrow oil/vinegar bottle
1830–1900s	Bottle – Crosse & Blackwell
1835	Bottle – Tooth & Co beer bottle
1835	Tumblers – press-moulded with panels
1837	Bottle – Lea & Perrin's Worcestershire Sauce
1848–1878	Bottles – William Goodman Henfrey aerated water
1850	Bottle – E Rimmel Perfumer
1851–1920	Bottle – Barry's Tricopherous For the Skin and Hair/ tooled lip shape
1859–1868	Bottle – Cooper & Wood
1859–1901	Bottle – Senior's Dispensing Chemist
1930	Bottle – Australian Glass Manufacturers

Over ⅓ of temporal information is derived from beer/wine bottle with conical push up and sand pontil scars (1820–1870). There are 17 artefacts manufactured before 1850, 92 manufactured before 1870 and 67 manufactured before 1920. These deposits represent secondary depositional fill layer/lenses and results of temporal analysis for glass artefacts suggests that fill was obtained from sources with differing occupation date ranges and collectively represent an 1830–1930 date range.

Functional analysis classified 93.2 per cent of artefacts into six identified groups: Architecture (4), Beverage (167), Food (28), Personal (3), Pharmacy (16) and Services (2). The analysis of only glass artefacts precludes use analysis, therefore the following observations were made:

- The majority of beverage-related artefacts are beer/wine bottles (151). Other beverage bottles include champagne (7) and aerated water (8).
- Food-related artefacts are condiment (14) and storage bottles (7), and tableware (7).
  - Condiment bottles include oil, oil/vinegar, vinegar, pickle/chutney and club sauces.
  - Tableware consists of tumblers, stemware and an open dish.
- Personal-related artefacts are perfume bottles.
- Pharmacy-related items consist of generic chemist/patent medicine bottles, a bottle of hair restorative and one chemist bottle from Senior's Dispensing Chemists in Sydney.
- Services-related artefacts consist of a lamp chimney and shade for a vertical wick lamp.

#### Lower Mill Pond Fill – below 9201 (9206)

The lower mill pond fill layer has a matrix of dark grey sandy silt with clayish mid-grey lenses. It yielded 93 glass artefacts, representing 54 MIC. Approximately 78 per cent of artefacts (42) provided date-specific information. Key dates used in temporal analysis are listed below:

1780	Bottle – torpedo type aerated water
1800–1850	Bottles – gin/schnapps with 4-point resting place/pig snout lip shape
1820–1850	Bottles – b/w 3-part shoulder height mould/conical pushup/down-tooled lip shape
1837	Bottle – Lea & Perrin's Worcestershire Sauce
1848–1878	Bottles – William Goodman Henfrey aerated water
1868–1928	Bottle – Cooper & Wood
1880–1930s	Bottle – Dinneford's Fluid Magnesia

Since a sealed or capped deposit cannot date any earlier than the latest dated artefact, temporal analysis results for glass from this fill deposit indicate an 1880–1930s date range.

Approximately 86 per cent of artefacts (46) were functionally classified into five identified groups: Architecture (7), Beverage (30), Food (3), Personal (2) and Pharmacy (4). The analysis of only glass artefacts precludes use analysis; therefore the following observations were made:

- The majority of beverage-related artefacts are beer/wine bottles (21). Other beverage bottles include gin/schnapps (6) and aerated water (3).
  - Food-related artefacts are pickle/chutney and club sauce bottles.
- Personal-related artefacts are perfume bottles.
- Pharmacy-related items consist of generic chemist/patent medicine bottles, a flint glass dispensary bottle, and a fluid magnesia bottle.

#### Clay Liner Deposit within Millpond (9249)

This pond fill is compact dark grey clay laid down as a waterproof liner pond liner. This deposit is capped by several subsequent fill layers, including 9201 and 9206.

Context 9249 yielded 46 glass artefacts, representing 20 MIC. Ninety-five (95) per cent of artefacts (19) provided date-specific information. Key dates used in temporal analysis are listed below:

1780–1840	Stemware – centre bladed knop
1820–1870	Bottles – beer/wine – conical pushup with sand pontil scar
1850–1920	Bottles – beer/wine with form tooled lip shape
1853	Bottle – British Patent Registry mark

Since a sealed or capped deposit cannot date any earlier than the latest dated artefact, temporal analysis results for glass from this fill deposit indicate an 1853 *TPQ*.

All artefacts were functionally classified into one of three identified groups: Architecture (1), Beverage (14) and Food (5). The analysis of only glass artefacts precludes use analysis; therefore the following observations were made:

- Beverage-related artefacts are alcohol bottles, including beer/wine (8), champagne (3) and gin/schnapps (3).
- Food-related artefacts are condiment bottles and stemware. Condiment bottles consist of pickle/chutney (2) and oil/vinegar (2).

#### Fill/Packing – mill pond overflow drain construction (9235)

Context 9235 is a layer of mixed red/yellow clay and sandstone rubble packing between sandstone pad/platform associated with the overflow drain (9240) and underlying preconstruction fill (9237). This fill yielded 16 glass artefacts, representing 5 MIC. Four artefacts provided date-specific information as follows:

1775–1850	Bottle – gin/schnapps with 4-point resting place and quatrefoil tool mark
1820–1830	Bottle – beer/wine with conical push up/sand pontil scar/ basal sag
–1880	Bottle – added glass for V-shape tooled lip shape
1853	Bottle – British Patent Registry mark

Since a sealed or capped deposit cannot date any earlier than the latest dated artefact, temporal analysis results for glass from this fill deposit indicate an 1853–1880s date range.

Functional analysis classified glass artefacts as alcohol bottles (4) and one food storage bottle.

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